

Paradise Dam Quarry

Planning Assessment Report

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Recipient	
Galilee Crushing & Civil Pty Ltd	1 x electronic
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GROUNDWORK PLUS

Phone: 1800 GW PLUS (1800 497 587)

Email: info@groundwork.com.au

Website: groundwork.com.au

ABN 13 609 422 791

VIC/TAS

WeWork | Groundwork Plus

Office 21-106

120 Spencer Street, Melbourne

Vic 3000

QLD/NSW

6 Mayneview Street, Milton Qld 4064

PO 1779, Milton BC Qld 4064

Phone: +61 7 3871 0411

Fax: +61 7 3367 3317

Geotechnical Laboratory

Unit 78/109 Leitchs Road, Brendale Qld 4500

Phone: 0417 615 217

SA/WA/NT

2/3 16 Second St, Nuriootpa SA 5355

PO Box 854, Nuriootpa SA 5355

Phone: +61 8 8562 4158

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1 Introduction

Groundwork Plus has been commissioned by Galilee Crushing & Civil Pty Ltd ('GCC') to prepare and submit a development application to the North Burnett Regional Council ('Council') for a Material Change of Use for Extractive Industry and associated Environmentally Relevant Activities ('ERAs') at Paradise Road, Coringa QLD 4621, properly described as Lot 17 on CK1566 (herein referred to as the 'site').

The site has been identified as a potential source of hard rock material to support the Paradise Dam Improvement Project. The proposed quarry operation is supported by Sunwater as it would result in a significant reduction in the number of truck movements (up to 40,000 truck movements) through Paradise Dam, Coringa and surrounding areas throughout the life of the Paradise Dam Improvement Project. The reduction in truck movements through the region will result in:

1. Safer roads;
2. Less disruption to locals;
3. A better financial outcome for tax payers;
4. Less road damage; and
5. Improved sustainability.

The development application will comprise the following components:

- (a) Material Change of Use – Development Permit for Extractive Industry;
- (b) Material Change of Use – Development Permit for Concurrence ERAs;
- (c) Environmental Authority for ERAs:
 - ERA 16(2)(b) Extracting, other than by dredging, in a year, the following quantity of material – more than 100,000 but less than 1,000,000t
 - ERA 16(3)(b) Screening, in a year, the following quantity of material – more than 100,000t but less than 1,000,000t

This Planning Assessment Report ('report') examines the relevant provisions of the *North Burnett Regional Planning Scheme 2014* and the State Development Assessment Provisions. This report has been prepared to accompany the application and describe the proposed development, identify potential impacts, nominate environmental management measures to be implemented to manage any potential impacts and to assess the proposed development against applicable legislative requirements.

This report is intended to ensure that sufficient information is provided to Council, the State Assessment Referral Agency ('SARA') and other interested parties, to reach an informed decision regarding the proposed development application.

1.1 Pre-lodgement

A pre-lodgement meeting was held with Council officers on 29 March 2023 to discuss the project and confirm what information is required to be provided as part of the development application. A copy of the pre-lodgement meeting minutes has been attached (refer **Attachment 1 – Council Pre-lodgement Meeting Minutes**).

2 Site Details

Location:	Paradise Road, Coringa QLD 4621
Real Property Description:	Lot 17 on CK1566
Tenure:	Freehold
Registered Landowner:	Craig Douglas Taylor (refer Attachment 2 – Title Search)
Site Area:	151 hectares
Access:	Access from the site to the Paradise Dam Improvement Project will be via Paradise Road and Paradise Dam Road
Existing Land Use:	Vacant rural land
Proposal Land Use:	Extractive Industry
Surrounding Land Uses:	The site is in the rural area with the surrounding land uses being predominantly rural in nature. The Paradise Dam is located north of the site and the Burnett River runs to the west of the site.
Sensitive Receptors	The nearest sensitive receptor is located over 1.5kms north of the site boundary and approximately 1.8kms from the proposed quarry area. The dwelling is adjacent to the Burnett River (RL60) (refer Figure 1)
Local Authority:	North Burnett Regional Council
Planning Scheme:	<i>North Burnett Regional Planning Scheme 2014</i>
Zoning:	Rural Zone
Precinct:	Intensive Agricultural Precinct
Level of Assessment:	Impact Assessable
Geology / Resource:	<p>The geological setting of the area surrounding the site consists of Paleozoic metamorphosed sedimentary rocks of the New England Orogen which were originally formed in a deep marine environment before being accreted to the continental crust during subduction related tectonic processes. During these processes the rocks were compressed, folded, and underwent varying degrees of metamorphism.</p> <p>The rock types encountered in the drill holes and observed from surface outcrop are dominated by variably metamorphosed siltstone and fine volcanoclastic sandstone with lesser shale, andesite, quartz porphyry and limestone. Depth of weathering (extremely to moderately weathered) is variable across the site and was found to be deeper in areas of lower strength rocks. When drilling through fresh to slightly weathered material, the rock units were found to be of moderate to high strength judging by the penetration rates.</p>



Figure 1 – Distance to Sensitive Receptors (source: QLD Globe)

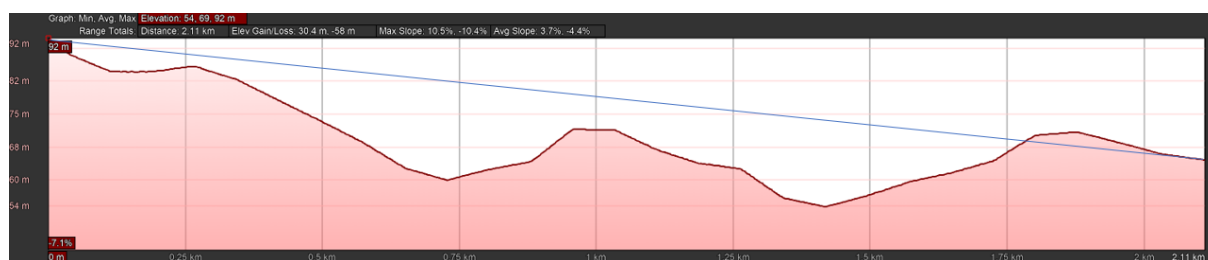


Figure 2 – Cross Section of Topography Between Site (left) and Nearest Sensitive Receptor (right) (source: Google Earth)

There are existing ridgelines between the site and nearest sensitive receptor to the north, which will provide a visual barrier for the quarry and assist with noise mitigation (refer **Figure 2** above).

3 Description of Proposal

GCC is seeking to establish a hard rock quarry (the quarry) to supply quarry materials to the Paradise Dam Improvement Project (the project). The proposed quarry will only operate for the duration of the project.

The quarry will be located on the ridge in the eastern portion of the site with direct frontage to Paradise Road whilst avoiding mapped remnant vegetation and other environmental constraints such as waterways. No permanent infrastructure or buildings will be established on the site. Extensive resource investigation work, including a drilling campaign and geological analysis, has been carried out on the site to determine the quality and quantity of the resource. The quarry materials produced from the source rock has been confirmed as suitable for the materials required as part of the Paradise Dam Improvement Project.

The principal contractor for the project has indicated that it may generate excess clean fill material. That clean fill material may be delivered to the site and used effectively and efficiently for the progressive rehabilitation of the quarry.

The principal contractor for the project has also indicated that quarry materials (such as raw feed, or aggregates) from other suppliers, may be transported to the site for processing and stockpiling before being delivered to the project. This is because the principal contractor wants to avoid storing quarry materials on flood prone land below the dam and ensure quality assurance by being able to produce the materials (i.e. crush the raw feed from other quarries) in a centralized, controlled area close to the project. This material will be transported by haulage contractors for the principal contractor along the local road network to the Paradise Dam regardless of the operation of the quarry and as such, is an inevitable result of the Paradise Dam Improvement Project. The processing and stockpiling of any imported quarry material at the quarry does not introduce any new environmental impacts or risks over and above that which would ordinarily occur as part of the general operation of the quarry.

The haul route from the site to the Paradise Dam will be via Paradise Road to Paradise Dam Road. Haulage of quarry materials from the quarry on the State controlled road network is not proposed (refer **Attachment 3 – Proposal Plans**). Anticipated haulage vehicles associated with the quarry are standard truck and dog configurations of approximately 32 to 36 tonnes. The principal contractor for the project and Sunwater are considering a conveyor system that would traverse through the site and Lot 9 CK1566 (Sunwater owned land) to the project site for delivery of quarry materials. If this proceeds, it would reduce the majority of haulage required on Council roads (Paradise Road and Paradise Dam Road). If the conveyor system proceeds, this will be addressed in a future development application.

3.1 Quarry Development

Standard quarrying methodologies would be used, involving vegetation clearing, topsoil and overburden stripping, drilling and blasting, extraction, processing and stockpiling with the final products sold for use in the construction industry, refer to **Figure 3 – Conceptual On-site Extractive Operations**.

The quarry operation will comprise the following basic elements:

- Clearing of vegetation and stripping of topsoil and overburden material using mechanical means (i.e. bulldozer or excavator) and stockpiling for incorporation into on-site rehabilitation works where required, or use in constructing stormwater control structures (e.g. perimeter banks);

- Drilling and blasting the exposed underlying rock to manageable size from the developed quarry benches to the quarry pit or bench below;
- Transferring raw material from the quarry face or pit floor to a designated crushing and screening plant using an excavator or front end loader into off road trucks;
- Crushing and screening the raw material using crushing and screening plant;
- Stockpiling the final products using the front-end loader and/or off-road haul trucks within the designated area required to be loaded into road trucks for transportation off-site; and
- Rehabilitating disturbed areas progressively once extraction is completed.

The quarry will be supported by a site office and amenities buildings (dismountable structures) and light vehicle parking area.

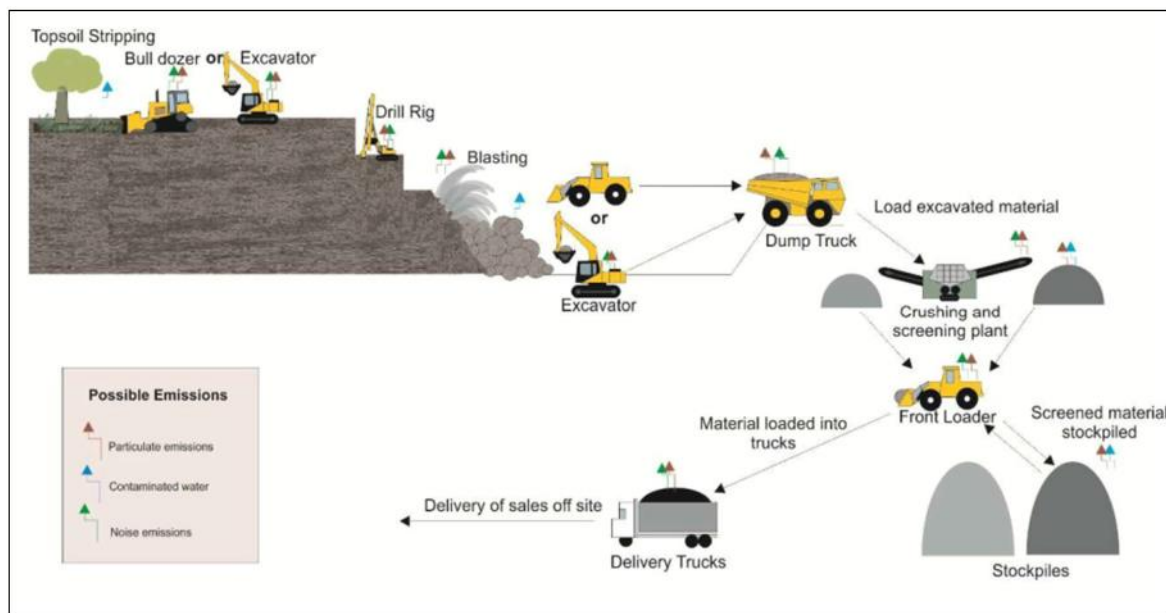


Figure 3 – Conceptual On-site Extractive Operations

3.2 Hours of Operation

The proposed hours of operation for the quarry are:

- loading and haulage: as per the hours of operation for the Paradise Dam Improvement Project for the duration of the project
- extraction and processing: 6:00am – 6:00pm, Monday to Saturday, no operations on Sundays or public holidays
- blasting: 9:00am – 3:00pm, Monday to Friday and 9:00am – 1:00pm, Saturdays

3.3 Plant and Equipment

The number of plant and equipment deployed on site will vary from time-to-time to service individual contracts. Types of major plant and equipment deployed on-site may include, but is not limited to:

- Bulldozer;
- Grader;
- Excavator;
- Drill rig;

- Off-road trucks;
- Front end loader;
- Fixed / mobile crushing and screening plant; and
- On-road haul trucks.

3.4 Development Justification and Need

Paradise Dam is a major dam located on the Burnett River approximately 20km north-west of Biggenden and 80km south-west of Bundaberg, and is owned and operated by Sunwater, a statutory Queensland Government-owned corporation. The dam's primary function is to store water for agricultural, industrial and urban use.

Flooding in 2011 and 2013 caused significant damage to dam infrastructure, reducing the strength and stability of the dam. Short term risk reduction measures were undertaken to prevent dam failure while a longer-term dam remediation plan was confirmed.

In 2021, the Paradise Dam Improvement Project was approved (refer **Figure 4 – Paradise Dam Improvement Project**). The Paradise Dam Improvement Project involves the full remediation of Paradise Dam, including:

- raising the primary spillway and adding a new crest,
- widening the base of the dam and increasing wall thickness,
- extending the downstream apron,
- adding new training walls,
- raising and replacing sections of the secondary spillway,
- improvements to the left abutment, and
- improvements to the intake tower and dam outlet conduits.



Figure 4 – Paradise Dam Improvement Project (source: SunWater website)

Information provided to Groundwork Plus indicates that:

- Approximately 1,200,000 tonnes of quarry material is required for the Paradise Dam Improvement Project, which will equate to approximately 40,000 truck movements; and
- The nearest quarries to Paradise Dam are more than 45 to 60 minutes away, accessible along roads that experience frequent and high wind and have been considered a safety issue for the project.

Therefore, the proposed Paradise Dam Quarry is an ideal supply site for the Paradise Dam Improvement Project and will minimise potential impacts (trucks movements along local road which causes noise and dust impacts) to sensitive receptors and built-up areas in the region.

4 Assessment of Potential Impacts

This section of the report provides a review of the potential impacts associated with the proposed extractive industry operation on the environment and surrounding sensitive receivers. An Environmental Assessment Report ('EAR') and Environmental Management Plan ('EMP') have been prepared, which assess the likely impact of the proposed activity on the Environmental Values, and outline the operational controls and measures that will be employed on site to ensure that potential environmental impacts are managed to the required standards (refer **Attachment 4 – Environmental Assessment Report** and **Attachment 5 – Environmental Management Plan**). The EAR provides an assessment of potential impacts in further detail. The EMP will be the principal management tool for guiding environmental management on the site, by providing a framework at the operational level to prevent, or suitably manage environmental impacts.

4.1 Air Quality (Dust)

Quarry operations involve the use of machinery and activities that have the potential to generate dust including:

- Use of machinery and heavy vehicles;
- Onsite maintenance works;
- Truck movements onsite for transferring raw material;
- Loading, unloading and handling of raw material;
- Movement of raw material on conveyors; and
- Exhaust emissions from mobile equipment.

An Air Quality Management Plan has been prepared to control potential air quality impacts occurring as a result of land disturbance necessary for the site operations and is included as Section 4.1 of the EMP (refer **Attachment 5 – Environmental Management Plan**). The aim of the Air Quality Management Plan is to minimise air quality impacts associated with the site activities and to ensure that dust and particulate matter emissions generated by the operation does not exceed the standard criteria outlined in the model operating conditions for ERA 16. The Air Quality Management Plan outlines management strategies that will be implemented on site to minimise the potential impacts caused by dust emissions.

The proposed operation will also be required to comply with conditions of the EA which will stipulate air quality criteria objectives.

Given that the nearest sensitive receptor is located more than 1.5km from the northern boundary of the site, the implementation of the recommended management strategies outlined in the Air Quality

Management Plan and compliance with the conditions of the EA are considered to be sufficient for demonstrating that the proposed operation will not cause any adverse air quality impacts.

4.2 Noise

Quarry operations involve the use of machinery and activities that have the potential to generate noise including:

- Use of machinery and heavy vehicles;
- Onsite maintenance works;
- Truck movements onsite for transferring raw material;
- Loading, unloading and handling of raw material;
- Movement of raw material on conveyors; and
- Exhaust emissions from mobile equipment.

A Noise Management Plan has been prepared for the proposed operation and is included as Section 4.4 of the EMP (refer **Attachment 5 – Environmental Management Plan**). The purpose of the Noise Management Plan is to control potential nuisance impacts that may occur as a result of noise associated with the site operations. The Noise Management Plan outlines management strategies that will be implemented on site to minimise the potential impacts caused by noise generating activities.

The proposed operation will also be required to comply with conditions of the EA which will stipulate noise quality criteria objectives.

Given that the nearest sensitive receptor is located more than 1.5km from the northern boundary of the site and there are existing ridgelines which provide a topographical barrier between the receptor and the site (refer **Figure 2** above), the implementation of the recommended management strategies outlined in the Noise Management Plan and compliance with the conditions of the EA are considered to be sufficient for demonstrating that the proposed operation will not cause any adverse noise impacts.

4.3 Stormwater

The objective of water management is to ensure that water resources are utilised efficiently on the site and the quality of water leaving the site does not impact on the environmental values downstream of the site. The guiding principles for water management at the site are:

- Runoff from clean catchments will be diverted around disturbed areas to the extent practicable;
- Land disturbance will be minimised to the extent necessary;
- Stormwater control elements will be installed prior to land disturbance and in a logical progression;
- Water requirements will be collected on-site and recycled to the maximum practical extent; and
- Visual monitoring and maintenance will be undertaken to confirm the effectiveness of water treatment systems, erosion and sediment control measures and also to program maintenance.
- Commence rehabilitation of completed extraction areas as soon as practicable in a progressive manner.

A Water Quality Management Plan has been prepared for the proposed operation and is included as Section 4.2 of the EMP (refer **Attachment 5 – Environmental Management Plan**). The purpose of the Water Quality Management Plan is to specify performance targets and outline management strategies and monitoring requirements to ensure that the site is being operated in a way that protects the

environmental value of water. Attachment 2 of the EMP includes a Conceptual Quarry Stormwater Management Plan for the proposed operation which identifies the proposed stormwater control devices.

The operation will also be regulated by the Department of Environment and Science via the EA which will contain conditions relating to water quality criteria.

The implementation of the recommended management strategies outlined in the Water Quality Management Plan and compliance with the conditions of the EA are considered to be sufficient for demonstrating that the proposed operation will not cause any adverse water quality impacts.

4.4 Rehabilitation

Rehabilitation is an essential component of quarry planning and development and as such, a Rehabilitation Management Plan has been prepared for the site and is included in Section 4.7 of the EMP (refer **Attachment 5 – Environmental Management Plan**). Good planning prior to the commencement of extraction greatly assists in the management of environmental impacts and provides for efficient operations. Landscaping and rehabilitation will be incorporated into the day to day operations at the quarry to assist in minimising rehabilitation costs and impacts on the environment whilst ensuring post extraction land use objectives are achieved. The principal objectives of rehabilitation at the proposed quarry will be:

- To reduce the potential for erosion;
- To ensure a safe and stable landform;
- To ensure a sustainable post extraction land use which is likely to be rural uses including cattle grazing.

Rehabilitation is to be undertaken progressively throughout the life of the operations and is to commence in each area as soon as practicable after it is no longer required for operational purposes. Progressive rehabilitation must take place as new areas of extraction are commenced. As discussed previously, rehabilitation of the site may involve the importation of clean earthen material to be used as fill to establish the final landform. The final landform of the site is to demonstrate consideration for the zoning of the land, the relevant precinct (intensive agricultural precinct) and surrounding undisturbed areas. The proposed rehabilitation outcome is to return the site to a suitable landform to support agricultural purposes. Sediment basins may be incorporated in the final landform for ongoing beneficial use by the landowner for water storages (e.g., livestock drinking water supply). The final landform of the site is to demonstrate consideration for the zoning of the land, the relevant precinct (intensive agricultural precinct) and surrounding undisturbed areas.

Rehabilitation requirements will be conditioned as part of the EA for the operation and regulated by DES.

4.5 Groundwater

Drilling investigations were undertaken in 2022 to determine the quality of resource available on the site. A total of eleven (11) holes were drilled as part of these resource investigations (refer to **Figure 5** below). GCC have advised that the drilling did not encounter groundwater.

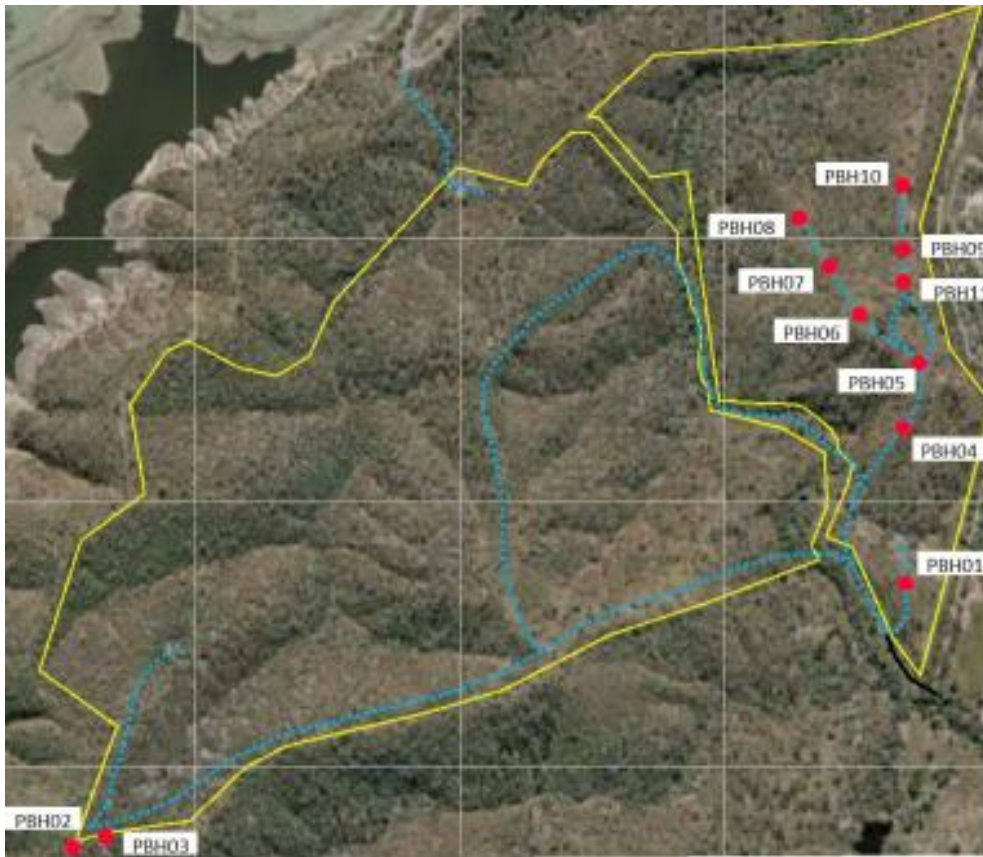


Figure 5 – Paradise Dam 2022 Drilling Investigation

4.6 Blasting and Vibration

Blasting is used to fragment rock and this activity can result in ground vibration and airblast overpressure which may cause annoyance and alarm to neighbours or, in extreme situations, cause damage to property, structures and services. Blasting and explosives technology and practices have advanced rapidly in recent years, ground vibration at quarry sites can be caused by crushing and screening operations, vehicle and mobile machinery movements and drilling and blasting activities. With the exception of blasting, ground vibration from these sources is limited and localised and extremely unlikely to cause annoyance external to the quarry area on site.

GCC are committed to applying modern blasting technology to the proposed quarry operation. Experienced and licensed organisations will be contracted to provide blasting services on site. Various options are available for controlling vibration and airblast from blasting activities. Application of best practice technology to operating practice can be particularly effective in maintaining ground vibration and airblast overpressure levels to within generally acceptable environmental criteria. Various options are available for controlling vibration and air blast from blasting activities.

Blasting limits will be regulated by DES via conditions of the EA. It is anticipated that standard blasting criteria will be applied to the EA for the proposed operation.

4.7 Bushfire

Quarries by their nature, are well equipped to assist and/or deal with bushfire events. The use of heavy earthmoving machinery and water trucks used in the quarry operation can be called upon to assist in the event of a bushfire.

It is considered that any potential bushfire hazards can be adequately managed on-site by implementing the following mitigation measures:

- Utilising available water sources on site for firefighting purposes;
- Keeping the operation areas tidy and not storing any material around the edges of the operation that would increase bushfire risk;
- Maintaining a site attendance register; and
- Maintaining a communication system in place with all on-site personnel.

Notwithstanding this, a Bushfire Management Plan has been prepared for the site and is included in Section 4.8 of the EMP (refer **Attachment 5 – Environmental Management Plan**).

4.8 Traffic

The quarry will use the local road network only to access the Paradise Dam Improvement Project construction zone. No State Controlled Roads will be used as part of the quarry operation.

The site has direct access onto Paradise Road which is a constructed rural road. It is anticipated that two (2) haulage trucks will operate to deliver material to the project. The two (2) haulage trucks will operate on a loop circuit so that whilst one is being loaded at the quarry, the other is delivering material to the project. As a result, there will be multiple truck trips per hour, but only two (2) trucks circulating at any one time to and from the project delivery point and the quarry.

A Traffic Management Plan will be prepared which will include a requirement to radio each time one of the haulage trucks is leaving the quarry, and leaving the project delivery site. This is to ensure that the two (2) haulage trucks will not pass each other on Paradise Road and will assist with safety of the operation.

It is proposed that a dilapidation report for Paradise Road be prepared by a suitably qualified professional at the commencement and cessation of each extraction campaign. This will provide Council with assurance that the maintenance and upkeep of Paradise Road will be the responsibility of GCC during extraction campaigns.

5 Planning Legislation

5.1 Statutory Planning Process

5.1.1 Planning Act 2016

Under the *Planning Act 2016* ('Planning Act'), 'development' is defined as any of the following:

- (a) carrying out–
 - (i) building work;
 - (ii) plumbing or drainage work; or
 - (iii) operational work; or
- (b) reconfiguring a lot; or
- (c) **making a material change of use of premises.**

Material change of use, or premises, means:

any of the following that a regulation made under section 284(2)(a) does not prescribe to be minor change of use–

- (a) **the start of a new use of the premises;**
- (b) the re-establishment on the premises of a use that has been abandoned;
- (c) a material increase in the intensity or scale of the use of the premises.

The proposal falls within the definition of 'development' as defined under the Planning Act, and therefore constitutes a material change to the existing use of the land. Under the Planning Act, the *Development Assessment Rules* ('DA Rules') sets out the development assessment process for applications. The process is illustrated by **Figure 6 – Development Assessment Process** below.

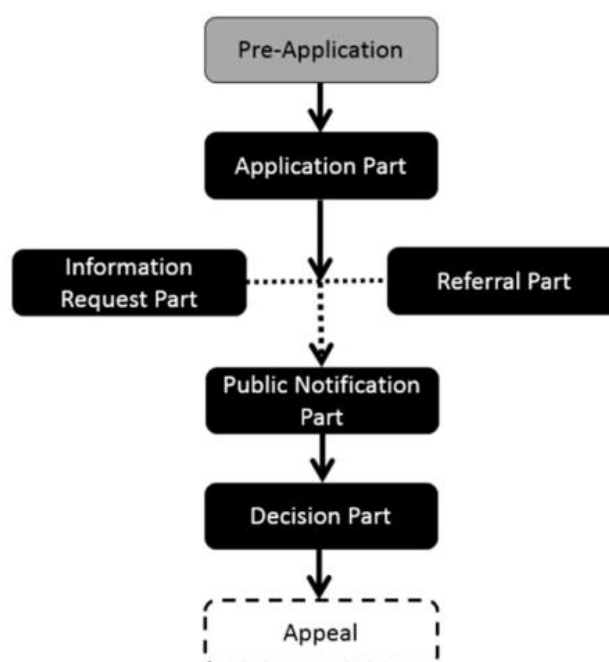


Figure 6 – Development Assessment Process

5.1.2 Planning Regulation 2017

If there is a requirement under the *Planning Regulation 2017* ('Planning Regulation') for an entity other than the assessment manager to have input in the assessment of a development application, the application is referred to a referral agency. Schedule 10 of the Planning Regulation sets out the referral agencies and their jurisdictions.

This development application will trigger referral to SARA within the Department of State Development, Manufacturing, Infrastructure and Planning. **Table 1 – Referral Triggers and State Development Assessment Provisions** shows the matters of State interest which are triggered by the proposed development, and the related State Development Assessment Provisions ('SDAP') for assessment.

Table 1 – Referral Triggers and State Development Assessment Provisions

Matters of State Interest	Development Type	Relevant Planning Regulation Provision	Relevant SDAP
Environmentally Relevant Activities	Material Change of Use	Schedule 10, Part 5, Division 4, Table 2	State Code 22: Environmentally Relevant Activities
State Transport Infrastructure	Various aspects of development	Schedule 10, Part 9, Division 4, Subdivision 1, Table 1	State Code 6: Protection of State Transport Networks

5.1.2.1 Environmentally Relevant Activities

A Material Change of Use for concurrence ERAs will be triggered as part of the development application. ERAs are regulated by the Environmental Protection Act 1994 ('EP Act') which requires that any person carrying out an ERA must hold or be acting under an EA for the activity. Pursuant to Section 115 of the EP Act, the development application will also be an EA application and is coordinated in the development assessment process. Assessment against State Code 22 has been provided in **Attachment 6 – SDAP Code Assessment**.

5.1.2.2 State Transport Infrastructure

Schedule 20 of the Planning Regulation outlines development which impacts on State transport infrastructure and their thresholds. Number 17 of Schedule 20 identifies that an Extractive Industry with an annual throughput of product of at least 10,000 tonnes triggers referral under Schedule 10, Part 9, Division 2, Subdivision 1. The proposed operation exceeds 10,000 tonnes of material per year and as such, assessment against State Code 6 has been provided in **Attachment 6 – SDAP Code Assessment**. However, as discussed above quarry material from the quarry is not proposed to be transported on the State controlled road network.

5.2 State Planning Instruments

5.2.1 State Planning Policy 2017

The *State Planning Policy 2017* ('SPP') sets out the State planning interests for responsible land-use planning and development across Queensland. Local Governments are required to consider the State interests that apply to their particular areas when preparing and implementing their Planning Schemes.

The *North Burnett Regional Planning Scheme 2014* states that all relevant aspects of the SPP have been appropriately integrated. The sections of the SPP identified as not relevant to Council are identified as:

- State interest—Coastal environment;
- State interest—Natural hazards, risk and resilience for coastal hazards—erosion prone areas;
- State interest—Strategic airports; and,
- State interest—Strategic ports.

5.2.2 Environmental Protection Act 1994

The EP Act regulates the assessment process for EAs relating to relevant ERAs. In addition to a development approval under the Planning Act, the EP Act requires that any person carrying out an ERA must hold, or be acting under, an EA for the activity.

In accordance with the *Environmental Protection Regulation 2008* ('EP Reg'), the proposed ERAs to be carried out on the site are shown in **Table 2** below.

Table 2 – Proposed ERAs and Thresholds

Proposed ERA and Threshold	AES	Annual Fee	ERA Type
ERA 16 – Extractive and Screening Activities			
2(b) – extracting, other than by dredging, in a year, the following quantity of material – more than 100,000t but not more than 1,000,000t	39	\$11,181.30	Concurrence
3(b) – screening, in a year, the following quantity of material – more than 100,000t but not more than 1,000,000t	29	\$8,314.30	Prescribed

Pursuant to Section 115 of the EP Act, this development application is also an application for an EA and is coordinated in the development assessment process. In accordance with Section 125 of the EP Act, this development application includes the following mandatory requirements for making an application for an EA:

- 125(1)(a) The application will be made to the administering authority.
- 125(1)(b) The application has been made using the approved forms.
- 125(1)(c) The application describes all ERAs (refer **Table 2 – Proposed ERAs and Thresholds**).
- 125(1)(d) The application describes the land on which the activities will be carried out.
- 125(1)(e) The application for an EA will be accompanied by the appropriate fee on referral of the application to SARA.
- 125(1)(f) The application has only one applicant.
- 125(1)(g) The application is a Site-Specific Application.
- 125(1)(h) The applicant is a Registered Suitable Operator.
- 125(1)(i) The application is for a Development Permit for a Material Change of Use – Extractive Industry.
- 125(1)(j) The application is not a standard application.

- 125(1)(k) The application is not a variation application.
- 125(1)(l) The application is a Site-specific application.
- (i) The EAR (refer **Attachment 4 – Environmental Assessment Report**) includes an impact assessment of each relevant activity on the environmental values of the site, including:
 - (A) A description of the environmental values likely to be affected by each relevant activity;
 - (B) Details of any emissions or releases likely to be generated by each relevant activity;
 - (C) A description of the risk and likely magnitude of impacts on the environmental values;
 - (D) Details of the management practices proposed to be implemented to prevent or minimise adverse impacts;
 - (E) Details of how the land subject to the application will be rehabilitated after each relevant activity ceases.
 - (ii) A description of the proposed measures for minimising and managing waste generated by each relevant activity has been addressed.
 - (iii) The site is not subject to any Site Management Plan (associated with Part 8 - Contaminated Land of the EP Act).
- 125(1)(m) The application is for a prescribed ERA (and a concurrence ERA). The applicant wants the EA granted as part of this application, to take effect the day that the land use commences (Material Change of Use – Extractive Industry).
- 125(1)(n) The application is not for a mining activity.
- 125(1)(o) The application includes all relevant documents relating to the application prescribed under the EP Reg. An EAR (refer **Attachment 4 – Environmental Assessment Report**) has been prepared, which addresses the following:
- Schedule 5, Part 3, Table 1 of the EP Reg outlines the environmental objective and performance outcomes for an Operational Assessment, which is a requirement pursuant to Section 51 of the EP Reg to assist the administering Authority with their decision.
 - Schedule 5, Part 3, Table 2 of the EP Reg outlines the environmental objective and performance outcomes for a Land Use Assessment which is required to be assessed against the proposed development pursuant to Schedule 7, Table 2, Item 1 of the EP Reg.

5.2.3 Nature Conservation Act 1992

The *Nature Conservation Act 1992* ('NCA') regulates the clearing of native plants in Queensland to protect our critically endangered, endangered, vulnerable and near threatened plants for current and future generations. The *Nature Conservation (Plants) Regulation 2020* prescribes the regulatory requirements and the list of critically endangered, endangered, vulnerable or near threatened plants. Flora Survey Trigger mapping identifies a significant portion of the site as a 'high risk area' (refer **Figure 7** below). The quarry operation will be located in the eastern section of the site, outside of the mapped 'high risk area'. As such, assessment against the NCA is not required in this instance.

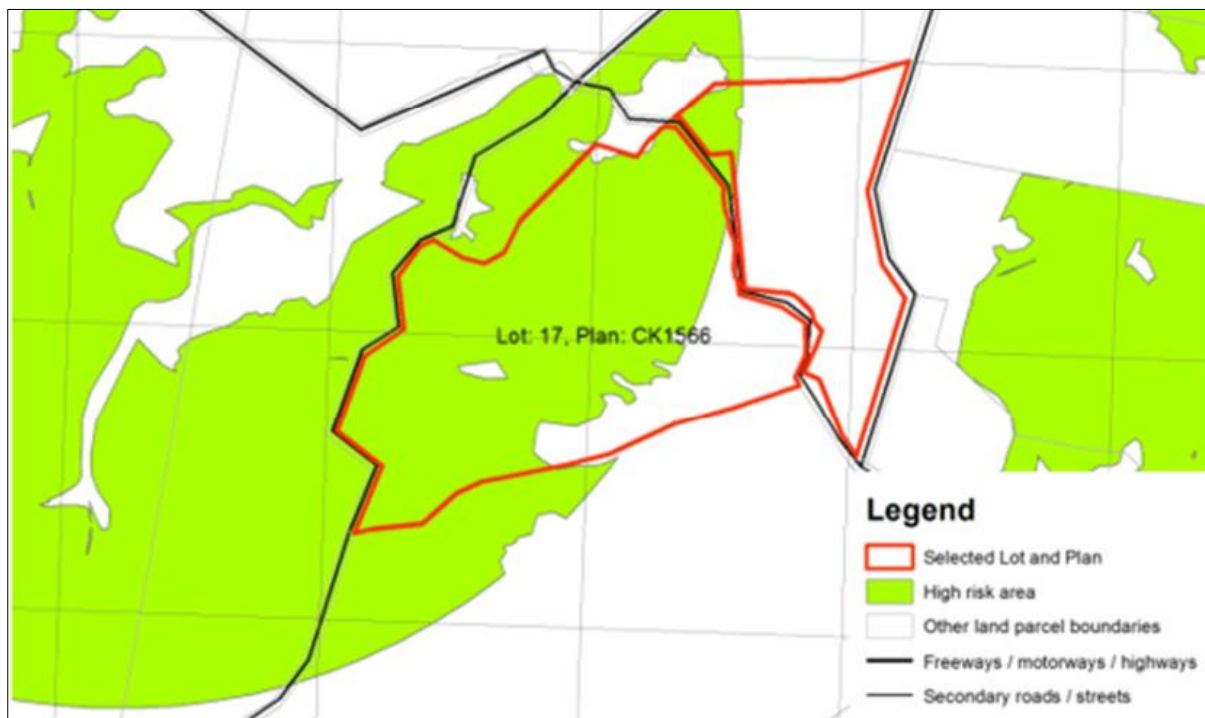


Figure 7 – Flora Survey Trigger Map

5.2.4 Water Act 2000

The *Water Act 2000* (Water Act), in conjunction with other State legislation, regulates the taking and interfering with water in Queensland. Pursuant to Section 26 of the Water Act, "All right to the use, flow and control of all water in Queensland are vested in the State". Therefore, any water is a 'State Resource'.

Part 3 of the Water Act outlines how the State authorises the taking or interfering with water. Pursuant to Section 94, the general authorisations to interfere with water allow the following:

94 General authorisations to interfere with water

Any person may do any of the following-

- (a) *Interfere with overland flow water;*
- (b) *Interfere with water from a watercourse, lake, spring by impoundment for structures used by the State of the Commonwealth to collect monitoring data.*

The development application is for ERAs and an EA and therefore, the authorisations in Section 97 of the Water Act are also applicable (**emphasis added**):

97 Environmental Authorities

- (1) **A person may take overland flow water that is not more than the volume necessary to satisfy the requirements of-**
 - (a) **An environmental authority;** or
 - (b) **A development permit carrying out an environmentally relevant activity,** other than a mining or petroleum activity, under the *Environmental Protection Act 1994*, schedule 4.

- (2) ***A person may interfere with the flow of water by impoundment if the interference is not more than is necessary to satisfy the requirements of an environmental authority.***
- (3) *However, subsections (1) and (2) apply only if-*
 - (a) ***The impacts of the take or interference were assessed as part of a grant of an environmental authority or development permit; and***
 - (b) *The environmental authority or development permit was granted with a condition about the take or interference with water.*

Typical of most extractive industry operations, the quarry footprint will be encompassed by a perimeter bund. Overland flow that falls within the quarry footprint will be collected, treated and re-used on site as part of the quarry operation.

5.3 Local Planning Instruments

5.3.1 Wide Bay Burnett Regional Plan

Regional plans are part of a suite of policies and legislative instruments that guide land use planning and development to influence economic, social and environmental factors in Queensland.

North Burnett Regional Council falls within the Wide Bay Burnett Regional Plan ('Regional Plan'), which commenced in September 2011. The purpose of the Regional Plan is to manage regional growth and change in the most sustainable way to protect and enhance quality of life in the region.

The Minister has identified that the North Burnett Regional Planning Scheme 2014 ('Planning Scheme'), specifically the strategic framework, appropriately advances the Wide Bay Burnett Regional Plan as it applies in the planning scheme area.

5.3.2 North Burnett Regional Planning Scheme 2014

The *North Burnett Regional Planning Scheme 2014* ('Planning Scheme') provides a framework for managing development within the North Burnett Regional Council local government area. The planning scheme divides areas into zones and precincts, set objectives for development in each zone, and manages development in accordance with criteria, development to satisfy the objectives.

5.3.2.1 Zones and Precincts

The Planning Scheme divides the North Burnett Region into zones and precincts to facilitate the location of preferred or acceptable land uses. The site is located with the Rural Zone, and the Intensive Agriculture Precinct. The purpose of the Rural zone is to—

- (a) *provide for rural uses and activities; and*
- (b) *provide for other uses and activities that are compatible with—*
 - i. *existing and future rural uses and activities; and*
 - ii. *the character and environmental features of the zone; and*
- (c) *maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes.*

The Overall Outcomes of the Intensive Agriculture Precinct are as follows:

- (a) *the protection of most Important agricultural areas for cropping purposes;*
- (b) *intensive animal industries and extractive industry located outside the precinct*

Extractive resources are site specific, limited in occurrence by geological conditions and are finite. As such, quarries can only be located where the resource occurs and is able to be accessed. The proposed operation has been located on the site to allow access to the known resource whilst avoiding any matters of environmental significance.

Given that the purpose of the rural zone considers uses other than rural uses, the fact that the proposed extractive industry operation is to supply materials to the Paradise Dam Improvement Project, which is located approximately 1.5kms from the quarry, and the site is currently not being used for any agricultural uses, the proposal is considered to be an appropriate use of the land in line with the intent of the Planning Scheme. Rehabilitation of the site is to be undertaken progressively throughout the life of the operations and is to commence in each area as soon as practicable after it is no longer required for operational purposes.

5.3.2.2 Use Definition

Schedule 1 of the Planning Scheme defines uses and administrative definitions. 'Extractive Industry' is defined as the use of a premises for:

- (a) *extracting or processing extractive resources; and*
- (b) *any related activities, including, for example, transporting the resources to market.*

The processing of extractive resources from external sources (i.e other quarries) is considered to meet the definition of 'Extractive Industry'.

