Adani Mining Pty Ltd

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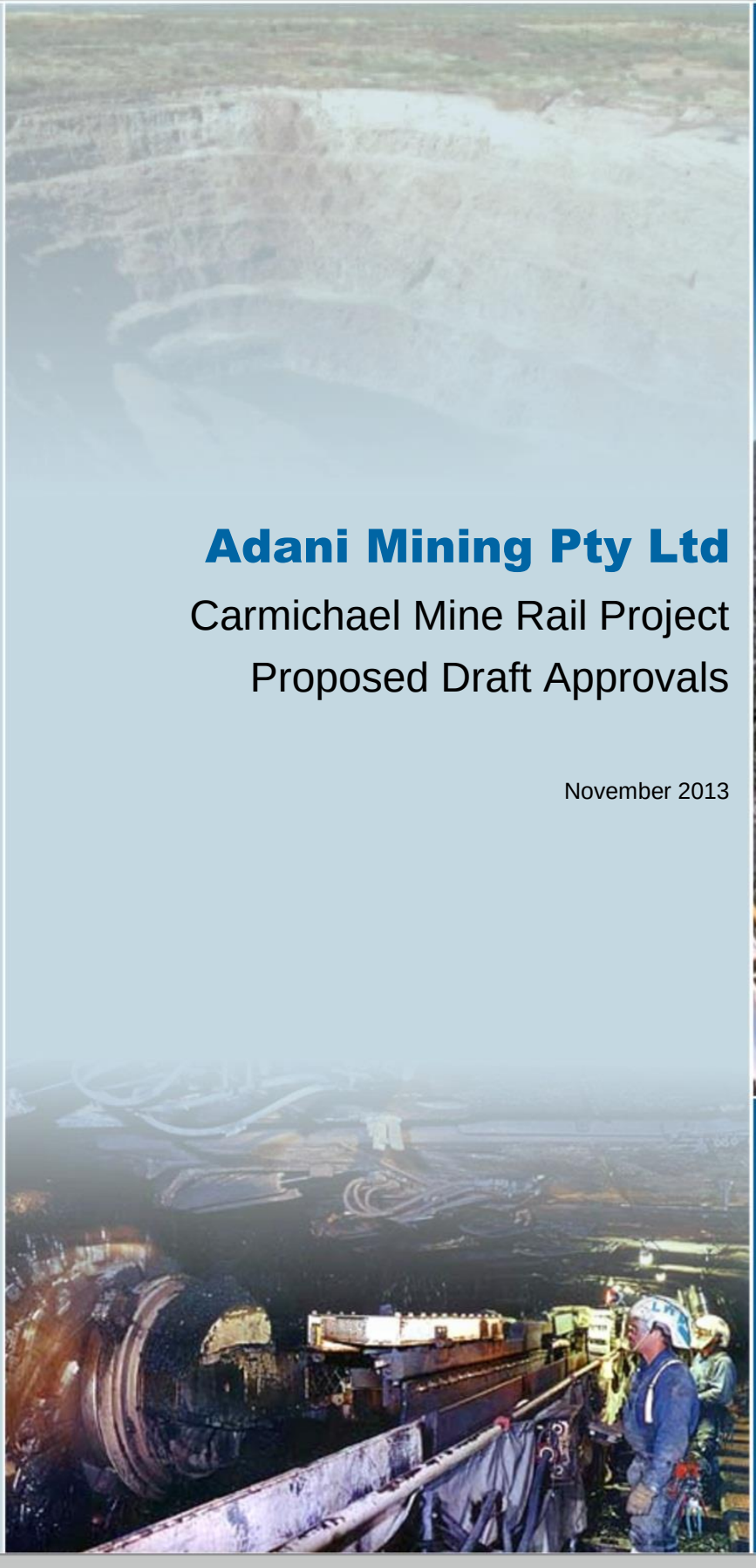
Carmichael Mine Rail Project

Proposed Draft Approvals

November 2013



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The services undertaken by GHD in connection with preparing the Report were limited to those specifically detailed in Section 1-2 of the Report.

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Abbreviations and Glossary

Abbreviation	Meaning
Adani	Adani Mining Pty Ltd
EIS	Environmental Impact Statement
EP Act	*Environmental Protection Act 1994*
EPC	Exploration Permit for Coal under the *Mineral Resources Act 1989*
ERA	Environmentally Relevant Activity under the *Environmental Protection Act 1994*
Fisheries Act	*Fisheries Act 1994*
Forestry Act	*Forestry Act 1959*
NC Act	*Nature Conservation Act 1992*
MCU	Material change of use, as defined in the *Sustainable Planning Act 2009*
MR Act	*Mineral Resources Act 1989*
the Project	Carmichael Coal Mine and Rail Project
SP Act	*Sustainable Planning Act 2009*
VM Act	*Vegetation Management Act 1999*
Water Act	*Water Act 2000*
WSSR Act	*Water Supply (Safety and Reliability) Act 2008*

1. Introduction

Adani Mining Pty (Adani) is actively working to reduce the complexity associated with the large number of approvals which are relevant to significant projects. This report has been prepared to accompany a response to the Coordinator-General's request for further information in relation to the Carmichael Coal Mine and Rail Project (the Project) Environmental Impact Statement (EIS) which was submitted in November 2012 and underwent public notification from the 15 December 2013 – 11 February 2013.

As detailed in the EIS, Adani is seeking recommendations through the Coordinator-General's Report about the individual approvals summarised in Section 2 of this report. Adani seeks that the Coordinator-General recommend the grant of each of the identified approvals together with any other approvals the Coordinator-General identifies as being required for the Project.

Section 3-5 of this report further sets out proposed draft approval conditions for the approvals identified in Section 2. These proposed draft approval conditions have been set out for consideration by the Coordinator-General to include as recommended conditions for the relevant authority to include in each approval.

Consistent with the EIS, the Project activities and the associated approvals identified throughout this report have been categorised accordingly:

- The Project (Mine and Onsite Infrastructure): a greenfield coal mine over EPC1690 and the eastern portion of EPC1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities (the Mine). More specifically, the components include:
  - Open cut Mine (located within EPC1690 and part of EPC1080)
  - Underground Mine (northern, central and southern) (located within EPC1690)
  - Mine Infrastructure Area (located within EPC1080 and EPC1080)
  - Out of pit waste rock dumps (mostly located within EPC1080)
  - Mine water management dams (located within EPC1080)
- The Project (Rail): a greenfield rail line and associated infrastructure connecting the Mine to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Port of Hay Point (Dudgeon Point expansion) and the Port of Abbot Point, respectively; including:
  - Rail (west): a 120 km dual gauge portion from the Mine site running west to east to Diamond Creek
  - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah
  - Associated rail uses and infrastructure (including, rolling stock maintenance depot, construction depot, water supply, construction camps)
  - Quarries: The use of five local quarries to extract quarry materials for construction and operational purposes
- The Project (Offsite Infrastructure) including:
  - Mine workers accommodation village
  - Permanent airport
  - Industrial area
  - Offsite water supply infrastructure
  - Upgrade and realignment of Moray Carmichael Road

2. Summary of Included Approvals

2.1 General

To assist with understanding of the approvals framework, Adani has included draft conditions in this chapter that could be applied to the Project. The approvals set out in Tables 1-3 are also provided as a summary of those that will apply to the Project.

2.2 Project (Mine and Onsite Infrastructure)

Table 1 sets out a summary of the included approvals for the Project (Mine and Onsite Infrastructure) that have proposed draft approval conditions included in Section 3 of this report.

The Carmichael Coal Mine and Rail EIS proposed the development of an offsite bore field for water extraction. That bore field is no longer a component of the proposed project. Should external bore water be required, separate approvals and assessments would be required for this post the EIS and SEIS process. In that event, any bore would be constructed in accordance with the Minimum Construction Requirements for Water Bores in Australia (National Uniform Drillers Licensing Committee 2011) – the standard for constructing, maintaining, rehabilitating and decommissioning water bores in Australia.

Table 1: Summary of included approvals that have proposed draft approval conditions – Mine and Onsite Infrastructure

ID No.	Activity	Permit Name	Legislation	Relevant Report Section
1	Mine and onsite infrastructure	Environmental Authority for (Level 1 Chapter 5A) mining activities including: Coal mining ERA 8 – chemical storage ERA 16 – extractive and screening activities ERA 18 – boiler making or engineering ERA 31 – Mineral processing ERA 33 – Crushing, milling, grinding or screening ERA 50 – bulk material handling ERA 56 – regulated waste storage ERA 63 – sewage treatment ERA 64 – water treatment	EP Act	3.2
2	Flood water harvesting and dams.	Licence to take water Referable Dam	Water Act WSSR Act	3.3
3	Flood water	Operational work for taking or	Water Act	3.4

ID No.	Activity	Permit Name	Legislation	Relevant Report Section
	harvesting and dams.	interfering with water		

2.3 Project (Rail)

Table 2 sets out a summary of the included approvals for the Project (Mine and Onsite Infrastructure) that have proposed draft approval conditions included in Section 4 of this report.

Table 2: Summary of included approvals that have proposed draft approval conditions – Rail

ID No.	Activity	Permit Name	Legislation	Relevant Report Section
4	Rail Alignment Turning Circle Areas Track Laydown Areas Bridge Laydown Areas Construction Depot (Laydown Facility) Rolling Stock Maintenance Yard Concrete Batching Plants Construction Camps Hard Rock Quarries	Material Change of Use assessable against the local planning scheme	SP Act	4.1
5	Turning Circle Areas Track Laydown Areas Bridge Laydown Areas Construction Depot (Laydown Facility) Rolling Stock Maintenance Yard Concrete Batching Plants Construction Camps Hard Rock Quarries	Operational Work assessable against the local planning scheme.	SP Act	4.2
6	Construction Depot Rolling Stock Maintenance Yard	MCU for ERAs as follows: Rolling Stock Maintenance Yard	EP Act	4.3

ID No.	Activity	Permit Name	Legislation	Relevant Report Section
	Construction Camps Hard Rock Quarries	ERA 8 – Chemical Storage Construction Depot and Camps ERA 63 – Sewage Treatment Hard Rock Quarries ERA 16 extractive and screening activities		
7	Rail alignment Rail Laydown and Temporary Works Areas	Operational Work that is clearing native vegetation	VM Act	4.4
8	Waterway crossings for the rail alignment	Operational Works (constructing waterway barrier works)	Fisheries Act	4.5
9	Rail alignment including associated uses and infrastructure	Permit to take protected plants Disturbance to animal breeding places	NC Act	4.6

2.4 Project (Offsite Infrastructure)

Table 3 sets out a summary of the included approvals for the Project (Mine and Onsite Infrastructure) that have proposed draft approval conditions included in Section 5 of this report.

Table 3: Summary of included approvals that have proposed draft approval conditions – Offsite Infrastructure

ID No.	Activity	Permit Name	Legislation	Relevant Report Section
10	Mine workers accommodation village Airport Industrial Area	Preliminary approval Material Change of Use overriding the local planning scheme	SP Act	5.1
11	Mine workers accommodation village Airport	Material Change of Use assessable against the local planning scheme (including Reconfiguring a Lot for the	SP Act	5.2

ID No.	Activity	Permit Name	Legislation	Relevant Report Section
	Industrial Area	Industrial Area only)		
12	Mine workers accommodation village Airport Industrial Area	Operational Work assessable against the local planning scheme	SP Act	5.3
13	Mine workers accommodation village Airport Industrial Area	MCU for ERAs: ERA 63 sewage treatment for the airport, mine workers accommodation village and industrial area ERA 8 chemical storage for the industrial area	EP Act	5.4
14	Regulated clearing associated with offsite infrastructure	Operational work for clearing native vegetation	VM Act	5.5
15	Waterway barrier works associated with offsite infrastructure	Operational work for constructing waterway barrier works	Fisheries Act	5.6
16	3GL storage at a quarry	Operational Work for a dam that is to be failure impact assessed.	WSSR Act	5.7
17	Regulated clearing associated with offsite infrastructure	Permit to take protected plants Disturbance to animal breeding places	NC Act	5.8

2.5 Limitations

The included proposed draft conditions set out in section 3 have been prepared in context of recent approvals and standard condition guidelines issued by the relevant assessing authorities. No consultation with the relevant assessing authorities has been undertaken whilst preparing the proposed draft conditions.

3. Project (Mine and Onsite Infrastructure) Proposed Conditions

3.1 Environmental Authority for mining activities

ID No.	Project Component	Permit Name	Legislation
1	Mine and onsite infrastructure	Environmental Authority for mining activities	EP Act

3.1.1 Conditions

With regard to the term of the mine including onsite infrastructure, Adani is committed to working with the relevant regulators so that the mine environmental authority remains applicable throughout the life of the mine. Adani requests the Coordinator-General and the Department of Environment and Heritage Protection focus assessment on the first 20 years, acknowledging that the environmental authority would be issued for the life of the Project for the mine and onsite infrastructure. In this regard, Adani proposes that the environmental authority for this component be subject to a condition that it is be reviewed by Adani and the regulator through consultation at regular intervals to ensure ongoing relevance of conditions.

Refer to Appendix A for the proposed draft conditions. The appendix is structured as follows:
Schedule A – General

Schedule B – Air

Schedule C – Water

Schedule D – Noise

Schedule E – Waste

Schedule F – Land

Schedule G – Regulated structures

Schedule H – Sewage treatment

Schedule I – Figures

Schedule J – Definitions

3.2 Licence to take water

ID No.	Project Component	Permit Name	Legislation
2	Flood water harvesting and dams.	Licence to take water Licence to interfere with a water course Referable Dam	Water Act WSSR Act

3.2.1 Conditions

Operating arrangements and supply requirements

1. The licence holder must comply with the operating arrangements and supply requirements detailed in the *Burdekin Basin Resource Operations Plan*, Chapter 4.

Metering

2. The licence holder must meter in accordance with the *Burdekin Basin Resource Operations Plan,* Chapter 1 section 10.

Monitoring and reporting requirements

3. The licence holder must monitor and report as set out in the *Burdekin Basin Resource Operations Plan* Chapter 10 – Scheme licence holder monitoring and reporting.

4. The licence holder must monitor and report in accordance with the Department of Natural Resources and Mines water monitoring data collection standard and water monitoring data reporting standard as specified in the *Burdekin Basin Resource Operations Plan,* Chapter 1 sections 11 and 12.

Transitional Arrangements

5. The transitional arrangements detailed in Schedule 1 apply if, on the day the *Burdekin Basin Resource Operations Plan* commences, the licence holder is unable to meet the requirements of the *Burdekin Basin Resource Operations Plan* as required under Conditions 1, 2 and 3.

Schedule 1

1. This Schedule applies:

(a) if, on the day that the *Burdekin Basin Resource Operations Plan* (the Plan) commences, the licence holder is unable to meet the requirements of the Plan so as to comply with Conditions 1, 2 and 3 of this licence;

(b) only to the extent that the license holder is unable to comply with the Plan and Conditions 1, 2 and 3 of this licence.

2. Notwithstanding Conditions 1, 2 and 3 the license holder must:

(a) comply with the Plan Chapter 1 section 14 in submitting for approval by the Chief Executive the licence holder's statement of current programs and implementation program for the implementation of the Plan

(b) to the extent that the licence holder's inability to comply with the Plan and Conditions 1, 2 and 3 of this licence relates to an operation or matter for which a provision was made in a previous authorisation as in force immediately before the commencement of the Plan – continue to comply with the previous authorisation in respect of the matter or operation as if the previous authorisation had not ceased to have effect, but only until the Chief Executive approves the licence holder's implementation program under the Plan Chapter 1 section 14

(c) following the Chief Executive's approval of the implementation program under the Plan Chapter 1 Section 14 – continue to operate and undertake monitoring and reporting in accordance with the implementation program approved by the Chief Executive, but only to the extent of the elements of the implementation program that have not been replaced by the arrangements implemented under the approved program.

Referrable Dam

1. The dam must be kept safe, and maintained and operated in accordance with the following guidelines issued in Queensland under the *Water Supply (Safety and Reliability) Act 2008:*
   - a. Queensland Dam Safety Management Guidelines as amended from time to time; and
   - b. Guidelines on Acceptable Flood Capacity for as amended from time to time.
2. Any documentation prepared in order to comply with these conditions must be stored securely by the dam owner until such time as the dam is decommissioned.
3. The documentation must be made available for inspection by the Dam Safety Regulator, within 7 days of a written request for access being received by the dam owner.
4. On change of ownership of the dam, all documentation prepared in compliance with these conditions must be transferred to the new owner.
5. The Dam Safety Regulator is to be notified in writing within 20 working days of such transfer.