5.3.2.3 Level of Assessment

The Planning Scheme comprises assessment tables which identify the level of assessment for development in each zone. Assessment tables distinguish between exempt, self-assessable, code assessable and impact assessable development. Table 5.5.7 identifies that a Material Change of Use for Extractive located in the rural zone that is not in a key resource and processing area or local resource and processing area is Impact Assessable.

5.3.2.4 Strategic Framework

As the proposed development is listed as Impact Assessable, it must be assessed against the entirety of the Planning Scheme, including the Strategic Framework. The Strategic Framework provides the policy direction of the Planning Scheme and forms the basis for ensuring appropriate development occurs within the North Burnett Regional Council local government area. The Strategic Framework is made up of five (5) themes, which include:

1. Natural Environment and sustainability;
2. Strong rural economy and futures;
3. Community strength and wellbeing;
4. Settlement pattern; and
5. Infrastructure, services and facilities.

The proposed operation has been assessed against the relevant sections of the Strategic Framework in **Table 3** below to demonstrate compliance with the policy of the Planning Scheme.

Table 3 – Assessment of Strategic Outcome

Element	Specific Outcome	Response
Natural Environment and sustainability		
(1) The natural environment and biodiversity—conserving or protecting the natural environment, including but not limited to its biological diversity, ecological integrity, and natural assets, is essential for sustaining a healthy and prosperous North Burnett.	<p>(a) Biological and ecological systems remain healthy and support the health of residents and users.</p> <p>(b) Viable terrestrial and riparian habitat corridors and networks remain intact.</p> <p>(c) The region's natural assets and biodiversity, generally in those areas identified on Strategic Framework Map SF-001, remain undisturbed, including—</p> <ul style="list-style-type: none"> (i) matters of national environmental significance protected under the Environmental Protection and Biodiversity Conservation Act 1999 (Cwlth); (ii) matters of state environmental significance protected under the Nature Conservation Act 1992 including the region's National Parks; and (iii) matters of local environmental significance outside the conservation estates, such as those in localities like Aranbanga, Brovinia, Cania, Hawkwood and West Eidsvold. 	The quarry has been designed to avoid mapped local and state significant vegetation and other environmental constraints such as waterways. Vegetation clearing will be limited to what is necessary to access the resource and will be staged in line with operational needs. The quarry will be operated in accordance with an EA which will specify conditions limiting the impacts to environmental values such as noise, dust, water, stormwater and rehabilitation. The quarry will be rehabilitated at the cessation of extractive activities and the final landform of the site is to demonstrate consideration for the zoning of the land and surrounding undisturbed areas. This will ensure that the existing environmental values of the site will be sustained over the long term.
(2) Waterways, wetlands, catchments, stormwater and flood plains—perform important functions, including aiding in water filtration, biological productivity, wildlife habitat, water storage and are therefore important to the future	(a) Areas that have environmental significance, including but not limited to riparian and wetland ecosystems, regulated vegetation under the Vegetation Management Act 2009, and those places generally shown on Strategic Framework Map SF-001 as 'Waterbody, waterway and wetland', retain their physical	

Element	Specific Outcome	Response
environmental health and human settlement.	<p>condition, ecological health and environmental values.</p> <p>(b) River systems, groundwater, wetlands and other natural water resources remain undisturbed.</p> <p>(c) Drinkable water supply catchments remain free of incompatible land uses that would otherwise compromise water quality.</p>	
(4) Environmental health—minimising or avoiding emissions by separating industry activities from sensitive or natural environments will provide acceptable standards of environmental health.	<p>(a) Urban and rural environments avoid conflicts between uses that generate harmful air, noise and odour emissions and sensitive land uses.</p> <p>(b) Individuals and communities have healthy and safe environments that enable wellbeing and create a pleasant environment.</p>	The nearest sensitive receptor (dwelling) is located over 1.5km from the proposed quarry operation. Through onsite controls and management measures, potential emissions will be appropriately managed to ensure that the potential for impacts to sensitive land uses is minimised. This will be regulated and administered by DES through the EA under the EP Act.
Strong rural economy and futures		
(3) Infrastructure—appropriate levels of infrastructure and associated services are essential ingredients in securing the future of the North Burnett Region.	<p>(a) The timely provision of infrastructure and services enhances linkages with rural sector markets and service providers and facilitates a prosperous rural sector.</p> <p>(b) Strategic infrastructure operates without interference from inappropriate nearby development.</p> <p>(c) Towns and villages have appropriate levels of infrastructure and associated services.</p>	The quarry will directly support the Paradise Dam Improvement Project.
(7) Extractive and mineral resources—are required for sustaining growth and development with minerals and construction materials, both in and outside the region, but need appropriate	<p>(a) Areas containing extractive and mineral resources remain available for extraction or mining consistent with demonstrated overriding need in the public interest.</p> <p>(b) Uses incompatible with mining or extractive industries do not locate close to mineral or</p>	The quarry is suitably located to avoid protected vegetation and maintain a suitable buffer to sensitive land uses (over 1.5km). The quarry a major local infrastructure project being the Paradise Dam Improvement Project.

Element	Specific Outcome	Response
management to avoid detrimental impacts on the amenity and health of communities.	<p>extractive resources or their associated haul routes.</p> <p>(c) Towns and villages have a buffer of at least 5 km separating them from potential or existing mines or major extraction areas.</p>	
Infrastructure, services and facilities		
(1) Key infrastructure sites and corridors— such as Paradise Dam, gas pipelines, or power transmission lines are important economic assets for maintaining a contemporary standard of living and community wellbeing.	<p>(a) Land uses minimise or avoid conflicts with strategic economic infrastructure used to deliver electricity, gas, oil or telecommunication services.</p> <p>(b) Corridors for accommodating infrastructure networks operate free of interference from potentially incompatible land uses.</p>	The quarry will directly support the Paradise Dam Improvement Project. The site has direct access onto Paradise Road which is a constructed rural road. A Traffic Management Plan will be prepared. A road dilapidation report will also be prepared to ensure Paradise Road is maintained.
(4) Stormwater management—aids water filtration, biological productivity, wildlife habitat, water storage and is therefore important to the future environmental health and human settlement in the North Burnett.	(a) Stormwater management systems minimise adverse impacts on water quality in receiving waters.	The quarry is designed and will be managed to ensure that water resources are utilised efficiently on the site and the quality of water leaving the site does not impact on the environmental values downstream of the site. A Water Quality Management Plan has been prepared for the proposed operation and is included as Section 4.2 of the EMP (refer Attachment 5 – Environmental Management Plan). The purpose of the Water Quality Management Plan is to specify performance targets and outline management strategies and monitoring requirements to ensure that the site is being operated in a way that protects the environmental value of water.
(6) Transport infrastructure—including road, rail, aviation, cycleways, and pedestrian paths are important to the overall wellbeing and prosperity of communities in the North Burnett.	<p>(a) A well-defined and suitable road network enables good connectivity.</p> <p>(b) The form and scale of each principal towns is walkable and encourages active transport.</p>	The quarry will supply quarry materials to the Paradise Dam Improvement Project only. The quarry will support the construction and maintenance of transport infrastructure and support the North Burnett region

Element	Specific Outcome	Response
	<p>(c) Pedestrian and cycle connections provide links between schools, residential areas, places of employment, parks and recreation facilities.</p> <p>(d) Land uses close to strategic transport corridors and aerodromes avoid adverse impacts on the strategic infrastructure and mitigate adverse impacts from the environmental emissions generated.</p> <p>(e) Existing or future rail corridors retain their safety and operational integrity.</p>	

5.3.2.5 Applicable Council Codes

The Planning Scheme contains specific zone codes, overlay codes and development codes for development to be assessed against. The following codes are applicable to the application:

- Rural Zone Code
- Flood Hazard overlay Code
- Extractive industry code
- Infrastructure and operational works code

A full assessment of the proposed development against the relevant codes has been provided in **Attachment 7 – Council Code Assessment**.

6 Conclusion

This report has been prepared to support a development application for a Material Change of Use – Extractive Industry and associated Environmentally Relevant Activities at Paradise Road, Coringa QLD 4621, properly described as Lot 17 on CK1566.

This development application seeks to establish a campaign-based quarry operation to supply materials to the Paradise Dam Improvement Project, which is located approximately 1km to the north of the site. The quarry would operate in conjunction with the project and it is not proposed to supply the general market. It is not proposed transport quarry materials from the quarry on the State controlled road network.

An Environmental Management Plan has been developed for the operation which outlines the operational controls and measures that will be implemented on site to ensure that potential environmental impacts are managed to the required standards. The proposed quarry operation will be regulated by DES via an EA which impose limits and conditions relating to air, noise, water, vibration and rehabilitation.

A Traffic Management Plan would be prepared for the quarry to outline the operational controls and measures that would be implemented to manage truck movements between the quarry and the project and would include a driver code of conduct.

Paradise Road is an unsealed rural local road. The quarry will be the primary user of the portion of Paradise Road from the site access to Paradise Dam Road. On that basis, it is proposed that the quarry would be responsible for the maintenance of Paradise Road whilst the quarry is operating to supply materials to the project. A road dilapidation report prepared by a suitably qualified Registered Professional Engineer Queensland (RPEQ) would be submitted to Council prior to commencement of haulage on Paradise Road.

Having regard to the assessment conducted, it is considered that the proposed development has been demonstrated as consistent with the planning and environmental objectives outlined within the relevant local authority planning instruments and policies. Therefore, it is recommended that the proposed development be supported by the relevant authorities and should be approved by Council, subject to reasonable and relevant conditions.

ATTACHMENTS

Attachment 1

Council Pre-lodgement Meeting Minutes

Attachment 2

Title Search

Attachment 3

Proposal Plans

Attachment 4

Environmental Assessment Report

Attachment 5

Environmental Management Plan

Attachment 6

SDAP Code Assessment

Attachment 7

Council Code Assessment

NORTH BURNETT REGIONAL COUNCIL PRE-LODGEMENT MEETING – PARADISE DAM QUARRY

A Prelodgement Meeting was held with North Burnett Regional Council at 10.30am – 11.00am on 29 March 2023, to discuss the Development Application for Material change of Use – Development Permit for Extractive Industry and Concurrence Environmentally Relevant Activities for the Paradise Dam Quarry

Attendees:

- ❖ Lyn McLeod – *North Burnett Regional Council*
- ❖ David Rowland – *North Burnett Regional Council*
- ❖ John Fraser – *North Burnett Regional Council*
- ❖ Carl Bacon – *North Burnett Regional Council*
- ❖ Anna Scott – *North Burnett Regional Council*
- ❖ Brett Evans – *Galilee Crushing & Civil Pty Ltd*
- ❖ David Newby – *Insite SJC* (Council Consultant Town Planner)
- ❖ Sam Lyons – *Groundwork Plus* (Senior Town Planning Consultant)
- ❖ Jim Lawler – *Groundwork Plus* (Associate / Project Director)
- ❖ Jack Wallace – *Groundwork Plus* Graduate Town Planner

Introduction

- Introduction of attendees.
- Description of proposal (as described in Prelodgement Meeting Request Letter) and request for Council feedback.

Council Concerns

David Newby:

- No fundamental Concerns - Elements to consider in reporting:
 - Assessment benchmarks within the scheme shall be addressed.
 - Visual impacts are not anticipated – address with brief paragraph.
 - Confirm location of nearby sensitive receptors to demonstrate that proposed operation will not cause impacts.

Sam Lyons:

- Nearest dwelling is located over 4 km away from the site.

David Newby:

- Asked for confirmation on campaign basis of operation.

Brett Evans:

- Outlined ongoing discussions with Sunwater regarding the Paradise Dam Improvement Project and confirmed that the supply site will be operated for the length of the project – providing construction materials sourced on site and location for storage of overburden and potential third party imported material (associated with the PDIP)

NORTH BURNETT REGIONAL COUNCIL PRE-LODGEMENT MEETING – PARADISE DAM QUARRY

Brett Evans:

- Discussed the prospect of delivering clean fill to the site from the Paradise Dam Improvement Project which could be incorporated into rehabilitation of the site.

David Newby:

- Confirmed Council would have no concerns with the delivery of clean fill to the site for this purpose.

David Newby:

- Questioned the processing of material from variously sourced locations and if this would meet the definition of 'extractive industry' or require approval for an additional land use.

Sam Lyons:

- A clear description of the proposal will be provided to Council as part of the finalised Development Application material including the appropriate land use definition for approval.

Anna Scott:

- Querying the anticipated amount of truck movements required on a daily basis.

Brett Evans:

- Confirmed that no modelling has been undertaken as of yet as the operational parameters of the potential conveyor are yet to be determined.

Anna Scott:

- Querying the elevation of the neighbouring nearest receptor and potential of amenity/noise impacts.

Jim Lawler:

- The receptor resides in proximity to the water level of the Paradise Dam and is considered to have a low elevation. As such, it is anticipated that the proposal will have no noise/dust/amenity impact to the receptor.

Brett Evans:

- Confirmed that receptor is not visible from the site and reaffirmed that no haulage trucks will be sent in the direction of the receptor.

Jim Lawler:

- Advised that a cross section of the topography between the proposed operation and the receptor may be provided if required by Council.

David Newby:

- Sought information on the rehabilitation/long-term use of the site.

Jim Lawler:

- Advised that at the end of the extraction campaign, as per the requirements of the Environmental Authority, the site will be returned to a safe, stable, non-polluting state suitable for future rural land uses.

David Newby:

- Requested plans showing staging of Operation.

NORTH BURNETT REGIONAL COUNCIL PRE-LODGEEMENT MEETING – PARADISE DAM QUARRY

Jim Lawler:

- Not required as the proposal is not for a long-term, ongoing operation, however the proposal plans will include:
 - Stormwater basins
 - Extraction and operations area with direction of extraction
 - Site office/weighbridge/amenities/etc.
 - Operational procedures to be provided in Environmental Management Plan and Environmental Assessment Report

Summary and Conclusion

John Fraser:

- Any further Questions, please contact himself or Lyn McLeod.

David Newby:

- Re-affirmed that the proposal is fundamentally acceptable.

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 42182644
Search Date: 06/09/2022 09:42

Title Reference: 17255117
Date Created: 02/03/1989

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Dealing No: 715947519 12/08/2014

CRAIG DOUGLAS TAYLOR

ESTATE AND LAND

Estate in Fee Simple

LOT 17 CROWN PLAN CK1566
Local Government: NORTH BURNETT

For exclusions / reservations for public purposes refer to
Plan CP CK1566

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
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2. MORTGAGE No 716716989 27/08/2015 at 14:29
COMMONWEALTH BANK OF AUSTRALIA A.B.N. 48 123 123 124

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713544009	VEG NOTICE	29/10/2010 14:21	CURRENT

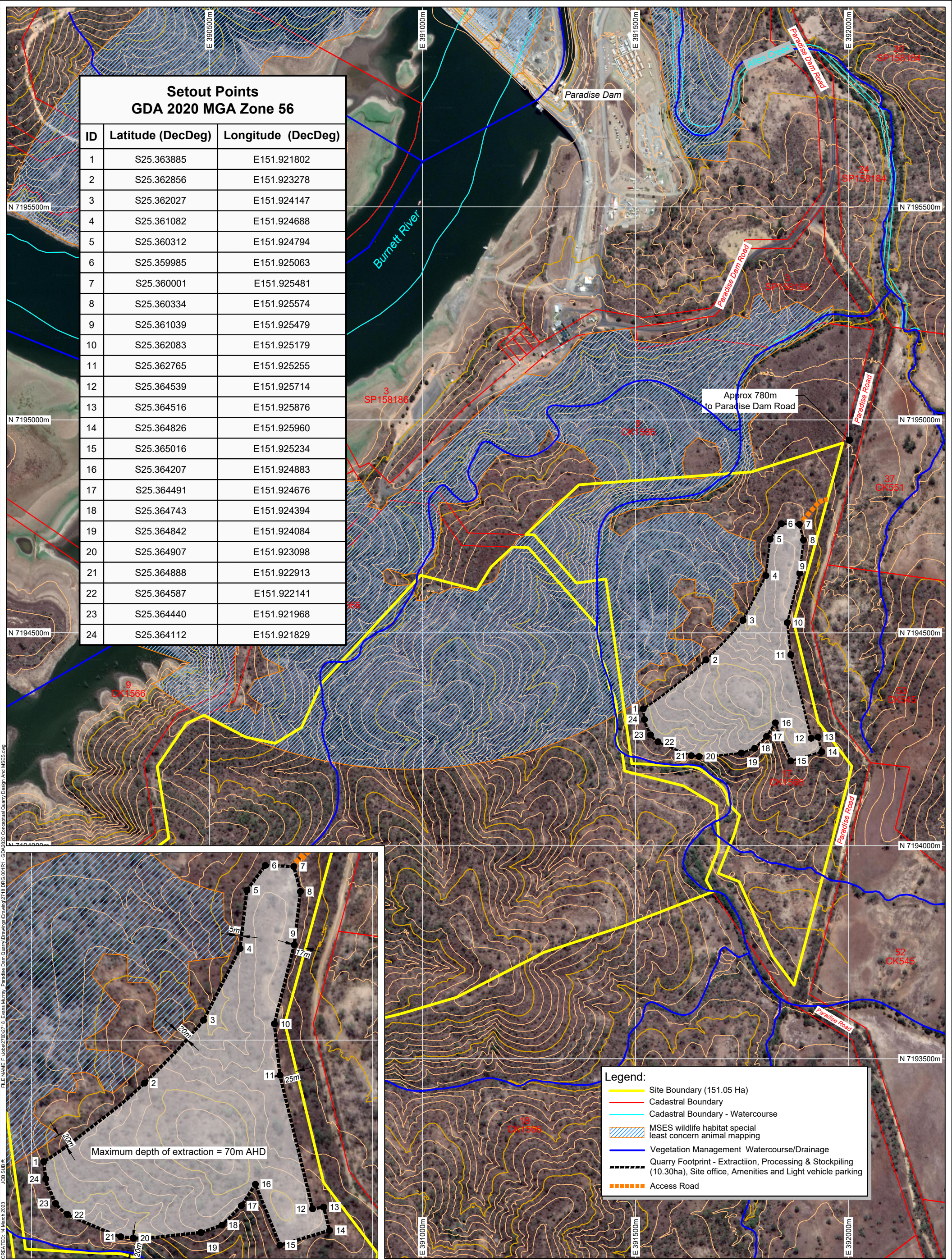
VEGETATION MANAGEMENT ACT 1999

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Setout Points GDA 2020 MGA Zone 56		
ID	Latitude (DecDeg)	Longitude (DecDeg)
1	S25.363885	E151.921802
2	S25.362856	E151.923278
3	S25.362027	E151.924147
4	S25.361082	E151.924688
5	S25.360312	E151.924794
6	S25.359985	E151.925063
7	S25.360001	E151.925481
8	S25.360334	E151.925574
9	S25.361039	E151.925479
10	S25.362083	E151.925179
11	S25.362765	E151.925255
12	S25.364539	E151.925714
13	S25.364516	E151.925876
14	S25.364826	E151.925960
15	S25.365016	E151.925234
16	S25.364207	E151.924883
17	S25.364491	E151.924676
18	S25.364743	E151.924394
19	S25.364842	E151.924084
20	S25.364907	E151.923098
21	S25.364888	E151.922913
22	S25.364587	E151.922141
23	S25.364440	E151.921968
24	S25.364112	E151.921829

- Legend:
- Site Boundary (151.05 Ha)
 - Cadastral Boundary
 - Cadastral Boundary - Watercourse
 - MSES wildlife habitat special least concern animal mapping
 - Vegetation Management Watercourse/Drainage
 - Quarry Footprint - Extraction, Processing & Stockpiling (10.30ha), Site office, Amenities and Light vehicle parking
 - Access Road

REV	DESCRIPTION	DATE	BY
Data Sources:			
Photography: Google Earth Imagery_Captured 2020-11-22			
Topography: Cadastral: © The State of Queensland (Department of Resources), 2022			
Ecosystem: Other:			
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PROJECT:	Paradise Dam Quarry
CLIENT:	Galilee Crushing & Civil Pty Ltd

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SCALE:	1:8000
DATE:	14 March 2023
PRINTED:	14 March 2023
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Paradise Dam Quarry

Environmental Assessment Report

Prepared for: Galilee Crushing & Civil Pty Ltd

Date: April 2023

File Reference: 2718_620_001

DOCUMENT CONTROL

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Principal Author:	Jack Wallace
Client:	Galilee Crushing & Civil Pty Ltd
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Galilee Crushing & Civil Pty Ltd	1 x Electronic
State Assessment and Referral Agency	1 x Electronic
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GROUNDWORK PLUS

Phone: 1800 GW PLUS (1800 497 587)

Email: info@groundwork.com.au

Website: groundwork.com.au

ABN 13 609 422 791

VIC/TAS

WeWork | Groundwork Plus

Office 21-106

120 Spencer Street, Melbourne

Vic 3000

QLD/NSW

6 Mayneview Street, Milton Qld 4064

PO 1779, Milton BC Qld 4064

Phone: +61 7 3871 0411

Fax: +61 7 3367 3317

Geotechnical Laboratory

Unit 78/109 Leitchs Road, Brendale Qld 4500

Phone: 0417 615 217

SA/WA/NT

2/3 16 Second St, Nuriootpa SA 5355

PO Box 854, Nuriootpa SA 5355

Phone: +61 8 8562 4158

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GDA2020 Conceptual Quarry Design and MSES (Drawing no. 2718.DRG.001R1)

ATTACHMENTS

Attachment 1 EMR / CLS Search Results

1 Introduction

1.1 Background

Groundwork Plus has been engaged by Galilee Crushing & Civil Pty Ltd ('GCC') to prepare and submit a development application to the North Burnett Regional Council ('Council') for a Material Change of Use for Extractive Industry and Concurrence Environmentally Relevant Activities ('ERAs'), which is also taken to include an Environmental Authority ('EA') application, on land located at Paradise Road, Coringa QLD 4621, properly described as Lot 17 on CK1566 (herein referred to as the 'site'). The development will comprise the following Prescribed Environmentally Relevant Activities ('ERAs') under the *Environmental Protection Regulation 2019* ('EP Reg'):

- ERA 16 Threshold (2)(b) Extracting, other than by dredging, in a year, more than 100,000t but less than 1,000,000t; and
- ERA 16 Threshold (3)(b) Screening, in a year, more than 100,000t but less than 1,000,000t.

The application comprises of the following components:

- Material Change of Use – Development Permit for Extractive Industry;
- Material Change of Use – Development Permit for a concurrence ERAs; and
- EA for the above-mentioned Prescribed ERAs.

The activities will be carried out as a staged development and the site will be operated to supply essential construction materials to the Paradise Dam Improvement Project. The improvement project is an initiative of the Queensland Government and is aimed at returning the dam to its original height, and strengthen and stabilise the dam wall to significantly improve safety (Sunwater n.d.). The quarry will supply construction materials to the Paradise Dam Improvement Project initially but may also operate in the future as a campaign based quarry for other public or private projects from time to time.

A single extraction area has been identified on each allotment as shown in the attached drawing titled **GDA2020 Conceptual Quarry Design and MSES (2718.DRG.001R1)**. Within the pit, the site operations will use standard extraction and screening methods. The entire area identified as the 'operational area' will be used for extraction, screening and stockpiling of materials.

The purpose of this Environmental Assessment Report ('EAR') is to support the EA application, by providing the information necessary to assist the State Assessment and Referral Agency ('SARA') and Department of Environment and Science ('DES') in the assessment process for the EA.

The operator of the ERA 16 activities will be Galilee Crushing & Civil Pty Ltd.

1.2 Purpose of the EAR

The application requirements for Site-specific EA applications for Prescribed ERAs are outlined in Section 125 (l)(i) of the Environmental Protection Act 1994 ('EP Act') and must include:

- an assessment of the likely impact of the proposed activity on the Environmental Values ('EVs'), including:
 - a description of the EVs likely to be affected by the activity.
 - details of any emissions or releases likely to be generated by the activity.
 - a description of the risk and likely magnitude of impacts on the EVs.
 - details of the management practices proposed to be implemented to prevent or minimise adverse impacts.
 - details of how the land the subject of the application will be rehabilitated after each relevant activity ceases.
- a description of the proposed measures for minimising and managing waste generated by each relevant activity.
- details of any site management plan that relates to the land the subject of the application or any other document relating to the application prescribed a regulation.

1.3 Eligibility Criteria and Standard Conditions

ERA 16 Threshold (2)(b) is not an activity to which an ERA standard applies. Therefore, the eligibility criteria and standard conditions do not apply to the proposed activity and no further assessment of the eligibility criteria or standard conditions has been included in the application material.

Applicants who are not able to meet the eligibility criteria prescribed by the administering authority are required to make a Site-Specific EA application. As a result, a Site-Specific EA is applied for, subject to the Model Operating Conditions—ERA 16—Extractive screening activities ('MOC') (DES 2019a) and relevant Common conditions – Prescribed environmentally relevant activities (DES 2019b).

1.4 Site Description

The location details for the proposed activities area summarised in **Figure 1 – Aerial Photo and Cadastre** and **Table 1 – Summary of Subject Land**.

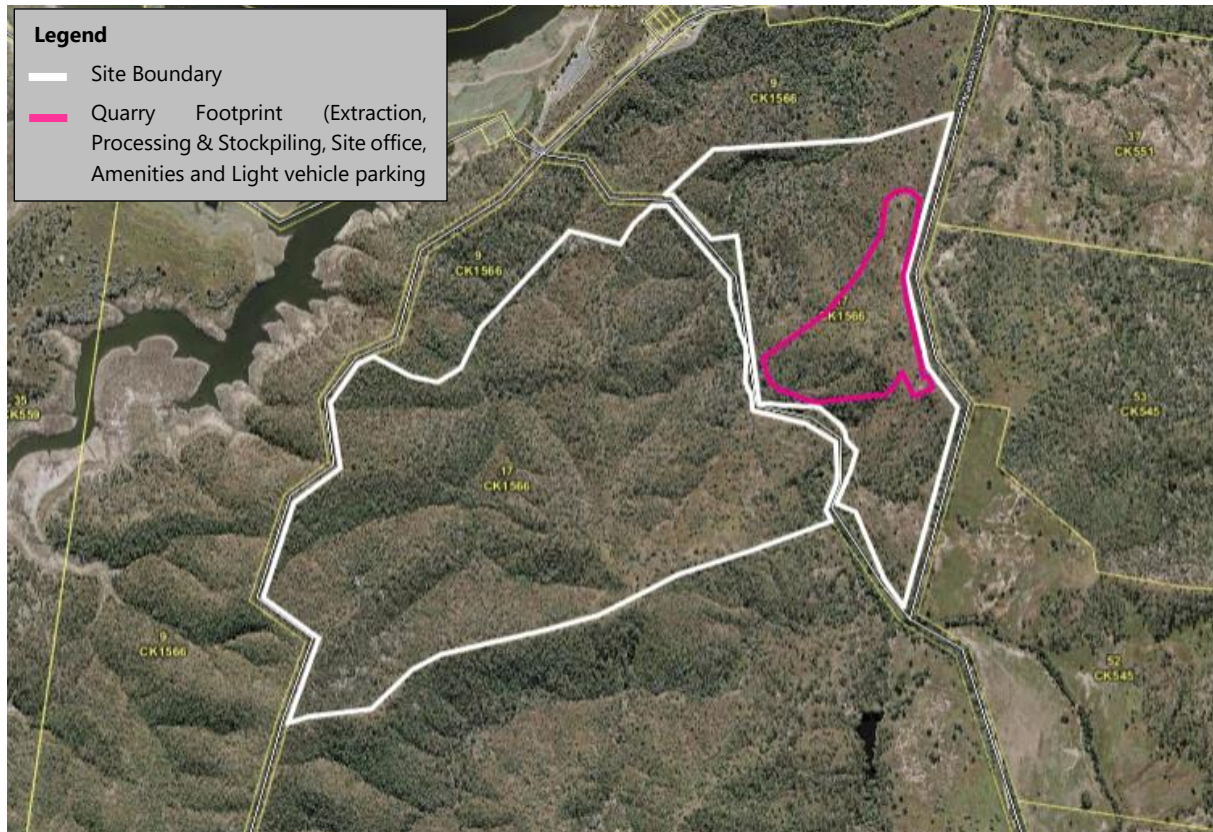


Figure 1 – Aerial Photo and Cadastre
(Figure reprinted from The State of Queensland)

Table 1 – Summary of Subject Land

Address	Paradise Road, Coringa QLD 4621
Access	Paradise Road, Coringa QLD 4621
Real Property (RP) Description	Lot 17 on CK1566
Tenure	Freehold
Lot Area	1,512,510 sqm (151.251ha)
Operational Area	10.3 ha
Local Authority	North Burnett Regional Council

1.5 Description of Activities

Included as **Diagram 1 – Conceptual On-Site Extractive Operations** is an illustration of the site development. As stated above, the operations will use standard extraction and screening methods. Below are the anticipated basic elements of the operations:

- Clearing of vegetation and stripping of topsoil and overburden material using mechanical means (i.e. bulldozer or excavator) and stockpiling for incorporation into on-site rehabilitation works where required, or use in constructing stormwater control structures (e.g. perimeter banks);
- Drilling and blasting the exposed underlying rock to manageable size from the developed quarry benches to the quarry pit or bench below;
- Transferring raw material from the quarry face or pit floor to a designated crushing and screening plant using an excavator or front end loader into off road trucks;
- Crushing and screening the raw material using crushing and screening plant;
- Stockpiling the final products using the front-end loader and/or off-road haul trucks within the designated area required to be loaded into road trucks for transportation off-site; and
- Rehabilitating disturbed areas progressively once extraction is completed.

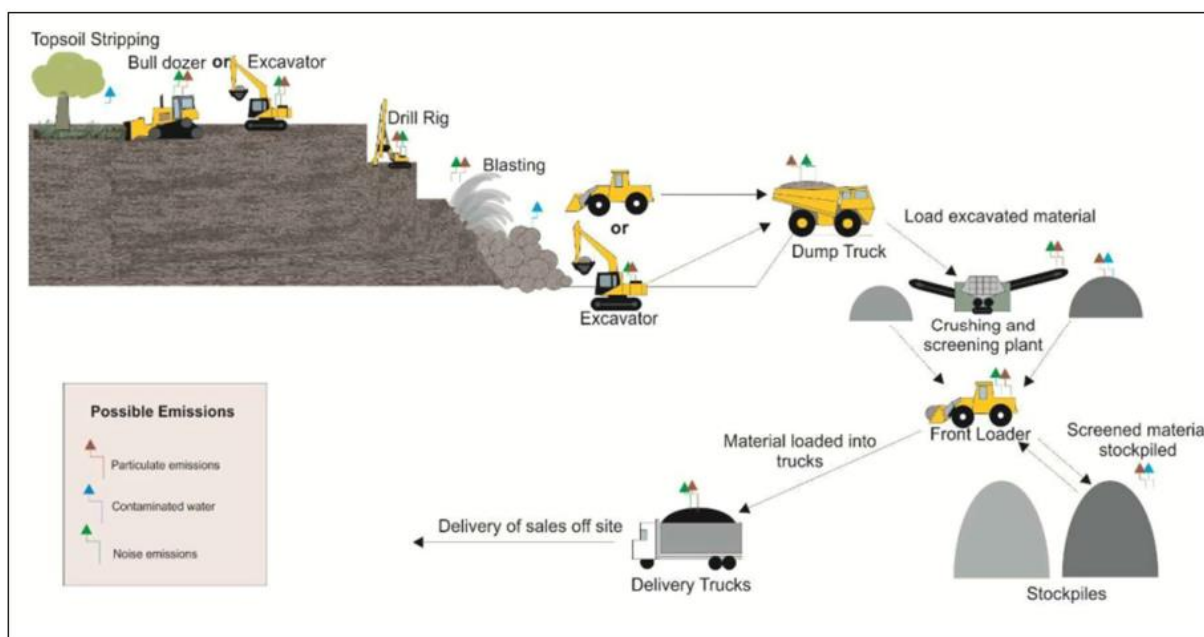


Diagram 1 – Conceptual On-Site Extractive Operations

Operations will be supported by a range of ancillary buildings and structures including, but not limited to:

- Site office and amenities block, visitor car park, staff car park and truck parking area(s).
- Weighbridge, workshop, and truck wash down facility.
- Internal haul and access roads.

1.6 Plant and Equipment

The types of major plant and equipment deployed on-site may include, but is not limited to:

- Bulldozer;
- Grader;
- Excavator;
- Drill rig;
- Off-road trucks;
- Front end loader;
- Fixed / mobile crushing and screening plant; and
- On-road haul trucks.

Machinery repairs and maintenance will be carried out on-site where practicable. Stationary equipment will generally be serviced in the field unless it is practical for the parts to be dismantled and transported offsite for repairs. Consumables (e.g., tyres, oils and greases) will be supplied by contractors and removed (including associated packaging) for disposal off-site in accordance with the requirements of the prevailing legislation and the local authority on a regular basis.

1.7 Hours of Operation

The proposed hours of operation for the quarry are:

- Loading and haulage: as per the hours of operation for the Paradise Dam Improvement Project for the duration of the project.
- Extraction and processing: 6:00am – 6:00pm, Monday to Saturday, no operations on Sundays or public holidays.
- Blasting: 9:00am – 3:00pm, Monday to Friday and 9:00am – 1:00pm, Saturdays.

2 Description of Environmental Values

2.1 Regional Context

2.1.1 Land Use

Refer to **Figure 1 – Aerial Photo and Cadastre** for an illustration of the operational area and surrounding area and **Table 2 – Adjacent Land Uses** provides a summary of land uses surrounding the operational area.

Table 2 – Adjacent Land Uses

Direction	Land Uses
North	Paradise Dam
East	Paradise Dam
South	Vacant land / agricultural activities
West	Vacant land / agricultural activities

2.1.2 Nearest Sensitive Receptors

Sensitive receptors, as defined under Schedule 1 of the *Environmental Protection Policy (Noise) 2019*, are outlined in **Table 3 – Nearby Sensitive Receptors**. A discussion on whether any of these sensitive receptors are in proximity to the operational area is provided herein.

Table 3 – Nearby Sensitive Receptors

Sensitive Receptor	Description and Location
Residences	The nearest dwelling in proximity to the operational area is located approximately 2 km north of site, as shown in Figure 2 – Nearest Residences.
Library and educational institution (including a schools, playgrounds, college and university)	The Biggenden Library is situated approximately 20 km southeast of the operational area located on the site. The Good Night Shrub National Park is located approximately 2.3 km northwest of the operational area.
Childcare centre or kindergarten	The nearest child care centre, C & K Wallaville Kindy-Care is situated approximately 32 km north of the operation area, in the township of Wallaville.
School or playground	The Dallarnil State School is situated approximately 12 km east of the operational area located on the site.
Hospital, surgery or other medical institution	The nearest medical centre, the Biggenden Medical Centre is over 20 km to the southeast of the site. The nearest hospital is located approximately 43.50 km southwest of the operational area in Gayndah.
Commercial and retail activity	There are various primary industry activities in the area, including grazing.

Sensitive Receptor	Description and Location
	Paradise Dam, which is operated by Sunwater supplies water to the surrounding region and hosts a range of recreational activities.
Protected area or critical area	The Good Night Shrub National Park is situated 2.3 km northwest of the operational area. The Mount Blandly Conservation Reserve is located approximately 16 km west of the operational area. Refer to Figure 3 – Nearest Protected Areas and State Forests for an illustration.
Marine park	The nearest marine park is the Great Barrier Reef Coast Marine Park, approximately 95 km north of the operational area, refer to Figure 4 – Marine Parks.
Park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment	The Good Night Shrub National Park is situated 2.3 km northwest of the operational area. Refer to Figure 3 – Nearest Protected Areas and State Forests for an illustration.



Figure 2 – Nearest Residences

(Source: The State of Queensland (2023))

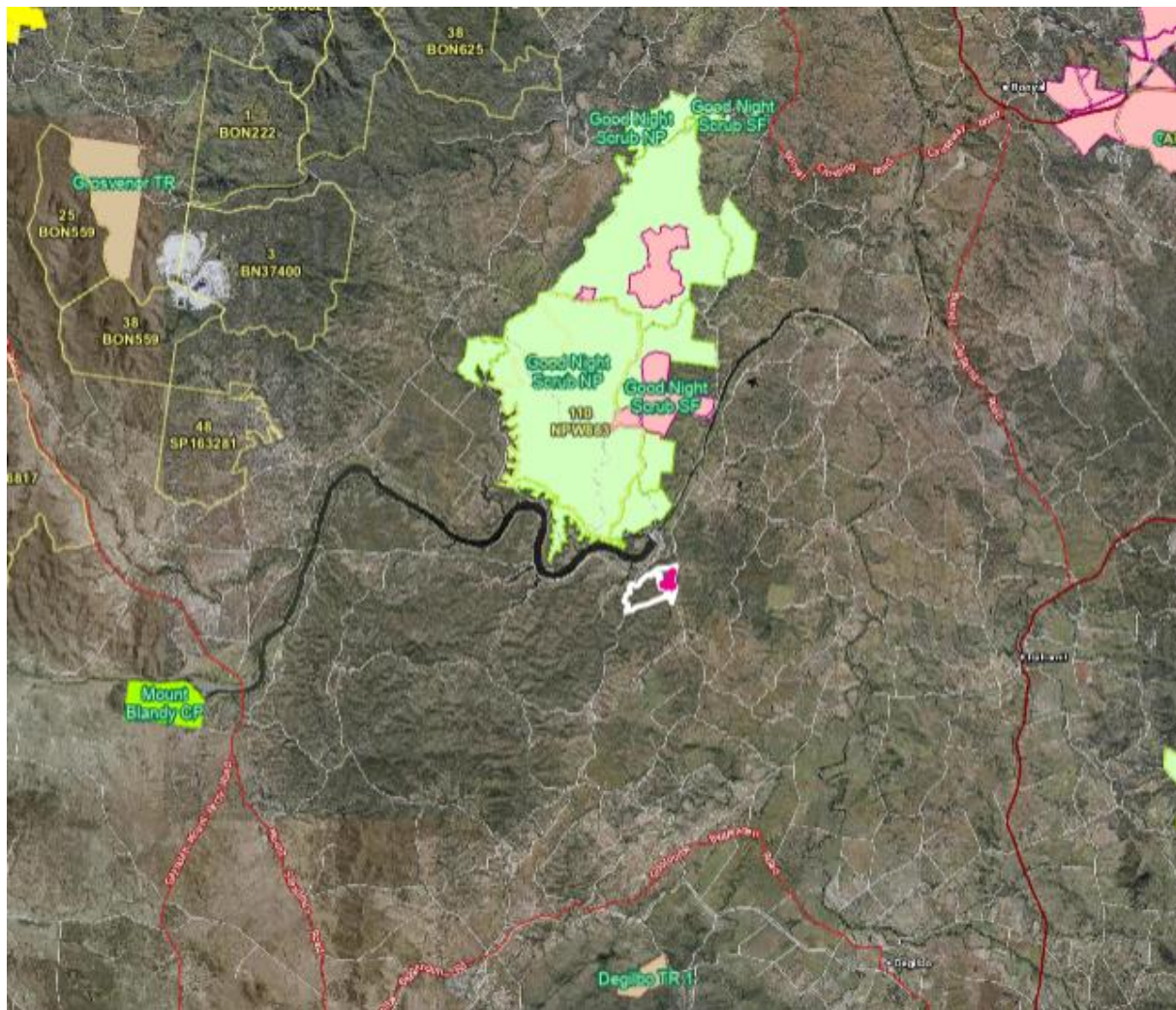


Figure 3 – Nearest Protected Areas and State Forests

(Source: The State of Queensland (2023))

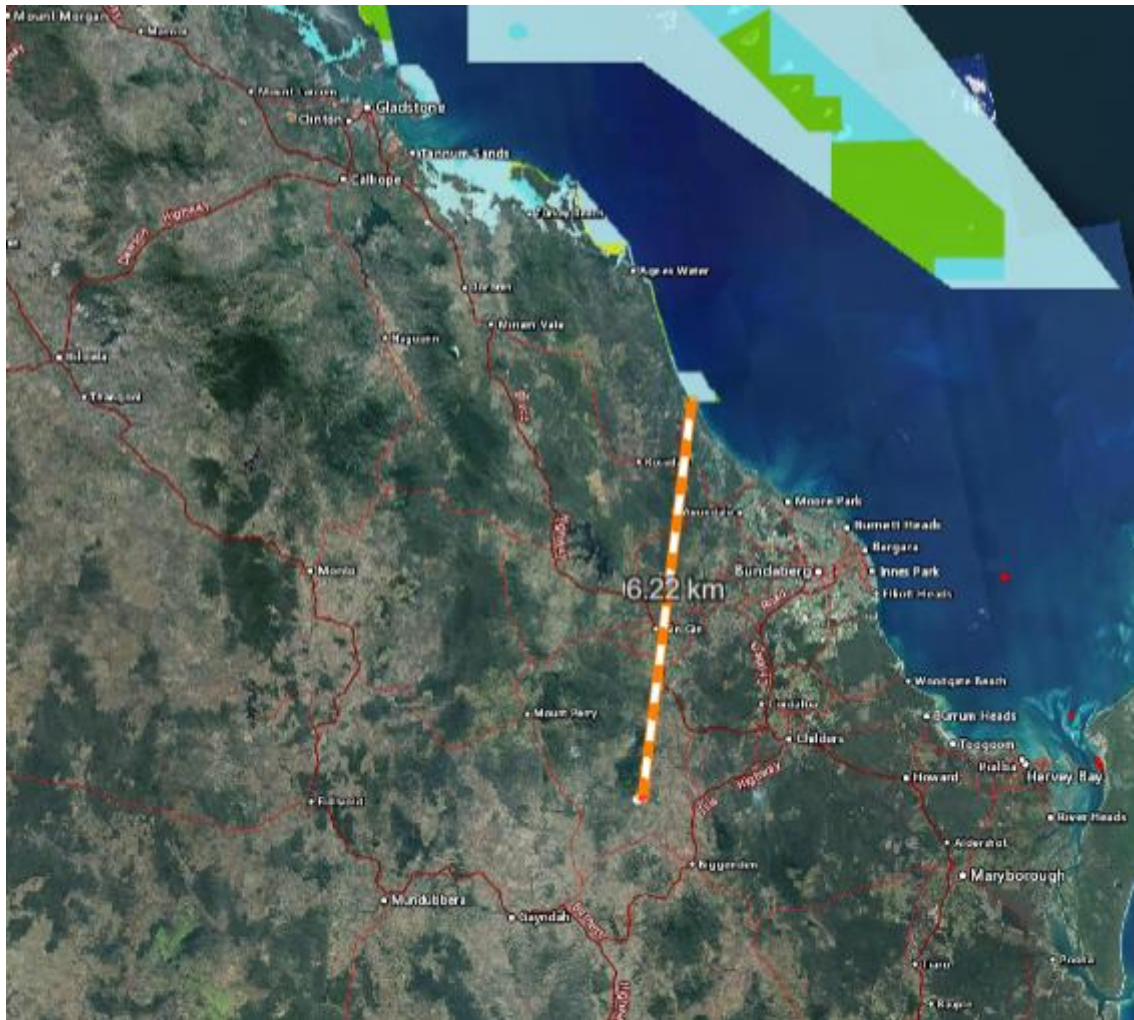


Figure 4 – Marine Parks

(Source: The State of Queensland (2023))

2.1.3 Regional Climate

A summary of the regional climate data sourced from Bureau of Meteorology ('BoM') is provided in **Table 4 – Regional Climatic Statistic**. The operational area is situated in a sub-tropical climate zone, warm, humid and wet summers and generally mild, dry winters. Wind direction data sourced from Gayndah Post Office Station, presented in **Graph 1 – Windrose of 9am and 3pm Wind Speed vs Direction, Gayndah Post Office**, indicates that winds are generally from the southeast and northwest in both the morning and afternoon.

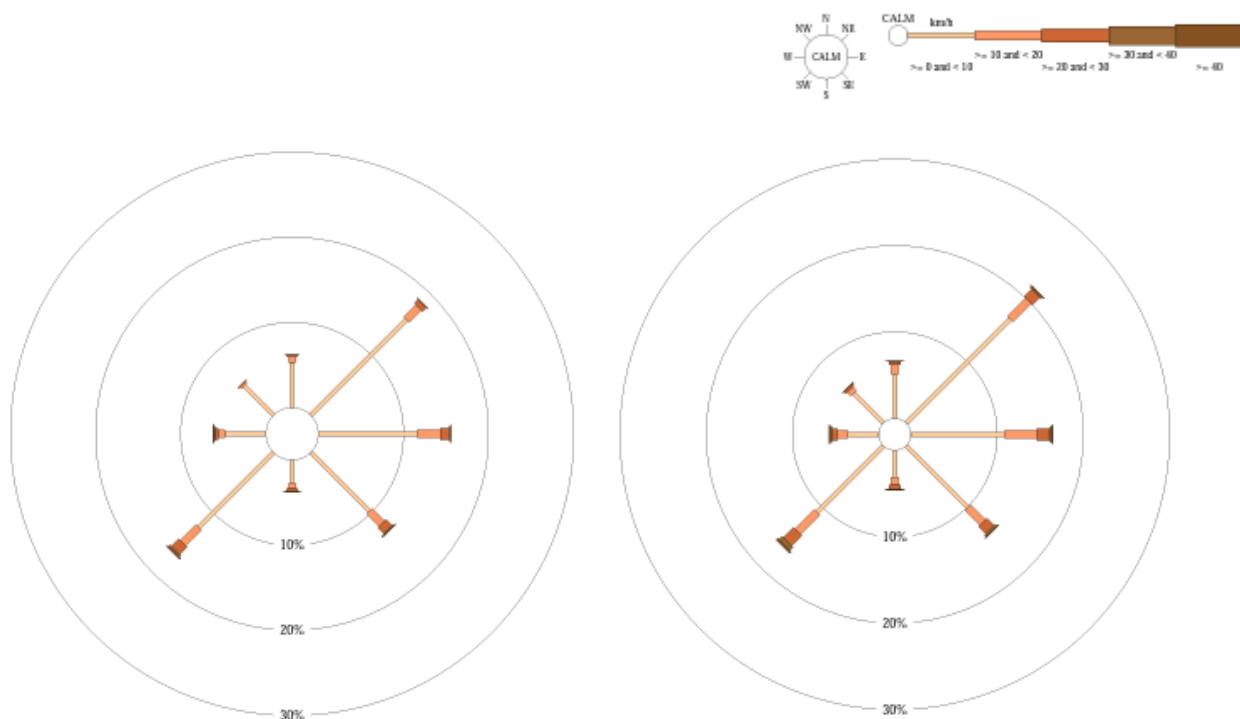
Table 4 – Regional Climatic Statistic

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall (mm)													
Mean	77.0	88.1	71.8	21.4	33.5	31.9	24.7	22.2	28.5	76.6	61.9	81.7	605.5
Temperature (°C)													
Mean min.	20.7	20.6	19.1	15.2	11.0	8.6	7.3	7.8	11.5	15.2	17.4	19.4	14.5
Mean Max.	33.7	32.8	31.3	29.1	25.6	22.8	22.7	24.8	28.0	30.2	31.7	32.7	28.8
Wind Speed (km/h)													
Mean 9am wind speed	7.4	7.5	7.4	6.7	6.0	6.4	6.2	6.3	7.3	7.9	7.7	7.1	7.0
Mean 3pm wind speed	8.7	8.7	8.8	8.3	8.5	8.9	9.2	9.0	9.4	9.1	8.6	8.5	8.8

Source:

Rainfall and temperature data from the Gayndah Airport (BoM Station No. 039066)

Wind speed data from Gayndah Post Office (BoM Station No. 039039) Years 1889 - 2009



Graph 1 – Windrose of 9am and 3pm Wind Speed vs Direction, Gayndah Post Office

(Figure reprinted and adapted from Bureau of Meteorology, Commonwealth of Australia 2023)

2.1.4 Topography

Figure 5 – Topographic Features provides an illustration of topographical features in the vicinity of the site.

Elevation across the operational area on the site ranges between approximately 70 – 80 m AHD in the outmost portions, to approximately 100 m AHD in the centre. The operational area is focused on a hill summit to access the target resource, and as extraction progresses, this topographical feature will be modified.

Maximum slopes at the site are approximately 17.9 %, defined as gently moderately inclined¹. Elevation across the entire operational area ranges from 70 m AHD to 100 m AHD with average slope of approximately 11 %, being defined as 'moderately inclined – 2'¹.



Figure 5 – Topographic Features
(Source: The State of Queensland (2023))

2.2 Air

Background air quality at the site is anticipated to be influenced by the surrounding land uses. The area accommodates a wide range of rural activities, which inherently require disturbance of surface soils, with

¹ DES, (2020). *Terrain Slopes*. Accessed 22 February 2023 via <https://wetlandinfo.des.qld.gov.au/wetlands/ecology/aquatic-ecosystems-natural/estuarine-marine/its/terrain-slope/>

the potential for dust generation through tilling, vehicle movements over land and traversing Paradise Road (unsealed road), etc.

The primary activities and equipment which may generate emissions to air are anticipated to include:

- Stripping of topsoil, overburden and extraction of raw materials.
- Use of processing plant.
- Loading / transfer of materials to the processing plant via excavator.
- Use of conveyor/s.
- Compaction and baling of product via hydraulic compactor and baler.
- Operation of a rotary telescopic handler within site for transfer of bales.
- Transport of materials to and from site via delivery truck.
- Plant and vehicle operation.
- Vehicles traversing unsealed access roads.

Typical emissions associated with extractive industry activities are PM₁₀ (particles with a diameter of 10 micrometres or less), PM_{2.5} (particles with a diameter of 2.5 micrometres or less) and dust deposition. In accordance with the *Environmental Protection (Air) Policy 2019* ('EPP Air'), the air quality objectives for these two parameters are shown in **Table 5 – Air Quality Objectives**.

Table 5 – Air Quality Objectives

Indicator	Environmental Value	Air Quality Objective	Period	Source
PM ₁₀	Health and Wellbeing	50 µg/m ³	24 Hour Average	EPP (Air)
	Health and Wellbeing	25 µg/m ³	Annual Average	EPP (Air)
PM _{2.5}	Health and Wellbeing	25 µg/m ³	24 Hour Average	EPP (Air)
	Health and Wellbeing	8 µg/m ³	Annual Average	EPP (Air)
TSP	Health and Wellbeing	90 µg/m ³	Annual Average	EPP (Air)
Dust Deposition	Health and Wellbeing	120/mg/m ² /day	Monthly Average	Common Conditions (DES 2019b)

2.3 Water

2.3.1 Watercourses

The western portion of the site is traversed by a Stream Order 1 watercourse ('drainage feature') under the *Vegetation Management Act 1999* ('VMA') and eastern portion of the site is also traversed by a number of 1 Stream Order and 4 watercourses, however no streams are mapped within the proposed operational areas. Refer to **Figure 6 – Watercourse Mapping** for an illustration of the mapped watercourse/s traversing and adjacent to the site.

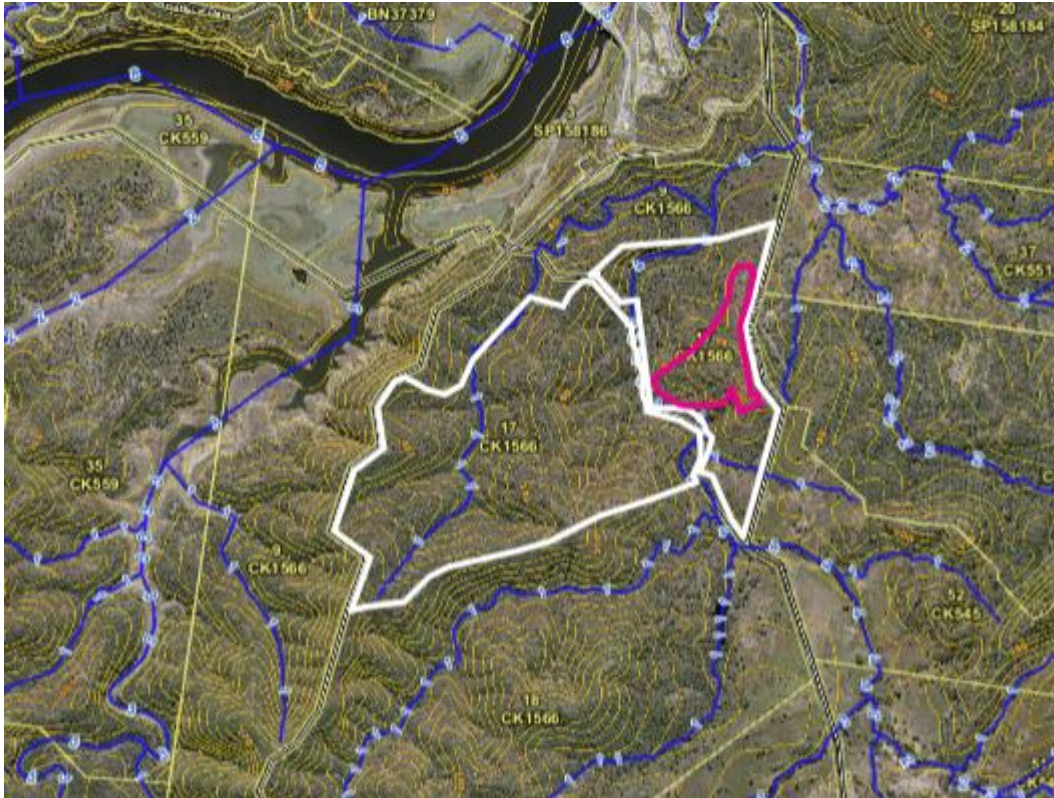


Figure 6 – Watercourse Mapping

(Source: The State of Queensland (2023))

2.3.2 Water Quality Objectives

Background water quality in the locality is likely to be influenced by the region's widespread agricultural land uses. The site is located with the Burnett Basin within the broader Central Coast Queensland region (freshwater lakes / reservoirs).

The site is not situated in a region to which Scheduled Environmental Values and Water Quality Objectives have been published or prescribed under the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*. Accordingly, reference has been made to the regional guideline values prescribed in the *Queensland Water Guidelines 2009* for the freshwater lakes / lakes are summarised in **Table 6 – Regional Guideline Values – Central Coast Regions (Freshwater Lakes / Reservoirs)**.

Table 6 – Regional Guideline Values – Central Coast Regions (Freshwater Lakes / Reservoirs)

Quality Characteristic	WQO*
Ammonia N	10 µg/L
Oxidised N	10 µg/L
Organic N	330 µg/L
Total N	350 µg/L
Filterable Reactive Phosphorous	5 µg/L
Total Phosphorus	10 µg/L
Chlorophyll a	5.0 µg/L
Dissolved Oxygen	90 – 110 % sat

Quality Characteristic	WQO*
Turbidity	1 – 20 NTU
Suspended Solids	nd (No Data)
pH	6.5 – 8.0
Conductivity (base flow / high flow)	1,570 μ S/cm (90 th Percentile)

Table notes:

1. The values for these indicators are based on the QWQG Central Coast regional water quality guidelines.
2. Salinity values based on the Southern Divide salinity zone under the QWQG.

2.3.3 Great Barrier Reef

The site is located within the Burnett Catchment which is within the broader Great Barrier Reef Catchment Area. The site is situated within an area subject to the Great Barrier Reef catchment waters mapping, which requires consideration in relation to Section 41AA of the EP Reg and the associated reef discharge standards. However, as noted in the Department's Guideline: Reef discharge standards for industrial activities, triggers for assessment under section 41AA do not include diffuse sources of contaminated stormwater that contains sediment only, which allows for an exclusion for stormwater proposed to be managed through erosion and sediment control measures.

As the site will capture and treat all stormwater in accordance with ESC measures, the site is exempt from consideration of Section 41AA and reef discharge standards have not been considered further.

2.3.4 Flooding

Portions of the site are mapped by the State of Queensland as being subject to Basin 1% AEP flooding of between 0m-0.8m (refer **Figure 7 – Basin 1 % AEP Flood Mapping**).



Figure 7 – Basin 1 % AEP Flood Mapping

(Figure Reprinted from Queensland Globe (2023))

The north eastern portion of the site is mapped within the Flood Hazard Area - Level 1 of the Queensland floodplain assessment overlay; however, this is external to the proposed operational area (refer **Figure 8 – Queensland Floodplain Assessment Overlay**).

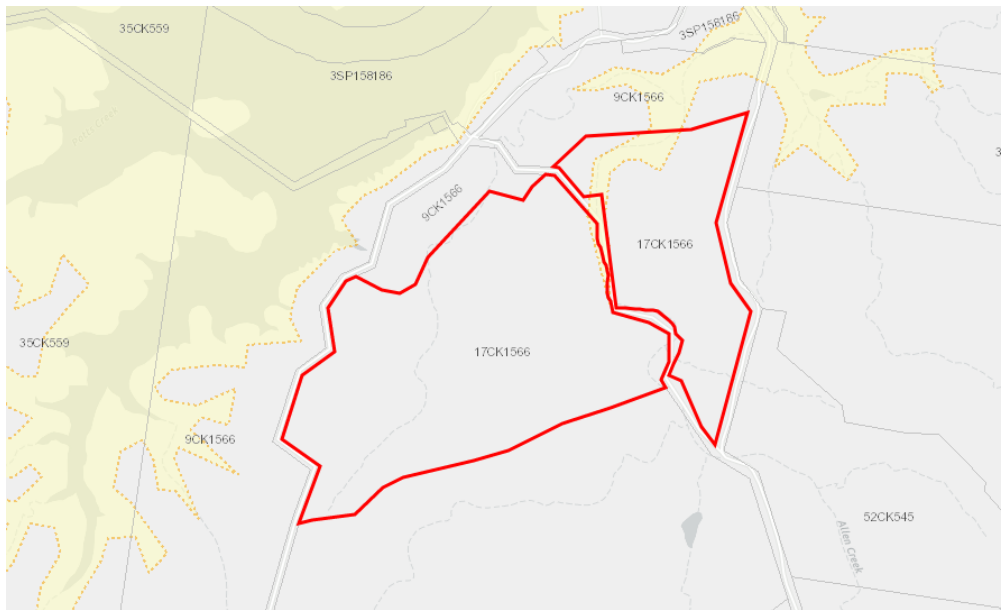


Figure 8 – Queensland Floodplain Assessment Overlay

(Figure reprinted from the State Planning Policy Interactive Mapping System)

Paradise Dam is defined as a referable dam. Being in proximity to this dam, the site is mapped as being subject to both the Probable Maximum Flood Extent with, and without, a dam failure as shown below. It is noted that, with the completion of recent essential works on the dam spillway, dam failure risks have reduced to a 1 in 5000-year event (Sunwater n.d.).

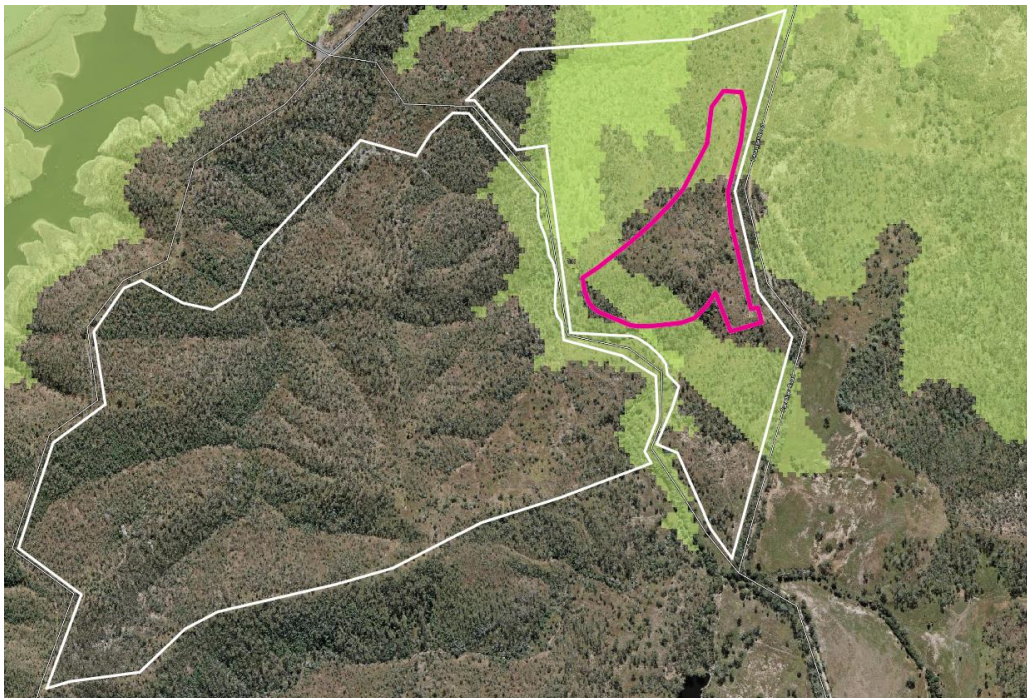


Figure 9 – Probable maximum flood without a dam failure - referable dam

(Figure reprinted from The State of Queensland (2023))

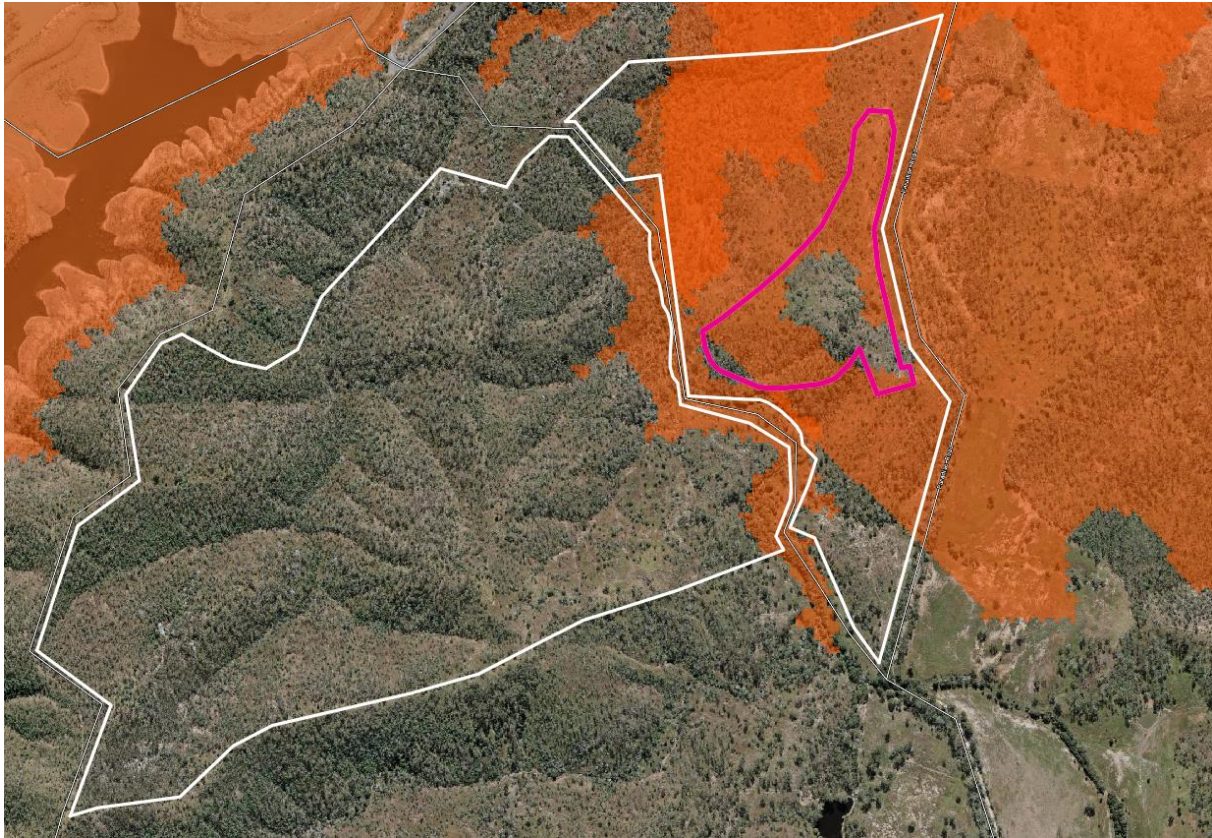


Figure 10 – Probable maximum flood with a dam failure - referable dam

(Figure reprinted from The State of Queensland (2023))

2.4 Groundwater

Local groundwater information sourced from The State of Queensland (2023) shows that there are no registered bores within the site boundary and very few bores in the surrounding areas. There are a number of bores located to the southeast of the site. An illustration of these bore locations is provided in **Figure 11 – Local Registered Groundwater Bore Locations**. The details of the six (6) nearest registered bore locations are summarised in **Table 7 – Registered Bore Groundwater Data Summary**.

Table 7 – Registered Bore Groundwater Data Summary

Reg No.	Lat / Long	Quality	Geology	Date Drilled / Top of Aquifer Depth / SWL	Groundwater Depth (mAHD)*
74375	-25.35087, 151.96035	nd	nd	nd	nd
74377	-25.39254, 151.98145	Potable	BSLT - Basic Volcanic	26 July 2004 Top of Aquifer: 21m SWL: - -19.80	~ 50
74389	-25.37368, 151.97234	No Data	Hard Blue basalt	12 December 2002 Top of Aquifer: 30m	~ 80
130421	-25.40064, 151.96840	Potable	BSLT - Basic Volcanic	27 February 2007 Top of Aquifer: 11.30 m	~ 55

Reg No.	Lat / Long	Quality	Geology	Date Drilled / Top of Aquifer Depth / SWL	Groundwater Depth (mAHD)*
				SWL: -8.5 m	
130536	-25.39055, 151.95555	Potable	SLAT - Slate	13 June 2007 Top of Aquifer: 7.60 m SWL: -5.20 m	~ 80
144917	-25.38641, 151.98114	Potable	BSLT – Basic Volcanic	15 October 2008 Top of Aquifer: 7.30 m SWL: -5.5 m	~ 47.50

Table notes: SWL = Standing Water Level

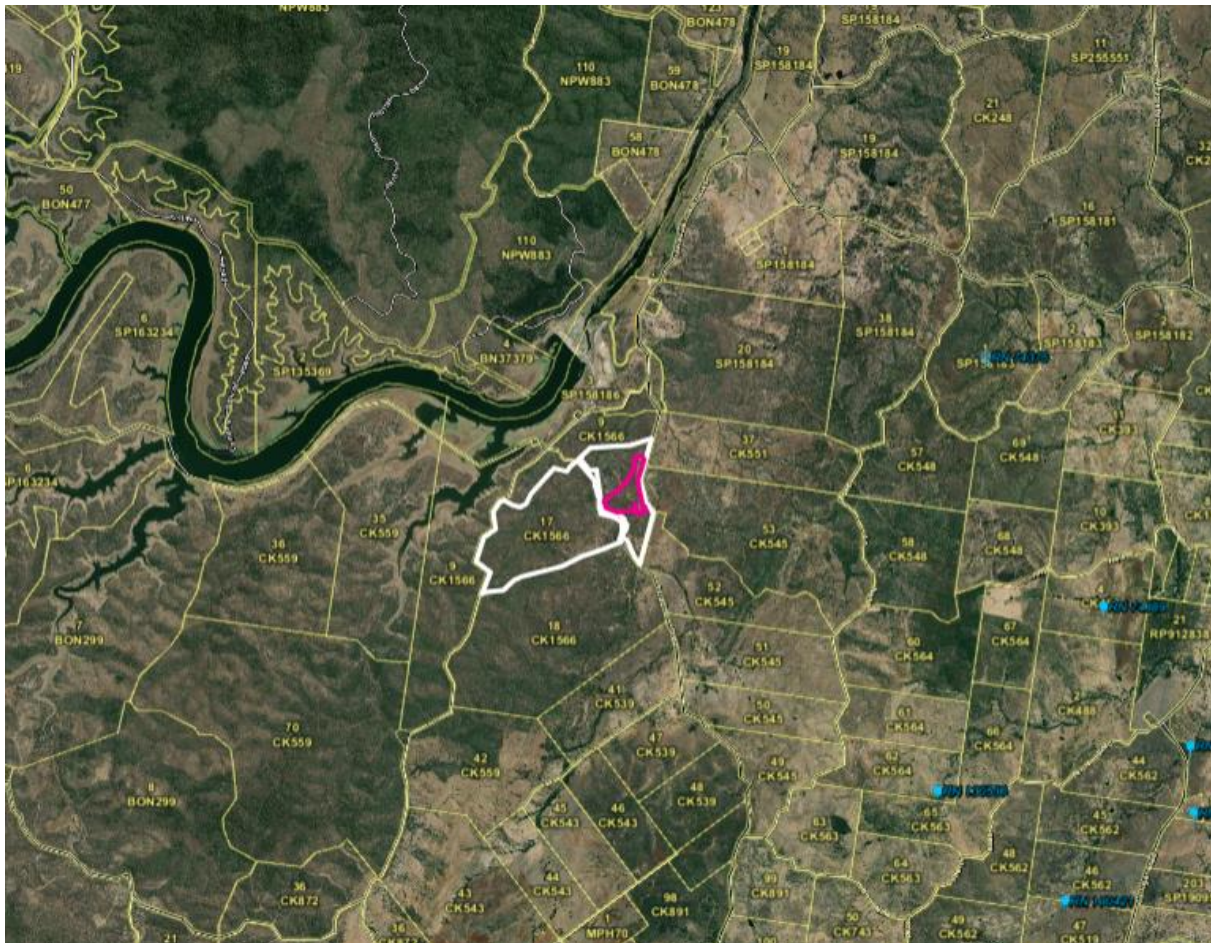


Figure 11 – Local Registered Groundwater Bore Locations

(Figure Reprinted from Queensland Globe (2023))

Drilling investigations were undertaken in 2022 to determine the quality of resource available on the site. A total of eleven (11) holes were drilled, as shown in **Figure 12 – Paradise Dam 2022 Drilling Investigation**.

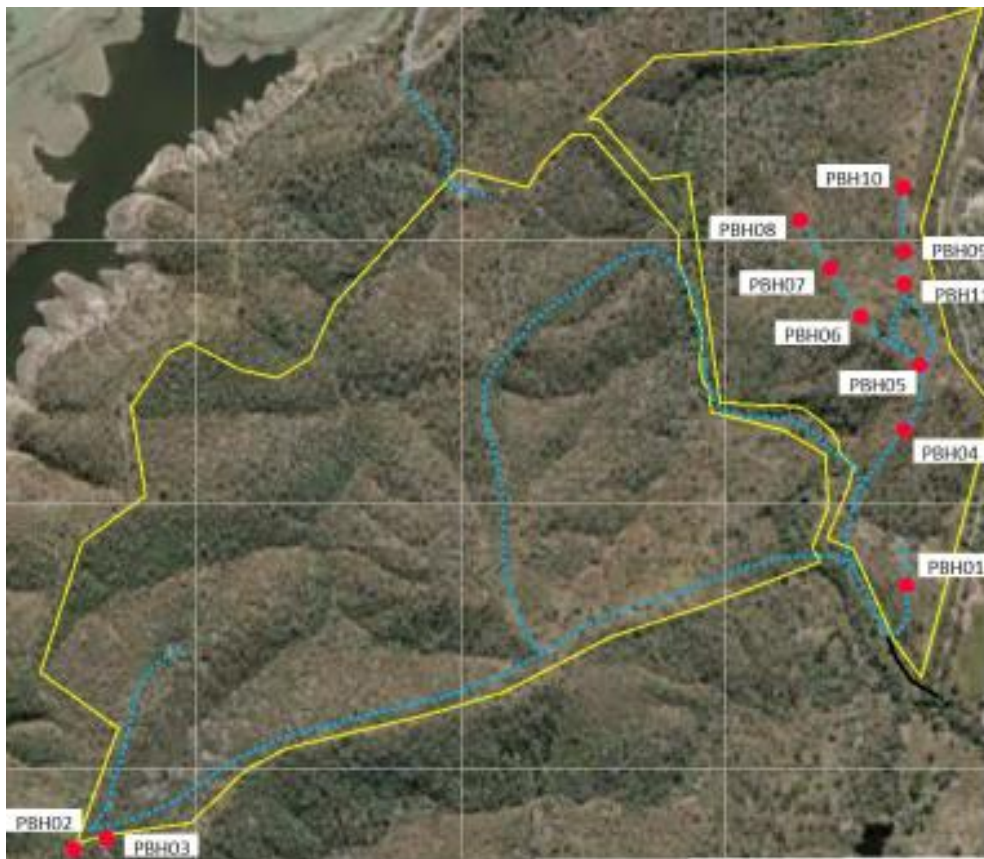


Figure 12 – Paradise Dam 2022 Drilling Investigation

In accordance with the findings of the resource investigation completed for the operational area in 2022, no water was intercepted in any of the exploration test pits or drill holes and as a result, groundwater is not expected to be an issue at the site.

The operational area is not mapped as containing any Groundwater Dependent Ecosystems ('GDEs') in accordance with State or Federal mapping.

2.5 Noise

The primary activities and equipment which may generate dust and particulate matter emissions within the site align with those outlined in **Section 2.2 – Air**.

Based on historical noise modelling assessments completed for other extractive industry projects, typical sound power levels (measured as LAeq dB(A)) are understood to generally range between 70 dB(A) / m for haulage vehicles (line source emissions), to 118 dB(A) for crushing and screening plant (point source emissions).

The nearby noise sensitive receptors for the site are summarised in **Table 3 – Nearby Sensitive Receptors**. As discussed in **Section 2.1.2**, the nearest dwelling is north of the site and the adjacent land uses are vacant land and agricultural activities. The nearest dwelling is in an isolated rural setting. The ambient noise environment at the site is predominantly rural in nature with traffic on the unsealed Paradise Road being the main influence.

Broadly the EPP (Noise) requires that the qualities of the acoustic environment that are conducive to human health and wellbeing are to be preserved. The relevant outdoor and indoor Acoustic Quality

Objectives for the dwellings prescribed in the EPP (Noise) are summarised in **Table 8 – Acoustic Quality Objectives**.

Table 8 – Acoustic Quality Objectives

Sensitive Receptor	Time of Day	Acoustic Quality Objectives (measured as the Receptor) dB(A)			Environmental Value
		L _{Aeq,adj,1hr}	L _{A10,adj,1hr}	L _{A1,adj,1hr}	
Dwelling (outdoors)	Daytime and evening	50	55	65	Health and wellbeing
Dwelling (indoors)	Daytime and evening	35	40	45	Health and wellbeing
	Night-time	30	35	40	Health and wellbeing

Typically for extractive industry developments, the management intent for noise as specified in the EPP (Noise) is adopted when specifying acceptance criteria. CCAA (2015)² identify that noise level targets as fixed values are preferred to remove inconsistency in conditioning of extractive industry developments. With regard to the acoustic quality objectives specified in **Table 8 – Acoustic Quality Objectives** and the *Guideline: Planning for Noise Control*³, the below targets are generally considered appropriate for noise as measured as the nearest sensitive receptor are²:

- 30dBA LAeq adj,T for the period from 10:00pm to 7:00am,
- 35dBA LAeq adj,T for the period from 6:00pm to 10:00pm
- 45dBA LAeq adj,T for the period from 7:00am to 6:00pm.

The nominated criteria listed above are consistent with the Acoustic Quality Objectives, with the exception of 45dBA LAeq adj,T for the period from 7:00am to 6:00pm. 45dBA was nominated based on the *CCAA Guideline – Assessment and Control of Environmental Noise Emissions from Quarries – Queensland March 2015*, which recommends, 'adoption of default noise limits based on time of day, with a 45dBA limit during the daytime period' (CCAA 2015). The hours of operation will be 6:00am to 6:00pm Monday to Saturday and no operations on Sunday or public holidays.

2.6 Land

2.6.1 Matters of State Environmental Significance

The operational area is not mapped as comprising any Matters of State Environmental Significance ('MSES'). Refer to **Figure 13 – MSES Mapping**. Adjacent to the operational area is a portion of land mapped as MSES wildlife habitat [special least concern animal].

² CCAA, (2015). *CCAA Guideline — Assessment and Control of Environmental Noise Emission from Quarries — Queensland March 2015*. Accessed on 22 February 2023 via <https://www.ccaa.com.au/documents/Library%20Documents/CCAA%20Industry%20Guidelines/CCAA%20Extractive%20Noise%20Reduction%20LR%20MAY15.pdf>

³ EHP, (2016). *Planning for noise control*. Accessed 22 February 2023 via https://qldgov.softlinkhosting.com.au/liberty/opac/search.do?mode=ADVANCED&=AUTHOR&=KEYWORD&queryTerm=Guideline%3A%20Planning%20for%20Noise%20Control&operator=AND&timeScale=ANY_TIME&searchTarget=THIS_LIBRARY&activeMenuitem=false#

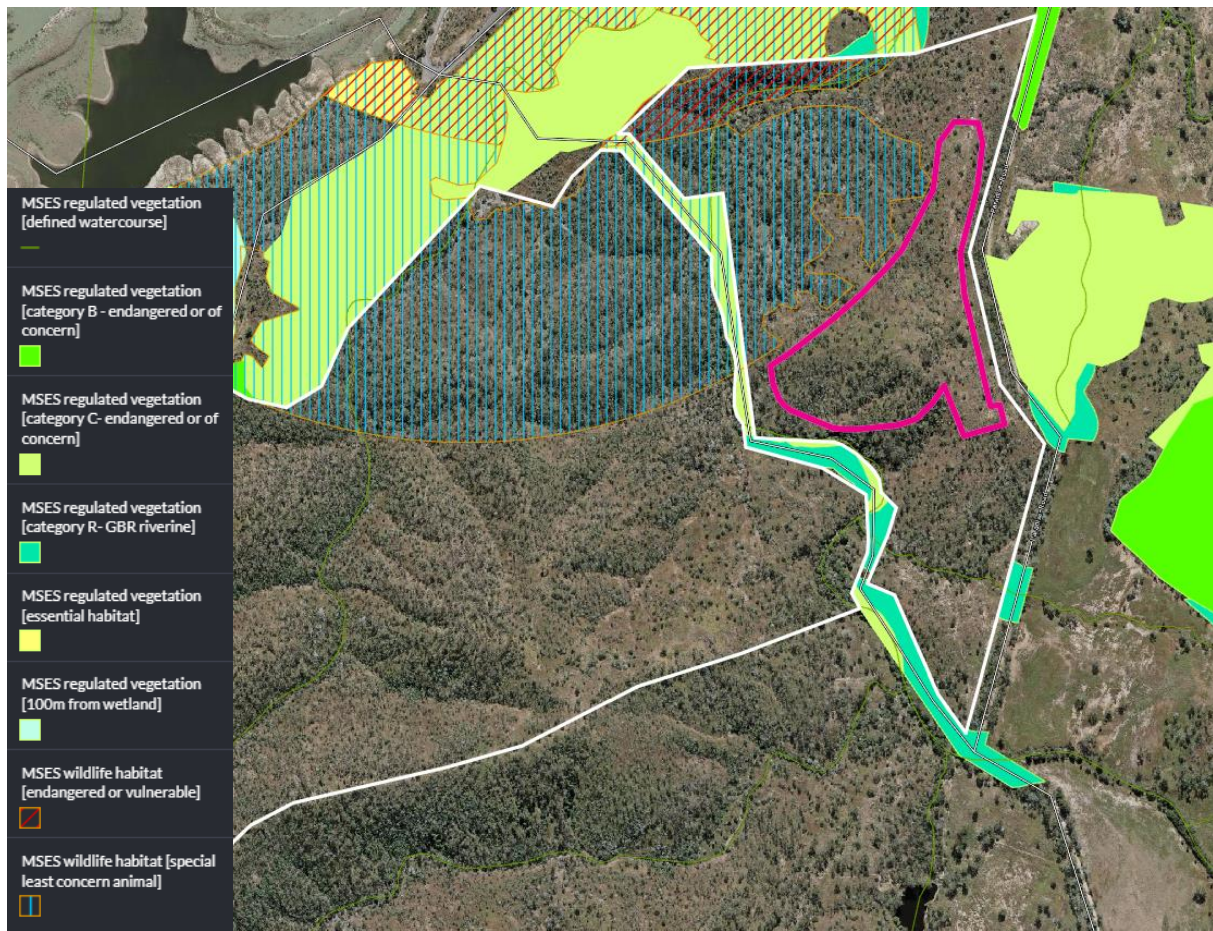


Figure 13 – MSES Mapping

(Figure Reprinted from Queensland Globe (2023))

2.6.2 Remnant Vegetation

The site is mapped entirely as containing Category X – Non-Remnant vegetation for the purpose of the VMA, refer to **Figure 14 – Remnant Vegetation Mapping**.

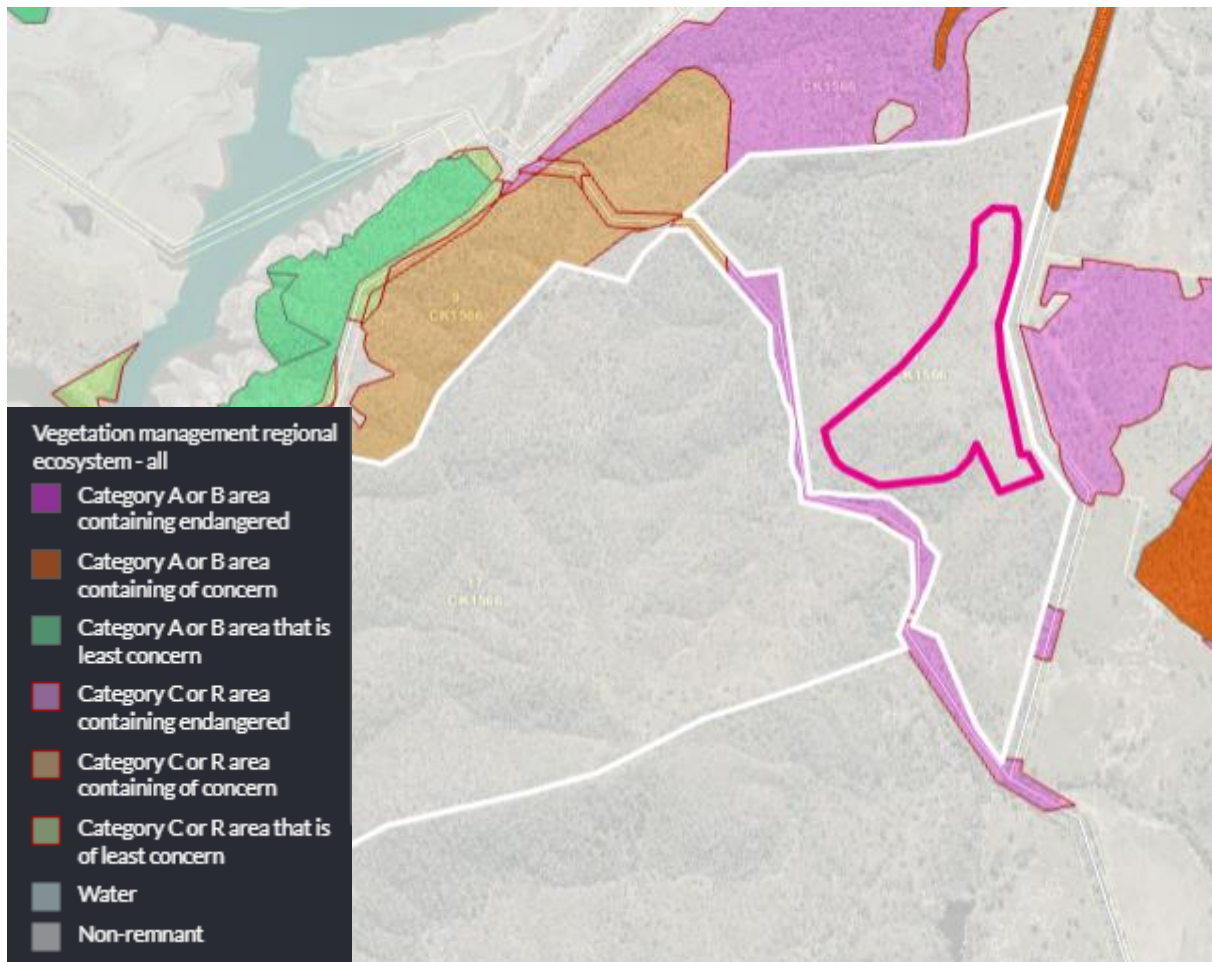


Figure 14 – Remnant Vegetation Mapping

(Figure Reprinted from Queensland Globe (2023))

Under provisions of the *Planning Act 2016* ('PA') and associated *Planning Regulation 2017* ('Planning Reg'), assessable development includes Operational Work that is the clearing of native vegetation on prescribed land unless the clearing is exempt clearing work or accepted development⁴. If development is exempt clearing work, then it can proceed without requiring a development approval.