3.3 Operational works for taking or interfering with water

ID No.	Project Component	Permit Name	Legislation
3	Flood water harvesting and dams	Operational work for taking or interfering with water	Water Act

3.3.1 Conditions

General

1. The works approved under this development approval are to be completed within 2 years of the day this approval takes effect.
2. Notify the relevant Department in writing of the completion of the approved works within 30 business days after such completion.
3. Maintain the bed and banks of the watercourse adjacent to the permitted works.
4. Following construction of the works authorised by this development approval, maintain the bed (including any excavated bed) and banks of the watercourse in a stable condition.
5. Provide a copy of the development approval to any person contracted to construct the works approved by this development approval.

4. Project (Rail) Proposed Conditions

4.1 Material Change of Use assessable against the local planning scheme

ID No.	Project Component	Permit Name	Legislation
4	Rail Alignment Turning Circle Areas Track Laydown Areas Bridge Laydown Areas Construction Depot (Laydown Facility) Rolling Stock Maintenance Yard Concrete Batching Plants Construction Camps Hard Rock Quarries	Material Change of Use assessable against the local planning scheme	SP Act

4.1.1 Conditions

Approved plans

1. The proposed development must be carried out generally in accordance with the plans as lodged with the application or, if there are any subsequent plans submitted to the assessment manager during the assessment process, the latest of those subsequent plans.

Works during construction

2. Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises by reason of noise, vibration, electrical or electronic interference, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil or otherwise.
3. During construction the site must be kept in a clean and tidy state at all times.
4. The *Work Health and Safety Act 2011* and AS 1742 *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.
5. Implement drainage, erosion and sediment control measures and maintain these measures in accordance with an approved sediment and erosion control plan.

General development works

6. Undertake and meet the cost of all works reasonably associated with the development including any necessary alteration, relocation or damage of services, public utility mains and installation costs.

7. Repair any damage to existing roadway or other infrastructure that may occur during any works carried out in association with the development.

Infrastructure contributions

8. Where the development is subject to local government policies about infrastructure, pay the agreed amount to Council prior to the commencement of the use.

Water supply

9. Provide a suitably sized potable water supply in accordance with Council's requirements.

Sewerage

10. Provide a suitably sized on-site sewerage treatment and effluent disposal system if required in accordance with relevant Council's requirements.

Stormwater drainage

11. No ponding, concentration or redirection of stormwater may occur on adjoining land unless specifically agreed to with any relevant adjoining land owner.

Lighting

12. External lighting is to be designed and installed in accordance with any relevant local government policy standard or, where no relevant local government policy or standard exists, in accordance with AS4282-1997 *Control of the Obtrusive Effects of Outdoor Lighting* so as not to cause nuisance to nearby residents or passing motorists.

Noise

13. All noise emissions resulting from the use are to comply with the *Environmental Protection Regulation 2008* (Chapter 5, Part 3 – Noise) and the *Environmental Protection (Noise) Policy 2008* or as amended so as not to cause any unreasonable interference with the amenity to any surrounding noise sensitive uses.

Refuse storage and waste

14. All refuse storage, removal and collection methods must be in accordance with the *Environmental Protection (Waste Management) Regulation 2000* and the *Environmental Protection (Waste Management) Policy 2000* so as not to cause any unreasonable interference with the amenity to the surrounding area and to provide an acceptable level of amenity for future users of the site.

4.2 Operational Work assessable against the local planning scheme

ID No.	Project Component	Permit Name	Legislation
5	Turning Circle Areas Track Laydown Areas Bridge Laydown Areas Construction Depot (Laydown Facility) Rolling Stock Maintenance Yard	Operational Work assessable against the local planning scheme (excavation and filling, road works).	SP Act

ID No.	Project Component	Permit Name	Legislation
	Concrete Batching Plants Construction Camps Hard Rock Quarries		

4.2.1 Conditions

Approved plans

1. The proposed development must be carried out generally in accordance with the plans as lodged with the application or, if there are any subsequent plans submitted to the assessment manager during the assessment process, the latest of those subsequent plans.

Works during construction

2. Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises by reason of noise, vibration, electrical or electronic interference, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil or otherwise.
3. During construction the site must be kept in a clean and tidy state at all times.
4. The *Work Health and Safety Act 2011* and AS 1742 *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.
5. Implement drainage, erosion and sediment control measures and maintain those measures in accordance with the approved sediment and erosion control plan.

General development works

6. Unless otherwise stated in the approved drawings, all work must be designed, constructed and maintained in accordance with any relevant local government policies, guidelines and standards.
7. Undertake and meet the cost of all works reasonably associated with the development including any necessary alteration, relocation or damage of services, public utility mains and installation costs.
8. Repair any damage to existing roadway or other infrastructure that may occur during any works carried out in association with the development.

4.3 Material Change of Use for ERAs

ID No.	Project Component	Permit Name	Legislation
6	Construction Depot Rolling Stock Maintenance Yard Construction Camps Hard Rock Quarries	MCU for ERAs as follows: Rolling Stock Maintenance Yard ERA 8 – Chemical Storage Construction Depot and Camps ERA 63 – Sewage Treatment Hard Rock Quarries ERA 16 extractive and screening activities	EP Act

4.3.1 Conditions

General

1. All measures, plant and equipment necessary to ensure compliance with the conditions of this development approval must be installed. These measures, plant and equipment must be kept in an effective condition and records of the maintenance of such measures, plant and equipment must be kept. These measures, plant and equipment must be operated in an effective manner.
2. Ensure that all instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this development approval are calibrated, operated and maintained in accordance with the manufacturer's specifications.
3. Ensure that the daily operation and maintenance of the activity is carried out by a person(s) with experience or qualifications appropriate to ensuring the effective operation of the activity and the avoidance of environmental harm.
4. Telephone the administrating authority as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this development approval.
5. An activity based management plan (ABMP) must be developed for implementation by the registered operator carrying out the activity.
6. An activity based management plan must be implemented prior to commencement of the activity and include:
   - (a) environmental commitments – a commitment by senior management to achieve relevant site specific environmental goals, including, where the site is located in a wild river area, the preservation of wild river natural values;
   - (b) the purpose and description of the activity, the type of machinery, method of extraction or screening, the location of infrastructure and site(s) of activity;
   - (d) a description of the site and surrounding environment including site dimensions, land tenure and existing use of the land, and the location of any sensitive places, areas of high ecological significance or wild river management areas;
   - (e) identification of environmental issues and potential environmental impacts from the activity, including, where the site is located in a wild river area, environmental issues and potential impacts to wild river natural values;
   - (f) control measures for routine operations to minimise the likelihood of causing environmental harm, including, where the site is located in a wild river area, potential harm to wild river natural values;
   - (g) arrangements for monitoring and mitigating contaminant releases;
   - (h) contingency plans and emergency procedures for non-routine situations;
   - (i) organisational structure and responsibility;
   - (j) details of site environmental management training to be provided to staff and contractors at the commencement and during the course of the activity;
   - (k) records that are to be kept and the methods for keeping those records;
   - (l) provisions for continuous improvement and periodic review of environmental performance; and
   - (m) details of progressive and post-activity rehabilitation of disturbed areas.
7. Ensure that all monitoring, assessments and reports required by this development approval are conducted by a person(s) with appropriate experience or qualifications. Monitoring must be undertaken within the guidelines specified by the appropriate

protocols listed under the *Environmental Protection Act 1994.* For example, water monitoring must be undertaken in accordance with the *Queensland Water Quality Guidelines* and *Monitoring and Sampling Manual.*

8. Appropriate spill kits, personal protective equipment, relevant operator instructions and emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site in locations where they are readily accessible for fire emergency responses.

9. On-site containment systems must be designed and installed so as to contain spillage of all chemicals and controlled in a manner that prevents environmental harm. All petroleum product storages must be designed, constructed and maintained in accordance with AS 1940 *Storage and Handling of Flammable and Combustible Liquids*.

10. The operator must record, compile and keep all maintenance and monitoring results required by this development approval and present this information to the administering authority when requested. All records required by this development approval must be kept for 5 years.

Environmental Nuisance

11. The release of odours or airborne contaminants (including dust) resulting from the activity must not cause environmental nuisance.

12. The registered operator must abide by the air, noise, water and waste management quality objectives specified in the most recent edition of the respective Environmental Protection Policy.

13. When requested by the administering authority, the registered operator must commission noise monitoring to investigate any complaint of nuisance caused by noise. The monitoring data, an analysis of the data and a report must be provided to the administering authority within 14 days of the completion of the investigation. Noise measurements must be compared with the acoustic quality objectives specified in the most recent edition of the Environmental Protection (Noise) Policy.

Complaint Response

14. The following details must be recorded when a complaint about the environmental performance of the activity is received:

    – (a) time, date, name and contact details of the complainant;
    – (b) reasons for the complaint;
    – (c) any investigations undertaken;
    – (d) conclusions formed; and
    – (e) any actions taken.

Contaminants

15. Contaminants that may cause actual or potential environmental nuisance or environmental harm must not be released directly or indirectly to land, air, or waters.

16. As soon as a registered operator becomes aware of any release of contaminants that may cause actual or potential environmental harm, the release must be stopped, promptly rectified with the necessary equipment and remediation methods, and all reasonable actions taken to prevent a recurrence of the release.

17. Any release of contaminants not in accordance with the conditions of this code must be reported by telephone to the administering authority's pollution hotline or regional office located in the area where the release occurred. Any such release must be reported as

soon as possible and no later than 24 hours after the registered operator becomes aware of the release.

18. A written notice detailing the following information must be provided to the administering authority within 7 days:
    - (a) the name of the registered operator, including their registration certificate number;
    - (b) the name and telephone number of a designated contact person;
    - (c) quantity and substance released;
    - (d) person/s involved;
    - (e) the location and time of the release;
    - (f) the suspected cause of the release;
    - (g) a description of the effects of the release;
    - (h) the results of any sampling performed in relation to the release;
    - (i) actions taken to mitigate any environmental harm caused by the release; and
    - (j) proposed actions to prevent a recurrence of the release.

Refuse storage and waste

19. All refuse storage, removal and collection methods must be in accordance with the *Environmental Protection (Waste Management) Regulation 2000* and the *Environmental Protection (Waste Management) Policy 2000* so as not to cause any unreasonable interference with the amenity to the surrounding area and to provide an acceptable level of amenity for future users of the site.

ERA 63 Specific Conditions

20. The onsite wastewater treatment and irrigation activity must be undertaken in accordance with written procedures that:
    - identify potential risks to the environment from the activity during routine operations and emergencies including flooding
    - establish control measures that minimise the potential for environmental harm
    - ensure plant and equipment is maintained and operated in proper and effective condition
    - ensure that staff is trained and aware of their obligations under the *Environmental Protection Act 1994*
    - ensure that reviews of environmental performance are undertaken at least annually.
21. All chemicals and fuels in bulk or in containers of greater than 15 litres must be stored within a secondary containment system and releases controlled in a manner that prevents environmental harm.
22. The wastewater must be evenly distributed over an area not less than that stated in the application documentation and any other supporting information response documentation
23. Stormwater contaminated by the activity must be managed to minimise or prevent any adverse effect on the environmental values of the receiving environment.
24. Treated wastewater is permitted to be released to land provided that it is undertaken in the areas noted in the approved plans and accordance with a written procedure to ensure that:
    - infiltration to groundwater and subsurface flows of contaminants to surface waters are prevented
    - surface pondage and run-off of wastewater is prevented

- degradation of soil structure is minimised
- soil sodicity and the build-up of nutrients and heavy metals in the soil and subsoil are minimised
- spray drift or overspray do not carry beyond wastewater disposal areas
- wastewater disposal areas are maintained with an appropriate crop in a viable state for transpiration and nutrient uptake
- the crop on the disposal area is harvested and removed from the disposal area.

25. When weather conditions or soil conditions preclude the release of wastewater to land, wastewater must be directed to wet weather storage or be lawfully removed from the site.

26. Quarterly monitoring of treated wastewater must be carried out to assess compliance with the limits detailed in the Table below:

Quality Characteristics	Release Limit	Limit Type
Total Nitrogen	30mg/L	Maximum
Total Phosphorous	10mg/L	Maximum
Electrical conductivity	1600 µs/cm	Maximum
pH	5.0-8.0	Range
E.coli	<1000cfu/100ml	maximum

4.4 Operational Work that is clearing native vegetation

ID No.	Project Component	Permit Name	Legislation
7	Rail alignment Rail Laydown and Temporary Works Areas	Operational Work that is clearing native vegetation	VM Act

4.4.1 Conditions

1. Clearing of vegetation must not occur on the land identified on the approved plan attached to this permit.
2. Vegetation clearing is only approved within the areas identified on the approved plan attached to this permit.
3. New infrastructure including fences must be located in the areas shown on the approved plan attached to this permit.
4. New roads and tracks must be located in the areas shown on the approved plan attached to this permit.
5. The offset area, detailed on the approved plan attached to this permit, must be managed in accordance with the approved offset area management plan.
6. Monitoring and Reporting on the progress of the offset area in achieving the required status must occur as stated in the approved offset area management plan.

7. Clearing under this development permit is only approved if it occurs prior to the lapsing of this permit as no approval will exist after that date to clear native vegetation within the approved areas.

8. The permittee shall ensure that any and all employees, contractors, subcontractors, agents or any other person engaged or employed to carry out the clearing of any vegetation under this permit comply at all times with the requirements of this permit and do not clear any vegetation that is not approved to be cleared under this permit.

9. Where contractors, employees, subcontractors, agents or any other person, that is not the applicant or the permittee, are to be engaged or employed to carry out the clearing of any vegetation under this permit, the permittee is to provide them with a copy of this permit, including the attached development permit plan and ensure that they are aware of what clearing is authorised by this permit.

4.5 Operational Works (constructing waterway barrier works)

ID No.	Project Component	Permit Name	Legislation
8	Waterway crossings for the rail alignment	Operational Works (constructing waterway barrier works)	Fisheries Act

4.5.1 Conditions

Approved plans and administration

1. The proposed development must be carried out generally in accordance with the plans as lodged with the application or, if there are any subsequent plans submitted to the assessment manager during the assessment process, the latest of those subsequent plans.

2. For the purposes of section 145(c)(ii) of the *Fisheries Act 1994* the place where works will take place is a place required to be open for inspection.

3. Written notice of the date of commencement of the works must be provided by email or fax to the District Officer of the local Queensland Boating and Fisheries Patrol, and the Manager of the relevant regional Planning and Assessment team, Queensland Primary Industries and Fisheries, at least 5 business days but no greater than 20 business days prior to the commencement of the works.

4. At least 3 signs must be displayed around the development works site, including 1 at the main entrance to the property, in positions where the signs are clearly visible to the public, for at least 5 business days prior to the commencement, during the works and for 5 business days after completion of the works. Signs are then to be removed.

Works during construction

5. Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises by reason of noise, vibration, electrical or electronic interference, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil or otherwise.

6. During construction the site must be kept in a clean and tidy state at all times.

7. The *Work Health and Safety Act 2011* and AS 1742 *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.

8. Implement drainage, erosion and sediment control measures and maintain these measures in accordance with approved plans.

Environment general

9. Ensure that all spoil from the approved area is not disposed of within waterways.

Environment Specific

10. Walls of the waterway barrier must be sealed or treated where necessary to protect them from erosion.

11. After completion of the instream works, all areas, including bed and banks of the stream, disturbed as a result of the construction or raising of the waterway barrier works should be returned to their original profile and stabilised to resist erosion.

12. The waterway barrier and any associated dissipation devices are to be designed to minimise fish injury, mortality and entrapment.

4.6 Permit to take protected plants and disturbance to animal breeding places

ID No.	Project Component	Permit Name	Legislation
9	Rail alignment including associated uses and infrastructure	Permit to take protected plants Disturbance to animal breeding places	NC Act

4.6.1 Conditions – Permit to take protected plants

General

1. A return of operations form must be sent to the department within 28 days after the clearing is completed or the permit ceases to have effect, whichever is sooner; and you must keep a copy for your records.

Biodiversity

2. All clearing activities under this permit must be in accordance with the procedures and actions outlined in the 'supporting information' submitted to the Department of Environment and Heritage Protection (EHP).

3. An authorised person must be employed where there is a risk to native fauna present within the clearing site. An authorised person is a person permitted to tamper and interfere with a protected animal breeding place (for example a licensed spotter-catcher is someone who is specifically licenced as a spotter-catcher through an endorsed Rehabilitation Permit from the department).

4. Clearing is to be conducted in a sequential manner in a way that directs escaping wildlife away from the activity and into adjacent natural habitat.

5. The permit holder must ensure any animals injured by clearing activities under this Permit are referred to an appropriate wildlife carer group or veterinarian (to be predetermined

prior to clearing) and the department must be notified within 24 hours of any injuries or deaths.

6. Any revegetation works must be undertaken by the permit holder or an authorised delegate of the permit holder who is a suitably qualified professional and must be in accordance with the 'supporting information' submitted with this application.
7. The permit holder must ensure rehabilitation plantings receive necessary maintenance and watering to achieve permanent establishment of the plants.
8. The permit holder is to undertake topsoil management according to the following specifications: topsoil is to be stripped from areas of native vegetation within the construction site and is to be stockpiled. All topsoil and mulched native plants must be utilised within any revegetation and landscaped areas.
9. Any revegetation work will include the replacement of an area of native plants at a type and minimum ratio as detailed in 'supporting information' submitted with this application.
10. The permit holder must advise the department in writing within 30 days of completing the works on site.
11. No animal breeding places may be tampered with unless specified in a Species Management Program approved by EHP.