The proposed clearing of this vegetation is accepted development under Schedule 7, Part 3, Section 12 of the Planning Regulation, being clearing pursuant to an accepted development vegetation clearing code. As such, referral for operational work for clearing native vegetation under Part 3 of Schedule 10 of the Planning Regulation is not triggered.

2.6.3 Flora Survey Trigger Mapping

The operational area on the site is not mapped as containing any High-Risk Areas for the purpose of the flora survey trigger maps, pursuant to the *Nature Conservation Act 1999* (refer **Figure 15 – Flora Survey Trigger Mapping**).

⁴ Schedule 10 of the Planning Reg.

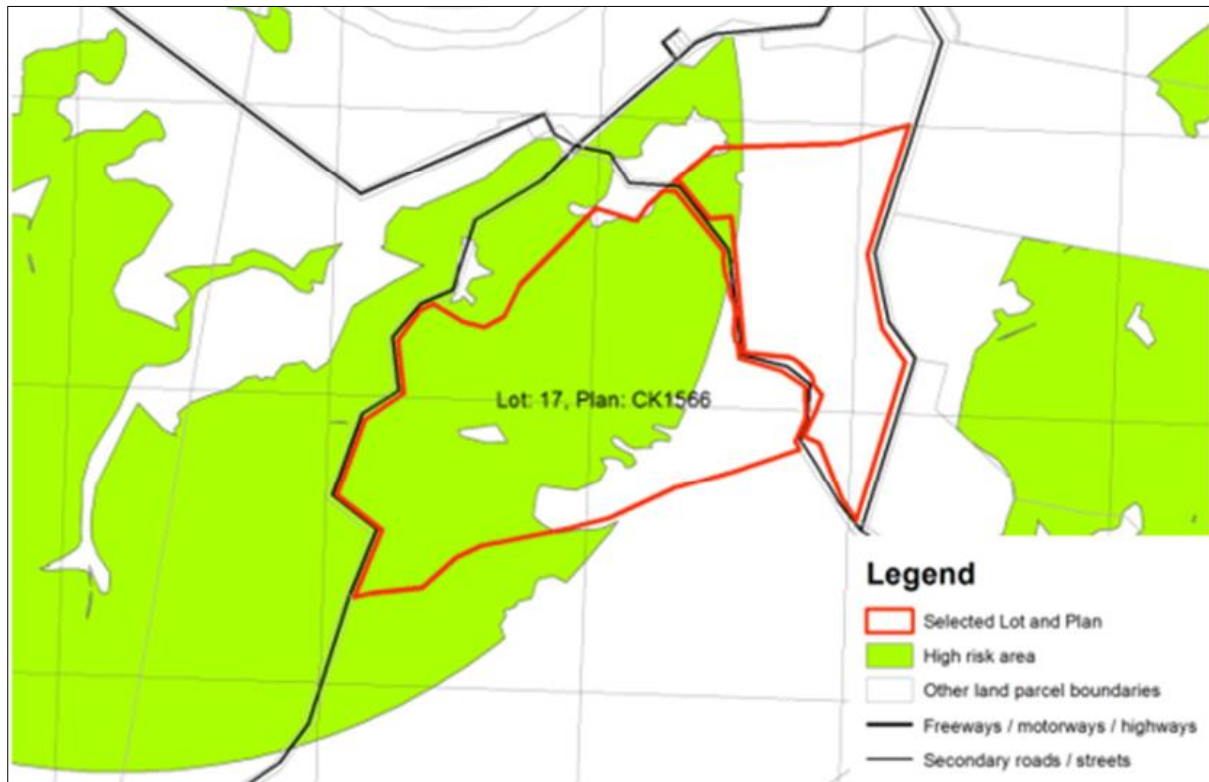


Figure 15 – Flora Survey Trigger Mapping

2.6.4 Geology

The Geological Survey of Queensland has mapped the regional geology of the area and published the *Ridgeland 1:100,000 number 3460 Geological Mapping Sheet*. The subject area is described by the Geological Survey of Queensland as consisting of the Late Carboniferous aged Good Night beds, which is composed of andesite lava (locally porphyritic) and andesitic volcaniclastic rocks including volcanic siltstone, as well as slate, phyllite, argillite, chert, jasper, arenite, limestone, basic metavolcanics, diamictite. The dominant rocks located on the site include mafites and sedimentary rock (refer **Figure 16 – Surface Geology Mapping**).

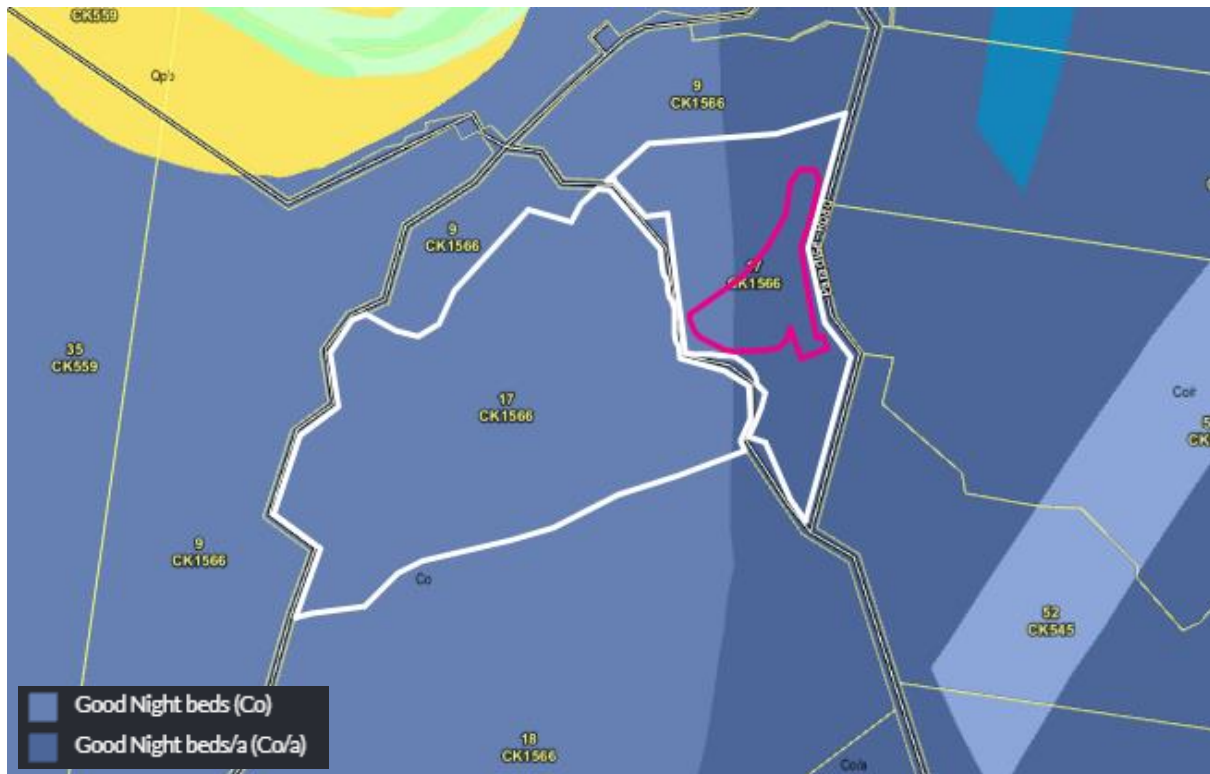


Figure 16 – Surface Geology Mapping

(Figure Reprinted from Queensland Globe (2023))

As stated in **Section 2.4 - Groundwater**, drilling investigations were undertaken in 2022 to determine the quality of resource available on the site. A total of eleven (11) holes were drilled, as shown in **Figure 12 – Paradise Dam 2022 Drilling Investigation**.

The rock types encountered in the drill holes and observed from surface outcrop were dominated by variably metamorphosed siltstone and fine volcanoclastic sandstone with lesser shale, andesite, quartz porphyry and limestone. Depth of weathering (extremely to moderately weathered) was variable across the site and, as to be expected, was found to be deeper in areas of lower strength rocks. When drilling through fresh to slightly weathered material, the rock units were found to be of moderate to high strength judging by the penetration rates.

A total of 11 holes were drilled, most of which were on the eastern side of the property where the most prospective rocks were situated. A plan of the drill hole locations and inspection traverses is displayed in **Figure 11**. A summary of the drilling results is as follows:

- **PBH01** (10m depth) low to medium strength siltstone and shale.
- **PBH02** (18m depth) moderately hard siltstone and fine-grained volcanoclastic sandstones before encountering softer shale at around 12m.
- **PBH03** (10m depth) highly weathered granite/quartz porphyry.
- **BH04** (10m depth) highly weathered, low strength siltstone with limestone at around 7m depth.
- **PBH05** (18m depth) slightly to moderately hard siltstone changing to softer siltstone around 15m depth.
- **PBH06** (22m depth) moderately hard meta siltstone/volcanoclastic sandstone, consistent to end of hole.

- **PBH07** (22m depth) moderately hard meta siltstone/volcanoclastic sandstone, consistent to end of hole.
- **PBH08** (25m depth) first metre highly weathered/soft then progressing to moderately hard meta siltstone/volcanoclastic sandstone by 4m depth, consistent to end of hole.
- **PBH09** (14m depth) moderately to highly weathered siltstone to 14m depth.
- **PBH10** (18m depth) extremely to highly weathered siltstone to 4m depth then moderately weathered siltstone to end of hole.
- **PBH11** (14m depth) highly weathered siltstone to end of hole.

Holes 6, 7 and 8, which were drilled on the highest ridgeline on the eastern side of the property, displayed the most consistent intervals of moderately hard, slightly weathered to fresh rock.

2.6.5 Contaminated Land

A review of search results of the Environmental Management Register ('EMR') and Contaminated Land Register ('CLR') has confirmed that the site is not listed on either the EMR or CLR. A copy of the search results is included as **Attachment 1 – EMR / CLS Search Results**.

2.6.6 Acid Sulphate Soils

Review of the Acid Sulfate Soils ('ASS') mapping (The State of Queensland 2022) has confirmed that the site is not located within, or near, an area where ASS have previously been identified, or within a prospective land zone containing ASS. Elevations are typically at or above 70 m AHD at the site, and therefore the site is not anticipated to be subject to ASS.

2.7 Wetlands

The site is not mapped as containing any areas of VMA Wetlands or Wetlands of high ecological significance ('HES Wetlands'). The nearest VMA Wetlands are situated over 1 km from the operational area (refer **Figure 17 – Wetland Mapping** below). As previously discussed in **Section 2.6.2 – Remnant Vegetation**, this exemption applies to the operational area. Further consideration of the Trigger Area is therefore not applicable to the site development.

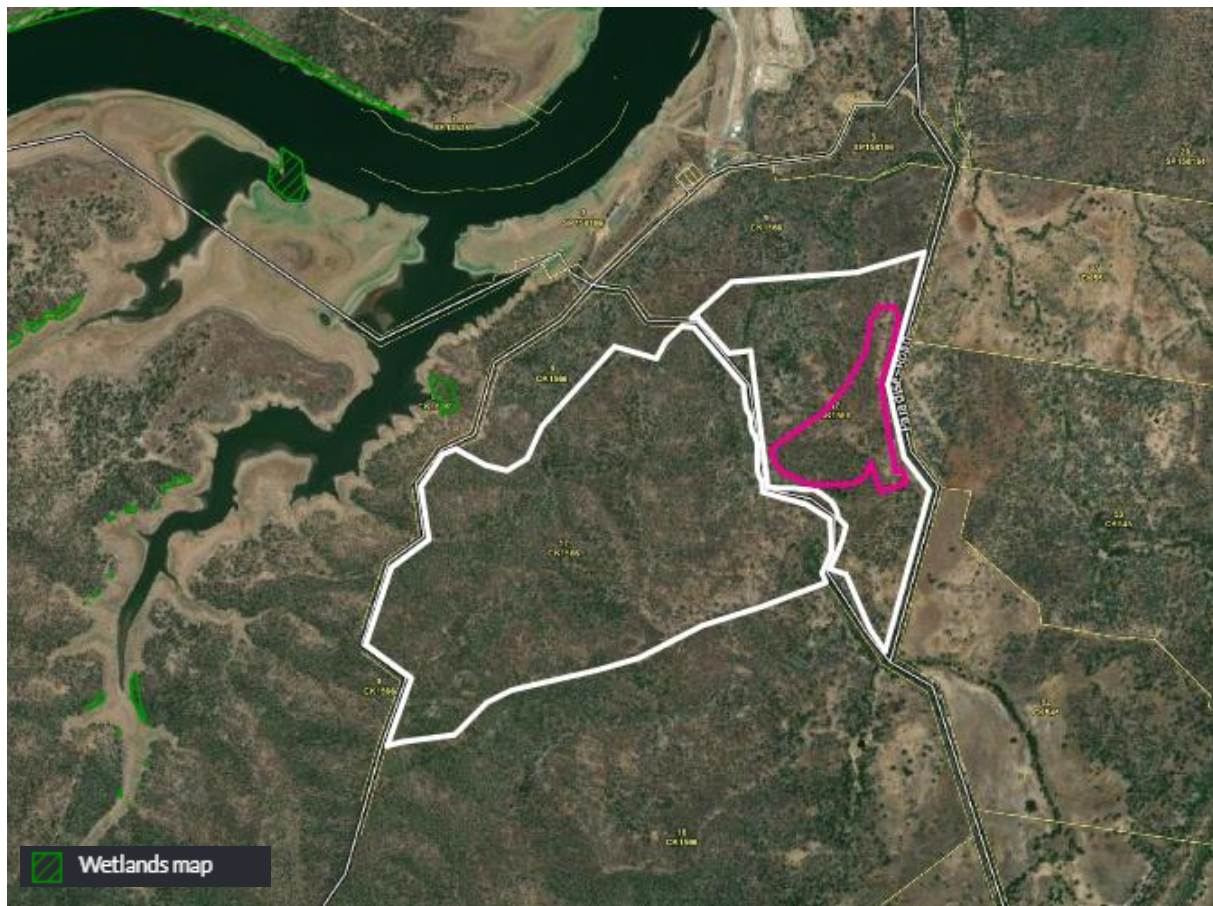


Figure 17 – Wetland Mapping
(Figure Reprinted from Queensland Globe (2023))

3 Potential Environmental Impacts and Risks

3.1 Purpose of Assessment

The purpose of this assessment is to determine the extent to which the proposed site activities will achieve the environmental objective and performance outcomes nominated in Schedule 8, Part 3, Division 1 of the EP Reg. A risk-based approach has been utilised, with the source activities and potential impacts to environmental values utilised to determine the management strategies, if required, to mitigate these impacts to ensure the performance outcomes can be achieved.

3.2 Risk Assessment Methodology

This risk assessment methodology has been adopted from the process for risk management as set out in Clause 6 of the AS ISO 31000:2018 Risk management - Guidelines (Standards Australia Limited 2018). The risk assessment follows the following process:

- Risk Identification (source activity and potential impact).
- Risk Analysis (risk level = likelihood x consequence).
- Risk Evaluation (commentary on risk).

The risk treatment outlines the controls / management measures that can be implemented to reduce the level of risk to as low as reasonably possible.

The risk analysis qualitative estimates the level of risk based on the likelihood environmental impact or event occurring (**Table 9 – Definitions of Likelihood**), and the consequences of the occurrence (**Table 10 – Definitions of Consequence**).

Table 9 – Definitions of Likelihood

Rating	Descriptor	Score
Rare	May occur only in exceptional circumstances	1
Unlikely	Could occur but doubtful	2
Possible	Might occur at some time in the future	3
Likely	Will probably occur	4
Almost Certain	Is expected to occur in most circumstances	5

Table 10 – Definitions of Consequence

Rating	Descriptor	Score
Rare	May occur only in exceptional circumstances	1
Unlikely	Could occur but doubtful	2
Possible	Might occur at some time in the future	3
Likely	Will probably occur	4
Almost Certain	Is expected to occur in most circumstances	5

The consequence and likelihood scores are plotted on the risk vs consequence matrix (**Table 11 – Risk Assessment Matrix**) and the final risk level assigned is a product of the likelihood and consequence

scores, which equals the magnitude of the impacts. The higher the risk score, the higher the priority is for management.

Table 11 – Risk Assessment Matrix

Likelihood		Consequence				
		Negligible	Minor	Moderate	Major	Severe
		1	2	3	4	5
Almost Certain	5	5 Medium	10 High	15 High	20 Very High	25 Very High
Likely	4	4 Low	8 Medium	12 High	16 High	20 Very High
Possible	3	3 Low	6 Medium	9 Medium	12 High	15 High
Unlikely	2	2 Low	4 Low	6 Medium	8 Medium	10 High
Rare	1	1 Low	2 Low	3 Low	4 Low	5 Medium

Table 12 – Indicative Management Options for Each Risk Assessment Rating describes the possible actions required for each risk assessment rating.

Table 12 – Indicative Management Options for Each Risk Assessment Rating

Risk Rating	Risk Rating Scores	Indicative Management Option
Very High	17 – 25	Manage by implementing site management and emergency procedures, plant design controls and regular monitoring.
High	10 – 16	Manage by implementing site management procedures, specific monitoring and may require some operation/plant design controls.
Medium	5 – 9	Manage by implementing specific monitoring or response procedures.
Low	1 – 4	Manage by routine procedures, unlikely to need specific application of resources.

3.3 Inherent and Residual Assessment

Activities associated with the activity which have the potential to cause environmental harm and/or nuisance and the potential impacts have been identified and tabulated in **Table 13 – Operational Assessment of Environmental Risk**. **Table 13** also includes the inherent risk of the impacts occurring, and the residual risk following implementation of management strategies.

An *Environmental Management Plan* ('EMP') (Doc ref. 2718_610_001) has been developed for the site to manage potential environmental impacts, and these documents are referenced where relevant in the risk assessment provided in **Table 13**.

Table 13 – Operational Assessment of Environmental Risk

Environmental Objective ¹	Performance Outcome	Source Activity	Potential Impact	Inherent Risk Rating ²	Control / Management Measures	Residual Risk Rating ³
Air						
The activity will be operated in a way that protects the EVs of air.	<ul style="list-style-type: none"> Fugitive emissions of contaminants from storage, handling and processing of materials and transporting materials within the site are prevented or minimised. Contingency measures will prevent or minimise adverse effects on the environment from unplanned emissions and shut down and start up emissions of contaminants to air. Releases of contaminants to the atmosphere for dispersion will be managed to prevent or minimise adverse effects on environmental values. 	<ul style="list-style-type: none"> Clearing of vegetation and topsoil / overburden ahead of the extraction activity. Stockpiling of topsoil and overburden. Extraction and handling of raw materials (e.g., transfer of materials, processing, blending, stockpiling, transportation). Vehicle movements on unsealed roads and access tracks. 	Emission of dust to air impacting nearby sensitive receptors.	2 x 3 = 6 (Medium)	<p>There are limited sensitive receptors in the locality, with the nearest residence being over 1.5 km north of the operational area. In the absence of control measures, potential incidents associated with air emissions impacting nearby sensitive receptors is scored medium due to the setting of the site a rural locality with limited nearby receptors.</p> <p>Section 4.1 - Air Quality Management Plan of the site's EMP contains control measures to minimise potential for air quality impacts. In addition, condition PMA001 (A1) MOC (DES 2019a) if applied to the EA would provide for regulation of air emissions associated with the site activities.</p> <p>Provided that GCC implement the management measures outlined in the EMP, and observe the EA requirements, the environmental objective for 'Air' is likely to be achieved. Residual risk is scored low as the likelihood of an incident occurring, and its consequences, are reduced through the implementation of control measures.</p>	2 x 2 = 4 (Low)
Water						
The activity will be operated in a way that protects the EVs of water.	<ul style="list-style-type: none"> The storage and handling of contaminants will include effective means of secondary containment to prevent or minimise releases to the environment from spillage or leaks. Contingency measures will prevent or minimise adverse effects on the environment due to unplanned releases or discharges of contaminants to water. The activity will be managed so that stormwater contaminated by the activity that may cause an adverse effect on an environmental value will not leave the site without prior treatment. The disturbance of any acid sulfate soil, or potential acid sulfate soil, will be managed to prevent or minimise 	<ul style="list-style-type: none"> Clearing of vegetation and topsoil. Stockpiling of topsoil and overburden. Extraction and handling of raw materials (e.g., transfer of materials, processing, blending, stockpiling, transportation). 	Release of contaminated water to the receiving environment.	3 x 3 = 9 (Medium)	<p>Stormwater runoff will interact with disturbed areas created through the development of site. There are no drainage features mapped as occurring within the operational area, however the proposed extraction footprint is within proximity to a stream order 4 feature. Due to the separation of the site from watercourses, inherent risks to off-site waters are scored medium in the absence of any environmental controls to mitigate these risks.</p> <p>Reference has been made to the QWQG to determine physico-chemical parameters which would typically be considered potential contaminants associated with extractive industry developments, which are:</p> <ul style="list-style-type: none"> Total Suspended Solids (TSS): 50 mg/L pH: 6.5 – 8.0 <p>Note that the TSS value has been sourced from Table 8.2.1 of the QWQG, which mirrors the <i>Guideline: Stormwater and environmentally relevant activities</i> (DES 2021).</p> <p>While a portion of the operational area on the site is mapped as potentially subject to flood events, it is noted that these areas comprise a relatively small area of the overall footprint and are approximated in the State mapping (refer Figure 7 – Basin 1 % AEP Flood Mapping) to be depths of 0m-0.8m. The activity is designed to divert clean water around the extraction area to avoid potential flood risks.</p>	2 x 3 = 6 (Medium)

Environmental Objective ¹	Performance Outcome	Source Activity	Potential Impact	Inherent Risk Rating ²	Control / Management Measures	Residual Risk Rating ³
	<p>adverse effects on environmental values.</p> <ul style="list-style-type: none"> Any discharge to water or a watercourse or wetland will be managed so that there will be no adverse effects due to the altering of existing flow regimes for water or a watercourse or wetland. The activity will be managed so that adverse effects on environmental values are prevented or minimised. 				<p>During high flow event waters would be inherently impacted by flood waters, and therefore site waters would not be expected to cause a worsening of water quality during any such flood event. The proposed local creek catchment flood overlay mapping relevant to the site illustrates areas recently modelled by Council to be affected by a 1% AEP flood event. The updated flood mapping in Figure 8 – Queensland Floodplain Assessment Overlay has not yet been adopted by Council and the planning scheme has not yet been amended to reflect the updated mapping. As such, this is provided for information purposes only.</p> <p>The Conceptual Quarry Stormwater Management Plan included within the EMP has been prepared by Mr Mark Folker (RPEQ) and it is confirmed that the proposed measures will be sufficient to manage the volume of water that would normally be directed by this water feature in addition to any changes to terrain associated with the proposed. Please refer to the following management documents for an overview of proposed stormwater management, and erosion and sediment control at the site:</p> <ul style="list-style-type: none"> The Conceptual Quarry Stormwater Management Plan (Drawing 2718.DRG.003r1) included as Attachment 2 of the EMP; and Section 4.2 - Water Quality Management Plan of the EMP. <p>The Acid Sulfate Soils ('ASS') mapping (The State of Queensland 2022) has confirmed that the site is not located within, or near, an area where ASS have previously been identified, or within a prospective land zone containing ASS. Elevations are typically at or above 70 m AHD at the site, and therefore the site is not anticipated to be subject to ASS.</p> <p>Provided that the management measures outlined in the EMP are implemented, and the EA conditions complied with, the environmental objective for 'Water' is likely to be achieved. The residual risk score is reduced to medium based on a possible likelihood and a moderate consequence which can be management in accordance with the measures in the EMP.</p>	
Wetlands						
The activity will be operated in a way that protects the environmental values of wetlands.	The activity will be managed in a way that prevents or minimises adverse effects on wetlands.	<ul style="list-style-type: none"> Clearing of vegetation and topsoil. Stockpiling of topsoil and overburden. Extraction and handling of raw materials (e.g., transfer of materials, processing, blending, stockpiling, transportation). 	Release of contaminants to, or physical damage of, nearby wetlands.	2 x 3 = 6 (Medium)	<p>The site is not mapped as containing any VMA or HES Wetlands; therefore, direct impacts to wetlands are unlikely. The nearest mapped wetland is situated approximately 1km west of the operational area.</p> <p>While wetlands within a Wetland Protection Areas are considered an MSES, the Wetland Protection Area itself is not an MSES⁵. Therefore, there is no potential for an SRI on a Wetland Protection Areas.</p>	2 x 2 = 4 (Low)

⁵ Schedule 2, Section 4(1) of the *Environmental Offsets Regulation 2014*.

Environmental Objective ¹	Performance Outcome	Source Activity	Potential Impact	Inherent Risk Rating ²	Control / Management Measures	Residual Risk Rating ³
					The Conceptual Quarry Stormwater Management Plan (refer to drawing 2718.DRG.003r1 included in the EMP) identifies the location of the discharge points from the sediment basins which are outside of the mapped wetland protection area.	
Groundwater						
The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems.	The activity will be managed to prevent or minimise adverse effects on groundwater or any associated surface ecological systems.	<ul style="list-style-type: none">Clearing of vegetation and topsoil.Extraction of raw materials.	Impacts to groundwater quality or quantity.	2 x 3 = 6 (Medium)	<p>Drilling investigations were undertaken in October 2022 at the site. A total of 11 holes were drilled as shown in Figure 12 above. The drilling investigations extended to between 10m to 22m below ground level and did not encounter groundwater. The inherent risk of intercepting groundwater is low on this basis. The potential for indirect impacts through release of contaminants which have the potential to be transported to groundwaters is scored medium, based on a possible likelihood.</p> <p>The Water Quality Management Plan (Section 4.2 of the EMP) include measures for capture and treatment of surface waters that may interact with potential contaminants at the site that could impact groundwater. The EMP also includes a Hydrocarbon and Chemical Management Plan that provides measures for management of other potential groundwater contaminants, refer to Section 4.3 of the EMP. In addition, it is understood that extraction will be undertaken so as to not intercept groundwater within the extraction areas. In addition, ‘Water’ for the purpose of the MOC is taken to include groundwater; therefore, the application of the conditions contained in the MOC will regulate impacts to groundwater.</p> <p>Provided GCC implement the EMP and observe the requirements of the EA, potential for indirect impacts to groundwater will be reduced, and the residual risk is reduced to a lower score based on a decreased likelihood of an event occurring. The risk is reduced to a lower score however remains medium, which will require ongoing management through the implementation of the EMP.</p>	2 x 2 = 4 (Low)
			Impacts to GDEs.	2 x 2 = 4 (Low)	There are no GDEs mapped as occurring within the operational area. While no on-site investigations of GDE have been completed, as outlined previously, the proposed maximum depth of extraction is 72m AHD. This would maintain a 6m buffer above the depth of drilling (approximately 66m AHD) which has been conducted at the site within the operational area. As a result, changes to the quality or quantity of groundwater available to any GDEs in proximity to the site are considered unlikely. Inherent risk is scored low as a result, which requires no application of specific management measures.	2 x 2 = 4 (Low)
Noise						
The activity will be operated in a way that protects the EVs of the acoustic environment.	The release of sound to the environment from the activity is managed so that adverse effects on EVs including health and wellbeing and sensitive ecosystems are prevented or minimised.	<ul style="list-style-type: none">Clearing of vegetation and topsoil / overburden ahead of the extraction activity.Stripping and stockpiling of topsoil, subsoils and overburden.	Noise nuisance for nearby noise sensitive receptors.	3 x 3 = 6 (Medium)	In the absence of any noise management measures, the site activities have the potential to influence the noise EVs of the locality. The site is in a rural setting with limited noise sensitive receptors in the locality, the nearest of which is a residence over 1.5 km north of the operational area. The consequence is conservatively assessed as moderate resulting in an inherent risk of medium. Section 4.4 - Noise Management Plan of the site’s EMP contains control measures to minimise noise emissions from the site activities. It is proposed that the MOC and noise limits are	2 x 2 = 4 (Low)

Environmental Objective ¹	Performance Outcome	Source Activity	Potential Impact	Inherent Risk Rating ²	Control / Management Measures	Residual Risk Rating ³
		<ul style="list-style-type: none"> Extraction and handling of materials (e.g., transfer of materials, stockpiling, transportation). Screening and processing of the materials. Vehicle movements on unsealed roads and access tracks. Plant and equipment use, including reverse beepers. Radio / UHF use. Alarms. 			<p>set for the development in line with the recommendations of Table 8 in Section 2.5 – Noise above.</p> <p>Provided that GCC implement control measures for potential noise impacts as outlined in the EMP, and observe the EA requirements, the environmental objective for 'Noise' is likely to be achieved. Residual risk is reduced to low as the likelihood and consequence of an incident involving noise nuisance is reduced through the implementation of the above measures.</p>	
The activity will be operated in a way that protects the EVs of the acoustic environment.	The release of sound to the environment from the activity is managed so that adverse effects on EVs including health and wellbeing and sensitive ecosystems are prevented or minimised.	Blasting activities.	Air blast overpressure and vibration nuisance for nearby sensitive receptors.	3 x 4 = 12 (High)	<p>The rural location of the site assists in reducing the number of sensitive receptors; however, blasting activities at the site inherently have the potential to cause air-blast overpressure and vibration impacts for sensitive receptors.</p> <p>The Blasting Management Plan (Section 4.5 of the EMP) includes measures for management of blasting activities at the site. A key measure is that only suitably experienced and qualified blasting personnel shall be employed or contracted to provide blasting services. This will ensure that all blasts are designed and carried out in a controlled manner to ensure that the relevant blast conditions and Australian Standards are adhered to.</p> <p>Provided that the Blasting Management Plan is implemented, and only suitably qualified persons are engaged to undertake blasting activities at the site, the residual risk is reduced to a lower level as the likelihood of an incident occurring is reduced.</p> <p>The residual risk rating is scored medium, which will require ongoing management measure to be applied as outlined in the EMP.</p>	2 x 3 = 6 (Medium)
Waste						
Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values.	<ul style="list-style-type: none"> Waste generated, transported or received is managed in accordance with the waste and resource management hierarchy in the Waste Reduction and Recycling Act 2011. If waste is disposed of, it is disposed of in a way that prevents or minimises adverse 	<ul style="list-style-type: none"> Vegetation clearing. Storage and disposal of residual waste (i.e., general, and regulated waste). 	Improper disposal of wastes.	3 x 3 = 9 (Medium)	<p>Types of waste that may be generated at the quarry include, but are not necessarily limited to, the following:</p> <ul style="list-style-type: none"> Regulated wastes (e.g., batteries, oil filters, waste oil/hydrocarbons and containers, oil/water emulsions and tyres). Scrap metal and used or faulty parts and equipment. General waste such as food waste, packaging, and consumables. Green waste. 	2 x 2 = 4 (Low)

Environmental Objective ¹	Performance Outcome	Source Activity	Potential Impact	Inherent Risk Rating ²	Control / Management Measures	Residual Risk Rating ³
	effects on environmental values.				<p>In the absence of control measures, potential for impacts associated with improper disposal of wastes is inherently scored medium.</p> <p>The Waste Management Plan included as Section 4.6 of the EMP details measures for management of waste at the site, with reference to the requirements of the <i>Waste Reduction and Recycling Act 2011</i> ('WRR Act'). Condition PMG038 (WS1) of the MOC (DES 2019a) if applied to the EA would enable regulation of impacts associated with waste. Provided GCC implement the measures outlined in the EMP, and comply with the requirements of the EA, the residual risk of a potential incident involving waste is reduced, and the environmental objective for 'Waste' is likely to be achieved.</p>	
Land						
The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.	<ul style="list-style-type: none"> The activity will be managed to prevent or minimise adverse effects on the environmental values of land due to unplanned releases or discharges, including spills and leaks of contaminants. The application of water or waste to the land is sustainable and is managed to prevent or minimise adverse effects on the composition or structure of soils and subsoils. 	Handling of chemicals and fuels on-site.	Release of hydrocarbons and fuels to land.	3 x 4 = 12 (High)	<p>In the absence of controls, the inherent risk of handling fuels and chemicals is high due to an increased likelihood of potential release if handling and storage activities are unmanaged.</p> <p>A Hydrocarbon and Chemical Management Plan has been incorporated into the EMP (refer to Section 4.3) which provides management measures for handling and storage of hydrocarbons and chemicals to reduce the potential impacts to land associated with spills and/or leaks. Common Condition (DES 2019b) can also be applied, which states:</p> <p><i>PCG012 (G6) - Chemicals and fuels in containers of greater than 15 litres must be stored within a secondary containment system.</i></p> <p>Provided GCC implements the measures outlined in the EMP and observes the EA requirements, the residual risk is reduced to a lower level as the likelihood and consequence of an incident occurring is reduced through the implementation of the management measures outlined in the EMP.</p> <p>The residual risk is scored medium, and ongoing management in accordance with the EMP will be required to ensure risk is as low as reasonably possible. The environmental objective for 'Land' can be achieved through application of the nominated controls.</p>	2 x 3 = 6 (Medium)
The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.	Activities that disturb land, soils, subsoils, landforms and associated flora and fauna will be managed in a way that prevents or minimises adverse effects on the EVs of land.	Clearing of vegetation ahead of extraction.	Unauthorised impacts to protected species as a result of site activities.	2 x 2 = 6 (Medium)	<p>As summarised in Section 2.6 – Land, the proposed operational area is mapped as Category X non-remnant vegetation and is not mapped as containing any MSES or High-Risk areas (flora survey mapping trigger). Category X vegetation is classified as exempt clearing work under Schedule 21 of the <i>Planning Regulation 2017</i> as does not require assessment or approval to be cleared.</p> <p>The operational area does not contain any features identified as MSES; however, an area mapped as MSES wildlife habitat [special least concern animal] is situated north of the proposed operational area.</p>	2 x 2 = 4 (Low)

Environmental Objective ¹	Performance Outcome	Source Activity	Potential Impact	Inherent Risk Rating ²	Control / Management Measures	Residual Risk Rating ³
					<p>Risks of impacts to mapped vegetation are conservatively scored medium due to the proposed location of the activities in low value vegetation. To mitigate potential impacts to adjacent areas of mapped remnant vegetation, the operational area is to be demarcated prior to clearing.</p> <p>Provided that all clearing occurs within the designated extraction limits, direct impacts to adjacent areas of remnant vegetation will be avoided.</p>	
The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.	<p>Areas disturbed will be rehabilitated or restored to achieve sites that are—</p> <ul style="list-style-type: none"> • safe to humans and wildlife; and • non-polluting; and • stable; and • able to sustain an appropriate land use after rehabilitation or restoration. 	Post-closure implementation and management of the site rehabilitation.	Failure to achieve rehabilitation milestones in disturbance areas at the cessation of the activities.	3 x 4 = 12 (High)	<p>In the absence of management measures to assist in site rehabilitation, landforms created through the extraction activities have the potential to impact upon environmental values of the surrounding areas following cessation of the extractive industry activities.</p> <p>Inclusion of the conditions PML004 (L2) and PML005 (L3) of the MOC (DES 2019a) will enable regulation of rehabilitation for the proposed extraction area. The EMP includes a Rehabilitation Management Plan (refer to Section 4.7 of the EMP).</p> <p>Provided that GCC implement the EMP, and observe the EA requirements, the environmental objectives for 'Land' are likely to be achieved. Residual risk is reduced to a lower level as the likelihood of failure of final rehabilitated landforms is reduced through the implementation of these measures. With future planning and implementation of successful rehabilitation, the likelihood of failure is reduced; however, the consequence remains the same, which result in a residual risk rating of medium.</p>	2 x 3 = 6 (Medium)

Notes:

1. Environmental Objectives and Performance Outcomes have been reprinted from Schedule 8, Part 3, Division 1 of the EP Reg
2. "Inherent risk" is the level of risk that exists if the impacts go unmitigated.
3. "Residual risk" is the risk that remains after implementation of the proposed control / management measures.

4 Concluding Remarks

The EAR has been prepared to address the EA application requirements as outlined in Section 125 of the EP Act.

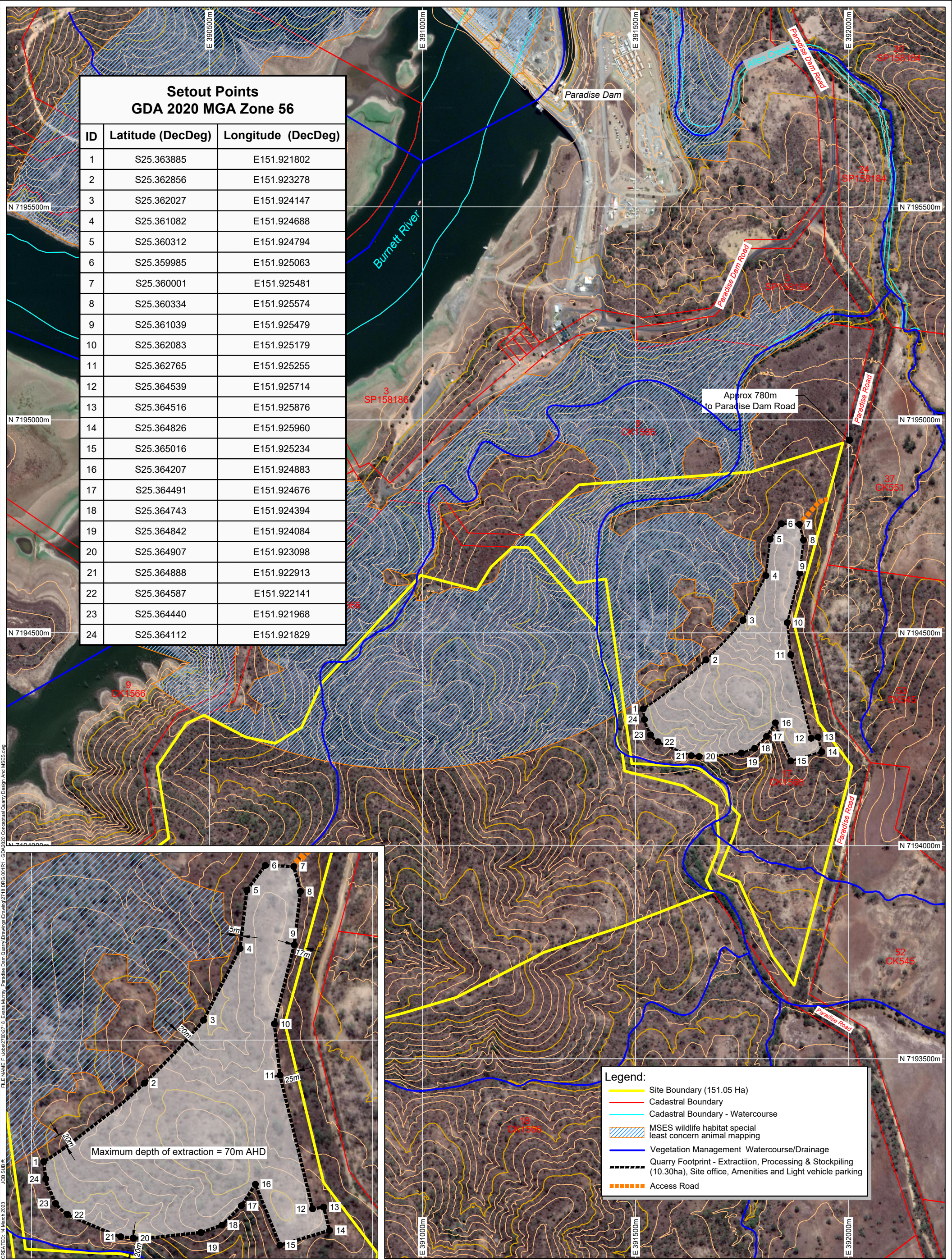
The highest level of residual risk has been calculated as medium. Ongoing management of the site will be required in accordance with the management measures provided in the site's EMP and SMP, and through compliance with the EA conditions, to ensure that the potential risk associated with environmental impacts identified is reduced to as low as reasonably possible.

The EMP and SMP have been developed to provide written procedures regarding the measures for the management of potential environmental impacts from the site activities, with reference to the risk assessment provided in **Table 13 – Operational Assessment of Environmental Risk**. In addition, it is proposed that the MOC are applied to enable regulation of environmental impacts.