4.6.2 Conditions - Disturbance to animal breeding places

1. The 'supporting information' submitted with this application is an approved species management program.
2. A qualified and permitted spotter catcher will be employed during the initial clearing.
3. A summary report detailing all monitoring results should be submitted to EHP at the conclusion of each annual post construction monitoring event for two years.

5. Project (Offsite Infrastructure) Proposed Conditions

5.1 Preliminary approval Material Change of Use overriding the local planning scheme

ID No.	Project Component	Permit Name	Legislation
10	Mine workers accommodation village Airport Industrial Area	Preliminary approval Material Change of Use overriding the local planning scheme	SP Act

5.1.1 Conditions

1. Preliminary approval is granted for a variation of the *Planning Scheme for Belyando Shire 2008* in the following way:

   – Overall development of the site shall be in accordance with the approved master plan code as detailed in this approval and the included development assessment table.

   The development shall be general in accordance with the supporting information supplied by the applicant with the development application and any information request response including those plans.

5.2 Material Change of Use assessable against the local planning scheme (including Reconfiguring a Lot for the Industrial Area only)

ID No.	Project Component	Permit Name	Legislation
11	Mine workers accommodation village Airport Industrial Area	Material Change of Use assessable against the local planning scheme (including Reconfiguring a Lot for the Industrial Area only)	SP Act

5.2.1 Conditions

Approved plans

1. The proposed development must be carried out generally in accordance with the plans as lodged with the application or, if there are any subsequent plans submitted to the assessment manager during the assessment process, the latest of those subsequent plans.

Works during construction

2. Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises by reason of noise, vibration, electrical or electronic interference, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil or otherwise.

3. During construction the site must be kept in a clean and tidy state at all times.

4. The *Work Health and Safety Act 2011* and AS 1742 *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.

5. Implement drainage, erosion and sediment control measures and maintain these measures in accordance with an approved sediment and erosion control plan.

General development works

6. Undertake and meet the cost of all works reasonably associated with the development including any necessary alteration, relocation or damage of services, public utility mains and installation costs.

7. Repair any damage to existing kerb and channel, footpath, roadway or other infrastructure that may occur during any works carried out in association with the development.

Infrastructure contributions

8. Where the development is subject to local government policies about infrastructure, pay the agreed amount to Council prior to the commencement of the use.

Water supply

9. Provide a suitably sized potable water supply in accordance with Council's requirements.

Sewerage

10. Provide a suitably sized on-site sewerage treatment and effluent disposal system if required in accordance with relevant Council's requirements.

Stormwater drainage

11. No ponding, concentration or redirection of stormwater may occur on adjoining land unless specifically agreed to with any relevant adjoining land owner.

Lighting

12. External lighting is to be designed and installed in accordance with any relevant local government policy standard or, where no relevant local government policy or standard exists, in accordance with AS4282-1997 *Control of the Obtrusive Effects of Outdoor Lighting* so as not to cause nuisance to nearby residents or passing motorists.

Noise

13. All noise emissions resulting from the use are to comply with the *Environmental Protection Regulation 2008* (Chapter 5, Part 3 – Noise) and the *Environmental Protection (Noise) Policy 2008* or as amended so as not to cause any unreasonable interference with the amenity to any surrounding noise sensitive uses.

Refuse storage and waste

14. All refuse storage, removal and collection methods must be in accordance with the *Environmental Protection (Waste Management) Regulation 2000* and the *Environmental Protection (Waste Management) Policy 2000* so as not to cause any unreasonable

interference with the amenity to the surrounding area and to provide an acceptable level of amenity for future users of the site.

Reconfiguring a Lot for the Industrial Area Only

15. Each individual tenancy or dwelling unit must be provided with a separate system for the metering of water consumption.

16. Provide the contribution to the provision of public parkland in accordance with the agreed type and rate prior to the endorsement of the survey plan.

17. Enter into an agreement with a relevant electricity supplier to provide services to any new lots.

18. Enter into an agreement with a relevant telecommunications supplier to provide services to any new lots.

5.3 Operational Work assessable against the local planning scheme

ID No.	Project Component	Permit Name	Legislation
12	Mine workers accommodation village Airport Industrial Area	Operational Work assessable against the local planning scheme	SP Act

5.3.1 Conditions

Approved plans

1. The proposed development must be carried out generally in accordance with the plans as lodged with the application or, if there are any subsequent plans submitted to the assessment manager during the assessment process, the latest of those subsequent plans.

Works during construction

2. Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises by reason of noise, vibration, electrical or electronic interference, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil or otherwise.

3. During construction the site must be kept in a clean and tidy state at all times.

4. The *Work Health and Safety Act 2011* and AS 1742 *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.

5. Implement drainage, erosion and sediment control measures and maintain those measures in accordance with the approved sediment and erosion control plan.

General development works

6. Unless otherwise stated in the approved drawings, all work must be designed, constructed and maintained in accordance with any relevant local government policies, guidelines and standards.

7. Undertake and meet the cost of all works reasonably associated with the development including any necessary alteration, relocation or damage of services, public utility mains and installation costs.

8. Repair any damage to existing kerb and channel, footpath, roadway or other infrastructure that may occur during any works carried out in association with the development.

5.4 Material Change of Use for ERAs

ID No.	Project Component	Permit Name	Legislation
13	Mine workers accommodation village Airport Industrial Area	MCU for ERAs: ERA 63 sewage treatment for the airport, mine workers accommodation village and industrial area ERA 8 chemical storage for the industrial area	EP Act

5.4.1 Conditions

General

1. All measures, plant and equipment necessary to ensure compliance with the conditions of this development approval must be installed. These measures, plant and equipment must be kept in an effective condition and records of the maintenance of such measures, plant and equipment must be kept. These measures, plant and equipment must be operated in an effective manner.

2. Ensure that all instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this development approval are calibrated, operated and maintained in accordance with the manufacturer's specifications.

3. Ensure that the daily operation and maintenance of the activity is carried out by a person(s) with experience or qualifications appropriate to ensuring the effective operation of the activity and the avoidance of environmental harm.

4. Telephone the administrating authority as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this development approval.

5. An activity based management plan (ABMP) must be developed for implementation by the registered operator carrying out the activity.

6. An activity based management plan must be implemented prior to commencement of the activity and include:

   – (a) environmental commitments – a commitment by senior management to achieve relevant site specific environmental goals, including, where the site is located in a wild river area, the preservation of wild river natural values;

   – (b) the purpose and description of the activity, the type of machinery, method of extraction or screening, the location of infrastructure and site(s) of activity;

- (d) a description of the site and surrounding environment including site dimensions, land tenure and existing use of the land, and the location of any sensitive places, areas of high ecological significance or wild river management areas;
- (e) identification of environmental issues and potential environmental impacts from the activity, including, where the site is located in a wild river area, environmental issues and potential impacts to wild river natural values;
- (f) control measures for routine operations to minimise the likelihood of causing environmental harm, including, where the site is located in a wild river area, potential harm to wild river natural values;
- (g) arrangements for monitoring and mitigating contaminant releases;
- (h) contingency plans and emergency procedures for non-routine situations;
- (i) organisational structure and responsibility;
- (j) details of site environmental management training to be provided to staff and contractors at the commencement and during the course of the activity;
- (k) records that are to be kept and the methods for keeping those records;
- (l) provisions for continuous improvement and periodic review of environmental performance; and
- (m) details of progressive and post-activity rehabilitation of disturbed areas.

7. Ensure that all monitoring, assessments and reports required by this development approval are conducted by a person(s) with appropriate experience or qualifications. Monitoring must be undertaken within the guidelines specified by the appropriate protocols listed under the *Environmental Protection Act 1994.* For example, water monitoring must be undertaken in accordance with the *Queensland Water Quality Guidelines* and *Monitoring and Sampling Manual.*

8. Appropriate spill kits, personal protective equipment, relevant operator instructions and emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site in locations where they are readily accessible for fire emergency responses.

9. On-site containment systems must be designed and installed so as to contain spillage of all chemicals and controlled in a manner that prevents environmental harm. All petroleum product storages must be designed, constructed and maintained in accordance with AS 1940 *Storage and Handling of Flammable and Combustible Liquids*.

10. The operator must record, compile and keep all maintenance and monitoring results required by this development approval and present this information to the administering authority when requested. All records required by this development approval must be kept for 5 years.

Environmental Nuisance

11. The release of odours or airborne contaminants (including dust) resulting from the activity must not cause environmental nuisance.

12. The registered operator must abide by the air, noise, water and waste management quality objectives specified in the most recent edition of the respective Environmental Protection Policy.

13. When requested by the administering authority, the registered operator must commission noise monitoring to investigate any complaint of nuisance caused by noise. The monitoring data, an analysis of the data and a report must be provided to the administering authority within 14 days of the completion of the investigation. Noise

measurements must be compared with the acoustic quality objectives specified in the most recent edition of the Environmental Protection (Noise) Policy.

Complaint Response

14. The following details must be recorded when a complaint about the environmental performance of the activity is received:
    - (a) time, date, name and contact details of the complainant;
    - (b) reasons for the complaint;
    - (c) any investigations undertaken;
    - (d) conclusions formed; and
    - (e) any actions taken.

Contaminants

15. Contaminants that may cause actual or potential environmental nuisance or environmental harm must not be released directly or indirectly to land, air, or waters.

16. As soon as a registered operator becomes aware of any release of contaminants that may cause actual or potential environmental harm, the release must be stopped, promptly rectified with the necessary equipment and remediation methods, and all reasonable actions taken to prevent a recurrence of the release.

17. Any release of contaminants not in accordance with the conditions of this code must be reported by telephone to the administering authority's pollution hotline or regional office located in the area where the release occurred. Any such release must be reported as soon as possible and no later than 24 hours after the registered operator becomes aware of the release.

18. A written notice detailing the following information must be provided to the administering authority within 7 days:
    - (a) the name of the registered operator, including their registration certificate number;
    - (b) the name and telephone number of a designated contact person;
    - (c) quantity and substance released;
    - (d) person/s involved;
    - (e) the location and time of the release;
    - (f) the suspected cause of the release;
    - (g) a description of the effects of the release;
    - (h) the results of any sampling performed in relation to the release;
    - (i) actions taken to mitigate any environmental harm caused by the release; and
    - (j) proposed actions to prevent a recurrence of the release.

Refuse storage and waste

19. All refuse storage, removal and collection methods must be in accordance with the *Environmental Protection (Waste Management) Regulation 2000* and the *Environmental Protection (Waste Management) Policy 2000* so as not to cause any unreasonable interference with the amenity to the surrounding area and to provide an acceptable level of amenity for future users of the site.

ERA 16 Specific Conditions

20. A sign must be displayed at each activity site that states the name of the registered operator and that the site is being operated under this code. The sign must include contact details for the registered operator.

21. Any sites (or part thereof) undergoing rehabilitation must have additional signage indicating that the relevant area is undergoing rehabilitation and is not to be accessed.

22. Any liquid held in a container such as a tank or drum that has the potential to cause environmental harm if released to the environment must be bunded. Bunds must of sufficient design to ensure no escape of contaminants from the bunded area. Volumes of liquid less than 1000L may be stored without bunding if:

    – (a) recovery of any spilt material is possible;
    – (b) containers or drums are stored undercover on an impervious base or spill containment pallet;
    – (c) the storage is occurring at least 100m from any waters; and
    – (d) there is absorbent material readily available at the site for clean up if necessary. Individual drums may be temporarily stored on spill containment pallets.

23. When requested by the administering authority, the registered operator must commission dust and particulate monitoring to investigate any complaint of environmental nuisance caused by dust and/or particulate matter. The monitoring data, an analysis of the data and a report must be provided to the administering authority within 14 days of the completion of the investigation. The registered operator must abide by the air quality objectives specified in the most recent edition of the respective Environmental Protection (Air) Policy.

ERA 63 Specific Conditions

24. The onsite wastewater treatment and irrigation activity must be undertaken in accordance with written procedures that:

    – identify potential risks to the environment from the activity during routine operations and emergencies including flooding
    – establish control measures that minimise the potential for environmental harm
    – ensure plant and equipment is maintained and operated in proper and effective condition
    – ensure that staff is trained and aware of their obligations under the *Environmental Protection Act 1994*
    – ensure that reviews of environmental performance are undertaken at least annually.

25. All chemicals and fuels in bulk or in containers of greater than 15 litres must be stored within a secondary containment system and releases controlled in a manner that prevents environmental harm.

26. The wastewater must be evenly distributed over an area not less than that stated in the application documentation and any other supporting information response documentation

27. Stormwater contaminated by the activity must be managed to minimise or prevent any adverse effect on the environmental values of the receiving environment.

28. Treated wastewater is permitted to be released to land provided that it is undertaken in the areas noted in the approved plans and accordance with a written procedure to ensure that:

    – infiltration to groundwater and subsurface flows of contaminants to surface waters are prevented
    – surface pondage and run-off of wastewater is prevented
    – degradation of soil structure is minimised
    – soil sodicity and the build-up of nutrients and heavy metals in the soil and subsoil are minimised

– spray drift or overspray do not carry beyond wastewater disposal areas
– wastewater disposal areas are maintained with an appropriate crop in a viable state for transpiration and nutrient uptake
– the crop on the disposal area is harvested and removed from the disposal area.

29. When weather conditions or soil conditions preclude the release of wastewater to land, wastewater must be directed to wet weather storage or be lawfully removed from the site.

30. Quarterly monitoring of treated wastewater must be carried out to assess compliance with the limits detailed in the Table below:

Quality Characteristics	Release Limit	Limit Type
Total Nitrogen	30mg/L	Maximum
Total Phosphorous	10mg/L	Maximum
Electrical conductivity	1600 µs/cm	Maximum
pH	5.0-8.0	Range
E.coli	<1000cfu/100ml	maximum

5.5 Operational work for clearing native vegetation

ID No.	Project Component	Permit Name	Legislation
14	Regulated clearing associated with offsite infrastructure	Operational work for clearing native vegetation	VM Act

5.5.1 Conditions

1. Clearing of vegetation must not occur on the land identified on the approved plan attached to this permit.
2. Vegetation clearing is only approved within the areas identified on the approved plan attached to this permit.
3. New infrastructure including fences must be located in the areas shown on the approved plan attached to this permit.
4. New roads and tracks must be located in the areas shown on the approved plan attached to this permit.
5. The offset area, detailed on the approved plan attached to this permit, must be managed in accordance with the approved offset area management plan.
6. Monitoring and Reporting on the progress of the offset area in achieving the required status must occur as stated in the approved offset area management plan.
7. Clearing under this development permit is only approved if it occurs prior to the lapsing of this permit as no approval will exist after that date to clear native vegetation within the approved areas.
8. The permittee shall ensure that any and all employees, contractors, subcontractors, agents or any other person engaged or employed to carry out the clearing of any

vegetation under this permit comply at all times with the requirements of this permit and do not clear any vegetation that is not approved to be cleared under this permit.

9. Where contractors, employees, subcontractors, agents or any other person, that is not the applicant or the permittee, are to be engaged or employed to carry out the clearing of any vegetation under this permit, the permittee is to provide them with a copy of this permit, including the attached development permit plan and ensure that they are aware of what clearing is authorised by this permit.

5.6 Operational work for constructing waterway barrier works

ID No.	Project Component	Permit Name	Legislation
15	Waterway barrier works associated with offsite infrastructure	Operational work for constructing waterway barrier works	Fisheries Act

5.6.1 Conditions

1. The proposed development must be carried out generally in accordance with the plans as lodged with the application or, if there are any subsequent plans submitted to the assessment manager during the assessment process, the latest of those subsequent plans.
2. For the purposes of section 145(c)(ii) of the *Fisheries Act 1994* the place where works will take place is a place required to be open for inspection.
3. Written notice of the date of commencement of the works must be provided by email or fax to the District Officer of the local Queensland Boating and Fisheries Patrol, and the Manager of the relevant regional Planning and Assessment team, Queensland Primary Industries and Fisheries, at least 5 business days but no greater than 20 business days prior to the commencement of the works.
4. At least 3 signs must be displayed around the development works site, including 1 at the main entrance to the property, in positions where the signs are clearly visible to the public, for at least 5 business days prior to the commencement, during the works and for 5 business days after completion of the works. Signs are then to be removed.

Works during construction

5. Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises by reason of noise, vibration, electrical or electronic interference, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil or otherwise.
6. During construction the site must be kept in a clean and tidy state at all times.
7. The *Work Health and Safety Act 2011* and AS 1742 *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.
8. Implement drainage, erosion and sediment control measures and maintain these measures in accordance with approved plans.

Environment general

9. Ensure that all spoil from the approved area is not disposed of within waterways.

10. Once QPIF has approved the plans for the provision of fish passage, the plans may not be further amended without further approval from QPIF.

Environment Specific

11. Walls of the waterway barrier must be sealed or treated where necessary to protect them from erosion.

12. After completion of the instream works, all areas, including bed and banks of the stream, disturbed as a result of the construction or raising of the waterway barrier works should be returned to their original profile and stabilised to resist erosion.

13. The waterway barrier and any associated dissipation devices are to be designed to minimise fish injury, mortality and entrapment.

5.7 Operational Work for a dam that is to be failure impact assessed.

ID No.	Project Component	Permit Name	Legislation
16	3 GL storage at the Hard Rock Quarry	Operational Work for a dam that is to be failure impact assessed.	WSSR Act

5.7.1 Conditions

General

1. The dam must be kept safe, and maintained and operated in accordance with the following guidelines issued in Queensland under the *Water Supply (Safety and Reliability) Act 2008:*
   - a. Queensland Dam Safety Management Guidelines as amended from time to time; and
   - b. Guidelines on Acceptable Flood Capacity for as amended from time to time.
2. Any documentation prepared in order to comply with these conditions must be stored securely by the dam owner until such time as the dam is decommissioned.
3. The documentation must be made available for inspection by the Dam Safety Regulator, within 7 days of a written request for access being received by the dam owner.
4. On change of ownership of the dam, all documentation prepared in compliance with these conditions must be transferred to the new owner.
5. The Dam Safety Regulator is to be notified in writing within 20 working days of such transfer.

5.8 Permit to take protected plants and disturbance to animal breeding places

ID No.	Project Component	Permit Name	Legislation
17	Regulated clearing associated with offsite infrastructure	Permit to take protected plants Disturbance to animal breeding places	NC Act

5.8.1 Conditions - Permit to take protected plants

General

1. A return of operations form must be sent to the department within 28 days after the clearing is completed or the permit ceases to have effect, whichever is sooner; and you must keep a copy for your records.

Biodiversity

2. All clearing activities under this permit must be in accordance with the procedures and actions outlined in the 'supporting information' submitted to the Department of Environment and Heritage Protection.
3. An authorised person must be employed where there is a risk to native fauna present within the clearing site. An authorised person is a person permitted to tamper and interfere with a protected animal breeding place (for example a licensed spotter-catcher is someone who is specifically licenced as a spotter-catcher through an endorsed Rehabilitation Permit from the department).
4. Clearing is to be conducted in a sequential manner in a way that directs escaping wildlife away from the activity and into adjacent natural habitat.
5. The permit holder must ensure any animals injured by clearing activities under this Permit are referred to an appropriate wildlife carer group or veterinarian (to be predetermined prior to clearing) and the department must be notified within 24 hours of any injuries or deaths.
6. Any revegetation works must be undertaken by the permit holder or an authorised delegate of the permit holder who is a suitably qualified professional and must be in accordance with the 'supporting information' submitted with this application.
7. The permit holder must ensure rehabilitation plantings receive necessary maintenance and watering to achieve permanent establishment of the plants.
8. The permit holder is to undertake topsoil management according to the following specifications: topsoil is to be stripped from areas of native vegetation within the construction site and is to be stockpiled. All topsoil and mulched native plants must be utilised within any revegetation and landscaped areas.
9. Any revegetation work will include the replacement of an area of native plants at a type and minimum ratio as detailed in 'supporting information' submitted with this application.
10. The permit holder must advise the department in writing within 30 days of completing the works on site.

5.8.2 Conditions - Disturbance to animal breeding places

1. The 'supporting information' submitted with this application is an approved species management program.
2. A qualified and permitted spotter catcher will be employed during the initial clearing.
3. A summary report detailing all monitoring results should be submitted to EHP at the conclusion of each annual post construction monitoring event for two years.

6. Conclusion

In line with Adani's approach to reduce the complexity associated with the large number of approvals which are relevant to significant projects, this report has detailed proposed draft conditions to assist the approvals process.

Appendices

Appendix A. Proposed draft conditions – mine environmental authority

This appendix includes proposed stated conditions for a draft environmental authority (mining lease) for the Carmichael Coal Mine and Rail Project under the *Environmental Protection Act 1994* and are stated pursuant to section 47C of the *State Development and Public Works Organisation act 1971*.

The appendix is structured as follows:

Schedule A – General

Schedule B – Air

Schedule C – Water

Schedule D – Noise

Schedule E – Waste

Schedule F – Land

Schedule G – Regulated structures

Schedule H – Sewage treatment

Schedule I – Figures

Schedule J – Definitions

Schedule A - General

A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

A2 In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with *Table 1: Mining Domains, Figure 1: Overall Site Layout Domain Plan* and *Figure 2: General Mine Plan.*

Table 1: Mining Domains

Mine Domain	Location	Maximum Disturbance Area (ha)
Open-cut voids and slopes	See Figure 1	8,761.97
Underground mining area	See Figure 1	7,563.82
Mine infrastructure area	See Figure 1	106.39
Out-of-pit spoil dumps	See Figure 1	4,991.79
Water storage areas, including MAW dams, raw water dams and stream diversions	See Figure 1	1,496.51
Tailings drying cell	See Figure 1	218
Carmichael River corridor	See Figure 1	1823.10
	Total	**24,961.58**

A3 The holder of this environmental authority must:

(a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;

(b) maintain such measures, plant and equipment in a proper and efficient condition;

(c) operate such measures, plant and equipment in a proper and efficient manner; and

(d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Monitoring

A4 Except where specified otherwise in another condition of this authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than 5 years.

A5 The holder of this environmental authority must implement a monitoring program that enables the holder and the administering authority to determine compliance with the environmental authority conditions.

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 requirements of the *Standard for Risk Management (ISO31000:2009)*, or the latest edition of an Australian Standard for risk management, to the extent relevant to the environmental management, prior to the commencement of mining activities.

Notification of emergencies, incidents and exceptions

A9 The holder of this environmental authority must notify the administering authority of any non-compliance with any condition of this environmental authority within 24 hours after becoming aware of the non-compliance.

(Note: a notification of an exceedance under condition C18 does not require additional notification under condition A9)

A10 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 not to be in accordance with, the conditions of this environmental authority.

A11 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; and

(c) proposed actions to prevent a recurrence of the emergency or incident.

Complaints

A12 The holder of this environmental authority must record all environmental complaints received about the mining activities including the following details:

(a) name, address and contact number for/of the complainant;

(b) time and date of complaint;

(c) reasons for the complaint;

(d) investigations undertaken;

(e) conclusions formed;

(f) actions taken to resolve the complaint;

(g) any abatement measures implemented; and

(h) person responsible for resolving the complaint.

A13 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

A14 The holder of this environmental authority must:

(a) within 1 year of the commencement of this authority, obtain from a suitably qualified and experienced third party a report on compliance with the conditions of this environmental authority;

(b) obtain further such reports at regular intervals not exceeding three years from the completion of the report referred to above; and

(c) provide each report to the administering authority within 90 days of its completion.

A15 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 to provide a better environmental outcome, subsequent to the issue of this environmental authority, the holder must:

(a) comply with the amended or changed standard, policy or guideline within 2 years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation; and

(b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Unless the holder can demonstrate that the existing system provides compliance with the intent of this EA and the proposed changes do not impact on the validity of existing background information.

Coal Extraction

A16 The environmental authority holder is approved for a coal extraction rate of up to 60 million tonnes per annum (Mtpa) of product coal in accordance with this environmental authority.

Schedule B – Air

B1 Dust and particulate matter must not exceed the following levels when measured at any sensitive place.

(a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 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 with no more than five exceedences[11] recorded over twelve months, 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*, or

(iii) Australian Standard *AS3580.9.8 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance (TEOM) analyser*.

(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/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method* or using an alternative sampling methodology determined in consultation with EHP.

[1] These five exceedences (as allowed for in the EPP (Air)) are for natural events such as bush fires and dust storms.

Schedule C – Water

Release of Contaminants

C1 Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

Discharge of Mine Affected Water

C2 Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in *Table 2: Mine Affected Water Release Points*, Sources and Receiving Waters and depicted in Figure 8: Mine Affected Water Release Points attached to this environmental authority.

Table 2: Mine Affected Water Release Points, Sources and Receiving Waters

Release Point (RP)	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Contaminant Source and Location	Monitoring Point	Receiving Waters Description
RP1 – Central MAW North	-22.073	146.435	Mine Affected Water Dam Central - North	Outlet works to Carmichael River	Carmichael River
RP2 – Central MAW South	-22.118	146.375	Mine Affected Water Dam Central – South	Outlet works to Carmichael River	Carmichael River

C3 The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a Water Management Plan that complies with conditions C34 to C39 inclusive is permitted.

C4 The release of mine affected water to waters in accordance with condition C2 must not exceed the release limits stated in *Table 3: Mine Affected Water Release Limits*, when measured at the monitoring points specified in *Table 2: Mine Affected Water Release Points, Sources and Receiving Waters*, for each quality characteristic.

Table 3: Mine Affected Water Release Limits

Quality Characteristic	Release Limit	Monitoring Frequency
Electrical conductivity (µS/cm)	1300	Continuously
pH (pH Unit)	6.5 – 8.5	Continuously
Turbidity (NTU)	130	Monitoring to be commenced within 2 hours of commencement of the release, and then daily during the duration of the release.
Suspended Solids (mg/L)	106	Monitoring to be commenced within 2 hours of commencement of the release, and then daily during the duration of the release.
Sulphate (SO_4^{2} (mg/L)	129	Monitoring to be commenced within 2 hours of commencement of the release, and then daily during the duration of the release.

C5 The release of mine affected water to waters from the release points must be monitored at the locations specified in *Table 2: Mine Affected Water Release Points, Sources and Receiving Waters* for each quality characteristic and at the frequency specified in *Table 3: Mine Affected Water Release Limits* and *Table 4: Release Contaminant Trigger Investigation Levels*.

C6 If quality characteristics of the release exceed any of the trigger levels specified in *Table 4: Release Contaminant Trigger Investigation Levels* during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in *Table 4: Release Contaminant Trigger Investigation Levels* and:

(a) where the trigger values are not exceeded then no action is to be taken; or

(b) where the downstream results exceed the trigger values specified in *Table 4: Release Contaminant Trigger Investigation Levels* for any quality characteristics, compare the results of the downstream site to the data from background monitoring sites and:

(i) if the result is less than the background monitoring site data, then no action is to be taken; or

(ii) if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:

- details of the investigations carried out; and
- actions taken to prevent environmental harm.

(Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with C6 b) ii. of this condition, no further reporting is required for subsequent trigger events for that quality characteristic)

C7 If an exceedance in accordance with condition C6 b) ii. is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

Table 4: Release Contaminant Trigger Investigation Levels

Quality Characteristic	Trigger Level[3]	Monitoring Frequency
Aluminium (mg/L)[1]	0.212	Monitoring to be commenced within 2 hours of commencement of the release, and then at 24 hour intervals thereafter.
Arsenic (mg/L)[1]	0.013	
Cadmium (mg/L)[1]	0.0002	
Chromium (mg/L)[1]	0.002	
Copper (mg/L)[1]	0.0026	
Iron (mg/L)[1]	0.58	
Lead (mg/L)[1]	0.0034	
Mercury (mg/L)[1]	0.0006	
Nickel (mg/L)[1]	0.011	
Zinc (mg/L)[1]	0.008	
Boron(mg/L)[1]	0.37	
Cobalt (mg/L)[1]		
Manganese (µg/L)[1]	TBA	

Quality Characteristic	Trigger Level[3]	Monitoring Frequency
Molybdenum (µg/L)[1]	TBA	
Selenium (µg/L)[1]	TBA	
Silver (µg/L)[1]	TBA	
Uranium (µg/L)[1]	TBA	
Vanadium (µg/L)[1]	TBA	
Ammonia as N (µg/L)[1]	100	
Nitrate as NO^3 (µg/L)[1]	TBA	
Petroleum hydrocarbons (C6-C9) (µg/L)[1]	TBA	
Petroleum hydrocarbons (C10-C36) (µg/L)[1]	TBA	
Fluoride (µg/L)[2]	TBA	

[1] All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
[2] Fluoride must be measured as total (unfiltered).
[3] Levels below the LOR to be classified as non-detects

Mine Affected Water Release Events

C8 The holder of this environmental authority must ensure a stream flow gauging stations is/are installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in *Table 5: Mine Affected Water Release during Flow Events*.

C9 Notwithstanding any other condition of this environmental authority, the release of mine affected water to receiving waters in accordance with condition C2 must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in *Table 5: Mine Affected Water Release during Flow Events* when measured at the monitoring points specified in *Table 2: Mine Affected Water Release Points, Sources and Receiving Waters*.

C10 The release of mine affected water to receiving waters in accordance with condition C2 must not exceed the Electrical Conductivity and Sulphate release limits or the Maximum Release Rate (for all combined release points flows) for each receiving water flow criteria for discharge specified in *Table 5: Mine Affected Water Release during Flow Events* when measured at the monitoring points specified in *Table 2: Mine Affected Water Release Points, Sources and Receiving Waters*.

Table 5: Mine Affected Water Release during Flow Events

Receiving waters	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 (m3/s)	Maximum release rate	Electrical conductivity and sulphate release limits
Carmichael River	RP1 / RP2	CAR01	-22.0740740	+146.4675990	Continuous	Low flow <5 m^3/s	1 m^3/s	Electrical conductivity: 1,300 µS/cm Sulphate (SO4): 129 mg/L
						Medium flow 5 m^3/s to 50 m^3/s	NA if downstream triggers are met	Electrical conductivity (µS/cm): TBA, based on achieving a target µs/cm at Gregory Developmental Road Sulphate (SO^4) (mg/L) : TBA, based on achieving a target mg/L at Gregory Developmental Road
						High flow > 50 m^3/s	NA if downstream triggers are met	Electrical conductivity (µS/cm): TBA, based on achieving a target µs/cm at Gregory Developmental Road Sulphate (SO^4) (mg/L) : TBA, based on achieving a target mg/L at Gregory Developmental Road

C11 The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in *Table 2: Mine Affected Water Release Points, Sources and Receiving Waters*.

C12 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material buildup of sediment in such waters.

Cessation of Release

C13 During the release of mine affected water to receiving waters from the release points, the receiving waters must be monitored at the locations specified in *Table 6: Receiving waters release limits* for each quality characteristic and at the frequency specified in *Table 6: Receiving waters release limits*.

C14 Notwithstanding any other condition of this environmental authority, the release of mine affected water:

(a) must not commence if the water quality at the upstream site exceeds the water quality characteristics in *Table 6: Receiving water release limits;* and

(b) must cease if the water quality characteristics at the downstream or the upstream sites in *Table 6: Receiving waters release limits* are met and or exceeded.

Table 6: Receiving waters release limits

Monitoring Point	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)	Quality Characteristics	Limit	Monitoring Frequency
Upstream					
CAR04 (Carmichael River)	-22.1087960	+146.3527180	Electrical conductivity (µS/cm)	1300	Continuously
DCK01 (Dylingo Creek)	-22.0888320	+146.2606000	Electrical conductivity (µS/cm)	1300	Continuously
Downstream					
CAR01 (Carmichael River)	-22.0740740	+146.4675990	Electrical conductivity (µS/cm)	1300	Continuously
BEL01 (Belyando River)	-21.9594600	+146.6568190	Electrical conductivity (µS/cm)	1300	Continuously

C15 In accordance with conditions C14(b), the release of mine affected water may recommence after a cessation if the water quality characteristics in *Table 6: Receiving waters release limits* are at levels below the water quality characteristics at the downstream and upstream sites in *Table 6: Receiving waters release limits*.

(Note: If the release of mine affected water is ceased under condition C14, and the water quality within the receiving environment drops below the water quality characteristic limit in Table 6: Receiving water release limits, the release may recommence if all other release conditions are complied with)

Notification of Release Event

C16 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) expected release cessation date/time;

(c) release point/s;

(d) release rate and volume (estimated);

(e) receiving water/s including the natural flow rate; and

(f) details (including available data) regarding likely impacts on the receiving water(s).

(Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local administering authority via email or facsimile)

C17 The environmental authority holder must notify the administering authority as soon as practicable (nominally within 24 hours after cessation of a release event) of the cessation of a release notified under condition C16 and within 28 days provide the following information in writing:

(a) release cessation date/time;

(b) natural flow volume in receiving water;

(c) volume of water released;

(d) details regarding the compliance of the release with the conditions of Department Interest: water of this environmental authority (i.e. contamination limits, natural flow, discharge volume);

(e) all in-situ water quality monitoring results; and

(f) any other matters pertinent to the water release event.

(Note: Successive or intermittent releases occurring within 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 C17 and C18, provided the relevant details of the release are included within the notification provided in accordance with conditions C16 and C17.