Reference

- Bureau of Meteorology (2023). Climate Data Online. Accessed 22 February 2023 via Bureau of Meteorology (2023). *Climate Data Online*. Accessed 22 February 2023 via <http://www.bom.gov.au/climate/data/>
- CCAA, (2015). CCAA Guideline — Assessment and Control of Environmental Noise Emission from Quarries - Queensland March 2015. Accessed on 23 February 2023 via <https://www.ccaa.com.au/documents/Library%20Documents/CCAA%20Industry%20Guidelines/CCAA%20Extractive%20Noise%20Reduction%20LR%20MAY15.pdf>
- DES (Department of Environment and Science, (2019a). *Model operating conditions—ERA 16—Extractive and screening activities*. Accessed 23 February 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/89144/pr-co-extraction-and-screening.pdf
- DES (Department of Environment and Science, (2019b). *Common conditions Prescribed environmentally relevant activities*. Accessed 22 February 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0030/89841/pr-co-common-conditions-prescribed-eras.pdf
- DES, (2020). *Information sheet: Exemptions – where offsets cannot be required*. Accessed 12 July 2022 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0018/103365/exemptions-offsets-cant-be-required-info-sheet.pdf
- DES, (2020). *Terrain Slopes*. Accessed 22 February 2023 via <https://wetlandinfo.des.qld.gov.au/wetlands/ecology/aquatic-ecosystems-natural/estuarine-marine/itst/terrain-slope/>
- DES, (2021). *Guideline: Stormwater and environmentally relevant activities*. Accessed 6 April 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0028/89119/pr-gl-stormwater-guideline-era.pdf
- EHP, (Department of Environment and Heritage Protection), (2011). *Environmental Protection (Water) Policy 2009 Fitzroy River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Fitzroy River Sub-basin*
- EHP, (2014). *Queensland Environmental Offsets Policy: Significant Residual Impact Guideline*. Accessed 23 February 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0017/90404/significant-residual-impact-guide.pdf
- EHP, (2016). *Guideline: Planning for Noise Control*.
- Standards Australia (2018). *ISO 31000:2018 Risk management – Guidelines*. Standards Australia: Sydney, NSW
- Sunwater, (n.d.). *Paradise Dam Improvement Project*. Accessed 6 April 2023 via <https://www.sunwater.com.au/projects/paradise-dam-improvement-project/>
- The State of Queensland, (2023). *Queensland Globe*. Accessed via <https://qldglobe.information.qld.gov.au/>

DRAWINGS



Setout Points GDA 2020 MGA Zone 56		
ID	Latitude (DecDeg)	Longitude (DecDeg)
1	S25.363885	E151.921802
2	S25.362856	E151.923278
3	S25.362027	E151.924147
4	S25.361082	E151.924688
5	S25.360312	E151.924794
6	S25.359985	E151.925063
7	S25.360001	E151.925481
8	S25.360334	E151.925574
9	S25.361039	E151.925479
10	S25.362083	E151.925179
11	S25.362765	E151.925255
12	S25.364539	E151.925714
13	S25.364516	E151.925876
14	S25.364826	E151.925960
15	S25.365016	E151.925234
16	S25.364207	E151.924883
17	S25.364491	E151.924676
18	S25.364743	E151.924394
19	S25.364842	E151.924084
20	S25.364907	E151.923098
21	S25.364888	E151.922913
22	S25.364587	E151.922141
23	S25.364440	E151.921968
24	S25.364112	E151.921829

- Legend:
- Site Boundary (151.05 Ha)
 - Cadastral Boundary
 - Cadastral Boundary - Watercourse
 - MSES wildlife habitat special least concern animal mapping
 - Vegetation Management Watercourse/Drainage
 - Quarry Footprint - Extraction, Processing & Stockpiling (10.30ha), Site office, Amenities and Light vehicle parking
 - Access Road

REV	DESCRIPTION	DATE	BY
Data Sources:			
Photography: Google Earth Imagery_Captured 2020-11-22			
Topography: Cadastral: © The State of Queensland (Department of Resources), 2022			
Ecosystem: Other:			
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PROJECT: Paradise Dam Quarry

CLIENT: Galilee Crushing & Civil Pty Ltd

TITLE: Conceptual Quarry Design and MSES

SCALE: 1:8000

DATE: 14 March 2023

PRINTED: 14 March 2023

DRAWN: MR

CHECKED: JL

DATUM: HORIZONTAL / VERTICAL / ZONE

DRAWING NUMBER: 2718.DRG.001

REVISION: 1

GDA2020 / MGA / AHD / 56

ATTACHMENTS

Attachment 1

EMR / CLS Search Results



Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Sam Lyons
PO Box 1779
6 Mayneview Street
Milton QLD 4064

Transaction ID: 50846562 EMR Site Id: 20 March 2023
Cheque Number:
Client Reference:

This response relates to a search request received for the site:

Lot: 17 Plan: CK1566
PARADISE RD
CORINGA

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Paradise Dam Quarry

Environmental Management Plan

Prepared for: Galilee Crushing & Civil Pty Ltd

Date: April 2023

File Reference: 2718_610_001

DOCUMENT CONTROL

PROJECT / DETAILS REPORT

Document Title:	Paradise Dam Quarry Environmental Management Plan
Principal Author:	Jack Wallace
Client:	Galilee Crushing & Civil Pty Ltd
Reference Number:	2718_610_001

DOCUMENT STATUS

Issue	Description	Date	Author	Reviewer
0	Environmental Management Plan	April 2023	J. Wallace	Y. Dowling

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Galilee Crushing & Civil Pty Ltd	1 x Electronic
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GROUNDWORK PLUS

Phone: 1800 GW PLUS (1800 497 587)

Email: info@groundwork.com.au

Website: groundwork.com.au

ABN 13 609 422 791

VIC/TAS

WeWork | Groundwork Plus

Office 21-106

120 Spencer Street, Melbourne

Vic 3000

QLD/NSW

6 Mayneview Street, Milton Qld 4064

PO 1779, Milton BC Qld 4064

Phone: +61 7 3871 0411

Fax: +61 7 3367 3317

Geotechnical Laboratory

Unit 78/109 Leitchs Road, Brendale Qld 4500

Phone: 0417 615 217

SA/WA/NT

2/3 16 Second St, Nuriootpa SA 5355

PO Box 854, Nuriootpa SA 5355

Phone: +61 8 8562 4158

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DRAWING

Conceptual Quarry Design and MSES (Drawing No. 2718.DRG.001)

ATTACHMENTS

- Attachment 1 Annual Environmental Performance Review
- Attachment 2 Stormwater Management Plan Drawing

1 Introduction

1.1 Background

Galilee Crushing & Civil Pty Ltd ('GCC') intends to operate the Paradise Dam Quarry on land located at Paradise Road, Coringa QLD 4621, properly described as Lot 17 on CK1566 (herein referred to as the 'site' as shown in **Figure 1 – Aerial Photo and Cadastre**). The site will provide construction materials to the Paradise Dam Improvement Project.

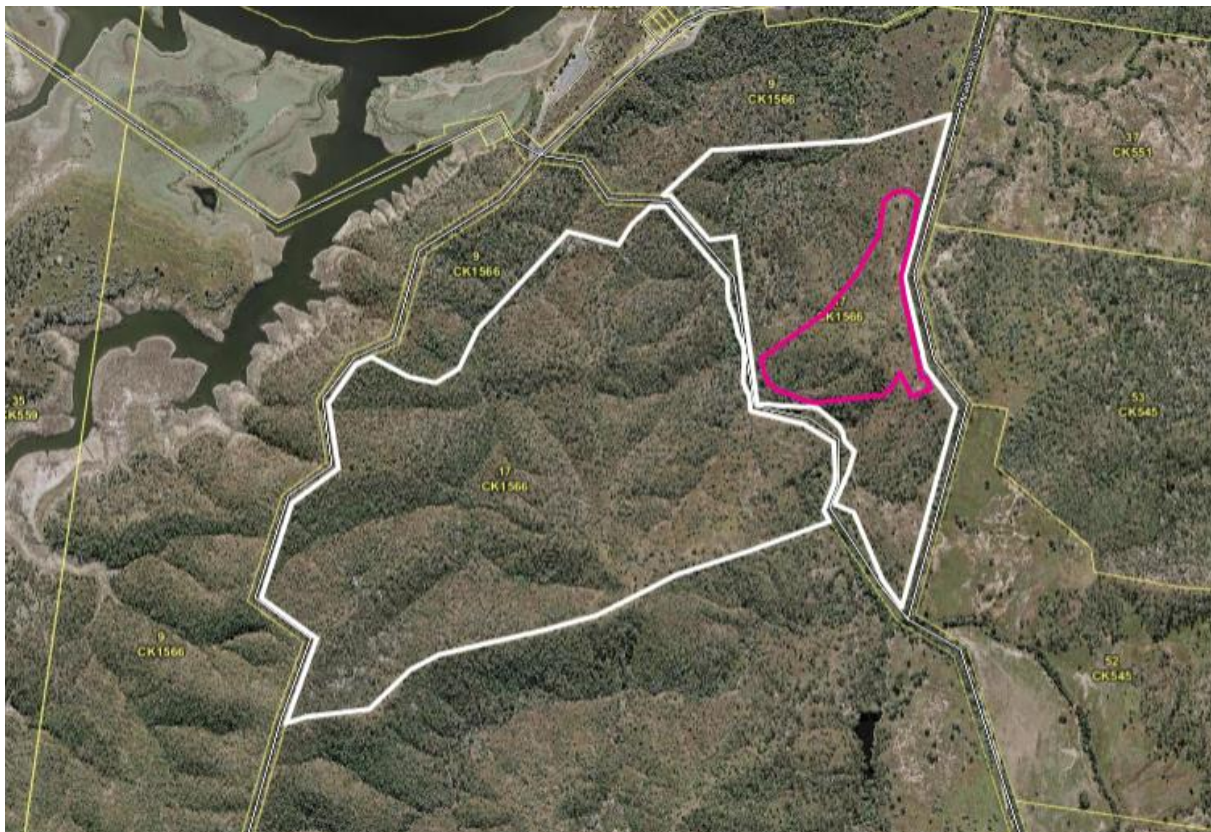


Figure 1 – Aerial Photo and Cadastre

(Figure reprinted from The State of Queensland (2023))

The activity constitutes the following prescribed Environmentally Relevant Activities ('ERAs') in accordance with the *Environmental Protection Regulation 2019* ('EP Reg'):

- ERA 16 Threshold (2)(b) – Extracting, other than by dredging, in a year, more than 100,000t but less than 1,000,000t; and
- ERA 16 Threshold (3)(b) – Screening, in a year, more than 100,000t but less than 1,000,000t.

Once granted, the site will be operated in accordance with a ('EA') issued by the Department of Environment and Science ('DES').

This Environmental Management Plan ('EMP') describes the site operations, the potential environmental impacts of these activities, and how any impacts may be mitigated or managed to achieve acceptable environmental outcomes for the activity.

1.2 Site Details

Table 1 – Site Details Summary provides a summary of the site location details.

Table 1 – Site Details Summary

Location	Paradise Road, Coringa QLD 4621
Access	Paradise Road, Coringa QLD 4621
Real Property Description	Lot 17 on CK1566
Total Site Area	Freehold
Tenure	1,512,510 sqm (151.251ha)
Local Authority	North Burnett Regional Council

1.3 Activity Overview

Included as **Diagram 1 – Conceptual On-Site Extractive Operations** are illustrations of the of the site development. The site operations will be developed in stages and will use standard extraction and screening methods. Below are the anticipated basic elements of the site operations:

- Clearing of vegetation and stripping of topsoil and overburden material using mechanical means (i.e. bulldozer or excavator) and stockpiling for incorporation into on-site rehabilitation works where required, or use in constructing stormwater control structures (e.g. perimeter banks);
- Drilling and blasting the exposed underlying rock to manageable size from the developed quarry benches to the quarry pit or bench below;
- Transferring raw material from the quarry face or pit floor to a designated crushing and screening plant using an excavator or front end loader into off road trucks;
- Crushing and screening the raw material using crushing and screening plant;
- Stockpiling the final products using the front-end loader and/or off-road haul trucks within the designated area required to be loaded into road trucks for transportation off-site; and
- Rehabilitating disturbed areas progressively once extraction is completed.

Operations will be supported by a range of ancillary building and structures including, but not limited to:

- Site office and amenities block, visitor car park, staff car park and truck parking area(s).
- Weighbridge, workshop, and truck wash down facility.
- Internal haul and access roads.

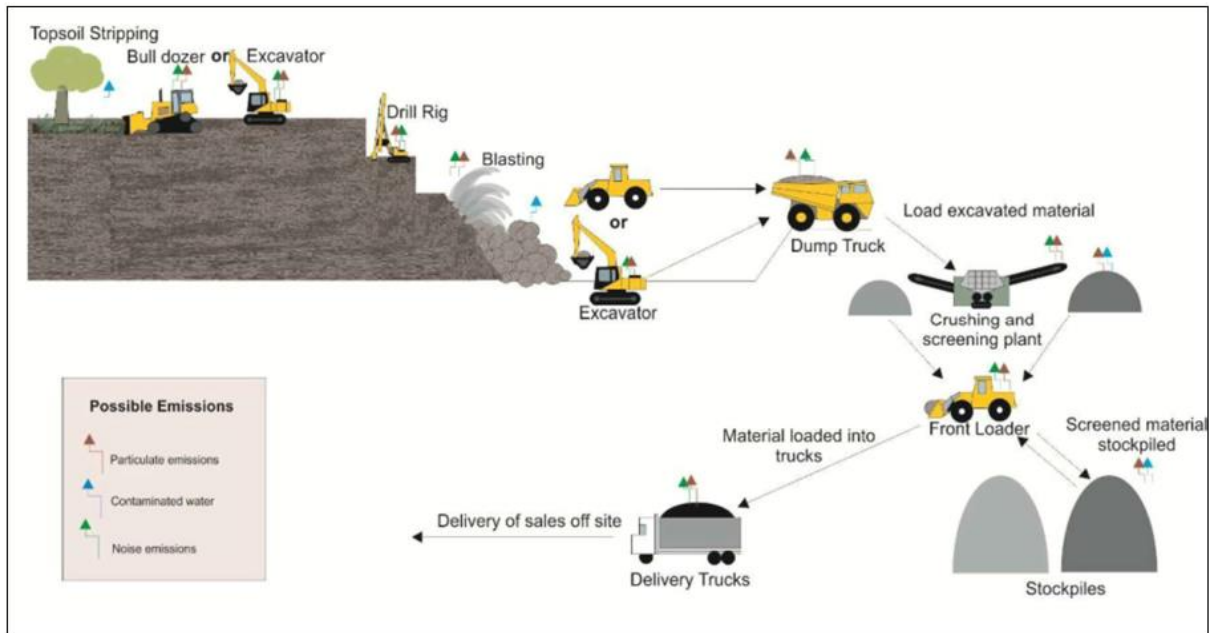


Diagram 1 – Conceptual On-Site Extractive Operations

1.4 Plant and Equipment

The types of major plant and equipment deployed on-site may include, but is not limited to:

- Bulldozer;
- Grader;
- Excavator;
- Drill rig;
- Off-road trucks;
- Front end loader;
- Fixed / mobile crushing and screening plant; and
- On-road haul trucks.

Machinery repairs and maintenance will be carried out on-site where practicable. Stationary equipment will generally be serviced in the field unless it is practical for the parts to be dismantled and transported offsite for repairs. Consumables (e.g., tyres, oils and greases) will be supplied by contractors and removed (including associated packaging) for disposal off-site in accordance with the requirements of the prevailing legislation and the local authority on a regular basis.

1.5 Hours of Operation

The proposed hours of operation for the quarry are:

- Loading and haulage: as per the hours of operation for the Paradise Dam Improvement Project for the duration of the project.
- Extraction and processing: 6:00am – 6:00pm, Monday to Saturday, no operations on Sundays or public holidays.
- Blasting: 9:00am – 3:00pm, Monday to Friday and 9:00am – 1:00pm, Saturdays.

1.6 Purpose of the EMP

This EMP has been prepared to provide written procedures for the site activities that:

- a) identify potential risks to the environment from the activity during routine operations and emergencies; and
- b) establish and maintain control measures that minimise the potential for environmental harm; and
- c) ensure plant, equipment and measures are maintained in a proper and effective condition; and
- d) ensure plant, equipment and measures are operated in a proper and effective manner; and
- e) ensure that staff are trained and aware of their obligations under the EP Act; and
- f) ensure that reviews of environmental performance are undertaken at least annually.

1.7 Relevant Legislation

In Queensland, the EP Act is the principal legislation for protecting the environment. The EP Act was assented on 1 December 1994 and was proclaimed on 1 March 1995. The object of the EP Act is to:

"protect Queensland's environment while allowing for development that improves that total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development)".

The EP Act imposes a General Environmental Duty on corporation, government departments and individuals, in order to meet the primary objective (s319 of the EP Act). The duty relates to the notion that everyone must take all reasonable and practicable measures to prevent or minimise environmental harm. The general environmental duty is extracted below for reference:

319 General environmental duty

1. *A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm (the **general environmental duty**).*

Note— See section 24 (3) (Effect of Act on other rights, civil remedies etc.).

2. *In deciding the measures required to be taken under subsection (1), regard must be had to, for example*
 - a) *the nature of the harm or potential harm; and*
 - b) *the sensitivity of the receiving environment;*
 - c) *the current state of technical knowledge for the activity; and*
 - d) *the likelihood of successful application of the different measures that might be taken; and*
 - e) *the financial implications of the different measures as they would relate to the type of activity.*

In addition, the EP Act states that it is an offence to cause environmental nuisance (s440 of EP Act), material environmental harm (s438 of EP Act), serious environmental harm (s437 of EP Act), and it is an offence to contravene a condition of an Environmental Authority (s430 of EP Act).

2 Policies and Procedures

2.1 Staff Training

All personnel, including contractors, are to be inducted on the environmental management requirements for the site and informed of the environmental management objectives and specifics of the EMP as well as obligations under the *Environmental Protection Act 1994*. Training may include awareness on impact minimisation measures, operational practices, maintenance measures, reporting, and individual responsibilities.

Site personnel are to be made aware of penalties if conditions of approval are breached and reporting requirements for incidents involving environmental nuisance and/or harm in accordance with the relevant environmental legislation. A record of all employee training is to be maintained on-site.

2.2 Communication

Communication must take place regarding environmental matters at the site between operational personnel, management and external stakeholders.

Internal communication mechanisms relating to environmental matters and potential impacts, objectives and targets, training and awareness, complaints and incidents, and suggestions for improvement may include, but shall not be limited to:

- Self-assessments and audits.
- Action requests, memos, noticeboards, etc.
- Environmental incident reporting.
- Environmental compliance monitoring and reporting.
- Inductions and environmental awareness training.
- Toolbox talks or verbal advice.
- Weekly construction meetings.
- Management reviews.
- Site meetings.

All external communications are to be undertaken by management. External communication mechanisms for environmental matters may include:

- Formal and informal correspondence with the administering authorities
- Formal correspondence with interest groups
- Community complaints and enquiries.

2.3 Complaint and Recording Response

All complaints received are to be reported to the Quarry Manager or delegate immediately.

The following details are to be recorded upon receipt of any complaint:

- Date and time the complaint was received.
- Name and contact details for the complainant when provided and authorised by the complainant.

- Nature of the complaint.
- Investigation undertaken.
- Conclusions formed.
- Actions taken.

The Quarry Manager is to liaise with any complainants to discuss the nature of the complaint and to determine a suitable resolution. Initial contact with the complainant is to be made within 24 hours of the complaint being received to initiate a resolution to the matter.

The administering authority may request additional monitoring to investigate any complaint of environmental nuisance received directly by the administering authority. A copy of any monitoring results must be provided within 10 business days to the administering authority.

2.4 Incident Response Procedure

2.4.1 Overview

The objective of this Incident Response Procedure is to ensure that any breaches of the EA, or incidents and activities that cause or threaten to cause serious or material environmental harm, are reported, investigated, and addressed to prevent recurrence or remedy harm caused. A diagrammatic overview of incidents procedure is provided in **Diagram 2 – Incident Response Procedure Overview**. The Quarry Manager will be responsible for ensuring that all employees at the site are familiar with the procedure for incidents procedures.

Environmental harm is defined under the EP Act as:

- any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.
- may be caused by an activity–
 - whether the harm is a direct or indirect result of the activity; or
 - whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.

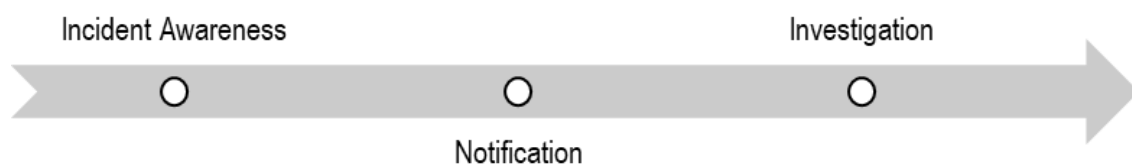


Diagram 2 – Incident Response Procedure Overview

2.4.2 Incident Awareness

When an employee becomes aware of an event resulting in the breach of an EA condition, or an incident with actual or potential environmental harm implications, the employee must report the incident to the Quarry Manager or delegate immediately (no more than 24 hours after becoming aware of the incident).

To demonstrate regard for the general environmental duty, all possible breaches of the EA should be reported to the administering authority as soon becoming aware of the matter, even if there is uncertainty as to whether a condition of the EA has been breached.

2.4.3 Notification

If the matters are an emergency, call 000.

Under Sections 320 to 320G of the EP Act, persons have a duty to notify the administering authority within 24 hours of becoming aware of any incidents or activities that cause or threaten to cause serious environmental harm or material environmental harm. In addition, the EA requires that any breach of a condition of the EA is reported no more than as soon as practicable within 24 hours of becoming aware of the breach.

The Quarry Manager must notify the administering authority via telephone and email within 24 hours of becoming aware of the incident. The contact details of the administering authority for notification purposes are as follows:

Department of Environment and Science

Phone: 1300 130 372 and select option 2 (during business hours of 8.30am to 5.00pm)

Email: PollutionHotline@des.qld.gov.au

Notification must include the following where known:

- Contact details for a site representative.
- Details of the affected land (e.g., site address, real property description, local government area, maps / plans of affected areas).
- EA reference number.
- Nature of the activity / circumstances that led to the incident.
- Timeframes for the event and when staff became aware (date and time).
- Event type (e.g., spill, fire, leaks, release, etc), source and environment affect (e.g. waterways, drains, land, etc).
- Details of any potential contaminants.
- Actions taken to resolve or remedy potential impacts.

All records of the incident or breach are to be stored at the site and made available to the administering authority upon request.

2.4.4 Investigation

All incidents are to be investigated. The investigations should include:

- determining what activities were being carried out at the time of the incident and any equipment involved.
- identifying whether equipment or activities on-site were the cause of the incident.
- determining what potential actions may be carried out to resolve the matter and/or minimise the likelihood of further impacts.

Corrective action is to be implemented and an assessment conducted to determine what actions are to be taken to remedy the matter and/or prevent a similar incident from occurring.

Where monitoring is required to investigate an incident (e.g., water quality monitoring), a suitably qualified person as identified under the EP Act must be engaged to perform the monitoring and interpret any results.

2.5 Record Keeping

All environmentally relevant documentation, including approvals, corporate policies, procedures, forms, records, and reports required to be kept as per this EMP or conditions of approval shall be available at the approved premises for a period of at least five (5) years, and must be available for inspection by an authorised person.

2.6 Monitoring

Any monitoring required by a condition of approval or by this EMP must be carried out by a suitably qualified person(s) as defined under the EP Act.

All instruments, equipment and measuring devices used for measuring or monitoring in accordance with a condition of approval must be calibrated and appropriately operated and maintained.

All analyses of samples must be carried out by a laboratory that has National Association of Testing Authorities ('NATA') certification, or an equivalent certification, for such analyses.

2.7 Periodic Review of Environmental performance and Continual Improvement

The EMP has been prepared for implementation as a continuous improvement program. The following key aspects of this EMP ensures continuous improvement results from the implementation of this EMP.

Commitment and Environmental Policy

Senior management are to commit to environmental performance through ensuring regulatory compliance, prevention of actual or potential environmental harm, and continuous improvement.

Planning

The EMP identifies environmental aspects associated with the site operations, such as potential impacts. EMP outlines the environmental objectives, performance targets and management measures for each environmental aspect.

Implementation

Implementation of the EMP outlines responsibilities, training requirements, communication procedures, and contingency plans. GCC will be responsible for ensuring additional implementation requirements are in place, such as preparing monitoring documentation, following procedures, and establishing communication pathways.

Checking

Monitoring of compliance will determine whether the environmental objectives are being met and will identify non-compliances. Additional actions that will check environmental performance include audits and review of the EMP.

Review

Reviews of environmental performance are to be undertaken at least annually and should review:

- any monitoring data produced under the conditions of the EA and any trends.
- any non-compliances reported, or complaints received, over the preceding 12 months and actions taken to achieve compliance / resolution.
- changes in site approval documents, legislation and standards.
- the suitability of the EMP against the site development.
- any measures that are proposed to be implemented over the coming 12 months to improve the environmental performance of the site.

A template for annual environmental performance reviews is included as **Attachment 1 – Annual Environmental Performance Review**.

The outcomes of all environmental performance reviews must be communicated to senior management for actioning as required.

The outcomes of all environmental performance reviews must be communicated to senior management for actioning as required.

The Quarry Manager may commission updates to this EMP as required to ensure that it meets the operational needs of the site. Periodic review of the EMP will ensure continuous improvement of the site environmental performance through adaption of management strategies to meet the changing needs of the site.

3 Potential Environmental Risks

3.1 Risk Assessment Methodology

The purpose of this assessment is to determine the site activities requiring ongoing management to reduce residual risk of potential environmental impacts. This risk assessment methodology has been adopted from the process for risk management as set out in Clause 6 of the *AS ISO 31000:2018 Risk management - Guidelines* (Standards Australia 2018). The risk assessment follows the following process:

- Risk Identification (source activity and potential impact).
- Risk Analysis (risk level = likelihood x consequence).
- Risk Evaluation (commentary on risk / management measures proposed).

The risk treatment outlines the controls / management measures that can be implemented to reduce the level of risk to as low as reasonably possible.

The risk analysis qualitative estimates the level of risk based on the likelihood of an environmental impact or event occurring (**Table 2 – Definitions of Likelihood**), and the consequences of the concurrence (**Table 3 – Definitions of Consequences**).

Table 2 – Definitions of Likelihood

Rating	Descriptor	Score
Rare	May occur only in exceptional circumstances	1
Unlikely	Could occur but doubtful	2
Possible	Might occur at some time in the future	3
Likely	Will probably occur	4
Almost Certain	Is expected to occur in most circumstances	5

Table 3 – Definitions of Consequences

Rating	Descriptor	Score
Negligible	Impacts not requiring any treatment or management action	1
Minor	Nuisance or insignificant environmental harm requiring minor management action	2
Moderate	Serious environmental impacts, readily manageable at low cost	3
Major	Substantial environmental impacts, manageable but at considerable cost and some disruption	4
Severe	Severe environmental impacts with major consequent disruption and heavy cost	5

The consequence and likelihood scores are plotted on the risk vs consequence matrix (**Table 4 – Risk Assessment Matrix**) and the final risk level assigned is a product of the likelihood and consequence scores, which equals the magnitude of the impacts. The higher the risk score, the higher the priority is for management.

Table 4 – Risk Assessment Matrix

Likelihood		Consequence				
		Negligible	Minor	Moderate	Major	Severe
		1	2	3	4	5
Almost Certain	5	5 Medium	10 High	15 High	20 Very High	25 Very High
Likely	4	4 Low	8 Medium	12 High	16 High	20 Very High
Possible	3	3 Low	6 Medium	9 Medium	12 High	15 High
Unlikely	2	2 Low	4 Low	6 Medium	8 Medium	10 High
Rare	1	1 Low	2 Low	3 Low	4 Low	5 Medium

Table 5 – Indicative Management Option for Each Risk Assessment Rating describes the possible actions required for each risk assessment rating.

Table 5 – Indicative Management Option for Each Risk Assessment Rating

Risk Rating	Risk Rating Scores	Indicative Management Option
Very High	17 – 25	Manage by implementing site management and emergency procedures, plant design controls and regular monitoring.
High	10 – 16	Manage by implementing site management procedures, specific monitoring and may require some operation/plant design controls.
Medium	5 – 9	Manage by implementing specific monitoring or response procedures.
Low	1 – 4	Manage by routine procedures, unlikely to need specific application of resources.

3.2 Environmental Risk Assessment

Activities associated with the ERAs which have the potential to cause environmental harm and/or nuisance and the potential impacts have been identified and tabulated. The inherent risk of the impacts occurring, and the residual risk following the implementation of management strategies, has then been assessed. Refer to **Table 6 – Inherent and Residual Environmental Risk Assessment** for the assessment.

Table 6 – Inherent and Residual Environmental Risk Assessment

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
AIR				
<ul style="list-style-type: none"> Clearing of vegetation and topsoil / overburden ahead of the extraction activity. Stockpiling of topsoil and overburden. Extraction and handling of raw materials (e.g., transfer of materials, processing, blending, stockpiling, transportation). Vehicle movements on unsealed roads and access tracks. 	Emission of dust to air impacting nearby sensitive receptors.	2 x 3 = 6 (Medium)	<p>There are limited sensitive receptors in the locality, with the nearest residence being over 1.5 km north of the operational area. In the absence of control measures, potential incidents associated with air emissions impacting nearby sensitive receptors is scored medium due to the setting of the site a rural locality with limited nearby receptors.</p> <p>Section 4.1 – Air Quality Management Plan contains control measures to minimise potential for air quality impacts. Residual risk is scored low as the likelihood of an incident occurring, and its consequences, are reduced through the implementation of control measures.</p>	2 x 2 = 4 (Low)

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
WATER				
<ul style="list-style-type: none"> Clearing of vegetation and topsoil. Stockpiling of topsoil and overburden. Extraction and handling of raw materials (e.g., transfer of materials, processing, blending, stockpiling, transportation). 	Release of contaminated water to the receiving environment.	3 x 3 = 9 (Medium)	<p>Stormwater runoff will interact with disturbed areas created through the development of site.</p> <p>Section 4.2 - Water Quality Management Plan provides control measures to manage potential impacts to waters from the site activities. The residual risk score is reduced to medium based on a possible likelihood and a moderate consequence which can be management in accordance with the measures in the EMP.</p>	2 x 3 = 6 (Medium)
WETLANDS				
<ul style="list-style-type: none"> Clearing of vegetation and topsoil. Stockpiling of topsoil and overburden. Extraction and handling of raw materials (e.g., transfer of materials, processing, blending, stockpiling, transportation). 	Release of contaminants to, or physical damage of, nearby wetlands.	2 x 3 = 6 (Medium)	<p>The site is not mapped as containing any VMA or HES Wetlands; therefore, direct impacts to wetlands are unlikely. The nearest mapped wetland is situated approximately 1km west of the operational area.</p> <p>Attachment 2 – Conceptual Quarry Stormwater Management Plan identifies the location of the discharge points from the sediment basins which are outside of the mapped wetland protection area.</p>	2 x 2 = 4 (Low)

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
GROUNDWATER				
<ul style="list-style-type: none"> Clearing of vegetation and topsoil. Extraction of raw materials. 	Impacts to groundwater quality or quantity.	2 x 3 = 6 (Medium)	<p>Based on drill hole data reported in October 2022, no groundwater was intercepted within the operational area on this site. Inherent risk of direct impacts is therefore low.</p> <p>Indirect impacts through release of contaminants which have the potential to be transported to groundwaters is scored medium, based on a possible likelihood. Section 4.2 - Water Quality Management Plan provides control measures includes measures for capture and treatment of surface waters that may interact with potential contaminants at the site that could impact groundwater. In addition, Section 4.3 - Hydrocarbon and Chemicals Management Plan provides measures for management of potential contaminants such as fuels.</p> <p>Risks of impacts to groundwater can be reduced to a lower score based on a decreased likelihood of an event occurring. The risk is reduced to a lower score however remains medium, which will require ongoing management through the implementation of this EMP.</p>	2 x 2 = 4 (Low)
	Impacts to GDEs	2 x 2 = 4 (Low)	There are no GDEs mapped as occurring within the operational area. While no on-site investigations of GDE have been completed, as outlined previously, the proposed maximum depth of extraction is 72 m AHD. This would maintain a 2m buffer above the depth of which has been conducted at the site within the operational area. As a result, changes to the quality or quantity of groundwater available to any GDEs in proximity to the site are	2 x 2 = 4 (Low)

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
			considered unlikely. Inherent risk is scored low as a result, which requires no application of specific management measures.	
NOISE				
<ul style="list-style-type: none"> Clearing of vegetation and topsoil / overburden ahead of the extraction activity. Stripping and stockpiling of topsoil, subsoils and overburden. Extraction and handling of materials (e.g., transfer of materials, stockpiling, transportation). Screening and processing of the materials. Vehicle movements on unsealed roads and access tracks. Plant and equipment use, including reverse beepers. Radio / UHF use. 	Noise nuisance for nearby noise sensitive receptors.	3 x 3 = 6 (Medium)	<p>In the absence of any noise management measures, the site activities have the potential to influence the noise EVs of the locality. The site is in a rural setting with limited noise sensitive receptors in the locality, the nearest of which is a residence located over 1.5 km north of the operational area. The consequence is conservatively assessed as moderate resulting in an inherent risk of medium.</p> <p>Section 4.4 - Noise Management Plan contains control measures to minimise noise emissions from the site activities. Provided that GCC implement control measures for potential noise impacts residual risk can be reduced to low as the likelihood and consequence of an incident involving noise nuisance is reduced through the implementation of the above measures.</p>	2 x 2 = 4 (Low)

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
<ul style="list-style-type: none"> Alarms. 				
<ul style="list-style-type: none"> Blasting activities. 	Air blast overpressure and vibration nuisance for nearby sensitive receptors.	3 x 4 = 12 (High)	<p>The rural location of the site assists in reducing the number of sensitive receptors; however, blasting activities at the site inherently have the potential to cause air-blast overpressure and vibration impacts for sensitive receptors.</p> <p>Section 4.5 - Blasting Management Plan includes measures for management of blasting activities at the site. A key measure is that only suitably experienced and qualified blasting personnel shall be employed or contracted to provide blasting services. This will ensure that all blasts are designed and carried out in a controlled manner to ensure that the relevant blast conditions and Australian Standards are adhered to.</p> <p>Provided that the Blasting Management Plan is implemented, and only suitably qualified persons are engaged to undertake blasting activities at the site, the residual risk is reduced to a lower level as the likelihood of an incident occurring is reduced.</p> <p>The residual risk rating is scored medium, which will require ongoing management measure to be applied as outlined in the EMP.</p>	2 x 3 = 6 (Medium)
WASTE				
<ul style="list-style-type: none"> Vegetation clearing. Storage and disposal of residual waste (i.e., general, and regulated waste). 	Improper disposal of wastes.	3 x 3 = 9 (Medium)	<p>Section 4.6 - Waste Management Plan details measures for management of waste at the site, with reference to the requirements of the <i>Waste Reduction and Recycling Act 2011</i> ('WRR Act').</p>	2 x 2 = 4 (Low)

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
			Provided GCC implement the nominated control measures the residual risk of a potential incident involving waste is reduced.	
LAND				
Handling of chemicals and fuels on-site.	Release of hydrocarbons and fuels to land.	3 x 4 = 12 (High)	<p>In the absence of controls, the inherent risk of handling fuels and chemicals is high due to an increased likelihood of potential release if handling and storage activities are unmanaged.</p> <p>Section 4.3 - Hydrocarbon and Chemicals Management Plan provides management measures for handling and storage of hydrocarbons and chemicals to reduce the potential impacts to land associated with spills and/or leaks. Through implementation of the nominated controls, residual risk is reduced to a lower level as the likelihood and consequence of an incident occurring is reduced. Through the implementation of the management measures outlined in the EMP.</p>	2 x 3 = 6 (Medium)

Source Activity	Potential Impact	Inherent Risk Rating ²	Comments	Residual Risk Rating ³
Post-closure implementation and management of the site rehabilitation.	Failure to achieve rehabilitation milestones in disturbance areas at the cessation of the activities.	3 x 4 = 12 (High)	<p>In the absence of management measures to assist in site rehabilitation, landforms created through the extraction activities have the potential to impact upon environmental values of the surrounding areas following cessation of the extractive industry activities.</p> <p>Section 4.7 - Rehabilitation Management Plan of the EMP provides guidance for progressive and final rehabilitation of the site.</p> <p>Residual risk is reduced to a lower level as the likelihood of failure of final rehabilitated landforms is reduced through the implementation of these measures.</p>	2 x 3 = 6 (Medium)
Bushfires	Fire threatening harm and damage to property.	4 x 4 = 16 (High)	<p>The site is mapped as containing bushfire prone areas in accordance with the State Planning Policy.</p> <p>Section 4.8 - Bushfire Management Plan provides measures to assist in minimising fire risks and impacts at the site.</p> <p>Even through application of controls, fire risks can remain an ongoing threat for all landowners with major consequences, which at times are unpredictable. As a result, residual risk is scored high which requires application of ongoing controls.</p>	3 x 3 = 9 (Medium)

4 Environmental Management Plans

4.1 Air Quality Management Plan

4.1.1 Objective

The activity will be operated in a way that protects the environmental values of air.

4.1.2 Purpose

This Air Quality Management Plan has been prepared to control potential air quality impacts occurring as a result of land disturbance necessary for the site operations. The *Environmental Protection Act 1994* and the associated *Environmental Protection (Air) Policy 2019* provide the legislation and regulatory controls for management of emissions to the atmosphere.

4.1.3 Performance Targets

- No environmental nuisance complaints in relation to air quality impacts (i.e., unmitigated emissions of dust, odours or light) associated with the site activities.
- Dust and particulate matter emissions generated by the activities must not cause exceedances of Dust and particulate matter not exceeding the levels shown in **Table 7 – Air Quality Parameters** when measured at the sensitive receptor.

Table 7 – Air Quality Parameters

Contaminant	Measure	Target Upper Limit
Dust Deposition	Deposition rate	120 mg/m ² /day
PM ₁₀	Concentration	50 µg/m ³ averaged over 24 hours
	Concentration	25 µg/m ³ annual average
Total Suspended particles (TSP)	Concentration	90 µg/m ³ averaged over 24 hours

4.1.4 Management Strategies

GENERAL

- Ensure sufficient on-site water supply is available for dust suppression.
- Apply good housekeeping practices.

WORK AREAS / TRAFFICABLE AREAS

- Limit high dust generating activities (e.g., removal of topsoil/overburden and blasting) to periods of favourable weather conditions.
- Dampen down (approx. rate of 2 litres/m²/hour) work areas, stockpiles, access roads and other hardstand areas by water spraying when visual surveillance indicates excessive dust generation.

4.1 Air Quality Management Plan

- Restrict vehicle movements to designated routes to the extent practicable.
- Enforce speed limits on internal roads.
- Pave and/or seal high trafficable access roads and/or tracks, where practicable.
- Maintain road surfaces in good condition.
- Prevent and clean up any raw material / product spillages or dust accumulation on driveways or sealed roads.
- Use dust extraction systems on drill rigs where possible, or wet down drilling via water sprays.

PROCESSING PLANT

- Use water sprays and/or dust collection systems at transfer points.
- Use shielding and/or windbreaks where possible.
- Maintain equipment in accordance with the original equipment manufacturers' specifications.
- Dampen materials prior to transport/handling.

STOCKPILES

- Limit the height of any stockpiles to <6m, where practicable.
- Regularly water stockpiles to keep down dust emissions.
- Apply additional water sprays to stockpiles during high wind conditions.

TRANSPORT OF MATERIALS

- Ensure that incoming and outgoing truckloads of materials are covered during transport.
- Ensure that truck bodies and trailers leaving the premises are clean, focusing on draw bars and tail gates, to prevent material spillages causing dust nuisance and being tracked onto external roads.

4.1.5 Monitoring

Daily visual surveillance must be undertaken by all employees to ensure dust generation on-site is controlled appropriately.

Dust and particulate monitoring must be undertaken at the request of the administering authority in accordance with the relevant conditions of the EA. Dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter.

When requested to undertake monitoring, monitoring results are to be provided to the administering authority following completion of the monitoring event. Monitoring shall be carried out at a place(s) relevant to the potentially affected dust sensitive place and must include:

- for a complaint alleging dust nuisance, dust deposition.
- for a complaint alleging adverse health effects caused by dust, PM₁₀ over a 24hr averaging time.

The monitoring must determine the extent to which the air quality achieves the performance targets specified in **Table 7 – Air Quality Parameters**.

4.1 Air Quality Management Plan

Methods of monitoring for the specified parameters are as follows:

DUST DEPOSITION

- *Australian Standard (AS) 3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulates – Deposited matter – Gravimetric method* (Standards Australia 2016).

PM₁₀

- *AS 3580.9.6 Determination of Suspended Particulate Matter-PM10 High Volume Sampler with Size Selective Inlet-Gravimetric Method* (Standards Australia 2015).
- *AS 3580.9.9 Methods for sampling and analysis of ambient air Determination of suspended particulate matter – PM₁₀ low volume sampler– Gravimetric method* (Standards Australia 2017).
- Any alternative method of monitoring PM₁₀ which may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority.

The monitoring results must be provided within 10 business days to the administering authority upon its request.

4.1.6 Contingency Plan

Any complaint received in relation to dust impacts is to be managed by the Quarry Manager in accordance with **Section 2.3 – Complaint Recording and Response**.

Any exceedance of the approved limits is to be reported to the administering authority in accordance with **Section 2.4 – Incident Response Procedure**, and corrective action is to be identified and undertaken in consultation with the administering authority. In the event that air quality monitoring (dust and/or particulate matter) determines an exceedance of the approved limits (noted under *Performance Targets*), the Quarry Manager, in consultation with management, may engage the services of a suitably qualified person to determine additional management strategies to mitigate impacts.

Additional air quality monitoring should be undertaken as necessary to determine the effectiveness of any additional management strategies employed in response to exceedance of approved limits.

4.2 Water Quality Management Plan

4.2.1 Objective

The activity will be operated in a way that protects the environmental values of water.

4.2.2 Purpose

This Water Quality Management Plan has been prepared to control potential environmental impacts occurring as a result of land disturbance necessary for the site operation.

4.2.3 Performance Targets

- To ensure all prescribed water contaminants (Schedule 10 EP Reg) including suspended solids, turbid waters, chemicals, lubricants, or fuels are not released from the site.
- Stormwater runoff from disturbed areas of the site, generated by (up to and including) a 24-hour storm event with an Average Recurrence Interval ('ARI') of 1 in 5 years must be retained on site or managed to remove contaminants prior to release.
- An uncontrolled release from site should only occur under exceptional circumstances such as the site receiving a rainfall event larger than a 24-hour storm event with an ARI of 1 in 5 years.
- Water that is controlled released from the site is to comply with conditions of the EA.
- The only contaminants to be released to waters are treated stormwater runoff waters in accordance with the water quality criteria specified in the EA.

4.2.4 Management Strategies

A drawing outlining the stormwater management plan for the site is included as **Attachment 2 – Conceptual Quarry Stormwater Management Plan**.