Notification of Release Event Exceedance

C18 If the release limits defined in *Table 3: 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.

C19 The authority holder must, within 28 days of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing:

(a) the reason of the release;

(b) the location of the release;

(c) all water quality monitoring results;

(d) any general observations;

(e) all calculations; and

(f) any other matters pertinent to the water release event.

Monitoring of Water Storage Quality

C20 Water storages containing mine affected water which are accessible to livestock must be monitored for the water quality characteristics and at the monitoring frequency specified in *Table 7: Onsite Water Storage Contaminant Limits*.

C21 In the event that water storages exceed the contaminant limits defined in *Table 7: Onsite Water Storage Contaminant Limits*, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.

Table 7: Onsite Water Storage Contaminant Limits

Quality Characteristic	Water Storage Contaminant Limit	Monitoring Frequency
pH (pH unit)	6. (minimum) 8.50 (maximum)	Quarterly
EC (µS/cm)	16,700	
Sulphate (mg/L)	1000[1]	
Fluoride (mg/L)	2[1]	
Aluminium (mg/L)	5[1]	
Arsenic (mg/L)	0.5[1]	
Cadmium (mg/L)	0.01[1]	
Cobalt (mg/L)	1[1]	
Copper (mg/L)	1[1]	
Lead (mg/L)	0.1[1]	
Nickel (mg/L)	1[1]	
Zinc (mg/L)	20[1]	

[1] All metals and metalloids must be measured as total (unfiltered).

Receiving Environment Monitoring and Contaminant Trigger Levels

C22 The quality of the receiving waters must be monitored at the locations specified in *Table 8: Receiving Water Upstream Background and Downstream Monitoring Locations* and shown in *Figure 9: Receiving Water Upstream Background and Downstream Monitoring Locations* for each quality characteristic and at the monitoring frequency stated in *Table 9: Receiving Waters Contaminant Trigger Levels*.

Table 8: Receiving Water Upstream Background and Downstream Monitoring Locations

Latitude	Longitude	Name	Long Name	Monitoring station name
Upstream sites				
-22.1087960	+146.3527180	CAR04	Carmichael River at US GS	Carmichael Upstream GS
-22.0906570	+146.2562410	CCK01	Cattle Creek upstream of Dyllingo confluence	
-22.0888320	+146.2606000	DCK01	Dylingo Ck at Carmichael/Moray Rd	

Latitude	Longitude	Name	Long Name	Monitoring station name
Downstream sites				
-22.0740740	+146.4675990	CAR01	Carmichael River far DS mining lease	Carmichael Downstream GS
-22.0975750	+146.4055550	CAR02	Carmichael River at Mid GS	Carmichael Mid GS
-22.1071410	+146.3957890	CAR03	Carmichael River at Main Crossing	
-22.1067830	+146.4139080	CT01	Cabbage Tree Creek approx 2.5 km DS of	
-21.9691720	+146.3987390	ECK02	Eight Mile Creek at Carmichael/Moray Rd	
-21.9661140	+146.4865360	NCK01	North Creek at Carmichael/Moray Rd	

Table 9: Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Receiving Water Trigger Level	Monitoring Frequency
pH	6.5 (minimum) 8.5 (maximum)	Daily during any release
Electrical Conductivity (µS/cm)	1300	Monitoring to be commenced within 2 hours of commencement of the release, and then daily during the release.
Suspended solids (mg/L)	130	
Sulphate (SO_4^{2-})	129	

C23 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in *Table 9: Receiving Waters Contaminant Trigger Levels* during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and:

(a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or

(b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:

(i) details of the investigations carried out; and

(ii) actions taken to prevent environmental harm.

(Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with C23 b)of this condition, no further reporting is required for the subsequent trigger events for that quality characteristic)

Receiving Environment Monitoring Program (REMP)

C24 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 purpose of the REMP, the receiving environment is the waters of Carmichael River and connected or surrounding waterways within 10km 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.

C25 The Receiving Environment Monitoring Program (REMP) must:

(a) assess the condition or state or receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g. seasonality); and

(b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected;

(c) include monitoring from background reference sites (e.g. upstream or background) and downstream sites from the release (as a minimum, the locations specified in *Table 8: Receiving Water Upstream Background and Downstream Monitoring Locations*;

(d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the *Queensland Water Quality Guidelines*. This should include monitoring during periods of natural flow irrespective of mine or other discharges;

(e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in *Table 3: Mine Affected Water Release Limits* and *Table4: Release Contaminant Trigger Investigation Levels*;

(f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ (2000), BATLEY and/or the most recent version of AS5667.1 *Guidance on Sampling of Bottom Sediments*);

(g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology;

(h) apply procedures and/or guidelines from ANZECC and ARMCANZ (2000) and other relevant guidelines and documents;

(i) describe sampling and analysis methods and quality assurance and control; and

(j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.

C26 A Receiving Environment Monitoring Program (REMP) Design Document that addresses each criterion presented in Conditions C24 and C25 must be prepared and submitted to the administering authority prior to commencement of activities. Due consideration must be given to any comments made by the administering authority on the REMP Design Document and subsequent implementation of the program.

C27 A report outlining the findings of the Receiving Environment Monitoring Program, including all monitoring results and interpretations in accordance with conditions C24 and C25 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

C28 Mine affected water may be piped, trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder for a third party for the purpose of:

(a) supplying stock water subject to compliance with the quality release limits specified in *Table 10: Stock Water Release Limits*; or

(b) supplying water for construction and/or road maintenance in accordance with the conditions of this environmental authority.

Table 10: Stock Water Release Limits

Quality Characteristics	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	16,700

C29 Mine affected water may be piped, trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as dams or tanks, for the purpose of supplying water to the Carmichael Coal Mine. The volume, pH and electrical conductivity of water transferred to Carmichael Coal Mine must be monitored and reported.

C30 If the responsibility of mine affected water is given or transferred to another person in accordance with C28 and C29:

(a) the responsibility for the mine affected water must only be given or transferred in accordance with a written agreement (third party agreement); and

(b) the third party agreement must be signed by both parties to the agreement.

C31 All determinations of water quality and biological monitoring must be:

(a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;

(b) made in accordance with methods prescribed in the latest edition of the administering authorities Monitoring and Sampling Manual;

(c) collected from the monitoring locations identified within this environmental authority, with 6 hours of each other where possible;

(d) carried out on representative samples; and

(e) analysed at a laboratory accredited (e.g. NATA) for the method of analysis being used.

C32 The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than internal water management infrastructure that is installed and operated in accordance with a Water Management Plan that complies with conditions of this environmental authority, must not:

(a) produce any visible discolouration of receiving waters; and

(b) produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

C33 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return:

(a) the date on which the sample was taken;

(b) the time at which the sample was taken;

(c) the monitoring point at which the sample was taken;

(d) the measured or estimated daily quantity of mine affected water released from all release points;

(e) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and

(f) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

Water Management Plan

C34 A Water Management Plan must be developed by an appropriately qualified person and implemented prior to the commencement of mining activities.

C35 The Water Management Plan must:

(a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and

(b) be developed in accordance with the administering authorities guideline *Preparation of water management plans for mining activities* and include:

(i) a study of the source of contaminants;

(ii) a water balance model for the site;

(iii) a water management system for the site;

(iv) measures to manage and prevent saline drainage;

(v) measures to manage and prevent acid rock drainage;

(vi) contingency procedures for emergencies; and

(vii) a program for monitoring and review of the effectiveness of the water management plan.

C36 The Water Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified person. The report must:

(a) assess the plan against the requirements under condition C35;

(b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and

(c) identify any amendments made to the Water Management Plan following the review.

C37 The holder of this environmental authority must attach to the review report required by condition C36, a written response to the report and recommended actions, detailing the actions taken or to be taken by the environmental authority holder on stated dates, to:

(a) ensure compliance with this environmental authority; and

(b) prevent a recurrence of any non-compliance issues identified.

C38 The review report required by condition C36 and the written response to the review report required by condition C37 must be submitted to the administering authority with the subsequent annual return under the signature of the appointed signatory for the annual return.

C39 A copy of the Water Management Plan must be provided to the administering authority on request.

Saline Drainage

C40 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.

Acid Rock Drainage

C41 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid rock drainage.

Stormwater and Water Sediment Controls

C42 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

C43 Stormwater, other than mine affected water, is permitted to be released to receiving 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 C42;

(b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with conditions C34 through C39, for the purpose of ensuring water does not become mine affected water.

C44 The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.

Overflow of Mine or Sediment Affected Water from Regulated Structures

C45 The overflow of mine affected water from one or more of the dams listed in *Table 17: Location of Regulated Structures* must only occur if:

(a) the holder has complied with **ALL** conditions listed in *Schedule G – Regulated Structures* of this environmental authority; and

(b) the overflow is a direct result of rainfall events which since have generated a total rainfall depth in excess of that determined under the Design Storage Allowance (DSA) annual exceedance probability (AEP) event listed in *Table 17: Location of Regulated Structures* for the relevant dam (or network of linked containment systems);

(c) the dam and release point is listed in *Table 11: Overflow release to the receiving* environment;

(d) the holder has taken all reasonable and practicable measures to prevent an overflow from the relevant dam; and

(e) the overflow of mine affected water does not cause serious or material environmental harm.

C46 Any release of mine or sediment affected water resulting from an overflow from one or more of the dams listed in *Table 17: Location of Regulated Structures* and *Table 11: Overflow release to the receiving environment* to receiving waters must be monitored at the locations specified in *Table 11: Overflow release to the receiving environment* and *Table 12: Monitoring Locations for Overflow Releases* for those quality characteristics and at the frequencies specified in *Table 13: Release Contaminant Trigger Investigation Levels – Overflow Releases.*

Table 11: Overflow Release to the Receiving Environment

Release Point	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)	Contaminant Source and Location	Receiving waters description
RP1	-22.073	146.435	Central MAW Dam North	Carmichael River
RP2	-22.118	146.375	Central MAW Dam South	Carmichael River/ Cabbage Tree Creek
RP3	-22.033	146.400	MAW Dam Pit D	Obungeena

Release Point	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)	Contaminant Source and Location	Receiving waters description
				Creek
RP4	-22.069	146.424	MAW Dam Pit E	Carmichael River
RP5	-21.972	146.344	Overburden Sediment Dam B	Unnamed Watercourse
RP6	-21.984	146.363	Overburden Sediment Dam C	Eight Mile Creek
RP7	-22.009	146.382	Process Water Dam North	Obungeena Creek
RP8	-22.017	146.388	Raw Water Dam North	Obungeena Creek
RP9	-22.120	146.454	Overburden Sediment Dam F	Cabbage Tree Creek
RP10	-22.148	146.454	Overburden Sediment Dam G	Belyando River
RP11	-22.214	146.463	Process Water Dam South	Unnamed Watercourse
RP12	-22.219	146.459	Raw Water Dam South	Unnamed Watercourse

(Note: Only the central MAW dams and the overburden sediment dams will overflow. The other dams are very unlikely to overflow or if they overflow it will be within a contained area).

Table 12: Monitoring Locations for Overflow Releases*

Monitoring Point (MP)	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)	Associated Release Point	Monitoring Point Description	Location Description
Dam overflow / release point					
MP1	-22.073	146.435	RP1	Central MAW Dam North	Central MAW Dam North
MP2	-22.118	146.375	RP2	Central MAW Dam South	Central MAW Dam South
MP3	-22.033	146.400	RP3	MAW Dam Pit D	MAW Dam Pit D
MP4	-22.069	146.424	RP4	MAW Dam Pit E	MAW Dam Pit E

Monitoring Point (MP)	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)	Associated Release Point	Monitoring Point Description	Location Description
MP5	-21.972	146.344	RP5	Overburden Sediment Dam B	Overburden Sediment Dam B
MP6	-21.984	146.363	RP6	Overburden Sediment Dam C	Overburden Sediment Dam C
MP7	-22.009	146.382	RP7	Process Water Dam North	Process Water Dam North
MP8	-22.017	146.388	RP8	Raw Water Dam North	Raw Water Dam North
MP9	-22.120	146.454	RP9	Overburden Sediment Dam F	Overburden Sediment Dam F
MP10	-22.148	146.454	RP10	Overburden Sediment Dam G	Overburden Sediment Dam G
MP11	-22.214	146.463	RP11	Process Water Dam South	Process Water Dam South
MP12	-22.219	146.459	RP12	Raw Water Dam South	Raw Water Dam South
MP13[2]	-22.4	146.539	RP1, RP2, RP4, RP9	Central MAW Dam North, Central MAW Dam South, MAW Dam Pit E, Process Water Dam North, Overburden Sediment DamF	Central MAW Dam North, Central MAW Dam South, MAW Dam Pit E, Process Water Dam North, Overburden Sediment Dam F
Downstream (Grab Sample Locations)					
MP14	-21.96	146.464	RP5	1.4km from the southern end of the industrial area within	North Creek

Monitoring Point (MP)	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)	Associated Release Point	Monitoring Point Description	Location Description
				North Creek.	
MP15	-21.98	146.374	RP6, Industrial Area, MIA	0.9km from Overburden Sediment Dam C within the mine area.	Unnamed Watercourse/ Eight Mile Creek
MP16	-21.971	146.467	RP6, Industrial Area, Tailings Cell	0.2km from Moray Carmichael Road near the Industrial Area	Eight Mile Creek
MP17	-22.022	146.482	RP7, RP8	3.6km east of stockpiles	Obungeena Creek
P18	-22.074	146.457	RP1, RP2, RP4	2.6km downstream of the Central MAW Dam North	Carmichael River
MP19	-22.102	146.477	RP2, RP9,	9km from branching of the Carmichael River	Cabbage Tree Creek

* All contents within this table are indicative of the current 'concept' level of design and may be subject to future change.

Table 13: Release Contaminant Trigger Investigation Levels – Overflow Releases

Quality Characteristic	Trigger Level[3]	Monitoring Frequency
Electrical conductivity (µS/cm)	1300	Monitoring to be commenced within 2 hours of commencement of the release, and then at 24 hour intervals thereafter.
pH (pH Unit)	6.5 – 8.5	
Turbidity (NTU)	130	
Aluminium (mg/L)[1]	0.212	
Arsenic (mg/L)[1]	0.013	
Cadmium (mg/L)[1]	0.0002	
Chromium (mg/L)[1]	0.002	
Copper (mg/L)[1]	0.0026	
Iron (mg/L)[1]	0.58	

Quality Characteristic	Trigger Level[3]	Monitoring Frequency
Lead (mg/L)[1]	0.0034	
Mercury (mg/L)[1]	0.0006	
Nickel (mg/L)[1]	0.011	
Zinc (mg/L)[1]	0.008	
Boron(mg/L)[1]	0.37	
Cobalt (mg/L)[1]		
Manganese (µg/L)[1]	TBA	
Molybdenum (µg/L)[1]	TBA	
Selenium (µg/L)[1]	TBA	
Silver (µg/L)[1]	TBA	
Uranium (µg/L)[1]	TBA	
Vanadium (µg/L)[1]	TBA	
Ammonia as N (µg/L)[1]	100	
Nitrate as NO^3 (µg/L)[1]	TBA	
Petroleum hydrocarbons (C6-C9) (µg/L)[1]	TBA	
Petroleum hydrocarbons (C10-C36) (µg/L)[1]	TBA	
Fluoride (µg/L)[2]	TBA	
Sodium (µg/L)[2]		

[1] All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
[2] Fluoride must be measured as total (unfiltered).
[3] Levels below the LOR to be classified as non-detects.

C47 If quality characteristics of the release exceed any of the trigger levels specified in *Table 13: Release Contaminant Trigger Investigation Levels – Overflow Releases* during an overflow release, the holder must compare the downstream results in the receiving waters to the trigger values specified in *Table 13: Release Contaminant Trigger Investigation Levels – Overflow Releases* and:

(a) where the trigger values are not exceeded at downstream locations then no action is to be taken; or

(b) where the downstream results exceed the trigger values specified in *Table 13: Release Contaminant Trigger Investigation Levels – Overflow Releases* for any quality characteristics, compare the results of the downstream site to the data from background monitoring sites and from the release point and:

(i) if the result is less than the background monitoring site data, then no action is to be taken; or

(ii) 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 28 days of the cessation of the release, outlining:

- details of the investigations carried out; and
- actions taken to prevent environmental harm.

(Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with C47b) ii. of this condition, no further reporting is required for subsequent trigger events for that quality characteristic)

C48 The holder must notify the administering authority as soon as practicable and no later than 24 hours after the commencement of an overflow release of mine affected water to the receiving environment in accordance with conditions C46 and C47 of this environmental authority. Notification must include the submission of written advice to the administering authority of the following information:

(a) release commencement date/time;

(b) release points;

(c) receiving water/s; and

(d) any details (including available data) regarding likely impacts on the receiving environment.

(Note: Notification to the administering authority must be addressed to the Project Manager of the local administering authority via email or facsimile)

C49 The holder must notify the administering authority as soon as practicable and no later than 24 hours after the cessation of a release notified under condition C48. Notification must include the submission of written advice to the administering authority of the following information:

(a) release cessation date/time;

(b) volume of water released;

(c) all in-situ water quality monitoring results; and

(d) 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 purposed of compliance with conditions C48 and C49, provided the relevant details of the release are included within the notification provided in accordance with conditions C48 and C49))

C50 Within 28 days of a release notified under condition C48, the holder must provide a report to the administering authority demonstrating compliance with condition C45.

Groundwater

C51 A groundwater monitoring program must be developed by an appropriately qualified person that will determine compliance with the environmental authority conditions, prior to the commencement of mining activities.

Table 14: Groundwater Quality Triggers and Limits

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater Level
		Minimum	Maximum	Minimum	Maximum	
Alluvium						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molybdenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Dissolved Solids	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Petroleum Hydrocarbons (C6 to C40)	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bandana Formation (Permian-age strata – overburden, interburden, AB Seam and C Seam)						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater
Antimony	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molybdenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Dissolved Solids	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Petroleum Hydrocarbons	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Clematis Sandstone						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A
Antimony	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molydbenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Dissolved Solids	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Petroleum Hydrocarbons	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Rewan Group						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A
Antimony	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molybdenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater
Dissolved Solids						
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Petroleum Hydrocarbons	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Tertiary						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A
Antimony	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molybdenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Dissolved Solids	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Petroleum Hydrocarbons	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Colinlea Sandstone (Permian-age strata – interburden, D Seam and below D Seam)						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A
Antimony	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molybdenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Dissolved Solids	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Petroleum Hydrocarbons	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Dunda Beds						
Aluminium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	N/A
Antimony	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Arsenic	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Iron	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Molybdenum	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Mercury	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Selenium	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Silver	µg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total Dissolved Solids	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Electrical Conductivity	µS/cm	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sulphate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Calcium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Magnesium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Sodium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Potassium	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Chloride	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Carbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Bicarbonate	mg/L	TBA[1]	TBA[1]	TBA[1]	TBA[1]	
Total	ppb	TBA[1]	TBA[1]	TBA[1]	TBA[1]	

Parameter	Unit	Contaminant Triggers		Contaminant Limits		Groundwater
Petroleum Hydrocarbons						
pH	unit	TBA[1]	TBA[1]	TBA[1]	TBA[1]	

[1] Limit and trigger to be determined based on a background monitoring program of representative groundwater samples from aquifers identified as potentially affected by mining activities, including at least 12 sampling events, (with sampling distribution to ensure sufficient samples are obtained in all seasons, and is submitted to the administering authority in accordance with condition C53. Triggers to be determined on 50th percentile of background. Limit to be determine based on 99th percentile of background.

C52 Contaminant triggers and contaminant limits as per *Table 14: Groundwater Quality Triggers and Limits* must be finalised and submitted to the administering authority prior to the commencement of mining activities.

C53 If quality characteristics of groundwater exceed any of the trigger levels stated in *Table 14: Groundwater quality triggers and limits* at any of the monitoring locations identified in *Figure 10: Groundwater Monitoring Locations*, the holder of this environmental authority must complete an investigation into the potential for environmental harm and notify the administering authority within 28 days of receiving the analysis results.

C54 Results of monitoring of groundwater must not exceed any of the limits defined in *Table 14: Groundwater quality triggers and limits*.

C55 Groundwater must not exceed any of the limits defined in *Table 14: Groundwater quality triggers and limits* at lease boundary.

C56 The construction, maintenance and management of 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.

C57 No impact to groundwater levels within the groundwater aquifers is to occur other than where authorised under an approval of the *Water Act 2000*.

Schedule D – Noise

Noise limits

D1 The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in *Table 15: Noise limits* to be exceeded at a sensitive place or commercial place.

Table 15: Noise limits

Sensitive Place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
LAeq, adj, 15 mins	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
LA1, adj, 15 mins	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5
Commercial Place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	7am to 6pm	6pm to 10pm	10pm to 7am
LAeq, adj, 15 mins	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

Table 15 – Noise limits notes:

1. *CV = Critical Value*
2. *AV = Adjustment Value*
3. *To calculate noise limits in Table 15:*

   If bg ≤ (CV – AV):
   Noise limit = bg + AV
   If (CV – AV) < bg ≤ CV:
   Noise limit = CV
   If bg > CV:
   Noise limit = bg + 0

4 *In the event that measured bg (LA90, adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level*

5. *bg = background noise level (LA90, adj, 15 mins) measured over 3-5 days at the nearest sensitive receptor*
6. *If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the "Planning for Noise Control" guideline.*

Airblast overpressure nuisance

D2 The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in *Table 16: Blasting noise limits* to be exceeded at a sensitive place or commercial place.

Table 16: Blasting noise limits

Blasting noise limits	Sensitive or commercial Blasting noise limits place limits	
	7am to 6pm	6pm to 7am
Airblast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 bB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

Monitoring and reporting

D3 Noise monitoring and recording must include the following descriptor characteristics and matters:

a) LAN,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

g) if the complaint concerns low frequency noise, Max LpLIN, T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

D4 The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with *Table 16: Blasting noise limits* for:

a) at least 25% of all blasts undertaken on this site in each year at the sensitive place or commercial place nearest to the blast.

b) all blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.

Schedule E – Waste

Landfill

E1 General and regulated waste, other than tyres, must only be disposed of into an approved landfill facility.
(Note: It is an offence under the *Stock Act 1915* and subordinate legislation to allow or fail to take every reasonable measure to prevent stock access to animal matter or animal-contaminated matter)

Tyres

E2 Scrap tyres are authorised to be stored awaiting disposal or disposed of on the designated Mining Lease area MLA70441, MLA70506 and MLA70505 in a manner that minimises environmental harm.

Burning Waste

E3 Unless otherwise permitted by the conditions of this environmental authority, or with approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

E4 The holder of this environmental authority may burn vegetation cleared in the course of carrying out resource activities provided the activity does not cause environmental harm at any sensitive place.

Schedule F – Land

Rehabilitation

F1 Land disturbed by mining activities must be rehabilitated in accordance with *Appendix A: Rehabilitation Requirements* and *Figure A1: Rehabilitated Final Landform*.

F2 Rehabilitation must commence progressively as areas become available and in accordance with the Plan of Operations.

Infrastructure

F3 All buildings, structures, mining equipment and plant erected and/or used for the mining activities must be removed from the site prior to surrender, except where agreed in writing by the administering authority and the landowner.

Contaminants

F4 The mining activity must not result in a contaminant, other than a contaminant authorised to be released under condition **C2**, being deposited:

(a) in waters; or

(b) at another place, and in a way, so that the contaminant could reasonably be expected to wash, blow, fall or otherwise move into waters.

F5 The mining activity must not result in a contaminant, other than a contaminant authorised to be released under condition **C2** or meeting the requirements of condition **B1**, being deposited:

(a) off Mining Lease MLA70441, MLA70506 and MLA70505 ; or

(b) at another place, and in a way, so that the contaminant could reasonably be expected to wash, blow, fall or otherwise move off Mining Lease MLA70441, MLA70506 and MLA70505.

Mining Waste

F6 A Mining Waste Management Plan must be developed by an appropriately qualified and suitable person and implemented prior to the commencement of mining activities.

F7 The Mining Waste Management Plan must include:

(a) programs for progressive characterisation of overburden tailings and coarse reject waste prior to disposal for net acid producing potential and the following contaminants: Iron (Fe), Aluminium (Al), Copper (Cu), Magnesium (Mg), Manganese (Mn), Calcium (Ca), Sodium (Na) and Sulphate (SO4);

(b) identification of environmental issues and potential environmental impacts from the Overburden and CHPP waste;

(c) control measures for routine operations to minimise the likelihood of environmental harm;

(d) contingency plans and emergency procedures for non-routine situations;

(e) a program for monitoring and review of the effectiveness of the Mining Waste

Management Plan.

(f) the process for the quantification of availability or leachability of metals from the tailings;

(g) the keeping of records of:

(i) disposal to indicate locations and characteristics of coarse reject waste disposed of within mining waste emplacement areas.

(ii) mining waste emplacements to indicate locations and characteristics of mining waste.

(h) placement strategies of tailings material within the Tailings Cells;

(i) the progressive 3D survey of all tailings disposal locations within the mining waste emplacement areas;

(j) placement strategies of coarse reject waste in the mining waste emplacement area to enable successful rehabilitation outcomes in accordance with conditions of this environmental authority;

(k) the process for the identification and quantification of Potentially Acid Forming (PAF) mining waste;

(l) management actions for mining waste that has been identified as having a high availability or leachability of metals in accordance with condition F7c;

(m) management actions for mining waste that has been defined as Potentially Acid Forming (PAF), including a review of the potential impacts on rehabilitation;

(n) where the acid producing potential of mining waste material has not been conclusively determined, geochemical kinetic testing to indicate oxidation rates, potential reaction products and effectiveness of control strategies; and

(o) an overburden waste emplacement area operational plan in accordance with condition F13.

F8 The Mining Waste Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified person. The report must:

(a) assess the plan against the requirements under condition F7;

(b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and

(c) identify any amendments made to the Mining Waste Management Plan following the review.

F9 The holder of this environmental authority must attach to the review report required by condition F8, a written response to the report and recommended actions, detailing the actions taken or to be taken by the environmental authority holder on stated dates:

(a) to ensure compliance with this environmental authority; and

(b) to prevent a recurrence of any non-compliance issues identified.

F10 The review report required by condition F8 and the written response to the review report required by condition F9 must be submitted to the administering authority with

the subsequent annual return under the signature of the appointed signatory for the annual return.

F11 A copy of the Mining Waste Management Plan must be provided to the administering authority on request.

F12 The mining waste emplacement areas shall be designed to prevent environmental harm arising from contaminants being released to the environment.

F13 An operational plan must be developed and implemented prior to commencement of mining activities and maintained for the mining waste emplacement areas. The operational plan must include, but not be limited to:

(a) description of landform development stages of the mining waste emplacement areas;

(b) description of placement techniques for mining waste and course reject waste from the coal handling and processing plant;

(c) identification of areas that are, or are proposed, to contain Potentially Acid Forming mining waste emplacements;

(d) identification of areas that are, or are proposed, to contain coarse rejects within mining waste emplacements;

(e) identification of areas that are, or are proposed, to contain tailings within mining waste emplacements;

(f) demonstration of how operations of the mining waste emplacement areas are consistent with the accepted design plan for the facility; and

(g) decommissioning and rehabilitation strategies for the mining waste emplacement areas that demonstrate consistency with the conditions of this environmental authority.

F14 The mining waste emplacement areas within the open pit must be designed to ensure all seepage from the mining waste is appropriately confined and contained prior to decommissioning and rehabilitation.

F15 The disposal of all PAF coarse reject waste, identified by condition F7, must be encapsulated with Non Acid Forming (NAF) mining waste and disposed in a manner such that the coarse reject waste will not cause significant harm to the environment for the foreseeable future.

Subsidence

F16 A Subsidence Management Plan must be developed by an appropriately qualified person(s) and implemented by the holder of this environmental authority prior to the commencement of activities that result in subsidence.

F17 The Subsidence Management Plan must:

(a) provide for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority;

(b) be developed in accordance with Appendix B;

(c) describe the proposed impacts of subsidence on any land, watercourse and floodplain including but not limited to:

(i) physical condition of surface drainage:

- erosion;
- areas susceptible to higher levels of erosion such as watercourse confluences;
- incision processes;
- stream widening;
- tension cracking;
- lowering of bed and banks;
- creation of instream waterholes;
- changes to local drainage patterns;

(ii) overland flow:

- capture of overland flow by subsided long-wall panels;
- increased overbank flows due to lowering of high bank of watercourses;
- the portion of local and large scale catchment likely to be captured by subsided long-wall panels and the associated impacts on downstream users;

(iii) water quality:

- surface water;
- groundwater;

(iv) land condition: current land condition to be impacted by subsidence;

(v) infrastructure: detail of existing infrastructure (pipelines, railway, powerlines and haul roads) should be identified where there is a potential impact from effects of land subsidence;

(d) propose options for mitigating any impacts associated with subsidence and how these mitigation methods will be implemented;

(e) describe cumulative impacts on watercourses or catchments;

(f) describe impacts on groundwater;

(g) describe contingency procedures for emergencies; and

(h) include a program for monitoring and review of the effectiveness of the Subsidence Management Plan

F18 The Subsidence Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified person. The report must:

(a) assess the plan against the requirements under condition F18;

(b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and

(c) identify any amendments made to the Subsidence Management Plan following the review.

F19 The holder of this environmental authority must attach to the review report required by condition F19, a written response to the report and recommended actions, detailing the actions taken or to be taken by the environmental authority on stated dates:

(a) to ensure compliance with this environmental authority; and

(b) to prevent a recurrence of any non-compliance issues identified.

F20 The review report required by condition F19 and the written response to the review report required by condition F20 must be submitted to the administering authority upon request.

Annual Inspection of Subsidence

F21 The holder of this environmental authority must arrange for each subsided longwall panel to be inspected annually by a suitably qualified and experienced person, in accordance with conditions F23 through F25.

F22 The annual inspection must be conducted at an agreed time for each year.

F23 At each annual inspection, the condition of each subsided longwall panel must be assessed, including the structural, geotechnical and hydraulic adequacy of the subsided longwall panel and the adequacy of the works with respect to the Subsidence Management Plan.

F24 For each inspection, copies of a report certified by the suitably qualified and experienced person, including any recommendations to ensure the integrity of each subsided longwall panel must be provided to the administering authority upon request.

Overland Flow

F25 The subsided longwall panels must not result in the capture of overland flow and must allow water to drain from the panel.

Ecological Equivalence Assessment

F26 The holder of this environmental authority must undertake an ecological equivalence assessment of the whole impact area – including opencut and all subsidence area where State Significant Biodiversity Values occur using the Ecological Equivalence Methodology (Queensland Biodiversity Offsets Policy) or an alternative method as agreed by the administering authority. The ecological equivalence assessment must:

(a) identify the presence, type and extent of any State Significant Biodiversity Values; and

(b) be undertaken by an appropriately qualified person.

Biodiversity Offset Plan

F27 A Biodiversity Offset Plan must be developed by an appropriately qualified person.

F28 The Biodiversity Offset Plan must:

(a) include the ecological equivalence assessment required under condition F27;

(b) identify and quantify impacts to any State Significant Biodiversity Values;

(c) provide for how potential impacts to State Significant Biodiversity Values will be assessed in accordance with the Queensland Biodiversity Offset Policy or an alternative approach approved by the administering authority;

(d) identify how the impacts of subsided areas will be monitored and identified to determine that sufficient offset areas have been provided in accordance with condition F41; and

(e) include a detailed description of how the Biodiversity Offset Plan aligns with the requirements for offsets imposed on the holder under the *Environmental Protection and Biodiversity Act 1999* (Cth).

F29 The Biodiversity Offset Plan described in condition F29 must be provided to the administering authority prior to the commencement of mining activities.

Biodiversity Offset Delivery Agreement

F30 A Biodiversity Offset Delivery Agreement must be developed by an appropriately qualified person.

F31 The Biodiversity Offset Delivery Agreement must:

(a) quantify the offset requirements and include a detailed description of the surveyed locations of State Significant Biodiversity Values, having regard to the assessment conducted under condition F27;

(b) describe if the holder of the environmental authority proposes to offset impacts to State Significant Biodiversity Values through:

1. a Legally Secured offset:

(i) Identify the land, (including the land on which the relevant mining activity is carried out) or on other land in the State which may have the relevant State Significant Biodiversity Values. Preferably the identified land should be located within areas mapped as priority 1 and 2 areas to provide for long term landscape scale ecosystem function and connectivity consistent with the Galilee Basin Offset Strategy (2012 EHP), however if land within this areas is not able to be utilised for offsets the Biodiversity Offset Delivery Agreement should identify why.

(ii) Include the completed assessment of the land to be provided for the offset including Ecological Equivalence Assessment; and/or

2. an offset payment:

(i) Indicate any commitment to make an offset payment in accordance with the *Queensland Biodiversity Offset Policy* or an alternative approach approved by the administering authority, including the amount(s) and timing of that payment; and/or

(ii) Indicate the level of offset delivery for which an offset payment(s) may be considered; and/or

3.an offset transfer, indicate the level of offset delivery for which an offset transfer

may be considered; and

(c) include details on the delivery of offsets as per conditions F34, F35 and F36.

F32 The Biodiversity Offset Delivery Agreement must be submitted to the administering authority by 3 years from grant of the Environmental Authority.

Offset Delivery

F33 The holder must provide a Legally Secured offset for any land identified in condition F32 in accordance with the *Queensland Biodiversity Offset Policy*, or an alternative approach approved by the administering authority, within 6 months of the administering authorities written approval of the Biodiversity Offset Delivery Agreement.