SEDIMENT BASINS

- Within 120 hours of the most recent rainfall event, the required design capacity of the upper settling volume is available for capture and storage of stormwater runoff from the next rainfall event¹.
- Sediment basins must be designed to capture sediment up to a depth of 0.5 m within the base of the pit. An indicator marker is to be installed at the base of the pit to identify the level of sediment accumulated.
- Site features such as extraction pits and drop cuts may be utilised as on-site storage¹.
- Sediment is to be removed to return the sediment basins to full capacity on a periodic basis or when the sediment level is approaching the sediment storage capacity.
- Coagulants or flocculants may be used to treat stormwaters in sediment basins; however, their use must be in accordance with the manufacturer's dosage specifications to ensure that they do not cause environmental harm to receiving waters.

DRAINAGE CONTROL

- Clean stormwater runoff external to the operational areas must be prevented from entering disturbed areas through use of catch drains or flow diversion drains.

¹ DES, (2021). *Guideline: Stormwater and environmentally relevant activities*. Accessed 13 April 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0028/89119/pr-gl-stormwater-guideline-era.pdf

4.2 Water Quality Management Plan

- Drainage inlets / outlets (inclusive of sediment and waste baskets) are to be maintained at all times.
- Grass filter strips are to be retained for surface water discharge locations.

SEDIMENT CONTROL

- Sediment is to be trapped within the site, and as close as practicable to its source.
- Materials, whether liquid or solid, removed from sediment control devices during maintenance or decommissioning, must be disposed of in a manner that does not cause ongoing soil erosion or environmental harm.
- Site exit points must be appropriately managed to minimise the risk of sediment being tracked onto sealed, public roadways.

LAND CLEARING

- No land clearing shall be undertaken unless preceded by the installation of adequate drainage and sediment control measures, unless such clearing is required for the purpose of installing such measures, in which case, only the minimum clearing required to install such measures shall occur.
- Land clearing to be undertaken in conjunction with development of each stage of the quarry.
- Bulk tree clearing must occur in a manner that minimises disturbance to existing ground cover (organic or inorganic).
- Disturbance to natural watercourses (including bed and banks) and their associated riparian zones must be limited to the minimum practicable extent and be accompanied by the relevant approval.
- Prior to land clearing, areas of protected vegetation, and significant areas of retained vegetation must be clearly identified for the purposes of minimising the risk of unnecessary land clearing.
- All reasonable and practicable measures must be taken to minimise the removal of, or disturbance to, those trees, shrubs and ground covers (organic or inorganic) that are intended to be retained.
- All land clearing must be undertaken in accordance with the Development Approval and applicable legislation.
- Land clearing is limited to the minimum practicable extent during those periods when soil erosion due to wind, rain or surface water is possible.

STOCKPILE MANAGEMENT

- Wherever possible, protect stockpiles from wind, rain, concentrated surface flow and excessive upslope stormwater surface flows.
- Long term stockpiles such as topsoil and overburden should be vegetated to achieve a minimum 70% coverage.
- Locate stockpiles at least 5 m from any hazardous area, retained vegetation or concentrated drainage line.
- Locate stockpiles up-slope of an appropriate sediment control system.
- Establish flow diversion systems (e.g., diversion bunds, channels) must be established immediately up-slope of stockpiles.

SITE MAINTENANCE

- General site litter is to be cleaned up on a weekly basis, prior to anticipated heavy rainfall and after significant rainfall events (>25mm/24hours) (IECA n.d.).
-

4.2 Water Quality Management Plan

- All erosion and sediment control measures, including drainage control measures, must be maintained in proper working order at all times during their operational lives.
- Sediment removed from places of sediment deposition must be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.

4.2.5 Monitoring

VISUAL INSPECTIONS

A summary of recommended inspection, performance criteria and responses that are to be performed on site is provided in **Table 8 – Inspection and Maintenance of Stormwater Control Devices**.

Table 8 – Inspection and Maintenance of Stormwater Control Devices

Inspection Area	Frequency	Performance Criteria	Response
Sediment Basins / Water Storages	<ul style="list-style-type: none"> • Quarterly as a minimum. • After each rain event, particularly focusing on the entry and exit points, if damage has occurred then make necessary repairs. • Prior to, and immediately after, periods of sustained site shut down (i.e., greater than 30 days). 	Basin capacity sufficient to retain a 24-hour storm event with an ARI of 1 in 5 years.	Desilt basin to ensure design capacity of the upper settling volume is available
Drainage lines including catch drains, contour drains and diversions.	Prior to and following rainfall events.	Erosion in areas adjacent to water conveyancing structures.	Eroded areas are to be treated as soon as practicable.
		Overtopping of water conveyancing structures (identified by the scouring of the drain batters perpendicular to the direction of flow).	The drain is to be cleaned of sediments and returned to the original design specifications.
Spill response stations.	Following use.	Equipment is properly maintained.	<ul style="list-style-type: none"> • Maintain adequately stocked spill kits. • Replace used spill response equipment as required.
Waste storage areas	Daily.	No litter within drainage lines.	Collect or loose litter to prevent transport

Inspection Area	Frequency	Performance Criteria	Response
			off-site via drainage controls.

WATER QUALITY MONITORING

- All site water releases are to be monitored in accordance with the parameters and at the frequencies shown in the **Table 9 – Surface Water Release Limits**. No controlled releases are to occur unless the site waters comply with the specified limits.
- Water quality monitoring must be in accordance with the methods prescribed in the current edition of the administering authority's *Monitoring and Sampling Manual* (DES 2018).
- Water and sediment samples must be representative of the general condition of the water body or sediments.
- All determinations must employ analytical practical quantification limits of sufficient sensitivity to enable comparisons to be made against water quality objectives/triggers/limits relevant to the particular water or sediment quality characteristic.
- All monitoring devices must be calibrated and maintained according to the manufacturer's instruction manual.

Table 9 – Surface Water Release Limits

Quality Characteristic	Limit	Limit Type	Minimum Monitoring Frequency
Total Suspended Solids	≤ 50	Mg/L	Prior to any discharge and daily during any discharge
pH	6.5	8.0	Prior to any discharge and daily during any discharge

4.2.6 Contingency Plan

After any identification of incident or failure, the source/cause is to be immediately located and the following measures implemented (IECA (Australasia) n.d.):

- Excessive sediment build-up on-site – collect and dispose of material, then amend up-slope drainage and/or erosion control measures as appropriate to reduce further occurrence.
- Severe or excessive rill erosion – investigate cause, control up-slope water movement, re-profile surface, cover dispersive soils with a minimum 100mm layer of non-dispersive soil, and stabilise with erosion control measures and vegetation as necessary.
- Poor vegetation growth or soil coverage – plant new vegetation and/or mulch as required.
- Sediment control failure – replace and monitor more frequently. Regular failures may mean that the sediment control location, alignment or installation may need to be amended.
- Scour / erosion of bunds will be required to be stabilised.

If a release of contaminants occurs off-site not in accordance with the conditions of the EA, the administering authority must be notified, and an investigation conducted to identify appropriate action to resolve the issue to the fullest practicable extent. Refer to **Section 2.4 – Incident Response Procedure**.

4.3 Hydrocarbon and Chemicals Management Plan

4.3.1 Objective

The activity is operated in a way that protects the environmental values of land, air and water including soils, subsoils, landforms and associated flora and fauna.

4.3.2 Purpose

The Hydrocarbons and Chemicals Management Plan has been prepared to control the potential for spills or leaks from chemicals and hydrocarbons associated with the site activities.

4.3.3 Performance Targets

- No land contamination from the site activity that would require registration on the Contaminated Land Register ('CLR').
- No serious spills of oils, greases, fuels, or other hazardous chemicals.
- No preventable release of hydrocarbons and chemicals to the environment.

4.3.4 Management Strategies

GENERAL

- Any chemical handling and storage must be designed and installed in accordance with the most recent edition of *AS 1940 - The storage and handling of flammable and combustible liquids* (Standards Australia 2017a), as a minimum.
- Maintain the chemical and fuel storage areas in a neat and tidy condition.
- Safety Data Sheets ('SDS') of chemicals used on site shall be kept in a register at the site office.
- Chemicals and fuels in containers of greater than 15 litres must be stored within a secondary containment system.
- Bunding must be constructed of material which is impervious to the material being stored.
- Bunds are to be kept in good condition (e.g., no cracks, gaps, or leaks)
- Roofed storage facilities are to be provided where possible.
- Stormwater captured within bunding is to be removed as soon as practicable and disposed of as contaminated water (if required).
- Empty hydrocarbon and chemical containers are to be stored with closures in place on hardstand or within a bunded area.
- A collection sump must be provided in the floor of the bunding to facilitate the removal of liquids.
- All pipe work in the bunded area must be directed over the bund wall and not through it.
- Where vehicle access to the bunded area is required, access must be by way of a rollover bund.
- Refuelling, equipment maintenance and cleaning of vehicles is to be undertaken within a designated area such as hardstand or sealed area, capable of capturing and containing contaminants.
- Spills are to be cleaned up immediately with appropriate spill kits. Spillages must not be cleaned up in a way that releases wastes, contaminants or other materials to any stormwater drainage systems, roadside gutters, or waters.
- All plant, equipment and vehicles are to be serviced and maintained in the designated workshop, hardstand and/or concrete areas.
- All new employees are to be inducted on the use of handling of chemicals used on-site.

4.3 Hydrocarbon and Chemicals Management Plan

SPILL KITS

- Maintain appropriate spill kits and personal protective equipment at locations known to all employees (e.g., refuelling locations, chemical storage facilities, mobile equipment).
- Ensure employees are familiar with, and trained in, the use of proper spill clean-up procedures and always maintain a copy of the procedures at the site.
- Undertake regular spill kit inventory checks to ensure sufficient materials and supplies are available in the event of a spill.

DISPOSAL

Refer to **Section 4.6 - Waste Management Plan** for details regarding correct methods of disposal of waste materials. In general:

- Hydrocarbon contaminated materials are to be appropriately disposed of at a licensed facility.
- If the material is a Regulated Waste (as defined under the legislation) it must be transported and disposed of by a licensed contractor.
- Oily waste materials, including liquid hydrocarbons, should be segregated from general wastes for disposal off-site by a licensed contractor.
- Records are to be kept on disposal of waste for all regulated waste materials.

4.3.5 Monitoring

Areas where handling of hydrocarbons and chemicals occur (e.g., refuelling, or minor on-site servicing) shall be regularly inspected by the Quarry Manager.

The Quarry Manager must ensure that adequate resources are available for management of hydrocarbons and chemicals, and is to ensure that all personnel carrying out service and maintenance activities are appropriately qualified to do so.

4.3.6 Contingency Plan

In the event of any spill, implement the steps outlined in **Diagram 3 – Spill Response Procedure**. Remediation of land contamination may be required in the event of more serious incidents; however, GCC are to consult with a suitably qualified person to determine the nature and extent of any contamination remediation process.

Any incident caused by handling of hydrocarbons or chemicals which has the potential to cause environmental harm must be reported and investigated by the Quarry Manager or delegate in accordance with **Section 2.4 – Incident Response Procedure**, and corrective action is to be identified and undertaken.

SPILL RESPONSE PROCEDURE

1. INITIAL ASSESSMENT



For emergencies call 000

Advise the Site Supervisor immediately.

Assess the following:

- What is the type and volume of the spill
- What is the source?
- What PPE is required according to the SDS?
- Are third parties needed to contain and manage the spill?

2. ISOLATE



Cease work in the area immediately.

Declare the area a no go zone and cordoned off where possible.

Avoid movement of plant/equipment into the area.

3. STOP THE SOURCE



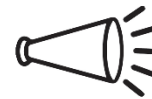
Locate and contain the source of the spill.

Stop the spill (e.g. close valves / taps, rotate damaged / punctured drums, plug leaks or gaps).

Protect water (e.g. block drains and outlets, apply drain covers, divert spills via spill berms, sandbag or similar).

Contain the spill use temporary bunds and spill kits, or absorbent materials (e.g., clay, rags).

4. NOTIFY



If a spill threatens or causes environmental harm, DES must be notified.

Spills within waterways pose a risk of environmental harm. DES must be notified, and professional assistance sought regarding clean-up operations.

5. CLEAN UP / REMOVAL



- Remove the spill by shovels and / or earthmoving equipment.
- Move plant and equipment to allow removal of the spill.
- Dispose contaminated soils / materials off-site via an approved regulated waste transporter to a licenced disposal facility.
- Do NOT dispose of any contaminated materials on-site.
- Do NOT use water or liquids to wash the spill area.

Spills within a waterway are to be cleaned up in accordance with advice provided by third parties, including DES.

6. INVESTIGATE



Investigate the cause of the spill and conduct a review of the on-site management measures to prevent a recurrence.

Carry any further notification or reporting requirements if directed to do so by DES.

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Diagram 3 – Spill Response Procedure

4.4 Noise Management Plan

4.4.1 Objective

The activity will be operated in a way that protects the environmental values of the acoustic environment.

4.4.2 Purpose

This Noise Management Plan has been prepared to control potential nuisance impacts that may occur as a result of noise associated with the site operations.

The EP Act and the associated *Environmental Protection (Noise) Policy 2019* provide the legislation and regulatory controls for management of noise in relation to protection of EVs.

4.4.3 Performance Targets

- No environmental nuisance complaints relating to the site operations.
- Site operations shall comply with the noise criteria specified in the **Table 10 – Noise Limits**.

Table 10 – Noise Limits

	Monday to Saturday				Sundays and Public Holidays		
	6am – 7am	7am – 6pm	6pm - 10pm	10pm - 6am	7am – 6pm	6pm - 10pm	10pm - 7am
	Noise measured at the sensitive place						
LAeq, adj, T	37	42	35	30	No audible noise		
MaxLpA T	-	-	-	49	No audible noise		
	Noise measured at the commercial place						
LAeq, adj, T	55	55	55	55	55	55	55

4.4.4 Management Strategies

- Hours of operation are to be:
 - Loading and haulage: as per the hours of operation for the Paradise Dam Improvement Project for the duration of the project.
 - 6:00am to 6:00pm Monday to Saturday.
 - No operations on Sundays or public holidays.
- Mobile plant (e.g., front-end loaders, dozers, haul trucks, excavators) are to be fitted with broadband reversing alarms where possible to mitigate potential nuisance from tonal characteristics.
- Stockpile areas should be designed to allow forward-in, forward-out movement of road haulage trucks to avoid a requirement for external trucks to reverse on-site.
- Ensure a site layout that enables product delivery and handling in such a way that reduces the need for reversing.
- Fixed engines, pumps and compressors are to be enclosed where practicable.

4.4 Noise Management Plan

- Ensure all site equipment, machinery and vehicles are serviced in accordance with the original equipment manufacturers' specifications as a minimum.
- Ensure all modern mobile plant (e.g., front-end loaders, excavators, off-road trucks) is fitted with effective exhaust silencers.
- Equipment and machinery are to be shut down when not in use.
- Unnecessary revving of mobile or stationary motors and engines is to be avoided.
- Ensure that equipment at the site is used for the intended purpose.
- Ensure that any extraneous noises are rectified.
- Maintain haul roads and hardstand surfaces in good condition (e.g., free of potholes, rills and product spillages) and with suitable grades.
- Avoid the use of compression braking on product delivery trucks entering the site.

4.4.5 Monitoring

The Quarry Manager must:

- ensure regular surveillance of the site to qualitatively assess noise generation from the operations.
- initiate noise monitoring if requested by the administering authority, or as otherwise deemed necessary, to investigate a noise complaint.

Any monitoring must be in accordance with the most recent version of the administering authority's *Noise Measurement Manual* (DES 2020a). When required by the administering authority, noise monitoring must be undertaken, and the results notified within 14 days to the administering authority. Monitoring must include:

- $L_{Aeq, adj, T}$
- Background noise (Background) as $L_{A 90, adj, T}$
- $MaxL_{pA, T}$
- the level and frequency of occurrence of any impulsive or tonal noise
- atmospheric conditions including wind speed and direction
- effects due to extraneous factors such as traffic noise
- recording of location, date and time of measurements.

4.4.6 Contingency Plan

Any complaint received in relation to noise impacts is to be managed by the Quarry Manager in accordance with **Section 2.3 – Complaint and Recording Response**.

Should the outcomes of noise monitoring undertaken upon the request of the administering authority determine an exceedance of the specified limits, the administering authority notification is to be carried out in accordance with **Section 2.4 – Incident Response Procedure**, and corrective action is to be identified and undertaken.

Where necessary, advice should be sought from a suitably qualified person as to whether additional management measures are required to minimise noise. Additional noise monitoring must be undertaken where necessary to determine the effectiveness of the additional management strategies

4.5 Blasting Management Plan

4.5.1 Objective

The activity will be operated in a way that protects the environmental values of the acoustic environment.

4.5.2 Purpose

Blasting will be required to fragment rock to a manageable size that can be transported and fed into the on-site crushing and screening plant.

Blasting practice has the potential to generate excessive noise and vibration impacts that may cause nuisance for sensitive receptors.

Section 440ZB of the *Environmental Protection Act 1994* provides the legislation for blasting.

4.5.3 Performance Targets

- Blasting activities must not exceed the limits for peak particle velocity and air blast specified in the EA (extracted as **Table 11 – Blasting Limits** for reference) when measured at any sensitive place or commercial place.

Table 11 – Blasting Limits

Blasting criteria	Blasting limits
Airblast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.
Ground vibration peak particle velocity	5 mm/s peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/s peak particle velocity at any time.

4.5.4 Management Strategies

- Only suitably experienced and qualified blasting personnel are to be employed or contracted to provide blasting services.
- Blasting must be carried out in accordance with the current edition of the administering authority's *Guideline: Noise and vibration from blasting* (DES 2020b) and with *AS 2187.2-2006 Explosives - Storage and use - Use of explosives* (Standards Australia 2006).
- Unless prior approval is obtained from the administering authority; blasting is only permitted during the hours of:
 - 9am to 3pm Monday to Friday.
 - 9am to 1pm on Saturdays.
 - Blasting is not permitted at any time on Sundays or public holidays.
- Handling, transport and use of explosives is to be carried out in accordance with the requirements of *AS 2187.2-2006 Explosives - Storage and use - Use of explosives* (Standards Australia 2006), and the *Mining and Quarrying Safety and Health Act 1999* (MQSH Act) and associated Regulation.
- The maximum instantaneous charge or charge mass per delay is to be limited to the lowest possible level.

4.5 Blasting Management Plan

- A blast plan is to be prepared for each blast, containing blast hole layout, initiation sequence, charging, stemming type and height, charge weight and any other design element, required to inform good blasting practice.
- Blast areas are to be dampened down prior to blasting to minimise dispersion of dry and fine materials where practicable, or where it is identified as a source of potential dust nuisances.

4.5.5 Monitoring

Monitoring of blasting activities must be undertaken by a suitably qualified person in accordance with the administering authority's guideline *Noise and Vibration from Blasting* (DES 2020b) and the relevant *AS 2187.2-2006 Explosives - Storage and use - Use of explosives* (or most recent version) (Standards Australia 2006).

Monitoring is to be conducted around the quarry to confirm that the airblast and ground vibration levels do not exceed the criteria specified. Blasts are to be randomly selected or monitored on a fixed schedule (e.g., five continuous blasts).

The method of measurement and reporting of vibration levels must comply with Appendix J of *AS 2187.2-2006 Explosives – Storage and use – Use of explosives* (Standards Australia 2006). Measurements are to be conducted by suitably trained personnel using appropriate equipment. Equipment is to be calibrated on a regular basis in accordance with the manufacturer's recommendations or other appropriate standards.

Where a nuisance complaint regarding air blast overpressure or ground vibration is received, consideration is to be given to available monitoring results and locations, and if required or advantageous, a monitor is to be installed at an appropriate location for the next five blasts to assess compliance, or when requested by the administering authority.

All monitoring and reporting is to be undertaken by a person or body possessing both the qualifications and the experience appropriate to perform the required measurements.

4.5.6 Contingency Plan

Any complaint received regarding nuisance associated with blasting at a sensitive receptor must be recorded and investigated by the Quarry Manager in accordance with **Section 2.3 – Complaint Recording and Response**.

In the event that blast monitoring determines an exceedance of the approved limits, the Quarry Manager is to notify the administering authority in accordance with **Section 2.4 – Incident Response Procedure**. Advice should be sought from a suitably qualified person as to whether additional management measures are required to minimise impacts from blast. Subsequent blasts are to be monitored to ensure effectiveness of any additional measures implemented

4.6 Waste Management Plan

4.6.1 Objective

Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values.

4.6.2 Purpose

This Waste Management Plan has been prepared with reference to the conditions of approval to ensure wastes produced on-site are appropriately managed.

The type of wastes that may be generated at the site may include, but are not necessarily limited to the following:

- Regulated wastes (e.g., batteries, oil filters, waste oil/hydrocarbons and containers, oil/water emulsions and tyres).
- Scrap metal and used or faulty parts and equipment.
- General waste such as food waste, packaging and consumables.
- Green waste.

The *Waste Reduction and Recycling Act 2011* ('WRR Act') nominates a waste and resource management hierarchy in a preferred order of adoption. The hierarchy is as follows:

- (a) *AVOID unnecessary resource consumption*
- (b) *REDUCE waste generation and disposal*
- (c) *RE-USE waste resources without further manufacturing*
- (d) *RECYCLE waste resources to make the same or different products*
- (e) *RECOVER waste resources, including the recovery of energy*
- (f) *TREAT waste before disposal, including reducing the hazardous nature of waste*
- (g) *DISPOSE of waste only if there is no viable alternative.*

4.6.3 Performance Targets

- Implement the WRR Act waste management hierarchy.
- Maintain a record of wastes requiring off-site disposal.
- Meet all legislated waste tracking requirements in accordance with the EP Reg.
- No unlawful disposal of wastes on or off-site.

4.6.4 Management Strategies

WASTE AVOIDANCE

Waste avoidance relates to preventing the generation of waste or reducing the amount of waste generated. Reasonable and practicable measures for achieving waste avoidance may include, but are not necessarily limited to:

- Input substitution (using recyclable materials instead of disposable materials, for example using oil delivered in recyclable steel drums instead of non-recyclable plastic containers).
- Increased efficiency in the use of raw materials, energy, water, or land (purchasing consumables in bulk (large containers) rather than in small quantities).
- Improved maintenance and operation of equipment (keep equipment in good working order to reduce wear and overhaul).
- Undertaking an assessment of waste minimisation opportunities from time to time.

4.6 Waste Management Plan

WASTE REUSE

Waste re-use refers to re-using waste, without first substantially changing its form. Reasonable and practicable measures for reusing waste may include, but are not necessarily limited to:

- Recovering and separating solvents, metals, oil, or components or contaminants and reusing separated solvents for degreasing plant and equipment.
- Applying waste processing fines to land in a way that gives agricultural and ecological benefits (using fine sediments in rehabilitation activities).
- Using overburden for constructing bunds and landforming.
- Reusing silt/sediment on-site to the maximum practicable extent.

WASTE RECYCLING

Waste recycling refers to treating waste that is no longer useable in its present form and using it to produce new products. Reasonable and practicable measures may include, but are not necessarily limited to:

- Recovering oils, greases, and lubricants for collection by a licensed oil recycling contractor, recovering, separating, and recycling packaging (including paper, cardboard, steel and recyclable plastics).
- Recycling used plant and equipment to the maximum practicable extent.
- Finding alternatives to disposal of non-recyclable materials (using conveyor belts for noise attenuation, mudflaps, ute tray liners).
- Providing suitable receptacles and storage areas for collection of materials for recycling.

ENERGY RECOVERY FROM WASTE

This refers to recovering and using energy generated from waste. Due to the scale of the operation, energy recovery is not considered viable.

WASTE DISPOSAL

This refers to disposing of waste which cannot otherwise be reused, recycled or used for energy recovery. Reasonable and practicable measures may include, but are not necessarily limited to:

- Regulated wastes must be transported and disposed of in accordance with the *Environmental Protection Regulation 2019*.
- Disposal to a licensed waste disposal facility (i.e., landfill or transfer station).

WASTE STORAGE

- Waste storage containers or areas are to be provided and located at safe and convenient locations at the site.
 - Any storage containers are to be identified with the type of wastes which may be disposed of in each container.
 - Carry out a daily housekeeping and litter collection to ensure loose litter is contained and disposed of appropriately.
-

4.6 Waste Management Plan

- Whenever possible use fencing, enclosures, cover and other physical barriers to prevent inadvertent transport of litters off-site.

REGULATED WASTE

Regulated wastes are defined in the EP Reg. Waste management areas must include a dedicated section for regulated wastes, which must be stored within sealed containers within a bunded area in accordance with Australian Standards and the following minimum requirements:

- All regulated wastes will be transported off-site by a suitably licensed commercial transporter with an ERA 57 Regulated Waste Transport (or equivalent) approval.
- To assist in the collection and transfer of regulated wastes, designated regulated waste bins, drums and skips must be used. Where possible these regulated waste storage containers should be located at the work location where the waste is being generated and then returned to the designated regulated waste storage areas for storage prior to offsite disposal or recycling.
- Dedicated regulated waste storage areas must be provided to prevent the mixing of regulated wastes with other stored material or with incompatible hazard classes. Wastes must only be deposited into designated areas within the applicable storage area.
- Storage areas for regulated wastes must be constructed in accordance with AS 1940-2004 or an equivalent Australian Standard.
- Any regulated waste stored at the site should be recorded in a Waste Management Register or similar.
- Where possible, regulated waste stores must be lockable to prevent access by unauthorised persons.
- As soon as practicable, remove and dispose of all regulated waste to a licensed waste disposal facility or recycling facility using a licenced contractor.

TRACKABLE WASTE

Certain regulated wastes as defined under Schedule 9 of the EP Reg are to be tracked in accordance with the requirements of Section 11 of the EP Reg. **Diagram 4 – Waste Tracking Requirements (Paper Based System)** provides an overview of the waste tracking requirements for each stakeholder in the transport and handling of trackable waste chain.

4.6.5 Monitoring

All site personnel shall be responsible for ensuring wastes are stored and removed from the site on a regular basis.

The Quarry Manager must:

- undertake ongoing visual inspections to ensure the waste management hierarchy is being effectively implemented.
- undertake daily visual inspections of baled materials to identify and remedy any damage to covering materials.
- ensure that waste treatment measures are implemented at the site.

4.6 Waste Management Plan

- ensure that waste receptacles are provided, and that temporary waste storage areas are signed; recycling bins are emptied when full and materials which may cause land contamination are not disposed of on the site.
- keep a record of regulated waste generated at the site, treatment and disposal methods, approved contractors for transporting and disposing of waste and the location of the facility for accepting the waste.

4.6.6 Contingency Plan

Where a non-compliance is identified, a review of the Waste Management Plan is to be undertaken to determine areas for improvement and additional staff training on waste management procedures and waste handling is to be undertaken.

Where GCC becomes aware that putrescible, trackable or regulated wastes have been inappropriately disposed of, or an incident occurs involving potential or actual environmental harm, the incident must be notified to the administering authority in accordance with **Section 2.4 – Incident Response Procedure**, and corrective action is to be identified and undertaken.

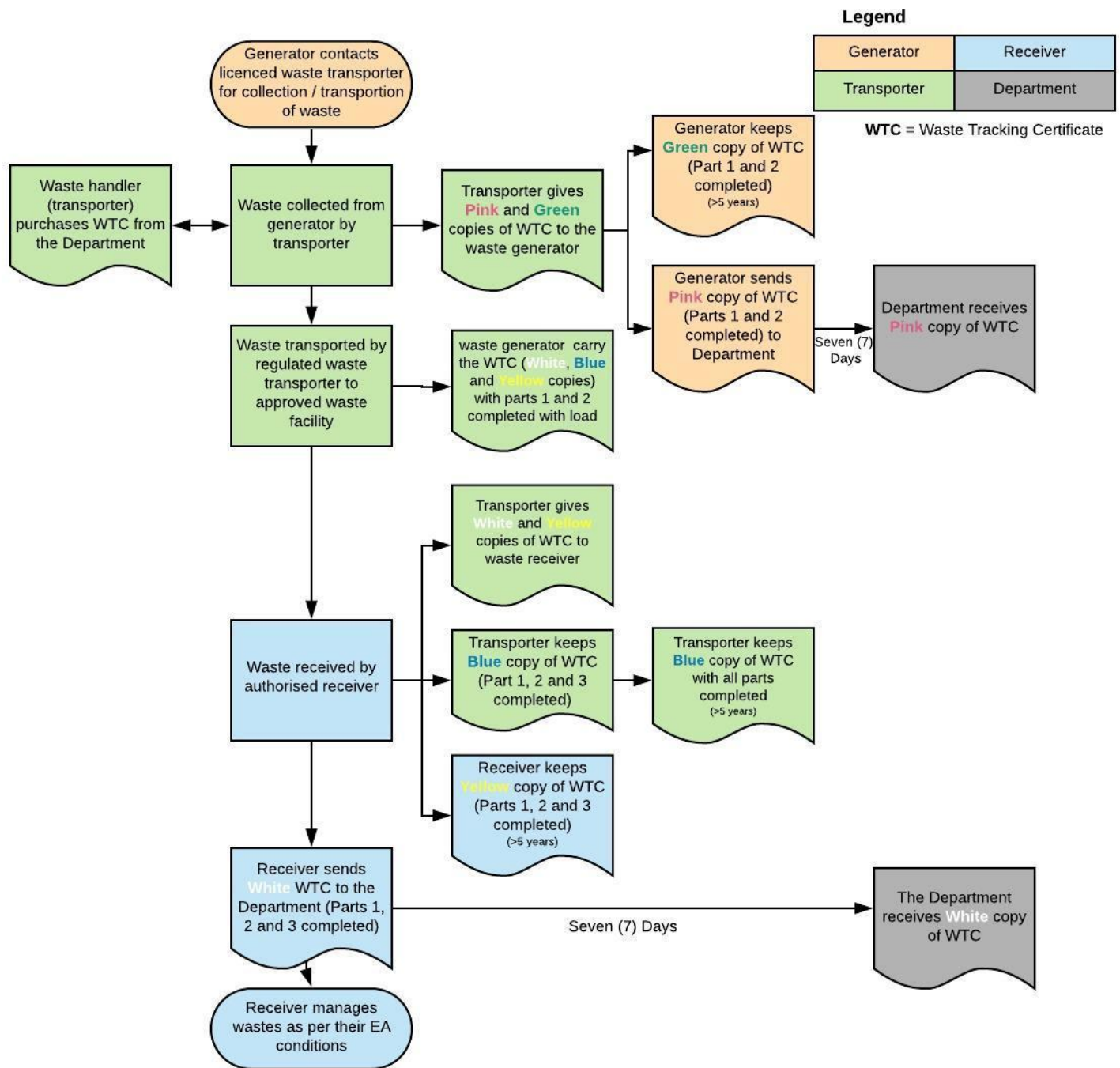


Diagram 4 – Waste Tracking Requirements (Paper Based System)

4.7 Rehabilitation Management Plan

4.7.1 Objective

The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.

4.7.2 Purpose

This Rehabilitation Management Plan has been prepared to assist with site rehabilitation.

4.7.3 Performance Targets

- Limit land disturbance to that which is necessary at any one time.
- Identify any land contamination and implement appropriate remediation or management where necessary.
- Land that has been disturbed for activities must be rehabilitated in a manner such that:
 - suitable native species of vegetation for the location are established and sustained for earthen surfaces.
 - potential for erosion is minimised.
 - the quality of water released from the site, including seepage, does not cause environmental harm.
 - potential for environmental nuisance caused by dust is minimised.
 - the water quality of any residual water body does not have potential to cause environmental harm.
 - the final landform is stable and protects public safety.
- Rehabilitation of disturbed areas must take place progressively as works are staged and new extraction areas are commenced.

4.7.4 Management Strategies

FINAL LANDFORM AND FINAL LAND USE DESCRIPTION

The final landform of the site is to demonstrate consideration for the zoning of the land and surrounding undisturbed areas. The site has been historically used for extractive industry and is currently zoned as Rural zone under the *North Burnett Regional Planning Scheme 2014*. Council defines the purpose of the rural zone as follows:

- (a) *provide for rural uses and activities; and*
- (b) *provide for other uses and activities that are compatible with—*
 - i. *existing and future rural uses and activities; and*
 - ii. *the character and environmental features of the zone; and*
- (c) *maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes.*

The site rehabilitation is to return to a system that can support a rural use in line with the Planning Scheme, or where this zoning is superseded, the land use zoning at the time the EA is to be surrendered.

The landform is likely to comprise of a gently sloping, free draining platform (sloping west to east) surrounded by benches.

4.7 Rehabilitation Management Plan

Batter slopes of the pit floor are to be 3:1 (H:V) or less depending upon the geotechnical properties of the substrate. Terminal benches are to be battered to varying slopes depending upon the geotechnical properties of the substrate. Residual void batters are expected to have a face slope varying between 15° to 80°, and the final overall batter slopes will be 45° to 58°, depending on the geotechnical properties of the substrate (to be guided by a suitably qualified person).

PROGRESSIVE AND FINAL REHABILITATION METHODOLOGIES

Rehabilitation is to be undertaken progressively throughout the life of the operations and is to commence in each area as soon as practicable after it is no longer required for operational purposes. Progressive rehabilitation must take place as new areas of extraction are commenced.

Rehabilitation methodologies for the site are to generally include:

- The extraction area will be re-profiled and revegetated with pasture species.
- Battering terminal benches to stable slopes depending upon the geotechnical properties of the rock (to be informed by a suitably qualified person).
- Installing safety bunds and erosion and sediment controls.
- Covering the bench surfaces with available overburden and topsoil.
- Planting of endemic tree and shrub species on top of benches.
- Seeding of low gradient areas (slopes 0-6%) e.g., pit floor (NB. these areas are likely to be required for ongoing use until cessation of the pit development).

All areas subject to rehabilitation are to be subject to ongoing monitoring and maintenance until the vegetation is self-sustaining.

TOPSOIL AND SUBSOIL MANAGEMENT

The following measures should be implemented for topsoil and subsoil stripping:

- Materials should not be stripped when too wet or too dry.
- When stripped, materials should be used directly for rehabilitation to the maximum practicable extent or stockpiled and preserved for future use.
- Stockpiling of materials should not exceed a height of 2 to 3 m and should be shaped and revegetated to protect the soil from erosion and weed infestation.
- Stockpiles should be maintained in a free draining condition and long-term soil saturation should be avoided.
- Runoff waters external to the areas to be stripped should be diverted away from the working area.
- Stripping of topsoil should be limited to the minimum area necessary.

The following measures should be implemented for topsoil and subsoil spreading:

- Whenever possible, stripped materials should be directly placed on an area undergoing rehabilitation.
- Areas to be re-spread should be shaped prior to placing materials over the re-profiled surface.
- Equipment used to spread materials should be scheduled to avoid compaction.
- Before respreading the materials, loosen the underlying substrate to break up any compacted or surface sealing and to enable keying of the two (2) materials.

4.7 Rehabilitation Management Plan

- On slopes less than 3(H):1(V), loosen lightly compacted substrate, ensuring all ripping operations occur along the contour.
- Materials are to be removed from stockpiles in a manner that avoids vehicles travelling over the stockpiles.
- Materials are to be respread in the reverse sequence to its removal so that the original upper soil layer is returned to the surface to re-establish the entrapped seed content of the soil.
- Ensure all exposed substrates are covered with a minimum 150mm of suitable topsoil / subsoil to enable success of revegetation.
- After spreading materials, ensure the surface is left in a roughened state to assist moisture infiltration and inhibit soil erosion.
- Prior to any revegetation, cultivate any compacted or crusted topsoil surfaces (to a depth no greater than the depth of the materials to be spread).
- Spreading is to be immediately followed by revegetating wherever possible.
- If erosion occurs on treated surfaces, the area is to be re-spread with additional materials and revegetated.

SPECIES SELECTION

Table 12 – Species Suitable for Revegetation provides species that may be used for revegetation of terminal workings. This species list is indicative only, based on pre-clearing regional ecosystems mapped over the site. The species used may be any combination of these species, or more relevant alternative species as recommended by an ecologist, and should be selected at the time of revegetation based on availability at local suppliers.

Table 12 – Species Suitable for Revegetation

Final Landform Feature	Vegetation*
Terminal benches	<ul style="list-style-type: none"> • <i>Corymbia</i> • <i>C. clarksoniana</i> • <i>C. dallachiana</i> • <i>C. erythrophloia</i> • <i>C. tessellaris</i> • <i>Eucalyptus crebra</i> • <i>E. exserta</i> • <i>E. platyphylla</i> • <i>E. populnea</i> • <i>E. melanophloia</i>

4.7 Rehabilitation Management Plan

Low gradient areas (slopes 0-6%)	<p>Pasture species that may include, but are not limited to:</p> <ul style="list-style-type: none"> • Angleton grass (<i>Dicanthium aristatum</i>) • Buffel grass (<i>Cenchrus ciliaris</i>) • Butterfly pea (<i>Cenchrus ciliaris</i>) • Caatinga stylo (<i>Stylosanthes seabrana</i>) • Creeping bluegrass (<i>Bothriochla insculpta</i>) • Desmanthus (<i>Desmanthus virgatus</i>) • Digit grass (<i>Digitaria eriantha</i>) • Fine stem stylo (<i>Stylosanthes guianensis</i> var. <i>intermedia</i>) • Forest bluegrass (B. <i>bladhii</i> subsp. <i>glabra</i>) • Indian bluegrass (B. <i>Pertusa</i>) • Leucaena (<i>Leucaena leucocephala</i>) • Lotononis (<i>Lotononis bainesii</i>) • Luceme (<i>Medicago sativa</i>) • Panics (<i>P. maximum</i>) • Perennial forage sorghum, 'Silk' sorghum (<i>Sorghum</i>) • Purple pigeon grass (<i>Setaria incrassate</i>) • Rhodes grass (<i>Chloris gayana</i>) • Roundleaf cassia; Wynn cassia (<i>Chamaecrista rotundifolia</i>) • Shrubby stylo (<i>Stylosanthes scabra</i>) • Siratro (<i>Macroptilium atropurepureum</i>) • Stylo; Caribbean stylo (<i>Stylosanthes hamata</i>) • Tall finger grass (<i>Digitaria milanijana</i>)
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WEED AND PEST CONTROL

- Any materials (e.g., soil, mulch, straw) brought onto site for rehabilitation are to be inspected to ensure they are free from weeds and pests.
- Prior to the establishment of vegetation, a spraying campaign may be required to control weeds to prevent migration of weed species into areas under rehabilitation.
- Alternative methods for controlling both grass and weeds include manual weeding, burning, slashing, weed matting and mulching.
- Predation (e.g., grazing animals, birds and insects) are risks for revegetation. Depending on the situation, specific measures may be required to protect the works from predation such as fencing.

WATER BODIES

Water bodies are likely to remain within the final landform, created through the final extraction void and sediment basins utilised for stormwater management during the operational phase of the quarry.

Water bodies are to be converted to clean water storages where they are to be retained in the final landform. This can be achieved by:

- Cleaning sediment from the base of water storages.
- Battering slopes to achieve grades of no more than 3(H):1(V) where practicable.
- Ensuring that the water quality within these water storages is suitable for future use.

4.7 Rehabilitation Management Plan

GCC are to engage a suitably qualified person to assess water quality of any residual water bodies at the site to ensure that the release parameters specified by the EA conditions, or other water quality objectives agreed with the administering authority.

LAND CONTAMINATION

Prior to site closure, a contaminated land assessment by a suitably qualified person may be required. Assessment of site contamination, if required, is to be undertaken and managed in accordance with the following:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)*
- *AS 4482.1-2005 - Guide to the sampling and investigation of potentially contaminated soil. Part 1 – Non-volatile and Semi-volatile compounds.*
- *AS 4482.2-2005 - Guide to the sampling and investigation of potentially contaminated soil. Part 2 – Volatile Compounds.*

Should it be identified that areas of the site have been contaminated through the operational activities, these areas are to be remediated, and validated as contaminant free, prior to site closure.

INFRASTRUCTURE

Infrastructure that is to remain on-site after the surrender of the approvals may only be retained where a landowner agreement has been provided to the administering authority which clearly itemises the infrastructure that will remain, and detail the condition it is to remain in. It is anticipated that the following infrastructure would be suitable for retention:

- Utilises and services (e.g., water, electricity, telecommunications, gas).
- Access tracks and roads.
- Water storages (rehabilitated).

Plant, equipment and buildings (including demountable and mobile infrastructure) should be removed from the final landform.

A landowner's agreement should be prepared at cessation of the rehabilitation to confirm satisfaction with the rehabilitation site and for retention of any infrastructure within the landform.

KEY PERFORMANCE INDICATORS

The Key Performance Indicators ('KPIs') summarised in **Table 13 – Key Performance Indicators for Rehabilitation** have been established to provide quantifiable measures for achieving the performance targets for rehabilitation. Progressive and final rehabilitation will be deemed complete when the KPIs are achieved.

Each of the KPIs are assigned to GCC for completion; however, should the GCC require assistance to measure the achievement of these KPIs, they are to engage a suitably qualified person.

Table 13 – Key Performance Indicators for Rehabilitation

KPI Description	Measure(s)	Critical Timeframe
The final landform demonstrates consideration for the surrounding undisturbed areas and land zoning.	True / False.	Prior to lodgement of application for surrender.
Suitable species are to be utilised for revegetation in accordance with Table 12 – Species Suitable for Revegetation .	Species as per Table 9 – Species Suitable for Revegetation.	Prior to commencement of rehabilitation activities.
Groundcover achieves a suitable density to protect surface soils from rain-induced erosion (DES 2014).	Groundcover at a minimum of 70% (DES 2014).	Assessment prior to any stormwater management device reduction or removal; and, Final assessment prior to surrender application.
Erosion rates of soil / sediment from disturbed areas associated with the extractive industry activities does not exceed natural rates experience for the locality.	Local erosion rate calculated and compared against actual site erosion rates.	Within three months of completion of each stage of the quarry (including at final stage).
Evidence that water quality of any residual water bodies complies with the water quality objectives of the EA or other agreed release parameters. Alternatively, water bodies are to be filled and stabilised with vegetation to create a clean, free-draining catchment.	Water quality objectives of EA conditions or other agreed Water Quality Objectives (e.g., Livestock Watering Guidelines).	Prior to lodgement of a surrender application for the EA.
Air quality of the final landform achieves levels consistent with adjacent undisturbed areas through establishment of the final landform.	Visual surveillance and complaints register review.	Prior to lodgement of a surrender application for the EA.
Review of geotechnical stability confirms that the site is stable and not subject to slumping.	Geotechnical assessment.	Prior to lodgement of a surrender application for the EA.
Assessment confirms the slope stability of final landforms.	Slope ratio, degree, or percentage.	Prior to lodgement of application for surrender.
Landowner statement(s) obtained for:	True / False.	Prior to lodgement of application for surrender.