F34 The holder must provide any offset payment(s) identified in condition F32 in accordance with the *Queensland Biodiversity Offset Policy* or an alternative approach approved by the administering authority, within 6 months of the administering authorities written approval of the Biodiversity Offset Delivery Agreement.

F35 The holder must enter into an agreement with the administering authority to provide any offset transfer identified in condition F32 in accordance with the *Queensland Biodiversity Offset Policy* or an alternative approach approved by the administering authority within 6 months of the administering authorities written approval of the Biodiversity Offset Delivery Agreement.

Legally Secured Offsets

F36 The holder must develop an Offset Area Management Plan for the land that is Legally Secured under condition F34 and/or F45 in the format specified by the administering authority.

F37 The Offset Area Management Plan required under condition F37 must contain the following information:

(a) the proposed management of land to ensure the environmental values of the land are maintained or enhanced;

(b) management and environmental objectives and outcomes, performance criteria and monitoring requirements;

(c) an analysis of the risks to achieve the objectives and outcomes;

(d) any restrictions imposed on the use of the offset area, including the management/control of weeds, cattle and site access;

(e) the activities that will be undertaken to achieve the objectives and outcomes, including the management/control of weeds, site access, erosion and sediment and fire management;

(f) a map that shows spatially the areas subject to the Offset Area Management Plan; and

(g) a reporting program.

F38 Land Legally Secured under condition F34 and/or F45 must be managed in accordance with the Offset Area Management Plan for each stage for a period of 20 years unless

otherwise approved.

Offset Transfers

F39 The holder of the environmental authority must comply with the requirements of any agreement under condition F36 and/or F47.

Review of the Biodiversity Offset Plan and Biodiversity Offset Delivery Agreement

F40 The Biodiversity Offset Plan and the Biodiversity Offset Delivery Agreement must be reviewed every fifth year from the grant of the environmental authority and a report prepared by an appropriately qualified person. The report must:

(a) assess the area of state significant biodiversity values proposed to be impacted by the mining activities; and

(b) identify the actual areas of state significant biodiversity values impacted by the mining activities.

F41 Where the actual areas of disturbance to state significant biodiversity values is identified as greater than the proposed area of disturbance as per condition F41, the holder of the environmental authority must develop a supplementary Biodiversity Offset Delivery Agreement.

Supplementary Biodiversity Offset Delivery Agreement

F42 The Supplementary Biodiversity Offset Delivery Agreement must:

(a) quantify the offset requirements and include a detailed description of the surveyed locations of State Significant Biodiversity Values, having regard to the assessment conducted under condition F27 and the additional actual impact area identified under condition F41 (additional to the proposed impacts identified within the Biodiversity Offset Plan and previously offset under the Biodiversity Offset Delivery Agreement);

(b) if the holder of the environmental authority proposes to offset the additional impacts to State Significant Biodiversity Values through:

1. a Legally Secured offset:

(i) identify the land, (including the land on which the relevant mining activity is carried out) or on other land in the State which may have the relevant State Significant Biodiversity Values. Preferably the identified land should be located within areas mapped as priority 1 and 2 areas to provide for long term landscape scale ecosystem function and connectivity consistent with the Galilee Basin Offset Strategy (2012 EHP), however if land within this areas is not able to be utilised for offsets the Biodiversity Offset Delivery Agreement should identify why.

(ii) Include the completed assessment of the land to be provided for the offset including Ecological Equivalence Assessment; and/or

2. an offset payment:

(i) Indicate any commitment to make an offset payment in accordance with the

Queensland Biodiversity Offset Policy or an alternative approach approved by the administering authority, including the amount(s) and timing of that payment; and/or

(ii) indicate the level of offset delivery for which an offset payment(s) may be considered; and/or

3. an offset transfer, indicate the level of offset delivery for which an offset transfer may be considered; and

(c) include details on the delivery of offsets as per conditions F45, F46 and F47.

F43 The Supplementary Biodiversity Offset Delivery Agreement must be submitted to the administering authority within 3 months of the completed date of the review report required under condition F41.

Supplementary Offset Delivery

F44 The holder must provide a Legally Secured offset for any land identified in condition F43 in accordance with the *Queensland Biodiversity Offset Policy,* or an alternative approach approved by the administering authority, within 12 months of the submission of the Supplementary Biodiversity Offset Delivery Agreement.

F45 The holder must provide any offset payment(s) identified in condition F43 in accordance with the Queensland Biodiversity Offset Policy or an alternative approach approved by the administering authority, within 4 months of the submission of the Supplementary Biodiversity Offset Delivery Agreement.

F46 The holder must enter into an agreement with the administering authority to provide any offset transfer identified in condition F43 in accordance with the *Queensland Biodiversity Offset Policy* or an alternative approach approved by the administering authority within 12 months of the submission of the Supplementary Biodiversity Offset Delivery Agreement.

Schedule G – Regulated Structures

G1 The hazard category of any structure must be assessed by a suitably qualified and experienced person:

(a) in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*; and

(b) in any of the following situations:

(i) prior to the design and construction of the structure; or

(ii) prior to any change in its purpose or the nature of its stored contents; and

(iii) in accordance with the *Manual for assessing Hazard Categories and Hydraulic Performance of Dams.*

G2 A hazard assessment report and certification must be prepared for any structure assessed and the report may include a hazard assessment for more than one structure.

G3 The holder must, on receipt of a hazard assessment report and certification, provide to the administering authority one paper copy and one electronic copy of the hazard assessment report and certification.

G4 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 Hazard Categories and Hydraulic Performance of Dams*.

G5 The holder must take reasonable and practical measures so that each dam associated with the mining activity is designed, constructed, operated and maintained in accordance with accepted engineering standards and is fit for the purpose for which it is intended.

G6 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 Hazard Categories and Hydraulic Performance of Dams*.

G7 Construction of a regulated structure is prohibited unless the holder has:

(a) submitted a hazard category assessment report and certification to the administering authority;

(b) commissioned a suitably qualified and experienced person to prepare a design plan for the structure; and

(c) received the certification from a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.

G8 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 Hazard Categories and Hydraulic Performance of Dams*.

G9 Regulated structures must:

(a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*;

(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.

G10 The design plan for a regulated structure must include, but is not limited to:

(a) certification that the design plan:

(i) is in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*, including subsidiary certifications if necessary; and

(ii) addresses the requirements in G10(b) to (h)

(b) A design report which provides:

(i) a description of all the documents which constitute the design plan;

(ii) a statement of:

A. the applicable standards including engineering criteria, industry guidelines, relevant legislation and regulatory documents, relied upon in preparing the design plan; and

B. all relevant facts and data used in preparing the design plan, including any efforts made to obtain necessary facts and data, and any limitations or assumptions to facts and data used in preparing the design plan;

C. the hazard category of the regulated structure; and

D. setting out the reasoning of the suitably qualified and experienced person who has certified the design plan, as to how the design plan provides the necessary required performance;

(iii) documentation of hydrological analyses and estimates required to determine all elements of the design including volumes and flow capacities;

(iv) detailed criteria for the design, operation, maintenance and decommissioning of the regulated structure, including any assumptions;

(v) design, specification and operational rules for any related structures and systems used to prevent failure scenarios;

(c) Drawings showing the lines and dimensions, and locations of built structures and land forms associated with the regulated structure;

(d) Consideration of the interaction of the pit design with the levee or regulated dam design;

(e) An operational plan that includes:

(i) normal operating procedures and rules (including clear documentation and definition of process inputs) used in calculating the Design Storage Allowance (DSA));

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

(f) A plan for the decommissioning and rehabilitation of the regulated structure at the end of its operational life;

(g) Details of reports on investigations and studies done in support of the design plan;

(h) Any other matter required by the suitably qualified and experienced person.

G11 Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

(a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;

(b) construction of the regulated structure is in accordance with the design plan;

G12 Where a regulated dam is to be managed as part of an integrated containment system and the DSA volume is to be shared across the integrated containment system, the design and operating rules for the system as a whole must be documented in a system design plan that is certified by a suitably qualified and experienced person.

G13 The system design plan must contain:

(a) the design plans, and

(b) the ‘as constructed’ plans, and

(c) the operational rules for each individual regulated dam that forms part of the integrated system, and

(d) the standards of serviceability and accessibility of water transfer equipment or structures, and

(e) the operational rules for the system as a whole.

Operation of a Regulated Structure

G14 Operation of a regulated structure is prohibited unless:

(a) the holder has submitted to the administering authority:

(i) one paper copy and one electronic copy of the design plan and certification of the ‘design plan’ in accordance with condition G7, and

(ii) a set of ‘as constructed’ drawings and specifications, and

(iii) certification of those ‘as constructed drawings and specifications’ in accordance with condition G8, and

(iv) 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.

(b) the requirements of this authority relating to the construction of the regulated structure have been met; and

(c) relevant details for regulated structures have been included in Table 17: Location of Regulated Structures and Table 18: Basic Details of Regulated Dams of this authority.

G15 Each regulated structure must be maintained and operated in a manner that is consistent with the current design plan, the current operational plan, and the associated certified 'as constructed' drawings for the duration of its operational life until decommissioned and rehabilitated.

G16 The holder must take reasonable and practicable control measures to prevent the causing of harm to persons, livestock or wildlife through the construction and operation of a regulated structure. Reasonable and practicable control measures may include, but are not limited to:

(a) the secure use of fencing, bunding or screening; and

(b) escape arrangements for trapped livestock and fauna.

Mandatory Reporting Level

G17 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.

G18 The holder must, as soon as practical and within forty-eight hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the Mandatory Reporting Level.

G19 The holder must, immediately on becoming aware that the Mandatory Reporting Level has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

Annual Inspection Report

G20 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

G21 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed:

(a) against the most recent hazard assessment report and design plan (or system design plan);

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

(c) against recognised dam safety deficiency indicators;

(d) for changes in circumstances potentially leading to a change in hazard category;

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

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

(g) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after an agreed time of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);

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

G22 A suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and including recommended actions to ensure the integrity of the regulated structure.

G23 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*. (Feb 2012)

G24 The holder of this environmental authority must:

(a) upon receipt of the annual inspection report, consider the report and its recommendations and take action to ensure that the regulated structure will safely perform its intended function; and

(b) within twenty (20) business days of receipt of the annual inspection report, notify the administering authority in writing, of the recommendations of the inspection report and the actions being taken to ensure the integrity of each regulated structure.

G25 A copy of the annual inspection report must be provided to the administering authority upon request and within ten (10) business days of receiving a request from the administering authority under this condition.

Design Storage Allowance

G26 On an agreed day 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).

G27 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 Design Storage Areas volume on the agreed day of any year, notify the administering authority.

G28 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 Design Storage Area volume on the agreed day of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

Performance Review

G29 The holder must assess the performance of each regulated dam or linked containment system over the preceding nominated period based on actual observations of

the available storage in each regulated dam or linked containment system taken prior to the nominated day of each year.

G30 The holder must take action to modify its water management or linked containment system so as to ensure that the regulated dam or linked containment system will perform in accordance with the requirements of this authority, for the subsequent nominated period.

(Note: Action may include seeking the necessary approvals for physical modification of a regulated dam)

Transfer Arrangements

G31 The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, hazard assessment, design plan and other supporting documentation, to a new holder and the administering authority on transfer of this authority.

Decommissioning and Rehabilitation

G32 Prior to the cessation of the environmentally relevant activity, each regulated structure must be decommissioned such that:

(a) ongoing environmental harm is minimised by the regulated structure:

(i) becoming a safe site for humans and animals at the completion of rehabilitation; and

(ii) becoming a stable landform, that no longer contains flowable substances and minimises erosion impacts; and

(iii) not allowing for acid mine drainage; and

(iv) being approved or authorised under relevant legislation for a beneficial use; and

(v) being a void authorised by the administering authority to remain after decommissioning; and

(b) the regulated structure is compliant with all other relevant rehabilitation requirements of this authority.

Regulated Structures Location and Performance

G33 Each regulated structure named in Column 1, *Table 17: Location of Regulated Structures* must be wholly located within the control points noted in columns 2 and 3 of *Table 17: Location of Regulated Structures*, for that structure.

G34 Each regulated dam named in Column 1 of *Table 17: Location of Regulated Structures*, must be consistent with the details noted in Column 2 through to and including Column 7 of *Table 18: Basic Details of Regulated Dams*, below, for that dam.

G35 Spillway Level (mAHD) to be finalised based on final design plans and submitted to the administering authority 20 business days prior to commencement of construction of the regulated structure.

G36 Each regulated dam named in Column 1 of *Table 17: Location of Regulated Structures*, must meet the hydraulic performance criteria noted in Column 2 through to and including Column 4 of *Table 19: Hydraulic Performance of Regulated Dams*, for that dam.

G37 Each regulated levee named in Column 1 of *Table 17: Location of Regulated Structures*, must be consistent with the details noted in Columns 2 through to and including Column 6 of *Table 20: Basic Details of Regulated Levees*, for that levee.

G38 Design Flood Level (mAHD) and minimum Levee Level (mAHD) to be finalised based on final design plans and submitted to the administering authority 20 business days prior to commencement of construction of the regulated structure.

Table 17: Location of Regulated Structures

Column 1 Name of Regulated Structure 1	**Column 2** Latitude (decimal degree GDA 94)	**Column 3** Longitude (decimal degree GDA 94)	**Column 4** Unique Location ID3
Central MAW Dam North*	-22.073	146.435	Central MAW Dam North*
Central MAW Dam South*	-22.118	146.374	Central MAW Dam South*
MAW Dam Pit D*	-22.033	146.400	MAW Dam Pit D*
MAW Dam Pit E*	-22.069	146.424	MAW Dam Pit E*
PIT B and C Levee*	-21.962 -21.934 -21.987 -22.027	146.268 146.315 146.369 146.34	PIT B and C Levee*
Pit D and E Levee*	-22.041 -22.002 -22.085 -22.104	146.334 146.381 146.635 146.386	Pit D and E Levee*
Pit F and G Levee*	-22.112 -22.117 -22.209 -22.2	146.386 146.46 146.467 146.64	Pit F and G Levee*
Carmichael River Levee North*	-22.104 -22.083	146.384 146.436	Carmichael River Levee North*
Carmichael River Levee South*	-22.112 -22.115	146.45 146.392	Carmichael River Levee South*

*Regulated structures are indicative of the concept design phase and may be subject to change during further design stages.

Table 18: Basic Details of Regulated Dams

Column 1 Name of Regulated dam[1]	Column 2 Hazard Category	Column 3 Surface area of dam at spillway (ha)	Column 4 Max. volume of dam at spillway (ML)	Column 5 Max. depth of dam[2] at spillway (m)	Column 6 Spillway Level (mAHD)	Column 7 Use of dam[3]
Central MAW Dam North	Significant**	TBA*	TBA*	TBA*	TBA*	Preliminary Containment of MAW Transfer Dams North
Central MAW Dam South	Significant**	TBA*	TBA*	TBA*	TBA*	Preliminary Containment of MAW Transfer Dams South
MAW Pit D	Significant**	TBA*	TBA*	TBA*	TBA*	Preliminary Containment of Tailings Reject (Overburden Area Pit D)
MAW Pit E	Significant**	TBA	TBA	TBA	TBA	Preliminary Containment of Tailings Reject (Overburden Area Pit D)

* Spillway details have not been determined as part of the SEIS delivery. A detailed design phase is required for input.

**The significant hazard category is indicative of the level of design (concept).

[1] The name of the regulated dam should refer to the name of the dam, for example, process residue facility and decant dam and should be the same name used in Table 28: Location of Regulated Structures for the dam.

[2] For regulated dams which do not require a dam wall, input the maximum void depth, for example, where dams are formed by excavating below the land surface or backfilling a residual void.

[3] The use or purpose of the regulated dam should outline the designed function, for example, “the permanent containment of tailings resulting from the extraction of nickel, cobalt and other metals at the XYZ refinery”.

Table 19: Hydraulic Performance of Regulated Dams

Column 1 Name of Regulated dam	Column 2 Spillway Capacity of AEP	Column 3 Design Storage Allowance AEP	Column 4 Mandatory Reporting Level AEP
MAW Main DAM - North	TBA*	1:100 AEP 3 month wet Season	TBA*
MAW Main DAM - South	TBA*	1:100 AEP 3 month wet Season	TBA*
MAW Dam Pit D	TBA*	1:100 AEP 3 month wet Season	TBA*
MAW Dam Pit E	TBA*	1:100 AEP 3 month wet Season	TBA*

* Spillway capacities have not been determined as part of the SEIS delivery. A detailed design phase is required for input.

Table 20: Basic Details of Regulated Levees

Name of Levee	Design AEP	Design Flood Level	Minimum Levee Level	Schedule D Table 1 Location ID1	Use of Levee
Pit B and C Levee	1:1000	TBA*	TBA*	TBA*	Provides Flood Immunity for Pits B and C
Pit D and E Levee	1:1000	TBA*	TBA*	TBA*	Provides Flood Immunity for Pits D and E
Pits F and G Levee	1:1000	TBA*	TBA*	TBA*	Provides Flood Immunity for Pits F and G
Carmichael River Levee North	1:1000	TBA*	TBA*	TBA*	Provides Flood Protection from the Carmichael River during high flow events
Carmichael River Levee South	1:1000	TBA*	TBA*	TBA*	Provides Flood Protection from the Carmichael River during high flow events

*Design levels have been set a minimum height of 2 meters for levees surrounding the pits. Further detailed design has not been considered during this concept delivery phase.

Schedule H – Sewage Treatment

H1 The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in *Table 21: Contaminant release limits to land.*

Table 21: Contaminant release limits to land

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD)1	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	Monthly
Nitrogen	mg/L	30	Maximum	Monthly
Phosphorus	mg/L	15	Maximum	Monthly
E-coli	Organisms/100ml	1000	Maximum	Monthly
pH	pH units	6.0 – 9.0	Range	Monthly

H2 Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:

(a) within the nominated area(s) identified in (figure to be provided - sewage treatment plant and effluent disposal)

(b) other land for the purpose of dust suppression and/or firefighting.

H3 The application of treated effluent to land must be carried out in a manner such that:

(a) vegetation is not damaged

(b) there is no surface ponding of effluent

(c) there is no run-off of effluent.

H4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

H5 All sewage effluent released to land must be monitored at the frequency and for the parameters specified in *Table 21: Contaminant release limits to land*.

H6 The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.

H7 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.

H8 A minimum area (to be confirmed), excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

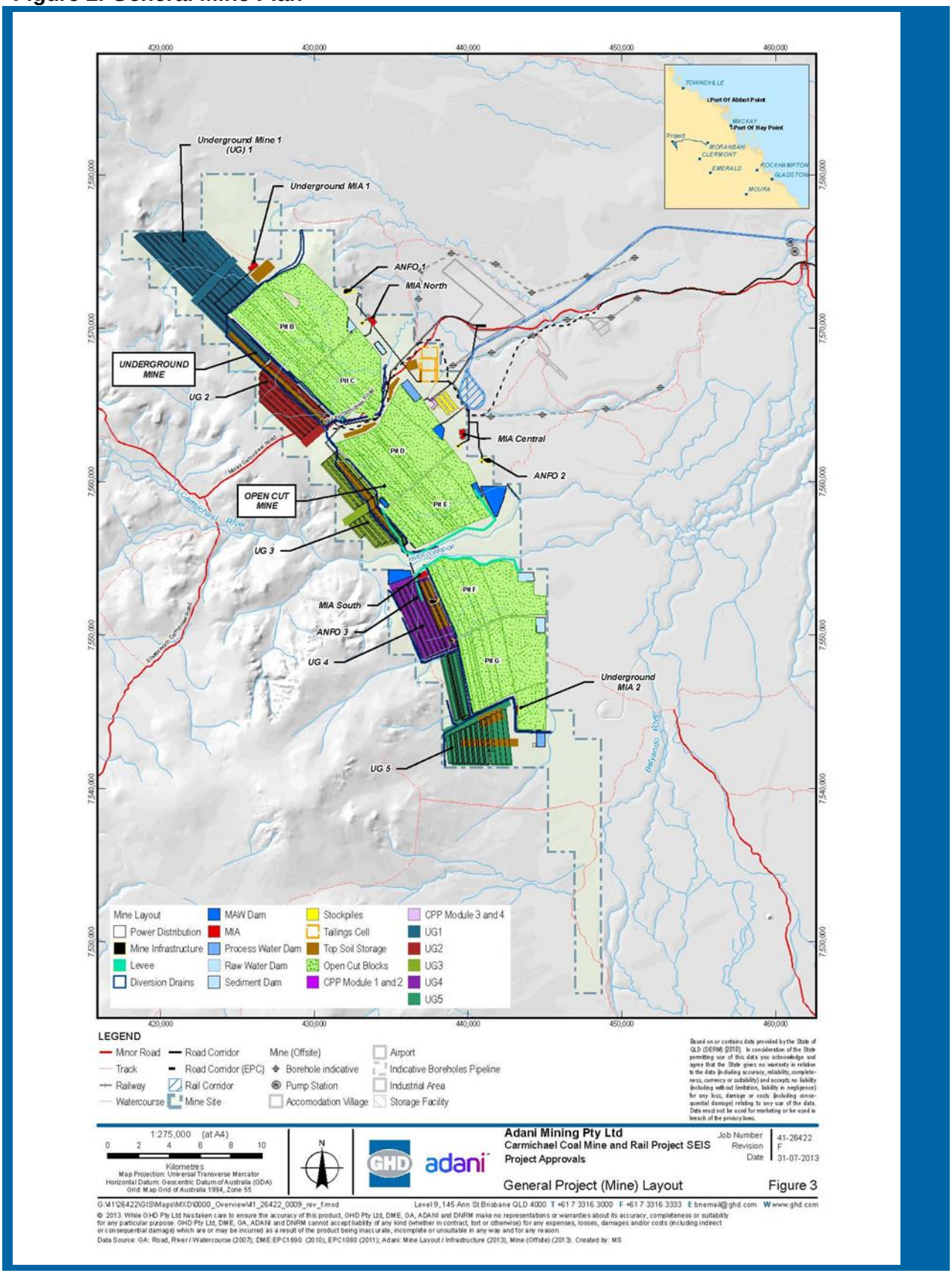
H9 Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their

general environmental duty under section 319 of the Act whilst using the treated sewage effluent.

Schedule I – Figures

Figure 1: Overall Site Layout Domain Plan

Figure 2: General Mine Plan



Schedule J – Definitions

Words and phrases used throughout this license are defined below except where identified in the *Environmental Protection Act 1994* or subordinate legislation. Where a word or term is not defined, the ordinary English meaning applies, and regard should be given to the Macquarie Dictionary.

"20th percentile flow" means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), i.e. not dry weather days.

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

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

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

"AEP" means the Annual Exceedance Probability.

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

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

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

"ANZECC" means the *Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000*.

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

"artesian bore" includes a shaft, well, gallery, spear or excavation, and any works constructed in connection with the shaft well, gallery, spear or excavation, that taps an aquifer and the water flows, or has flowed, naturally to the surface.

"assessed" or **"assessment"** by a suitably qualified and experienced person in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in

that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

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

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

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

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

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

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

(b) any land used for those operations.

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

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

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

(a) of benefit to that owner in that it adds real value to their business or to the general community;

(b) in accordance with relevant provisions of the *Environmental Protection Act 1994*;

(c) sustainable by virtue of written undertakings given by that owner to maintain that dam; and

(d) the transfer and use have been approved or authorised under any relevant legislation.

"bioregion" has the meaning defined in the *Queensland Biodiversity Offset Policy*.

"biosolids" means the treated and stabilised solids from sewage.

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

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

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

"brine" means saline water with a total dissolved solid concentration greater than 40,000 mg/L, generated through water treatment activities.

"brine dam" means a regulated dam that is designed to receive, contain or evaporate brine.

"broker agreement" has the meaning given to it in the *Queensland Biodiversity Offset Policy*.

"bunded" means within bunding consistent with Australian Standard 1940.

"coal handling and processing plant waste" means coarse reject and tailings.

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

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

"class 1 pest" has the meaning given to it under the *Land Protection (Pest and Stock Route Management) Act 2002*.

"class 2 pest" has the meaning given to it under the *Land Protection (Pest and Stock Route Management) Act 2002*.

"commencement of mining activities" means the commencement of activities permitted by the issue of a mining lease under the *Mineral Resources Act 1989* for the operational land not including early works.

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

"completion criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The completion criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly been disturbed by the mining activities. Completion criteria may include information regarding:

(a) vegetation establishment, survival and succession;

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

(c) fauna colonisation and habitat development;

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

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

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

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

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

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

"contaminate" means to render impure by contact or mixture.

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

"contaminant" A contaminant can be –

(a) a gas, liquid or solid; or

(b) an odour; or

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

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

(e) a combination of contaminants.

"control measure" means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

"costeaning" means the digging of a trench or put across the seam or ore body for exposing, sampling and mapping of the ore body.

"cover material" means any soil or rock suitable as a germination medium or landform armouring.

"dam" means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. A dam does not mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

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

"declared pest" has the meaning given to it under the *Land Protection (Pest and Stock Route Management) Act 2002*.

"deed of agreement" means a legal agreement between the holder of the environmental authority and the administering authority. The deed of agreement governs the obligations of the holder of the environmental authority in relation to the Queensland Biodiversity Offset Policy (Version 1 dated 3 October 2011). For clarity, the term deed of agreement in this environmental authority includes any subsequent version or amendment of the signed deed of agreement.

"design plan" is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

"design storage allowance" means an available volume, estimated in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* published b the Department of Environment and Heritage Protection (or its successor), that must be provided in a dam as at an agreed time of each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that manual.

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

"**direct offset"** has the meaning given to it in the *Queensland Biodiversity Offset Policy*.

"domain" means land management units within a mine site, usually with similar geophysical characteristics.

"dwelling" means any of the following structures or vehicles that is principally used as a residence –

(a) a house, unit, motel, nursing homer or other building or part of a building; or

(b) a caravan, mobile home or other vehicle or structure on land; or

(c) a water craft in a marina.

"effluent" treated waste water discharged from sewage treatment plants.

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

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

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

"factor of safety" means the ratio of resisting forces to driving forces. The resisting force is the friction developed in a material along a potential failure plane under given loading conditions. The driving force is primarily gravity but can also include vibration loading and unbalanced groundwater pressures.

"financial assurance" means a security required under the *Environmental Protection Act 1994* by the Administering Authority to cover the cost of rehabilitation or remediation of disturbed land or to secure compliance with the environmental authority.

"**financial surety"** has the meaning defined in the *Queensland Biodiversity Offset Policy*.

"floodwater" means water overflowing, or that has overflowed, from waters, river, creek, stream, lake, pond, wetland or dam onto or over riparian land that is not submerged when the watercourse or lake flows between or is contained within its bed and banks.

"flowable substance" means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can

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

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

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

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

"holder" means any person who is the holder of, or is acting under the environmental authority.

"hydraulic performance" means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Manual of Assessing Hazard Categories and Hydraulic Performance of Dams*.

"impacts to State significant biodiversity values" means those impacts and State Significant Biodiversity values stated in the Site Based Offsets Plan.

"infrastructure" means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include other facilities required for the long term management of mining impacts or the protection of potential resources. Such other facilities include dams, waste rock dumps, voids, or ore stockpiles and buildings as well as other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

"LA 10, adj, 15 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 15-minute measurement period, using Fast response.

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

"lake" includes –

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

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

"land" in Schedule F: Land of this document means land excluding waters and the atmosphere.

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

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

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"landfill" means land used as a waste disposal site for lawfully putting solid waste on the land.

"leaf litter" means the uppermost layer of organic material in a soil, consisting of freshly fallen or slightly decomposed organic materials such as leaves, twigs and sticks, which have accumulated on the ground surface.

"legally secured" has the meaning defined in the October 2011 version of the *Queensland Biodiversity Offset Policy*.

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

"low hazard dam" means any dam that is not a high or significant hazard category as assessed using the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams.

"lower explosive limit" means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at $25^{O}C$ and atmospheric pressure.

"mandatory reporting level" means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* published by the administering authority.

"mg/L" means milligrams per litre.

"Mining activities" are defined as "prospecting, exploring or mining, processing minerals, a directly associated activity that may cause environmental harm, rehabilitating or remediating environmental harm, and action to prevent environmental harm because these activities, where the activity is authorised under the Mineral Resource Act 1989 to occur on land to which a mining tenement relates" (as defined in the *Environmental Protection Act 1994*).

A **"Mining project"** is defined as "all mining activities carried out, or proposed to be carried out, under 1 or more mining tenements, in any combination, as a single integrated operation" (as defined in the *Environmental Protection Act 1994*).

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

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

(b) foundry sand;

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

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

(e) marble;

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

(g) peat;

(h) salt including brine;

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

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

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

But does not include—

(a) living matter;

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

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

(d) water.

"mine affected water" means the following types of water:

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

(b) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2008* if it had not formed part of the mining activity other than effluent or brine;

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

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

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

(f) a mix of mine affected water (under any of paragraphs (a)-(e)) and other water.

"mining waste" means waste rock, spoil, overburden, tailings and course reject material.

"modification" or **"modifying"** see construction.

"MRL" means Mandatory Reporting Level.

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

"nature" includes:

ecosystems and their constituent parts; and

all natural and physical resources; and

natural dynamic processes.

"non-artesian exploration drill hole" means an exploration drill hole that does not intersect aquifers of an artesian basin.

"noxious" means harmful or injurious to health or physical well being.

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

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

"operational plan" for a dam means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

"offset" means either a:

- direct land based offsets:
    - values to be offset using a direct land based offset;
    - an assessment of the offset area to demonstrate how it meets the requirements of the Biodiversity Offset Policy;
    - an assessment of ecological equivalence carried out in accordance with the Ecological Equivalence Methodology.;
    - legally binding mechanism; and
    - offset area management plan.
- offset transfer:
    - values to be offset using an offset transfer
    - evidence that State significant biodiversity values to be impacted can be offset within the landscape;
    - an assessment of ecological equivalence carried out in accordance with the Ecological Equivalence Methodology;
    - Brokers Agreement or applicant letter; and
    - Identification of financial surety amount and calculation method
- offset payment:

- the values to which the proposed offset payment relates; and
- offset payment amount and calculation method.

developed in accordance with the *Queensland Biodiversity Offsets Policy* dated [Version 1 dated 3 October 2011].

"offset payment" has the meaning given to it in the Queensland Biodiversity Offset Policy.

"offset transfer" has the meaning given to it in the *Queensland Biodiversity Offset Policy*.

"palletised" means stored on a movable platform on which batteries are placed for storage or transportation.

"peak particle velocity (ppv)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms-1).

"PMF" means probable maximum flood.

"probable maximum flood" means the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in a particular drainage area.

"protected area" means:

(a) a protected area under the *Nature Conservation Act 1992*; or

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

(c) a World Heritage Area.

"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

"public utility works" means:

(a) the replacement, modification or relocation of public utilities required as a consequence of the project; and

(b) the construction of new utility infrastructure required for the project.

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

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

"reference site" means an unmined feature against which a mined and rehabilitated feature may be compared. A reference site may reflect the original location or adjacent area of a disturbed area, where representative control plots are established, as nominated by the environmental authority holder. Reference sites must be:

- areas of similar chemical and physical characteristics to the proposed rehabilitated areas;
- established in typical areas of each pre-mining regional ecosystem (vegetation community);
- not impacted by the mining activity;

- acceptable to the administering authority prior to use;
- in a similar ecological setting;
- utilised in a similar capacity as the proposed post mine land use; and
- under a similar fire regime as the proposed rehabilitated areas.

Rehabilitation must be compared with those reference sites that most typically reflect the pre-mining regional ecosystem that the environmental authority holder is seeking to redevelop in the rehabilitation.

"recycled water" means appropriately treated effluent and urban stormwater suitable for further use.

"regulated dam" means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* published by the administering authority.

"regulated structure" means either a regulated dam or levee.

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

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

"residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

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

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

"sensitive place" means:

- a dwelling, residential allotment, mobile home or caravan park, residential marina; or
- other residential premises; or
- a motel, hotel or hostel; or
- an educational institution; or
- a medical centre or hospital;
- a protected area; or
- a public park or gardens; or
- a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads

except where located on the mining lease subject to this authority.

"sewage" means the used water of person's to be treated at a sewage treatment plant.

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

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

"stock" has the meaning given to it under the *Stock Act 1915*.

"storm water" means all surface water runoff from rainfall.

"State Significant Biodiversity Values" means the values identified in Appendix A State Significant Biodiversity Values of the Queensland Biodiversity Offset Policy (Version 1 dated 3 October 2011).

"subartesian bore" includes a shaft, well, gallery, spear or excavation (excluding the mining pits), and any works constructed in connection with the shaft, well, gallery, spear or excavation, that taps an aquifer and the water does not flow and never has flowed naturally to the surface.

"subartesian water" means water that occurs naturally in, or is introduced artificially into, an aquifer, which I tapped by a bore, would not flow naturally to the surface.

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

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

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

"system design plan" means a plan that manages and integrated containment system that shares the required DSA volume across the integrated containment system.

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

"water" means –

(a) water in waters or spring;

(b) underground water;

(c) overland flow water; or

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

“water bore” means an artesian bore or a subartesian bore.

“water monitoring bore” means a water bore used for monitoring impacts on underground water caused by the mining activities.

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

“water year” means the 12 month period from 1 July to 30 June.

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

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

“wet season” means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from an agreed time in one year to an agreed time in the following year inclusive.

“μg/L” means micrograms per litre

“μs.cm-1“ means microsiemens per centimetre

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