KPI Description	Measure(s)	Critical Timeframe
<ul style="list-style-type: none"> any retained items of extractive industry-related infrastructure; and satisfaction with the rehabilitated final landform. 		

4.7.5 Monitoring

GCC must undertake a monitoring and maintenance period following the rehabilitation phase and action any remedial measures to ensure the rehabilitated landform transition to a self-sustaining state.

The Quarry Manager or delegate must conduct regular inspections of any rehabilitated areas to ensure maintenance and repairs are carried out as necessary. Maintenance works may include fertilising, watering, repairs to barriers, guards and plant failure replacements, refer to **Table 13 – Maintenance Schedule for Revegetation**.

The monitoring and management program will review the ongoing success of the rehabilitation treatment. The Quarry Manager or delegate may engage a consultant to assist with any detailed monitoring or management of rehabilitation. The key parameters to be measured as part of the rehabilitation monitoring and management program will include:

- Landform stability.
- Erosion and sedimentation.
- Groundcover success (<70% desirable).
- Vegetation species composition and density.
- Water quality.
- Weed presence.

Final rehabilitated areas are to be visually monitored by the Quarry Manager or delegate and, where relevant, assessed by suitably qualified persons to determine the effectiveness of measures implemented.

Table 14 – Maintenance Schedule for Revegetation

Activity	Frequency
Weed Control	
Site Preparation (where necessary)	One (1) treatment at least two (2) weeks prior to seeding / planting.
Ongoing weed management	Biannually or as required.
Revegetation	
Monitor performance and conduct any necessary maintenance.	<ul style="list-style-type: none"> One (1) month after seeding / seedling planting. Three (3) months after seeding / seedling planting. Six (6) months after seeding / seedling planting. 12 months after seeding / seedling planting. <p>OR</p>

	<ul style="list-style-type: none"> Following significant rainfall events (e.g., >25 mm).
Replace diseased or dead plants.	As necessary following maintenance inspections.
Fertilise (if applicable)	Two (2) months after topsoil spreading or seeding.
Apply mulch (if available)	One-off around tube stock plantings
Pasture management	
Slashing and fertilising	As required.

4.7.6 Contingency Plan

In the event that monitoring identifies failures in the rehabilitation implementation, the following contingency measures may be used, however; these will be adapted to the particular failure identified:

- Replacement of failed plantings to increase establishment / success rates.
- Use of fertilisers and soil ameliorants where necessary.
- Reprofilling or eroded or failed landforms.
- Application of additional topsoil where necessary to support vegetation growth.
- Implementation of additional erosion and sediment controls.
- Water quality improvements where necessary.

4.8 Bushfire Management Plan

4.8.1 Objective

The activity will be operated in a way that minimises the risk of bushfires.

4.8.2 Purpose

The site is mapped as being within areas identified as Potential Impact Buffer, Medium Potential Bushfire Intensity, High Potential Bushfire Intensity and Very High Potential Bushfire Intensity in accordance with the State Planning Policy Interactive Mapping System's Bushfire Prone Area mapping. This Bushfire Management Plan has been prepared to identify and manage potential impacts occurring as a result of bushfires.

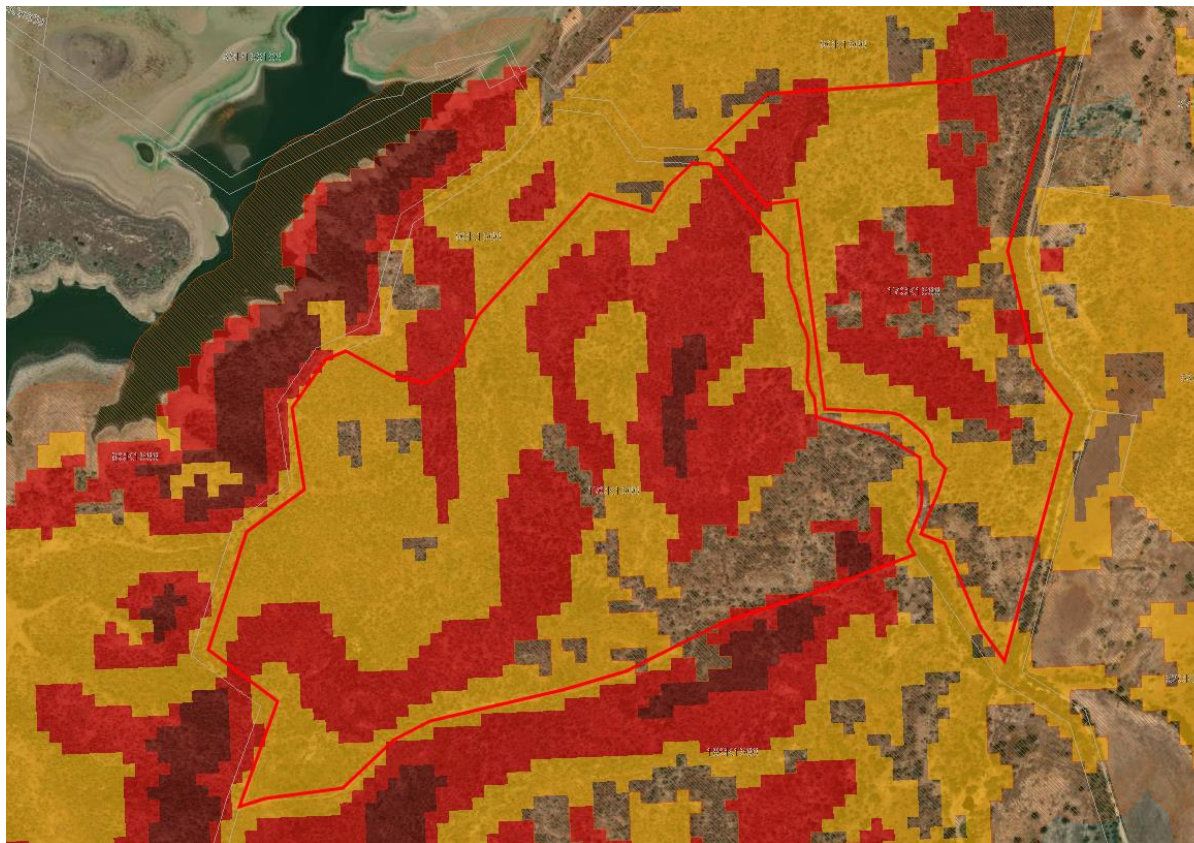


Figure 2 – Potential Bushfire Intensity

(Figure reprinted from State Planning Policy Interactive Mapping System (2023))

4.8.3 Performance Targets

- Minimise the potential for spread of bushfires on site.
- Protect people and property from bushfire impacts.
- Minimise potential impacts from bushfires on local flora and fauna.

4.8 Bushfire Management Plan

4.8.4 Management Strategies

RISK CONTROLS

- Ensure all staff on-site and other personnel are aware of evacuation procedures and the location and the use of firefighting equipment.
- Ensure there is an adequate water supply on-site in the event of a fire. Water supply sources that could be used include:
 - Pit sumps and sediment basins / water storages.
 - Water truck (when on-site).
- Keep the operational areas tidy and not storing any material around the edges of the site that would increase bushfire risk.
- Maintain a site attendance register.
- Maintain a communications system with all on-site personnel.
- Maintain firebreaks in accordance with the allowable widths prescribed under the relevant legislation (in accordance with the *Planning Regulation 2017*. The clearing is limited to the establishment and/or maintenance of necessary firebreaks to protect buildings and structures (other than fences, roads and tracks) and must be a maximum width of 20 m or 1.5 times the height of the tallest adjacent tree (whichever is the greater).
- Ensure availability of heavy earthmoving machinery and water trucks used in quarry operations to assist in the event of major bushfires, if required.
- Consult with adjacent landowners and fire services for implementing fire control management on-site in accordance with district/area fire control plans.
- Keep relevant agencies contact numbers in the event of a fire, namely the Biggenden Fire Station.

IGNITION SOURCES

- Appropriate signage is to be erected near flammable and combustible areas e.g. 'No smoking, stop engine', hazard symbols (explosive, flammable, combustible).
- Any cigarette butts must be free of embers and discarded into site bins.
- Smoking is only permitted in designated smoking areas and is not allowed in work vehicles.
- Vehicles and/or plant must be turned off during refuelling.
- Refuelling is to occur only in a designated area.
- Mobile phones must be switched off when refuelling.
- Ensure welding and other hot works is undertaken in controlled areas where potential for starting a fire is minimised.

FIRE PROTECTION

- Ensure that extinguishers, fire hoses, fire blankets, sand buckets and other such equipment is regularly inspected and maintained in accordance with *AS 1851-2005 (A4), Maintenance of Fire Protection Systems and Equipment* (Standards Australia 2005).
- All vehicles and plant must be provided with fire protection equipment (e.g., fire extinguisher, fire blanket) that meets applicable Australian Standards.
- Staff should be trained in the correct use of fire protection equipment.
- All fire extinguishers must be clearly signed and their purpose clearly visible for the user.

4.8 Bushfire Management Plan

FUEL STORAGE AREAS

- Fuel storage areas must be located away from vegetation and office areas as per *AS 1940 - The storage and handling of flammable and combustible liquids* (Standards Australia 2017a).
- Aboveground bulk tanks and package stores are to be separated from each other as per *AS 1940 - The storage and handling of flammable and combustible liquids* (Standards Australia 2017a).
- Firefighting equipment must be located within proximity to these areas.

SITE PREPARATION AND MAINTENANCE

- Plan, create and/or maintain strategic firebreaks in order to implement hazard reduction works where necessary.
- Construct and maintain perimeter fencing to prevent unauthorised access where necessary.
- Incorporate fire safety management system for chemical fires for temporary buildings and on-site vehicles.
- Consult with the local fire station and council prior to each bushfire season in order to re-assess the situation, site conditions and predicted bushfire conditions for the bushfire danger period ahead.
- Maintain a line of contact with the fire station throughout the bushfire season.

REDUCE THE HAZARD

- Assess fire risk each day and evacuate where necessary.
- Ensure no fuel load is available around work sites.
- Plan and organise for hazard reduction burns to be undertaken by the Biggenden Fire Station where necessary.
- Obtain a 'Permit to Light Fire' from the local Biggenden Fire Station as required.
- Preferable burn season is summer to winter and aim for a low to moderate intensity burn.
- Create firebreaks around all temporary facilities and infrastructure on site.

4.8.5 Monitoring

- Regularly review and update the site evacuation procedures.
 - Ensure regular surveillance of the site, to ensure access roads, fire trails and the edges of the operational area are maintained.
 - All employees will be responsible for the identification and giving alarm of fires on-site or adjacent bush fires off-site.
 - Monitor the site, conditions, and situation in order to evaluate changes occurring on or off site, e.g., changes in infrastructure, risks and hazards, legislative and environmental changes.
-

4.8.6 Contingency Plan

Should emergency fire services be required, dial '000' or '112' from a mobile.

Contact details for the local fire station (Biggenden Fire Station) and the local warden are as follows:

Biggenden Fire Station
22 George Street Biggenden 4621
Phone: 07 4140 8040

Degilbo East Fire Warden
07 4127 1564

References

- DES. (Department of Environment and Science). (1997). *Air Quality Sampling Manual*. Department of Environment: Brisbane, Qld.
- DES. (Department of Environment and Science). (2014). *Guideline: Rehabilitation requirements for mining resource activities*. Queensland Government: Brisbane, QLD
- DES. (Department of Environment and Sciences). 2018. *Monitoring and Sampling Manual: Environmental Protection (Water) Policy*. Accessed February 27, 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0031/89914/monitoring-sampling-manual-2018.pdf
- DES (Department of Environment and Science). (2020a). *Noise Measurement Manual*. Accessed February 27, 2023 via <https://environment.des.qld.gov.au/licences-permits/pdf/noise-measurement-manual-em1107.pdf>
- DES (Department of Environment and Science). (2020b). *Guideline: Noise and vibration from blasting*. Accessed February 27, 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0028/89380/ts-gl-blasting-noise-and-vibration.pdf
- DES. (Department of Environment and Sciences). (2020c) *Waste tracking guidelines*. Accessed February 27, 2023 via <https://environment.des.qld.gov.au/waste/pdf/managing-wt-qld-overview.pdf>
- DES. (Department of Environment and Science). (2021). *Stormwater and environmentally relevant activities*. Accessed April 13, 2023 via https://environment.des.qld.gov.au/_data/assets/pdf_file/0028/89119/pr-gl-stormwater-guideline-era.pdf
- IECA (International Erosion Control Association). (n.d.). *Example site-based Stormwater Quality Management Plan*. Accessed February 27, 2023 via <https://www.austieca.com.au/documents/item/362>
- Pastures Australia., (n.d.). Pasture Selection Tool. Accessed via <https://keys.lucidcentral.org/keys/v3/pastures/queensland.htm>
- Standards Australia, (1998). *AS 2659.1 – 1998: Guide to the use of sound measuring equipment – Portable sound level meters*. Standards Australia: Sydney, NSW.
- Standards Australia. (2006). *AS 2187.2-Explosives - Storage and use - Use of explosives*. Standards Australia: Sydney, NSW.

Standards Australia, (2016). *AS 3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter— Deposited matter – Gravimetric method*. Standards Australia: Sydney, NSW.

Standards Australia, (2017). *AS 3580.9.9 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—PM₁₀ low volume sampler—Gravimetric method*. Standards Australia: Sydney, NSW.

Standards Australia, (2015). *AS 3580.9.6 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—PM₁₀ high volume sampler with size selective inlet – Gravimetric method*. Standards Australia: Sydney, NSW.

Standards Australia. (2017). *AS 1940 - The storage and handling of flammable and combustible liquids*. Standards Australia: Sydney, NSW.

Standards Australia. (2018). *AS ISO 31000:2018 Risk management – Guidelines*. Standards Australia: Sydney, NSW.

The State of Queensland, (2023). *Queensland Globe*. Accessed via <https://qldglobe.information.qld.gov.au/>

DRAWINGS

ATTACHMENTS

Attachment 1

Annual Environmental Performance Review

Annual Environmental Performance Review

Site:

Date:

Reviewer:

Approvals

1. Have there been any changes to the site approvals?

Note: consider the Environmental Authority, Development Permit, etc.

Yes ☐

No ☐

If yes, provide details of the change (e.g. change to Environmental Authority condition, or Development Permit condition). Include the date / reference number of the current approvals relevant to the site activities.

Environmental Monitoring

2. Has all monitoring required under the Environmental Authority been carried out?

Yes ☐

No ☐

If no, provide details

3. Has all monitoring required under the Environmental Management Plan (EMP) been carried out?

Note: Refer to Section 4. Environmental Management Plans for monitoring requirements.

Yes ☐

No ☐

If no, provide details

4. Were any exceedances of the approval limits recorded?

Yes ☐ No ☐

If yes, provide details.

5. Was the exceedance reported to the administering authority?

Yes ☐ No ☐

Provide details of any notifications to the administering authority and actions taken to address the exceedance (if any).

Complaints / Incidents

6. Have any complaints been received, or environmental incidents reported, over the previous 12 months?

Note: An environmental incident generally relates to an event which has caused, or threatens, serious or material environmental harm, consistent with the duty to notify of environmental harm under Division 2 of the *Environmental Protection Act 1994*.

Yes ☐ No ☐

If yes, briefly summarise the nature of the complaint and/or incident and any action taken to resolve the matter.

Site Operations

7. Have there been any changes to the site operations over the previous 12 months?

Yes ☐ No ☐

If yes, provide details and determine if any change to the EMP or associated management documents are required.

Proposed Measures for Improved Environmental Performance

8. Are any measures proposed to be implemented over the coming 12 months to improve the environmental performance of the site?

Note: Examples of measures may include; revised stormwater management measures, changes to fuel / chemical storage, etc.

Yes ☐

No ☐

If yes, provide details and determine if any change to the EMP or associated management documents are required.

Attachment 2

Conceptual Quarry Stormwater Management Plan

State code 6: Protection of state transport networks

Table 6.2 Development in general

Performance outcomes	Acceptable outcomes	Response
Network impacts		
PO1 Development does not compromise the safety of users of the state-controlled road network.	No acceptable outcome is prescribed.	Complies with PO1 No state-controlled roads will be used by the proposed quarry operation. The quarry will supply construction materials to the Paradise Dam Improvement Project which will utilize Paradise Road and Paradise Dam Road. Supply to the general market is not proposed.
PO2 Development does not adversely impact the structural integrity or physical condition of a state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO2 Refer to response PO1 above.
PO3 Development ensures no net worsening of the operating performance the state-controlled road network.	No acceptable outcome is prescribed.	Complies with PO3 Refer to response PO1 above.
PO4 Traffic movements are not directed onto a state-controlled road where they can be accommodated on the local road network.	No acceptable outcome is prescribed.	Complies with PO4 No traffic movements from the proposed quarry will be directed onto a State controlled road. Only local roads will be used to transport material.
PO5 Development involving haulage exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road.	No acceptable outcome is prescribed.	Complies with PO5 Refer to response PO1 above.
PO6 Development does not require a new railway level crossing.	No acceptable outcome is prescribed.	Complies with PO6 The site is not located near any existing or planned railway infrastructure. The proposed operation will not direct any traffic onto or near any railway infrastructure.
PO7 Development does not adversely impact the operating performance of an existing railway crossing.	No acceptable outcome is prescribed.	Complies with PO7 Refer to response PO6 above.
PO8 Development does not adversely impact on the safety of an existing railway crossing.	No acceptable outcome is prescribed.	Complies with PO8 Refer to response PO6 above.
PO9 Development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a railway crossing.	No acceptable outcome is prescribed.	Complies with PO9 Refer to response PO6 above.

Performance outcomes	Acceptable outcomes	Response
PO10 Development does not create a safety hazard within the railway corridor.	No acceptable outcome is prescribed.	Complies with PO10 Refer to response PO6 above.
PO11 Development does not adversely impact the operating performance of the railway corridor.	No acceptable outcome is prescribed.	Complies with PO11 Refer to response PO6 above.
PO12 Development does not interfere with or obstruct the railway transport infrastructure or other rail infrastructure.	No acceptable outcome is prescribed.	Complies with PO12 Refer to response PO6 above.
PO13 Development does not adversely impact the structural integrity or physical condition of a railway corridor or rail transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO13 Refer to response PO6 above.
Stormwater and overland flow		
PO14 Stormwater run-off or overland flow from the development site does not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO14 The site is located over 8kms from the nearest state transport infrastructure. As such, the proposal will not cause any stormwater or overland flow issues for any state transport infrastructure.
PO15 Stormwater run-off or overland flow from the development site does not result in a material worsening of operating performance of a state transport corridor or state transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO15 Refer to response PO14 above.
PO16 Stormwater run-off or overland flow from the development site does not interfere with the structural integrity or physical condition of the state transport corridor or state transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO16 Refer to response PO14 above.
PO17 Development associated with a state-controlled road or road transport infrastructure ensures that stormwater is lawfully discharged.	AO17.1 Development does not create any new points of discharge to a state transport corridor or state transport infrastructure. AND AO17.2 Development does not concentrate flows to a state transport corridor. AND	Complies with AO17.1 Refer to response PO14 above.

Performance outcomes	Acceptable outcomes	Response
	<p>AO17.3 Stormwater run-off is discharged to a lawful point of discharge.</p> <p>AND</p> <p>AO17.4 Development does not worsen the condition of an existing lawful point of discharge to a state transport corridor or state transport infrastructure.</p>	
Flooding		
<p>PO18 Development does not result in a material worsening of flooding impacts within a state transport corridor or state transport infrastructure</p>	<p><i>For a state-controlled road or road transport infrastructure, all of the following apply:</i></p> <p>AO18.1 For all flood events up to 1% annual exceedance probability, development ensures there are negligible impacts (within +/- 10mm) to existing flood levels within a state transport corridor.</p> <p>AND</p> <p>AO18.2 For all flood events up to 1% annual exceedance probability, development ensures there are negligible impacts (up to a 10% increase) to existing peak velocities within a state transport corridor.</p> <p>AND</p> <p>AO18.3 For all flood events up to 1% annual exceedance probability, development ensures there are negligible impacts (up to a 10% increase) to existing time of submergence of a state transport corridor.</p> <p><i>No acceptable outcome is prescribed for a railway corridor or rail transport infrastructure.</i></p>	<p>Complies with PO14</p> <p>The site is located over 8kms from the nearest state transport infrastructure. As such, the proposal will not cause any flooding issues for any state transport infrastructure.</p>

Performance outcomes	Acceptable outcomes	Response
Drainage infrastructure		
PO19 Drainage infrastructure does not create a safety hazard in a state transport corridor.	<p><i>For a state-controlled road environment, both of the following apply:</i></p> <p>AO19.1 Drainage infrastructure associated with, or in a state-controlled road is wholly contained within the development site, except at the lawful point of discharge.</p> <p>AND</p> <p>AO19.2 Drainage infrastructure can be maintained without requiring access to a state transport corridor.</p> <p><i>For a railway environment both of the following apply:</i></p> <p>AO19.3 Drainage infrastructure associated with a railway corridor or rail transport infrastructure is wholly contained within the development site.</p> <p>AND</p> <p>AO19.4 Drainage infrastructure can be maintained without requiring access to a state transport corridor.</p>	<p>Complies with PO14</p> <p>The site is located over 8kms from the nearest state transport infrastructure. As such, the proposal will not cause any drainage issues for any state transport infrastructure.</p>
PO20 Drainage infrastructure associated with, or in a state-controlled road or road transport infrastructure is constructed and designed to ensure the structural integrity and physical condition of existing drainage infrastructure and the surrounding drainage network is maintained.	No acceptable outcome is prescribed.	<p>Not Applicable</p> <p>No drainage infrastructure associated with, or in, a state controlled road or road transport infrastructure is proposed.</p>
Planned upgrades		
PO21 Development does not impede delivery of planned upgrades of state transport infrastructure.	No acceptable outcome is prescribed.	<p>Complies with PO21</p> <p>The proposal will not impede the delivery of any planned upgrades of state transport infrastructure.</p>

Table 6.3 Public passenger transport infrastructure and active transport

Performance outcomes	Acceptable outcomes	Response
PO22 Development does not damage or interfere with public passenger transport infrastructure, active transport infrastructure or public passenger services.	No acceptable outcome is prescribed.	Complies with PO22 There is no public passenger transport infrastructure, active transport infrastructure or public passenger services in the vicinity of the site. The proposal will not damage, interfere or interact with any of these services or infrastructure.
PO23 Development does not compromise the safety of public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO23 Refer to response PO22 above.
PO24 Development does not adversely impact the operating performance of public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO24 Refer to response PO22 above.
PO25 Development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO25 Refer to response PO22 above.
PO26 Upgraded or new public passenger transport infrastructure and active transport infrastructure is provided to accommodate the demand for public passenger transport and active transport generated by the development.	No acceptable outcome is prescribed.	Not Applicable No new public passenger transport infrastructure and active transport infrastructure is proposed. The proposal will not generate any demand for these services.
PO27 Development is designed to ensure the location of public passenger transport infrastructure prioritises and enables efficient public passenger services.	No acceptable outcome is prescribed.	Not Applicable The proposed quarry operation does not involve the use of any public passenger transport infrastructure.
PO28 Development enables the provision or extension of public passenger services, public passenger transport infrastructure and active transport infrastructure to the development and avoids creating indirect or inefficient routes for public passenger services.	No acceptable outcome is prescribed.	Not Applicable Refer to response PO27 above.

Performance outcomes	Acceptable outcomes	Response
PO29 New or modified road networks are designed to enable development to be serviced by public passenger services.	<p>AO29.1 Roads catering for buses are arterial or sub-arterial roads, collector or their equivalent.</p> <p>AND</p> <p>AO29.2 Roads intended to accommodate buses are designed and constructed in accordance with:</p> <ol style="list-style-type: none"> 1. Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design; Department of Transport and Main Roads; 2. Supplement to Austroads Guide to Road Design (Parts 3, 4-4C and 6), Department of Transport and Main Roads; 3. Austroads Guide to Road Design (Parts 3, 4-4C and 6); 4. Austroads Design Vehicles and Turning Path Templates; 5. Queensland Manual of Uniform Traffic Control Devices, Part 13: Local Area Traffic Management and AS 1742.13-2009 Manual of Uniform Traffic Control Devices – Local Area Traffic Management; <p>AND</p> <p>AO29.3 Traffic calming devices are not installed on roads used for buses in accordance with section 2.3.2 Bus Route Infrastructure, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.</p>	<p>Not Applicable</p> <p>No new or modified roads are proposed.</p>
PO30 Development provides safe, direct and convenient access to existing and future public passenger transport infrastructure and active transport infrastructure.	No acceptable outcome is prescribed.	<p>Not Applicable</p> <p>There is no existing or future public passenger transport infrastructure and active transport infrastructure near the site.</p>
PO31 On-site vehicular circulation ensures the safety of both public passenger transport services and pedestrians.	No acceptable outcome is prescribed.	<p>Not Applicable</p> <p>The proposed quarry operation will not generate any public passenger transport services or pedestrians.</p>

Performance outcomes	Acceptable outcomes	Response
PO32 Taxi facilities are provided to accommodate the demand generated by the development.	No acceptable outcome is prescribed.	Not Applicable No taxi facilities are proposed. The proposal will not generate any demand for taxi services.
PO33 Facilities are provided to accommodate the demand generated by the development for community transport services, courtesy transport services, and booked hire services other than taxis.	No acceptable outcome is prescribed.	Not Applicable Refer to response PO32 above.
PO34 Taxi facilities are located and designed to provide convenient, safe and equitable access for passengers.	<p>AO34.1 A taxi facility is provided parallel to the kerb and adjacent to the main entrance.</p> <p>AND</p> <p>AO34.2 Taxi facilities are designed in accordance with:</p> <ol style="list-style-type: none"> 1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work; 2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices 3. AS/NZS 2890.6–2009 Parking facilities –off street parking for people with disabilities; 4. Disability standards for accessible public 5. transport 2002 made under section 31(1) of the Disability Discrimination Act 1992; 6. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area (category P) lighting – Performance and design requirements; 7. Chapter 7 Taxi Facilities, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015. 	Not Applicable Refer to response PO32 above.
PO35 Educational establishments are designed to ensure the safe and efficient operation of public passenger services, pedestrian and cyclist access and active transport infrastructure.	AO35.1 Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.	Not Applicable No educational establishments are proposed.

State code 22: Environmentally relevant activities

Table 22.1: All development

Performance outcomes	Acceptable outcomes	Response
All ERAs		
PO1 Development is suitably located and designed to avoid or mitigate environmental harm to the acoustic environment.	AO1.1 Development meets the acoustic quality objectives for sensitive receptors identified in the Environmental Protection (Noise) Policy 2019.	<p>Complies with AO1.1 A Noise Management Plan has been prepared for the proposed operation and is included as Section 4.4 of the Environmental Management Plan ('EMP') (refer Attachment 5 – Environmental Management Plan).</p> <p>An Environmental Assessment Report ('EAR') has also been prepared to support the application in accordance with Section 125 of the <i>Environmental Protection Act 1994</i> (refer Attachment 4 – Environmental Assessment Report). The EAR confirms that provided the operator implements control measures for potential impacts for noise as outlined in the EMP, and observe the requirements of the Environmental Authority ('EA'), the environmental objectives for noise are likely to be achieved in accordance with the <i>Environmental Protection (Noise) Policy 2019</i>.</p>
PO2 Development is suitably located and designed to avoid or mitigate environmental harm to the air environment.	AO2.1 Development meets the air quality objectives of the Environmental Protection (Air) Policy 2019.	<p>Complies with AO2.1 An Air Quality Management Plan has been prepared for the proposed operation and is included as Section 4.1 of the EMP (refer Attachment 5 – Environmental Management Plan).</p> <p>An EAR has been prepared to support the application in accordance with Section 125 of the <i>Environmental Protection Act 1994</i> (refer Attachment 4 – Environmental Assessment Report). The EAR confirms that provided the operator implements control measures for potential</p>

Performance outcomes	Acceptable outcomes	Response
		impacts for air quality as outlined in the EMP, and observe the requirements of the EA, the environmental objectives for air quality are likely to be achieved in accordance with the <i>Environmental Protection (Air) Policy 2019</i> .
PO3 Development (other than intensive animal industry for poultry farming), is suitably located and designed to avoid or mitigate environmental harm on adjacent sensitive land uses caused by odour.	No acceptable outcome is prescribed.	Not Applicable The proposed quarry operation will not generate odour emissions.
PO4 Development is suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment.	AO4.1 Development meets the management intent, water quality guidelines and objectives of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.	Complies with AO4.1 A Water Quality Management Plan has been prepared for the proposed operation and is included as Section 4.2 of the EMP (refer Attachment 5 – Environmental Management Plan). The purpose of the Water Quality Management Plan is to specify performance targets and outline management strategies and monitoring requirements to ensure that the site is being operated in a way that protects the environmental value of water. Attachment 2 of the EMP includes a Stormwater Management Plan Drawing for the proposed operation which identifies the proposed stormwater control devices.
PO5 Development is designed to include elements which: 1. prevent or minimise the production of hazardous contaminants and waste as by-products; or 2. contain and treat hazardous contaminants on-site rather than releasing them into the environment; and 3. provide secondary containment to prevent the accidental release of hazardous contaminants to the environment from spillage or leaks.	No acceptable outcome is prescribed.	Complies with PO5 All chemicals and hazardous products will be stored within a bunded secondary containment system designed to capture 100% of the products stored within. The site will directed, capture, treat, re-use and discharge overland flow water in accordance with the Water Quality Management Plan (Section 4.2 of the EMP) and the Stormwater Management Plan Drawing (Attachment 2 of the EMP).

Performance outcomes	Acceptable outcomes	Response
PO6 Environmentally hazardous materials located on-site are stored to avoid or minimise their release into the environment due to inundation during flood events.	No acceptable outcome is prescribed.	Complies with PO6 Refer to response PO5 above.
All development – matters of state environmental significance		
PO7 Development is designed and sited to: <ol style="list-style-type: none"> 1. avoid impacts on matters of state environmental significance; or 2. minimise and mitigate impacts on matters of state environmental significance after demonstrating avoidance is not reasonably possible; and 3. provide an offset if, after demonstrating all reasonable avoidance, minimisation and mitigation measures are undertaken, the development results in an acceptable significant residual impact on a matter of state environmental significance. <p>Statutory note: For Brisbane core port land, an offset may only be applied to development on land identified as E1 Conservation/Buffer, E2 Open Space or Buffer/Investigation in the Brisbane Port LUP precinct plan.</p>	No acceptable outcome is prescribed.	Complies with PO7 The proposed quarry operation has been located on the site to avoid all mapped MSES.
Intensive animal industry – poultry farming (ERA 4(2))		
PO8 Poultry farming development (where farming more than 200,000 birds) is suitably located and designed to avoid or mitigate environmental harm on adjacent sensitive land uses, caused by odour.	AO8.1 For poultry farming involving 300,000 birds or less, development meets the separation distances as determined using the S-factor methodology to: <ol style="list-style-type: none"> 1. a sensitive land use in a rural zone; and 2. boundary of a non-rural zone. <p>OR</p> AO8.2 Development meets the separation distances as determined by odour modelling using the following criteria:	Not Applicable The proposal does not involve any intensive animal industry.

Performance outcomes	Acceptable outcomes	Response
	<ol style="list-style-type: none"> 2.5 odour units, 99.5 percent, 1 hour average for a sensitive land use in a rural zone; or 1.0 odour units, 99.5 percent, 1 hour average for the boundary of a non-rural zone. 	

Rural Zone Code

Overall Outcomes	Response
(a) a diverse range of agricultural activities, primary industry and value-adding businesses predominate;	The proposed development will supply quarry materials to the Paradise Dam Improvement Project and is therefore a value adding business for the rural area
(b) Important agricultural areas remain in viable holdings;	The section of the site proposed to be used is not considered to be important agricultural land. The site will be rehabilitated at the cessation of extractive activities and the final landform of the site is to demonstrate consideration for the zoning of the land and surrounding undisturbed areas.
(c) extractive industries and associated processing develop where the resource is available with appropriate management of environmental impacts and site rehabilitation;	Extractive resources are site specific, limited in occurrence by geological conditions and are finite. As such, quarries can only be located where the resource occurs and is able to be accessed. The proposed operation has been located on the site to allow access to the known resource whilst avoiding any matters of environmental significance. The site will be rehabilitated at the cessation of extractive activities and the final landform of the site is to demonstrate consideration for the zoning of the land and surrounding undisturbed areas.
(d) difficult-to-locate sports and industries locate where there is adequate separation and buffering to sensitive uses;	The proposed development is for extractive industry and is adequately separated from nearby sensitive uses and will be administered and regulated by DES through the EA under the EP Act.
(e) vegetated slopes and elevated areas provide a scenic backdrop in the natural landscape;	The proposed development is for extractive industry and will result in clearing of unmapped vegetation. However, the proposed development has been designed to minimise the extent of visibility from nearby sensitive uses as much as possible.
(f) a basic level of infrastructure appropriate to rural areas is safe, efficient and sustainable;	No permanent infrastructure or buildings will be established on the site.
(g) safe and efficient transport networks;	The site will gain access to the Paradise Dam via existing local rural roads - Paradise Road and Paradise Dam Road.
(h) protection of people and premises from natural hazard;	Quarries by their nature, as well equipped to assist and/or deal with bushfire events. The use of heavy earthmoving machinery and water trucks used in the quarry operation can be called upon to assist in the event of a bushfire. A Bushfire Management Plan has been prepared for the site and is included

	in Section 4.8 of the Environmental Management Plan ('EMP') (refer Attachment 5 – Environmental Management Plan).
(i) development does not result in serious environmental harm; and	<p>The proposed quarry will be regulated by the Department of Environment and Science via an Environmental Authority ('EA'). Conditions of the EA will restrict the operation of the site and outline limits for output of potentially environmentally harmful sources (noise, dust, water, groundwater, land etc.). The site will be operated in accordance with an EMP which includes management plans outlining the operational controls and measures that will be employed on site to ensure that potential environmental impacts are managed to the required standards.</p> <p>Provided that the operator implements the control measures outlined in the EMP and observes the requirements of the EA conditions, it is not anticipated that the proposed operation will result in serious environmental harm.</p>
(j) if in or proximate to an urban area, development is consistent with and does not compromise the likely longer-term use of other land in the locality.	The site is not in or proximate to an urban area.
The following overall outcomes will achieve the purpose of the Intensive agriculture precinct—	
(a) the protection of most Important agricultural areas for cropping purposes;	The site is not currently used for cropping purposes and the proposed development will not impact on any cropping activities in the precinct.
(b) intensive animal industries and extractive industry locate outside the precinct.	Extractive resources are site specific, limited in occurrence by geological conditions and are finite. As such, quarries can only be located where the resource occurs and is able to be accessed. The proposed operation will supply essential construction materials to the Paradise Dam Improvement Project which is located approximately 1.5kms from the site. The specific location of the hard rock resource along with the close proximity to the Paradise Dam make it ideal to supply material to the Paradise Dam Improvement Project and unable to be located outside of the intensive agricultural precinct.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
Buffers to sensitive land uses - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
PO1 Non-residential buildings and waste disposal areas have separation from existing sensitive land uses to mitigate potential adverse impacts from the emission of dust, noise or odours.	AO1.1 The following facilities are not less than 150 metres from any existing dwelling in the Rural zone or land included in the General residential zone— <ul style="list-style-type: none"> (a) animal enclosures; (b) buildings used for storage, processing and packing of produce; and (c) waste disposal areas. 	NA	The proposed operation is for extractive industry. A separation distance of at least 1.5km is provided to the nearest sensitive land use.
Intensity and scale			
PO2 The Rural zone maintains a relatively sparsely settled landscape and a high level of scenic amenity with buildings an appropriate scale for their setting.	AO2.1 If for Tourist park— <ul style="list-style-type: none"> (a) there are no more than six caravan or camping sites for every 100 hectares of site area; (b) no caravan or camping sites are within 100 metres of a boundary, road, or watercourse. 	NA	The proposed operation is for extractive industry.
	AO2.2 If for Rural workers' accommodation— <ul style="list-style-type: none"> (a) no more than six rural workers per 100 hectares of site area reside on the premises; (b) unless within an existing building, no accommodation is within 100 metres of a boundary, road, or watercourse 	NA	The proposed operation is for extractive industry.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
	AO2.3 If for Rooming accommodation— <ul style="list-style-type: none"> (a) no more than six persons per 100 hectares of site area reside on the premises; (b) unless within an existing building, no accommodation is within 100 metres of a boundary, road or watercourse. 	NA	The proposed operation is for extractive industry.
Setbacks and boundary clearances			
PO3 Buildings maintain separation from other premises to protect privacy and amenity appropriate to expectations of rural residents.	AO3.1 New building work is no closer to a boundary than the minimum stated in Column 8 of Table 6.3.1.	AO	The site office and amenities building will be pre-constructed demountable/removable structures and will be located over 50m from the Paradise Road road reserve.
	AO3.2 New building work is no closer to a frontage than the minimum frontage setbacks stated in Column 8 of Table 6.3.1.	AO	Refer to response AO3.1 above.
Lighting			
PO4 The intensity, direction, overspill or glare of artificial lighting does not adversely affect— <ul style="list-style-type: none"> (a) the amenity of the locality; or (b) the safety of road users. 	AO4.1 Technical parameters, design, installation, operation and maintenance of outdoor lighting complies with AS4282—Control of the Obtrusive Effects of Outdoor Lighting.	AO	Lighting will be located designed and installed in accordance with the Australian Standards.
Development involving Caretaker's accommodation			
PO5 Caretaker's accommodation—	AO5.1 A maximum of one caretaker's accommodation locates on a lot.	NA	No caretaker's accommodation is proposed.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
(a) meets the immediate and essential management, security or operational needs of the nonresidential use operating from the same premises; (b) is of a size that meets the essential accommodation needs of the caretaker and their reasonably associated household members.	AO5.2 One car parking space is available on-site for the exclusive use of residents.	NA	Refer to response AO5.1 above.
PO6 Caretaker's accommodation provides an acceptable level of amenity, privacy and comfort suitable for long-term habitation.	AO6.1 Residents have exclusive use of private open space at ground level, at least 35m ² in area, having a minimum dimension of three metres, and directly accessible from the caretaker's accommodation.	NA	Refer to response AO5.1 above.
Development involving a Roadside stall			
PO7 The on-site display and sale of agricultural produce does not adversely affect— (a) the amenity, character or safety of rural areas; or (b) the safety and efficiency of roads.	AO7.1 Any building or structure used for the sale of goods or produce is no greater than 10m ² in covered or uncovered floor area.	NA	No roadside stalls are proposed.
	AO7.2 Access to the stall— (a) is not from a state-controlled road; and (b) is via the primary property access point.	NA	Refer to response AO7.1 above.
	AO7.3 One parking space is available adjacent to the stall within the boundaries of the lot.	NA	Refer to response AO7.1 above.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
- PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
Appropriate use			
PO8 Land uses in which occupants are likely to be sensitive to high levels of dust, light, noise, odours, chemical spray drift, vibrations and other potential environmental contaminants— (a) have appropriate separation distances or buffering from existing industrial, rural or other incompatible land uses and infrastructure; and (b) do not locate close to a State controlled road or a significant local government road.	AO8.1 If involving development that increases the number of people who live, work or congregate on the premises no buildings or structures locate within 250 metres of a solid waste management facility or sewerage treatment plant.	NA	The proposed quarry operation will not increase the number of people who live, work or congregate within 250 metres of a solid waste management facility or sewerage treatment plant.
PO9 Infrastructure operates safely and efficiently without interference by incompatible uses or works.	no acceptable outcome identified	PO	The proposed quarry operation will not be connected to any Council infrastructure. As such, there will be no interference to the operation of infrastructure.
Site suitability			
PO10 Sites are suitably-sized and configured for the intended use and any associated works, including building work, vehicle parking and manoeuvring areas, landscaping, buffering and waste management.	no acceptable outcome identified	PO	The site is a sufficient size to accommodate the proposed quarry operation (refer to Attachment 3 – Proposal Plans).
Natural environment			
PO11 Either— (a) works avoid adverse environmental impacts; or	AO11.1 The total development footprint is minimal.	PO	The quarry has been designed to avoid mapped environmental values whilst ensuring that there is access to a sufficient quantity of the resource

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
(b) where avoiding impacts is not reasonably possible, works minimise and manage any residual impacts.			in order to supply material to the Paradise Dam Improvement Project. Extractive resources are site specific, limited in occurrence by geological conditions and are finite. As such, quarries can only be located where the resource occurs and is able to be accessed. The proposed operations area avoids all mapped vegetation on the site.
	AO11.2 Uses and works avoid further fragmentation of areas of environmental significance and strengthen linkages through rehabilitation where possible.	AO	The proposed operations area avoids all mapped vegetation on the site. The site will be rehabilitated at the cessation of extractive activities and the final landform of the site is to demonstrate consideration for the zoning of the land and surrounding undisturbed areas. This will ensure that the natural environmental and biodiversity of the site will be maintained.
	AO11.3 Uses and works occur only in areas of lesser importance in terms of biodiversity values and conserve areas of higher value to the greatest extent practicable.	AO	
	AO11.4 Uses and works maintain areas of environmental significance in patches of greatest possible size and with the smallest possible edge to area ratio.	AO	
PO12 Development maintains riparian areas and water quality, including minimising the transport of sediment from the site.	AO12.1 A vegetated buffer not less than 50 metres wide, within which no building or operational work occurs, extends from the high bank of any watercourse, lake or wetland protection area.	AO	The existing vegetation between the proposed operation and Allen Creek (approximately 300m) will be maintained.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
Natural hazard - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
PO13 The location of uses and works is not at significant risk of a landslip.	AO13.1 Works do not occur on slopes greater than 15 per cent.	PO	The proposed extractive industry operation will be located on a ridgeline within the site. All batters and walls are required to be stabilized and maintained in accordance with the <i>Mining and Quarrying Safety and Health Act 1999</i> . As such, potential impacts associated with development on steep slopes is not anticipated.
	AO13.2 Buildings and works locate more than— (a) 20 metres from a ridgeline or escarpment; and (b) 100 metres from a watercourse.	AO	All buildings will be located over 20m from a ridgeline and over 100m from Allen Creek.
Operating hours			
PO14 Non-residential uses operate during hours that are appropriate to the locality.	no acceptable outcome identified	PO	The proposed hours of operation are 6:00am – 6:00pm, Monday to Saturday.
If in the Conservation precinct			
PO15 Uses are complementary to the environmental values of the site.	no acceptable outcome identified	NA	The site is not located in the Conservation precinct.
PO16 Ecotourism and recreation facilities locate where there is an overriding community need.	no acceptable outcome identified	NA	Refer to response PO15 above.
PO17 Environmentally sensitive design and infrastructure support the development to avoid degradation of water quality and protect the ecological and hydrological processes of wetlands and waterways.	no acceptable outcome identified	NA	Refer to response PO15 above.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
- PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
PO18 Rehabilitation works and landscaping enhance the biological diversity, water catchment and ecological functioning of the site.	no acceptable outcome identified	NA	Refer to response PO15 above.
If in the Intensive agriculture precinct			
PO19 Uses do not— (a) irreversibly prevent the use of land for cropping; or (b) have an irreversible impact on the use of adjoining premises for cropping; or (c) restrict a full range of agricultural practices.	no acceptable outcome identified	PO	Rehabilitation is to be undertaken progressively throughout the life of the operations and is to commence in each area as soon as practicable after it is no longer required for operational purposes. Progressive rehabilitation must take place as new areas of extraction are commenced. The final landform of the site is to demonstrate consideration for the zoning of the land and surrounding undisturbed areas. The proposed rehabilitation outcome is to return the site to agricultural purposes.
PO20 Uses enhance or value-add to agricultural pursuits.	no acceptable outcome identified	PO	Refer to response PO19 above.

Flood Hazard Overlay Code

Overall Outcomes	Response
(a) the siting and design of development maintains or increases safety and comfort for people and property during flood events; and,	The proposed quarry operation will be located outside of areas mapped as subject to flooding.
(b) uses and works minimise the potential for property damage due to flooding.	

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
PO1 People on the development site are safe from floodwaters during all floods up to and including a 1 per cent AEP flood event.	AO1.1 New buildings without habitable rooms locate— <ul style="list-style-type: none"> (a) outside the Flooding and inundation area identified on Overlay maps OM-FH-001 to OM-FH-008; or (b) above the defined flood level for the DFE identified on Overlay maps OM-FH-009 to OM-FH-015; or (c) above the flood level of a 1 per cent AEP flood event. OR	AO	The demountable buildings (site office and amenities) to be established on site will be located outside of the mapped flooding and inundation areas.
	AO1.2 New buildings with habitable rooms (Class 1, 2, 3 and 4 buildings under the BCA)— <ul style="list-style-type: none"> (a) locate outside the Flooding and inundation area identified on Overlay maps OM-FH-001 to OM-FH008; or 		

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
	<p>(b) on premises below the defined flood level identified on Overlay maps OM-FH-009 to OM-FH-015 – have habitable rooms with finished floor levels at least 300 millimetres above the defined flood level; or</p> <p>(c) below the flood level of a 1 per cent AEP flood event – have habitable rooms with finished floor levels at least 300 millimetres above the flood level of a 1 per cent AEP flood event.</p>		
	<p>AO1.3 Where involving extensions to an existing Class 1 building situated below the Flooding and inundation area, or the defined flood level, or the flood level of a 1 per cent AEP flood event, and the additions constitute less than 50% of the existing floor area of the building—</p> <p>(a) the extension has a floor area not exceeding 50m² ; and</p> <p>(b) the finished floor level of habitable rooms is not less than the floor level of existing habitable rooms.</p>	NA	No extension to Class 1 buildings is proposed.
	<p>AO1.4 Development incorporates clear and direct pedestrian and vehicle evacuation routes from the site.</p>	AO	Evacuation of the site during a flood event will be via Paradise Road (only exit route).

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
	<i>Editor's note—Building work in a designated flood hazard area must meet the requirements of the relevant building assessment provisions under the Building Act 1975.</i>	<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
PO2 The impacts of floodwater on hazardous materials manufactured or stored in bulk causes no adverse effect on public safety or the environment.	AO2.1 The manufacture or bulk storage of hazardous materials of 50 litres or more of chemicals of class C1 or C2 combustible liquids under Australian Standard AS1940 occurs— <ul style="list-style-type: none"> (a) outside the Flooding and inundation area identified on Overlay maps OM-FH-001 to OM-FH008; or (b) above the defined flood level identified on Overlay maps OM-FH-009 to OM-FH-015; or (c) above the flood level of a 1 per cent AEP flood event 	AO	Any fuels or lubricants stored on site will be located outside of the mapped flooding and inundation areas.
PO3 Components of infrastructure that are likely to fail or cause contamination because of inundation maintain their function during flood events	AO3.1 The location of services infrastructure within a site (including electricity, gas, water supply, sewerage and telecommunications) is— outside the Flooding and inundation area identified on Overlay maps OM-FH-001 to OM-FH008; or outside the defined flood event identified on Overlay maps OM-FH-009 to OM-FH015; or above the flood level of a 1 per cent AEP flood event.	NA	No service infrastructure is proposed. In any case, the entire operation will be located on the ridgeline in the south-eastern section of the site, outside of the mapped flooding and inundation areas.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
	OR	<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
	AO3.2 The design and construction of services infrastructure within a site (including electricity, gas, water supply, sewerage and telecommunications)—prevent floodwater intrusion and infiltration; and resist hydrostatic and hydrodynamic forces resulting from a 1 per cent AEP flood event.		
PO4 Development siting enables vehicular access in the event of a flood.	AO4.1 Development ensures that buildings used for passenger vehicle storage have trafficable access to a public road during a 5 per cent AEP flood event.	NA	The proposed quarry operation does not involve any buildings used for passenger vehicle storage.
PO5 Community infrastructure is able to function effectively during and immediately after flood events (where appropriate).	no acceptable outcome identified	NA	No community infrastructure is proposed.
If involving reconfiguring a lot			
PO6 New lots provide for an appropriate level of flood immunity.	AO6.1 All lots contain an appropriate building envelope— <ul style="list-style-type: none"> (a) outside the Flooding and inundation area identified on Overlay maps OM-FH-001 to OM-FH-008; or (b) outside the defined flood event identified on Overlay maps OM-FH-009 to OM-FH015; or (c) above the flood level of a 1 per cent AEP flood event. 	NA	The proposal does not involve reconfiguring a lot.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
If involving operational work or building work involving filling or excavation <ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 			
PO7 Filling or excavation does not directly, indirectly or cumulatively, cause any significant increase in water flow depth, duration or velocity on the site and does not result in an unacceptable risk to people or property from flood hazard.	AO7.1 Filling or excavation does not result a net increase in filling of more than 50m ³ — <ul style="list-style-type: none"> (a) within 100 metres of a wetland or waterway; or (b) within the Flooding and inundation area identified on Overlay maps OM-FH-001 to OM-FH-008; or (c) within the Defined flood event identified on Overlay maps OM-FH-009 to OM-FH015; or (d) below the flood level of a 1 per cent AEP flood event. 	NA	The proposal does not involve operational work or building work involving filling or excavation near a wetland, waterway or flood inundation area.
	AO7.2 On-site flood storage capacity remains the same.	NA	Refer to response AO7.1 above.
PO8 Works avoid changes to flood characteristics outside the site that may result— <ul style="list-style-type: none"> (a) in loss of flood storage; (b) alterations to flow paths; (c) acceleration or retardation of flows; or (d) reductions in flood warning times elsewhere in the flood plain. 	no acceptable outcome identified	NA	Refer to response AO7.1 above.
PO9 If the development is for community infrastructure for power lines of an electricity entity it is able	no acceptable outcome identified	NA	Refer to response AO7.1 above.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
to function effectively during and immediately after flood events.			

Extractive Industry Code

Overall Outcomes	Response
<p>(a) development for extractive industry avoids and mitigates significant adverse environmental, public safety or amenity impacts;</p> <p>(b) separation areas between extractive industry operations and surrounding land uses likely to be adversely impacted—</p> <ul style="list-style-type: none"> (i) protect the amenity of surrounding uses; (ii) ensure public safety; and (iii) protect the operation of extractive industry from encroachment by incompatible land uses; 	<p>The proposed extractive industry operation is located on a section of the site that is devoid of any mapped significant vegetation (mapped as MSES or MLES). An EMP has been prepared for the proposed operation which outlines the operational controls and measures that will be employed on site to ensure that potential environmental impacts are managed to the required standards (refer Attachment 5 – Environmental Management Plan). Given that the nearest sensitive receptor is more than 1.5km from the site and is not located on the haulage route between the site and the Paradise Dam, the implementation of the recommended management strategies outlined in the EMP is considered to be sufficient for demonstrating that the proposed operation will not cause any adverse amenity impacts.</p> <p>The proposed operation will also be required to comply with conditions of the EA which will stipulate criteria objectives and conditions for air, noise, water, rehabilitation and land.</p>
<p>(c) traffic movements and haul routes associated with an extractive industry—</p> <ul style="list-style-type: none"> (i) are constructed to a standard suitable to accommodate heavy vehicle traffic; (ii) avoid access through or adjacent to the General residential zone or Rural residential zone; and (iii) do not compromise the capacity of the local road network; 	<p>The site has direct access onto Paradise Road which is a constructed rural road. It is anticipated that only two (2) haulage trucks will operate on a circuit to and from the site to deliver material to the Paradise Dam Improvement Project. A Traffic Management Plan will be prepared for the proposed operation which will include a requirement to radio each time one of the haulage trucks is leaving the quarry site, and leaving the delivery site. This is to ensure that the two (2) haulage trucks will not pass each other on Paradise Road and will assist with safety of the operation.</p>
<p>(d) noise emissions, emissions to air or water, emissions of industrial waste, or any other emissions with the potential to cause environmental harm avoid adverse impacts on surrounding uses or the natural environment beyond the site boundaries; and</p>	<p>An EMP has been prepared for the proposed operation which outlines the operational controls and measures that will be employed on site to ensure that potential environmental impacts are managed to the required standards (refer Attachment 5 – Environmental Management Plan). The EMP includes the following:</p> <ul style="list-style-type: none"> • air quality management plan (section 4.1) • water quality management plan (section 4.2)

	<ul style="list-style-type: none"> • hydrocarbons and chemicals management plan (section 4.3) • noise management plan (section 4.4) • blasting management plan (section 4.5) • waste management plan (section 4.6) • rehabilitation management plan (section 4.7) • bushfire management plan (section 4.8)
(e) areas disturbed through the extraction of a resource are progressively rehabilitated and achieve a stable landform suitable for an agreed land use.	<p>Rehabilitation is to be undertaken progressively throughout the life of the operations and is to commence in each area as soon as practicable after it is no longer required for operational purposes. The final landform of the site is to demonstrate consideration for the zoning of the land, the relevant precinct (intensive agricultural precinct) and surrounding undisturbed areas. The proposed rehabilitation outcome is to return the site to a suitable landform to support agricultural purposes. A Rehabilitation Management Plan has been prepared for the site and is included in Section 4.7 of the EMP (refer Attachment 5 – Environmental Management Plan).</p>

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
- PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
Site suitability and planning			
PO1 Having regard to its location, design, and operation, the extractive industry provides for— <ul style="list-style-type: none"> (a) the efficient extraction of the available resource with the least environmental impacts; (b) protection of the natural environment and mitigation of adverse impacts; (c) adequate buffering to protect the operations of the extractive industry and its impacts on the surrounding area in terms of visual impacts or significant emissions of noise, dust or other noxious, offensive or hazardous emissions; (d) public safety; (e) appropriate and adequate access and transport routes for the removal of the extracted resource and other associated vehicle movements; and (f) an acceptable standard of visual amenity, having regard to the characteristics of the site, the resource, the 	no acceptable outcome identified <i>Note—The submission of an Environment Impact Statement and Environmental Management Plan is required to assist in demonstrating compliance with the performance criteria. See Planning Scheme Policy Information local government may request.</i>	PO	An Environmental Assessment Report ('EAR') and EMP have been prepared, which assess the likely impact of the proposed activity on the Environmental Values, and outline the operational controls and measures that will be employed on site to ensure that potential environmental impacts are managed to the required standards (refer Attachment 4 – Environmental Assessment Report and Attachment 5 – Environmental Management Plan). The EAR provides an assessment of potential impacts in further detail. The EMP will be the principal management tool for guiding environmental management on the site, by providing a framework at the operational level to prevent, or suitably manage environmental impacts.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
surrounding area and the desirable character of the locality.			
PO2 An appealing and functional landscape form remains on the extraction site having regard to extraction volumes and staging.	<p>no acceptable outcome identified</p> <p><i>Note—The submission of an Environment Impact Statement and Environmental Management Plan is required to assist in demonstrating compliance with the performance criteria. See Planning Scheme Policy.</i></p>	PO	Landscaping and rehabilitation will be incorporated into the day to day operations at the quarry to assist in minimising rehabilitation costs and impacts on the environment whilst ensuring post extraction land use objectives are achieved. Rehabilitation is to be undertaken progressively throughout the life of the operations and is to commence in each area as soon as practicable after it is no longer required for operational purposes.
Management of operations			
PO3 The use incorporates suitable vehicular access to and from the site and movement areas within it.	AO3.1 Vehicular access is adequate for the type and volume of traffic associated with the premises.	AO	The site access will be designed and constructed to accommodate the largest vehicle associated with the operation (36t truck and dog).
	AO3.2 The use does not involve access through the General residential zone or Rural residential zone or access via a road abutting land in a General residential zone or Rural residential land.	AO	The site and surrounding land (including Paradise Dam) is zoned Rural.
	AO3.3 The use does not create or worsen a traffic hazard.	AO	It is anticipated that only two (2) haulage trucks will operate from the site in a circuit to deliver material to the Paradise Dam Improvement Project. A Traffic Management Plan will be prepared for the proposed operation which will include a requirement to radio each time one of the haulage trucks is leaving the quarry site,

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
			and leaving the delivery site. This is to ensure that the two (2) haulage trucks will not pass each other on Paradise Road and will assist with safety of the operation.
	<p>AO3.4 Vehicles do not have adverse effects on the amenity of the locality.</p> <p><i>Note—A traffic impact assessment ought to accompany the application and may assist in demonstrating compliance with the performance criteria.</i></p>	AO	<p>There are no dwellings or sensitive land uses between the site and the Paradise Dam. As such, quarry vehicles will not cause any adverse impacts to the amenity of the locality.</p> <p>It is proposed that a dilapidation report for Paradise Road be prepared by a suitably qualified professional at the commencement and cessation of the operation of the quarry. This will provide Council with assurance that the maintenance and upkeep of Paradise Road will be the responsibility of GCC during extraction campaigns.</p>
<p>PO4 The siting and extent of operations allows for an area to be provided at the perimeter of the site to effectively buffer surrounding areas from noise, dust, and visual impacts having regard to—</p> <ul style="list-style-type: none"> (a) protecting the amenity of surrounding uses; (b) ensuring public safety; and (c) protecting the operation of extractive industry from 	<p>AO4.1 No hard rock extraction, processing activities or blasting occurs within 10 metres of any boundary of the site or within 500 metres of any existing or approved sensitive land use.</p>	AO	<p>A minimum setback distance of 17m from the eastern boundary of the site has been applied to the design of the proposed quarry operation (refer Attachment 3 – Proposal Plans). The proposed operation is located over 1.5kms from the nearest sensitive land use (dwelling).</p>
	<p>AO4.2 A densely vegetated buffer strip or earth mound having a minimum width of 10 metres grows on all boundaries of the site.</p>	AO	<p>There is an existing vegetation buffer along the boundary of the site fronting Paradise Road. This vegetation will be maintained at a minimum width of 17m. The existing vegetation on all other boundaries of the site will also be maintained.</p>

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
encroachment by incompatible land uses	AO4.3 Extraction and processing activities are screened from view through natural features and landscaping from—any State-controlled road or significant local government road, and any urban area.	AO	The proposed operation is not adjacent to or near any State-controlled roads, significant local government roads or urban areas. Nevertheless, the operation will be screened from Paradise Road via the existing vegetation along the eastern boundary of the site.
PO5 Extractive industry operations including blasting, crushing, screening and loading activities are carried out safely and so that disturbance to surrounding land uses is minor.	AO5.1 The use operates within the following hours — blasting operations— (a) 9:00 am to 5:00 pm Monday to Friday; (b) activities other than blasting—6am to 6:00 pm Monday to Saturday;	AO	The proposed hours of operation for the quarry are: <ul style="list-style-type: none"> • loading and haulage: as per the hours of operation for the Paradise Dam Improvement Project for the duration of the project • extraction and processing: 6:00am – 6:00pm, Monday to Saturday, no operations on Sundays or public holidays • blasting: 9:00am – 3:00pm, Monday to Friday and 9:00am – 1:00pm, Saturdays
	AO5.2 The use does not operate on Sundays or public holidays.	AO	No operations are proposed on Sundays or public holidays.
	AO5.3 Warning signs displayed on-site inform the public of hours of operations and safety hazards.	AO	Warning signage will be placed at the entrance of the site which includes hours of operation.
	AO5.4 Fencing that prevents unauthorised or accidental public entry has a minimum height of 1.8 metres and is erected and maintained at a safe distance around any excavated areas or ponded water having a depth of one metre or more.	AO	The existing fencing along Paradise Road will be maintained and is considered to be suitable for preventing unauthorized access to the site.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
	AO5.5 The use achieves the air emission standards set out in the Environmental Protection (Air) Policy 2008 and under that policy are not "unreasonable".		<p>An EAR has been prepared to support the application in accordance with Section 125 of the <i>Environmental Protection Act 1994</i> (refer Attachment 4 – Environmental Assessment Report). The EAR confirms that provided the operator implements control measures for potential impacts for air quality as outlined in the EMP, and observe the requirements of the EA, the environmental objectives for air quality are likely to be achieved in accordance with the <i>Environmental Protection (Air) Policy 2019</i>.</p> <p>An Air Quality Management Plan has been prepared for the proposed operation and is included as Section 4.1 of the EMP (refer Attachment 5 – Environmental Management Plan).</p>
PO6 Water and wastewater from around and within the area of extraction and operation do not adversely affect the environmental values of groundwater and receiving surface waters.	AO6.1 Banks and channels divert stormwater away from excavated areas.	AO	<p>A Water Quality Management Plan has been prepared for the proposed operation and is included as Section 4.2 of the EMP (refer Attachment 5 – Environmental Management Plan). The purpose of the Water Quality Management Plan is to specify performance targets and outline management strategies and monitoring requirements to ensure that the site is being operated in a way that protects the environmental value of water. Attachment 2 of the EMP includes a Stormwater Management Plan Drawing for the proposed operation which</p>

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
		<ul style="list-style-type: none"> - PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable 	
			identifies the proposed stormwater control devices.
	AO6.2 Sediment basins detain diverted stormwater.	AO	Refer to response AO6.1 above.
	AO6.3 Bunding, treatment and disposal of industrial wastes cause no environmental harm.	AO	Refer to response AO6.1 above.
	AO6.4 Lining or other suitable treatment of erosion-prone areas is established and maintained at discharge points.	AO	Refer to response AO6.1 above.
PO7 Noise impacts do not significantly adversely affect the amenity of the surrounding area and sensitive land uses.	AO7.1 Development and use achieves the noise emission standards set out in the Environmental Protection (Noise) Policy 2008.		<p>An EAR has been prepared to support the application in accordance with Section 125 of the <i>Environmental Protection Act 1994</i> (refer Attachment 4 – Environmental Assessment Report). The EAR confirms that provided the operator implements control measures for potential impacts for noise as outlined in the EMP, and observe the requirements of the EA, the environmental objectives for noise are likely to be achieved in accordance with the <i>Environmental Protection (Noise) Policy 2019</i>.</p> <p>A Noise Management Plan has been prepared for the proposed operation and is included as Section 4.4 of the EMP (refer Attachment 5 – Environmental Management Plan).</p>

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
- PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
Rehabilitation			
PO8 Rehabilitation is carried out in accordance with a management plan providing for— <ul style="list-style-type: none"> (a) progressively staged rehabilitation works; (b) appropriate clean-up works (taking particular account of areas of possible soil contamination); (c) agreed landform and soil profiles; (d) suitable revegetation; and (e) establishment phase requirements. 	no acceptable outcome identified	PO	A Rehabilitation Management Plan has been prepared for the site and is included in Section 4.7 of the EMP (refer Attachment 5 – Environmental Management Plan).
PO9 Rehabilitation allows for suitable use of any water bodies created through the extraction process, having regard to water quality, hydraulic conditions, landform and vegetation.	no acceptable outcome identified	PO	Sediment basins may be incorporated in the final landform for ongoing beneficial use by the landowner for water storages (e.g., livestock drinking water supply).

Infrastructure and Operational Works code

Overall Outcomes	Response
(a) non-trunk infrastructure— (i) services development to a suitable level that meets the anticipated needs of users; (ii) is safe, cost-effective and efficient; and (iii) creates no significant adverse environmental effects;	Non-truck infrastructure is not proposed.
(b) the protection and integration of vegetation of ecological, aesthetic and cultural significance into landscape design;	Vegetation clearing will be limited to what is necessary to access the resource and will be staged in line with operational needs. Vegetation will be retained along the site boundaries to ensure that the operation is screened from Paradise Road.
(c) landscaping is— (i) attractive and suited to the climate; (ii) enhances townscapes, streetscapes and landscapes in the North Burnett Region; (iii) complements and enhances the uses and other works on-site; (iv) protects the privacy of occupiers of nearby premises; (v) discourages crime and vandalism and enhances personal and property security and safety; (vi) has low maintenance, energy and water requirements; and	No landscaping is proposed.
(d) a safe and efficient road network that avoids excessive traffic, parking, manoeuvring or servicing on roads near the development; and,	All parking and maneuvering will be contained within the site.
(e) safe, efficient and convenient pedestrian, cycle, mobility-impaired, and vehicular access to, and manoeuvring within sites; and	The proposal is for an extractive industry operation. No pedestrian or cycle access will be provided. There is sufficient room on site for safe movement and maneuvering for vehicles.
(f) adequate on-site facilities for servicing by delivery, refuse and other service vehicles.	Site access and maneuvering will accommodate service vehicles. No refuse or delivery vehicle will access the site as part of the proposed operation.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
- PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable			
Section 1: Landscaping			
PO1 Planting and works incorporated in the landscaping— (a) include species suitable for the region that are non-invasive and drought tolerant; (b) include existing significant vegetation and other natural features; (c) is safely designed and constructed; (d) protects infrastructure, utilities and adjoining premises.	AO1.1 Landscaping does not include any species identified as an unacceptable species in planning scheme policy SC6.5 Landscaping, section SC6.5.5 Unacceptable plant species for landscaping or are otherwise known to be toxic to people or animals.	NA	No landscaping is proposed. Vegetation will be retained along the site boundaries to ensure that the operation is screened from Paradise Road.
	AO1.2 Landscaping retains and incorporates significant natural features of the site.	NA	Refer to response AO1.1 above.
	AO1.3 Landscaping provides universal access in accordance with Australian Standard AS 1428: Design for Access and Mobility.	NA	Refer to response AO1.1 above.
	AO1.4 Landscaping enables passive surveillance of car parking areas, communal spaces, children's play areas and pathways.	NA	Refer to response AO1.1 above.
	AO1.5 All pedestrian surfaces are slip-resistant and trafficable in all weather conditions.	NA	No pedestrian surfaces are proposed as part of the quarry operation.
	AO1.6 Root barriers minimise the risk of intrusion and damage to services and utilities.	NA	Refer to response AO1.1 above.
	AO1.7 Landscaping incorporates water conservation measures appropriate to the site, including— grouping plants in mulched beds wherever appropriate; avoiding or minimising impervious	NA	Refer to response AO1.1 above.

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	surfaces; incorporating semi-porous pavement surfaces as an alternative to impervious surfaces; and, draining hard surface areas to landscaped areas and water sensitive urban design devices.		
	AO1.8 Landscaping works do not cause ponding of water on the premises or adjoining land.	NA	Refer to response AO1.1 above.
PO2 Neighbouring premises retain reasonable visual and acoustic privacy.	AO2.1 Landscape buffers between incompatible land uses incorporate— (a) earth mounding; (b) a diverse range of plant species that provide variation in colour, texture and form; (c) layered planting—large tree species planted at 6.0m centres to provide an upper storey, small trees planted at 3.0m centres to provide a mid-storey, and shrubs and ground covers planted at 1.5m centres.	AO	Existing vegetation will be retained along the site boundaries to ensure that the operation is screened from Paradise Road. No new landscaping buffers are proposed to be planted. The nearest sensitive receptor is located over 1.5km from the site. As such, the retention of the existing vegetation along the site boundary is considered to be sufficient for minimizing visual and acoustic impacts.
PO3 Landscaping in car parking areas— (a) screens sensitive neighbouring premises, (b) shades the areas; and (c) includes works to ensure the safety of users and infrastructure.	AO3.1 Unless required by a development approval or another planning scheme code, car parking areas incorporate the following— (a) screen landscaping at least 1.5m wide adjacent to any sensitive land use or a General residential zone, Rural residential zone, or Township zone;	NA	No car parking landscaping is proposed. The proposal is for a campaign based extractive industry operation. As such, no landscaping is proposed.

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	(b) a planter bed at least 2.0m wide adjacent to a frontage; and, (c) shade trees within parking areas at the rate of one tree per six car parking spaces.		
	AO3.2 Wheel stops, bollards, kerbs or other barriers provide protection along the boundaries between landscape areas and parking, manoeuvring and utility spaces.	NA	The proposal is for a campaign based extractive industry operation. As such, no landscaping is proposed.
	AO3.3 Landscaping, walls or fences conceal storage and utility areas.	AO	Vegetation will be retained along the site boundaries to ensure that the operation is screened from Paradise Road.
	AO3.4 Landscaping, including any structures, provides visibility for traffic at intersections, access points, and locations where there are likely to be significant pedestrian or cycle activity.	NA	Refer to response AO3.2 above.
	AO3.5 Planting within or adjacent to high voltage transmission line easements is consistent with— <ul style="list-style-type: none"> (a) Screening your home from powerlines, A guide for planting trees and shrubs outside of easements to screen powerlines (Powerlink Queensland); (b) Easement co-use information, Building for the future (Powerlink Queensland). 	NA	Refer to response AO3.2 above.

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Section 2: Infrastructure (non-trunk) works			
General			
PO4 Uses that are urban in nature or intensity locate where they can readily connect to existing infrastructure and services or connect with only modest extension of infrastructure networks.	no acceptable outcome identified	NA	The proposal is for an extractive industry operation.
PO5 The type and scale of uses— (a) is consistent with the capacity of the infrastructure servicing the premises; and, (b) allows the safe and efficient operation of infrastructure without interference by incompatible uses or works.	no acceptable outcome identified	PO	The proposed quarry operation will not be connected to any Council infrastructure. As such, there will be no interference to the operation of infrastructure.
PO6 The provision of infrastructure maximises the safety of drivers, bicyclists and pedestrians.	no acceptable outcome identified	NA	No road, cyclist or pedestrian infrastructure is proposed.
Water supply and sewerage infrastructure			
PO7 The development has an adequate quantity and quality of water supply for potable use, operational use and firefighting purposes.	AO7.1 Where available – premises have a connection to a reticulated town water supply. OR		
	AO7.2 Where unable to connect to a reticulated water supply— (a) residential premises connect to a rainwater tank with a minimum capacity of 45,000 litres; or	AO	Water tanks will be provided on site to support the amenities building.

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	(b) non-residential premises – no acceptable outcome identified.		
PO8 Reticulated water supply infrastructure is robust, fit for purpose, easy to maintain and readily augmented.	AO8.1 Reticulated water supply infrastructure design and construction is in accordance with SC6.2 Design and construction standards for development works policy.	NA	No reticulated water supply infrastructure is proposed.
PO9 The development has an adequate means of treating and disposing of effluent and other wastewater that protects public health and safety and minimises risks to the environment.	AO9.1 For all zones other than the Rural zone and the Recreation and open space zone, all premises connect to a reticulated sewerage system where provided.		
	OR AO9.2 If in the Rural zone or Recreation and Open space zone or connection to a reticulated sewerage system is not available, the use incorporates an onsite wastewater treatment system that complies with the Plumbing and Drainage Act 2002.	AO	The proposed operation will be supported by a pump out wastewater system that will be serviced by a licensed contractor.
PO10 Reticulated sewerage infrastructure is robust, fit for purpose, easy to maintain and readily augmented.	AO10.1 Reticulated sewerage infrastructure design and construction is in accordance with SC6.2 Design and construction standards for development works policy	NA	No reticulated sewerage infrastructure is proposed.
Roads			
PO11 The development incorporates road infrastructure of appropriate design and capacity that is	no acceptable outcome identified	NA	No new road infrastructure is proposed. It is proposed that a dilapidation report for Paradise Road be prepared by a suitably qualified

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
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compatible with the amount of traffic generated by the development, existing uses in the locality and through traffic.			professional at the commencement and cessation of each extraction campaign. This will provide Council with assurance that the maintenance and upkeep of Paradise Road will be the responsibility of GCC during extraction campaigns.
PO12 Development generating significant pedestrian movements incorporates footpaths to a standard compatible with the locality.	AO12.1 If in the Centre zone, a full-width paved footpath extends along the full length of the site frontage.		
	AO12.2 If in the General residential zone, a 1.2 metre wide paved footpath extends along the full length of the site frontage		
	AO12.3 If in zones other than the Centre zone or General residential zone – no acceptable outcome identified.	NA	The proposed extractive industry operation will not generate any pedestrian movements.
PO13 Development generating high pedestrian and cyclist movements includes the provision of shared cycle and pedestrian paths.	no acceptable outcome identified	NA	The proposed extractive industry operation will not generate any pedestrian or cyclist movements.
PO14 Road infrastructure— (a) meets adequate geometric design, design speed, horizontal and vertical alignment, grades and structural design standards for use by vehicles, bicycles and pedestrians; (b) is safe and efficient; (c) maintains the safety of users; and	AO14.1 Road and footpath design and construction is in accordance with SC6.2 Design and construction standards for development works policy	NA	Refer to response PO11 above.
	AO14.2 The width and alignment of shared pedestrian and cycle paths are in accordance with Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths.	NA	No pedestrian or cycle paths are proposed.

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(d) provides for emergency vehicles, buses and service vehicles.			
Stormwater			
PO15 Development incorporates stormwater drainage that— <ul style="list-style-type: none"> (a) avoids or minimises adverse impacts on environmental waters from: <ul style="list-style-type: none"> (i) altered stormwater quality and hydrology; and (ii) the release and mobilisation of sediment, nutrients and other pollutants; (b) protects the stability of buildings upstream and downstream; (c) protects the efficiency of downstream drainage; and, (d) directs stormwater to one or more lawful points of discharge. 	AO15.1 Stormwater design and construction is in accordance with SC6.2 Design and construction standards for development works policy and, for any exceptions stated in SC6.2.5, the assessment benchmarks in the two following acceptable outcomes	AO	A Water Quality Management Plan has been prepared for the proposed operation and is included as Section 4.2 of the EMP (refer Attachment 5 – Environmental Management Plan). The purpose of the Water Quality Management Plan is to specify performance targets and outline management strategies and monitoring requirements to ensure that the site is being operated in a way that protects the environmental value of water. Attachment 2 of the EMP includes a Stormwater Management Plan Drawing for the proposed operation which identifies the proposed stormwater control devices.
	AO15.2 At the construction phase design and construction of works achieves the stormwater management design objectives included in Table 9.4.6—Part 1 Construction phase: stormwater management design objectives, Table 9.4.7—Part 2 Construction phase: stormwater management design objectives for temporary drainage works and Table 9.4.8—Part 3 Construction phase: stormwater management design	NA	There is no 'construction' phase associated with the proposed extractive industry operation. From the commencement of the use, the site will be required to comply with conditions of the EA which will regulate water storage, use and release limits.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
	objectives for emergency spillways on temporary sediment basins as applicable		
	AO15.3 At the post-construction phase works achieve— (a) the applicable stormwater management design objectives on-site, as identified in Table 9.4.9—Post-construction phase: stormwater management design objectives; or (b) an alternative locally appropriate solution offsite with an equivalent or improved water quality outcome to the relevant stormwater management design objectives in Table 9.4.9—Post-construction phase: stormwater management design objectives.	NA	Refer to response AO15.2 above.
Electricity			
PO16 Development incorporates a reliable supply of electricity adequate for the proposed use.	AO16.1 For all zones other than the Rural zone and the Recreation and open space zone, all premises have a connection to the reticulated electricity network. OR		
	AO16.2 If in the Rural zone or Recreation and open space zone— premises have a connection to the reticulated electricity	PO	The site will be connected to a suitable electricity source.

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	network; or premises generate electricity on-site.		
PO17 Reticulated electricity infrastructure meets the design, construction and operational standards of the current service provider.	no acceptable outcome identified	NA	No reticulated electricity infrastructure is proposed.
PO18 On-site electricity generation infrastructure provides a reliable and safe supply of electricity and meets current applicable design, construction and operational standards.	no acceptable outcome identified	PO	The electricity generation infrastructure used on site will be reliable and suitable for supporting the extractive industry operation.
Street lighting and telecommunications			
PO19 Development incorporates street lighting that is compatible with the locality and provides an acceptable level of safety for residents and motorists	AO19.1 The provision of street lighting is in accordance with AS/NZS 1158:2005 Lighting for roads and public spaces.	NA	No street lighting is proposed.
PO20 Street lighting infrastructure meets current design, construction and operational standards.	AO20.1 The design and construction of street lighting is in accordance with AS/NZS 1158:2005 Lighting for roads and public spaces.	NA	Refer to response AO19.1 above.
PO21 Development incorporates telecommunication services that are compatible with the locality and meet reasonable community expectations.	no acceptable outcome identified	NA	No telecommunication services are proposed.
PO22 Telecommunication infrastructure meets the design,	no acceptable outcome identified	NA	Refer to response PO21 above.

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construction and operational standards of the relevant provider			
Section 3: Parking, access and movement			
Vehicular access			
PO23 Premises have safe and efficient vehicular access for motorists and maintain the safety of pedestrians.	AO23.1 Vehicular access between the local government road network and the ingress and egress points of the site meets the standards stated in SC6.2 Design and construction standards for development works policy.	AO	The site access onto Paradise Road will be designed and constructed to meet the standards stated in SC6.2 Design and construction standards for development works policy.
Vehicle parking			
PO24 The use incorporates sufficient vehicle parking to meet demand for the number and type of vehicles for the type of development considering the practical opportunities available for shared car parking provision and the operation of alternative transport modes to private motor vehicles.	AO24.1 The number of vehicle parking spaces is not less than that identified as applicable to the defined use in Table 9.4.7—Car parking and service vehicle provision rates.	AO	Table 9.4.7 does not specify a car parking requirement for extractive industry uses. A sufficient number of light vehicle parking spaces will be provided on site to support the proposed operation.
PO25 Vehicle parking areas are freely accessible to all employees on-site and visitors to the development during the normal hours of operation of the development with no encumbrance, fee or charge.	AO25.1 Vehicle parking areas have no gateways, doors, or similar devices that restrict vehicular access by employees or visitors.	AO	Access to the parking area will not be restricted.
PO26 Vehicle parking areas, driveways and associated accesses function satisfactorily and are	AO26.1 All vehicle-parking areas on the lot are in accordance with AS2890.1 Parking facilities—Offstreet car parking	PO	The car parking areas for the proposed extractive industry operation will be designed and sited to be functional for the proposed use.

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constructed and line-marked to be suitable for their intended purpose.	(excepting for sections 4.3 and 4.4 and Appendix C).		
	AO26.2 Where the development includes a combination of 'low turnover' and 'high turnover' car spaces (as defined in the Australian Standard), the parking spaces and aisles meet the high turnover or Class 3 requirements in AS2890.1 Parking facilities—Off-street car parking	NA	The proposal does not include a combination of 'low turnover' and 'high turnover' car spaces.
	AO26.3 Vehicle parking areas are constructed with a hardstand surface.	PO	Refer to response AO26.1 above.
	AO26.4 Signs and line marking are in accordance Queensland Department of Main Roads Manual of Uniform Traffic Control Devices.	AO	Signs and line marking will be in accordance Queensland Department of Main Roads Manual of Uniform Traffic Control Devices.
	AO26.5 There is no increase in the number of access points to State-controlled roads or significant local government roads as identified on Overlay Map OM-INFR-01.	AO	The site gains access via Paradise Road.
PO27 The premises incorporate access and parking for people with disabilities or mobility impairment.	AO27.1 Parking spaces for people with disabilities is available at the rate set out in AS2890.6 Parking facilities—Off-street parking for people with disabilities.	NA	The nature of the use would not be required to accommodate off-street parking for people with disabilities.
	AO27.2 Access and internal manoeuvring is available in accordance with AS2890.6 Parking facilities—Off-street parking for people with disabilities, and AS1428 Design for access and mobility	NA	The nature of the use would not be required to accommodate off-street parking for people with disabilities.

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Vehicle manoeuvring			
PO28 Premises avoid the use of the public road system for movement between car parking and vehicle service areas in the development.	AO28.1 Manoeuvring and circulation areas within the site meet the standards in Austroads Design Vehicles and Turning Path Templates; AS2890.1 Parking facilities—Off-street car parking; and AS2890.2 Parking facilities—Off-street commercial vehicle facilities	PO	There is sufficient room on site to accommodate vehicle circulation for the largest anticipated design vehicle being a 36-tonne truck and dog combination.
	AO28.2 All vehicles can enter and exit the premises in forward gear.	AO	All vehicles will be able to enter and exist the site in forward gear.
Loading, unloading and service spaces			
PO29 Loading and unloading areas allow for the— (a) collection and set down of passengers; (b) parking of trailers; (c) service vehicle parking; and, (d) loading and unloading of goods.	AO29.1 Premises incorporate loading, unloading and set down areas in accordance with AS2890.2 Parking facilities—Off-street commercial vehicle facilities.	AO	Loading areas will be designated through the operations area as extraction progresses.
	AO29.2 For sites greater than 4,000m ² in area, provision is made for service vehicles in accordance with Table 9.4.7—Car parking and service vehicle provision rates.	NA	The site will not be accessed by service vehicles.
Cyclists and pedestrians			
PO30 Pathways within the site provide for safe and convenient access so that— (a) the main pedestrian access from the street to the building is easily identified; and	no acceptable outcome identified	NA	No cyclist or pedestrian infrastructure is proposed.

Performance Outcomes	Acceptable Outcomes	Compliance	Comments
(b) the vehicular access to the site is separate from the pedestrian access; and (c) design features— (i) delineate areas of potential conflict between vehicles and pedestrians; (ii) provide a low-speed traffic environment within the site; and (iii) incorporate appropriate lighting, directional signs, and pavement marking.		- PO = Performance Outcome - AO = Acceptable Outcome - NA = Not Applicable	
PO31 The use incorporates adequate bicycle parking on the lot that meets appropriate design and construction standards.	AO31.1 For all uses, other than residential uses, where the required vehicle parking provision exceeds 20 parking spaces—the number of on-site bicycle parking facilities is not less than that set out in Department of Main Roads Road Planning and Design Manual (Table 5.12).	NA	Refer to response PO30 above.
	AO31.2 On-site bicycle facilities meet the requirements in AS2890.3 Parking Facilities— Bicycle parking facilities.	NA	Refer to response PO30 above.
Amenity			
PO32 Vehicle parking and manoeuvring areas and traffic generated by the use do not	AO32.1 All areas on the site on which vehicles drive are constructed and surfaced to the standards set out in	PO	The internal roads, parking and maneuvering areas will be constructed and maintained in accordance with the management plan outlined

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adversely affect amenity or result in an environmental nuisance having regard to— (a) the appearance of such areas; (b) dust emissions; and (c) noise from vehicle movement.	SC6.2 Design and construction standards for development works policy.		in the EMP (refer Attachment x – Environmental Management Plan).
Section 4: Erosion and sediment control			
PO33 Construction activities for development avoid degradation of the site and avoid or minimise adverse impacts on stormwater quality.	AO33.1 If in an urban area—the works include the design, installation, construction, operation, monitoring and maintenance of erosion sediment control practices in accordance with the Urban Stormwater Quality Planning Guidelines 2010.		
	OR AO33.2 If in a rural area—no acceptable outcome identified.	NA	No construction activities are proposed.
Section 5: Fire Services in development accessed by common private title where any part of the development or any building is more than 90 metres from the nearest located fire hydrant			
PO34 Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.	AO32.1 Residential streets and common access ways within a common private title should have hydrants placed at intervals of no more than 120 metres and at each intersection. Hydrants may have a single outlet and be situated above or below ground.	NA	The proposal is not development accessed by common private title.

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	AO34.2 Commercial and industrial streets and access ways within streets serving commercial properties such as factories, warehouses and offices should be provided with above or below ground fire hydrants at not more than 90-metre intervals and at each street intersection. Above ground fire hydrants should have dual valved outlets	NA	Refer to response AO32.1 above.
PO35 Road widths and construction within the development are adequate for fire emergency vehicles to gain access to a safe working area close to buildings and near water supplies whether or not on-street parking spaces are occupied	AO35.1 Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for safe passage of emergency vehicles.	NA	Refer to response AO32.1 above.
PO36 Hydrants are suitably identified so that fire services can locate them at all hours.	AO36.1 Hydrants are identified as specified in 'Identification of street hydrants for fire fighting purposes' on the Department of Transport and Main Roads website ⁶¹	NA	Refer to response AO32.1 above.