Cherrabah Granite Mine

SITE BASED MANAGEMENT PLAN

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Prepared by



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DOCUMENT CONTROL

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Note: The hardcopy Site Based Management Plan is to be kept in the Site Office. Any changes to the document should be dated and the date of the changed page inserted in the document control table (previous page). A Mine Record (1 page per day diary) will also be kept in the Site Office. This Mine Record will contain written records as prescribed in this document (Refer Section 4.6).

1. INTRODUCTION

1.1 Overview

The Joyful View Unit Trust (JVUT) proposes to develop and operate a Granite Dimension Stone Mine at the Cherrabah property, within the Southern Downs Regional Council (SDRC). The site consists of a 1988ha freehold property accessed by Keogh Road. The property has been owned by JVUT since 2004 with an existing Eco Resort operating from site. The identified granite resource is estimated to produce a high quality dimension stone product for sale to local and export markets. This Site Based Management Plan (SBMP) has been prepared to support the Cherrabah Granite Mining Lease application.

1.2 Role of SBMP

This SBMP outlines guidelines for the management, mitigation and control of potentially adverse environmental impacts, which may result from the operation of the mine. To this end, the best possible environmental management that can be practically implemented will be employed, to comply with the *Environmental Protection Act 1994* and other associated legislation and requirements. The objectives of this SBMP are to:

- Minimise impacts on stormwater and surface water quality;
- Minimise contamination of land;
- Minimise air emissions including odour and dust;
- Control site-generated nuisance noise emissions;
- Implement waste management measures;
- Ensure hazardous liquids are managed and stored in a safe manner (including managing the risk of spills); and
- Ensure there are management responses in place in the case of fuel or oil leaks/spills.

2. SITE DESCRIPTION

The Cherrabah Granite Mine is located approximately 25km south of Warwick on a property described as Lot 1000 SP268215. The location is within Southern Downs Reginal Council and is part of the New England Tablelands. The property has a total area of 1988ha, but the proposed Mining Lease will only cover approx. 17.42ha which is less than 1% of the total land area. The land borders the QLD/NSW boundary on the south eastern side with elevations of approx 940m at the border to 630m at the site entrance. The property is accessed from Keogh Road via O'deas Road and Cullendore Road. The existing access to the site is via the northeast corner of the property and Keogh Road through the Cherrabah Resort facility. However, an alternative access is proposed from the existing gate to the west around the northern end of the airstrip then onto the existing access track to the Mining Lease.

Figures 1.1 - 1.3 show the site locality map, site access and cadastral map for the project location.



FIGURE 1.1: SITE LOCATION MAP



FIGURE 1.2: SITE ACCESS



FIGURE 1.3: SITE CADASTRAL MAP

2.1 Site Information

The following table provides an overview of site information;

Table 2-1 Site Information		
Locality	25km South of Warwick	
Property Description	Lot 1000 on SP268215	
Landowner/s	Trustee for the Joyful View Unit Trust	
Name of Mine	Cherrabah Granite Mine	
Contact	Joe Zhou	
Telephone	07 3255 0538	
State	Queensland	
Local Government	Southern Downs Regional Council	
Site plan details	APPENDIX 6	
Nearest Neighbour	Approx. 1.3km to the west of the proposed extraction area	

TABLE 2-1 SITE INFORMATION

2.2 Existing Site Conditions

The property is quite large and therefore has a large variety of conditions including heavily vegetated hills, baron granite outcrops and historically cleared slopes. The site contains a rolling hills with the highest point at the southern boundary, and the lowest at the northeast boundary. Small intermittent watercourses drain to the north and form the headwater of the Condamine River. There is evidence of mineral fossicking in the surrounding area, but the proposed ML area mostly contains virgin granite outcrop and surrounding Eucalyptus woodland. A significant portion of the property contains remnant 'least concern' and 'of concern' vegetation including the ML area and approximately half of the internal access road.

2.3 Site Establishment & Construction Phase

Establishment of the mine requires several construction/earthworks projects:

- Construction of the internal access road from the Mining Lease to the property entrance: this is to be constructed to rural road standard with a 6m wide gravel pavement on an 8m formation or other suitable design. (Refer Traffic Report in Appendix 13);
- Earthworks to level an appropriate processing and stockpiling area to the north of the resource area: including appropriate stormwater drainage infrastructure (Refer APPENDIX 6);
- Establishment of the site infrastructure (including office, amenities, power & communications).

- Establishment of access to the extraction area by several access roads graded to suit vehicle access.
- Once production exceeds 5,000t/a upgrade of Keogh Road at 5 locations as described in the traffic report to an 8m sealed pavement. (Refer Traffic Report in Appendix 13);

This site establishment and construction phase is scheduled for a 3 month period following Mining Lease approval.

2.4 Mine Development

The mine will be developed from the base of the resource (adjacent to the stockpile area) and progressing upslope to the south in a benched fashion. Benches will be determined by optimum block size but a maximum bench height of 10m is proposed. Extraction will be facilitated by either sawing (rocksaws and/or wire saws) or by drilling and splitting. Once the upper layer of weathered stone is removed the mine will be developed in a square benched manner governed by the natural fracture location and spacing. A haul road will be developed on the eastern side of the resource to access the upper benches and an existing 4wd access track will be maintained on the western side of the resource. The vegetation surrounding the resource will be maintained where feasible to provide screening for visual amenity as well as noise and dust impacts. (refer plans in **Appendix 6**).

2.5 Site Infrastructure

The mine operation requires a number of fixed and semi-mobile buildings associated with the works, which includes:

- A basic workshop for machinery maintenance comprised of two sea containers and a 'igloo' type shelter;
- A self-bunded fuel storage facility (Approx 30,000L);
- Site office; and
- Staff amenity block (lunch room/first aid) including ablutions with septic tank.

This infrastructure will be established during the construction phase of the development. Initially, power will be supplied by a diesel generating set but grid connection may be provided at a later date.

2.6 Hours of Operation

The proposed hours of operation of the Cherrabah Granite Mine are as follows;

- Extraction of Blocks: Monday to Friday, 7:00am 6:00pm, Saturday 7:00am 1:00pm
- General Mine Operations, Sales Loader Operation and Truck Haulage: Monday to Saturday, 7:00am 6:00pm.
- Maintenance: Monday to Saturday, 6:30am 10:00pm, Sundays 7:00am 4:00pm.

Plant and infrastructure left on site will be secured by a lockable gate at the site entrance to prevent unauthorised entry outside of operating hours. A vehicle turnaround will also be provided at the front gate for vehicles to turnaround in the event that the mine is closed.

3. ROLES AND RESPONSIBILITIES

The aim of this section is to provide an overview of the health, safety and environmental responsibilities to each position at Cherrabah Granite Mine. It is proposed that nominally, up to 7 personnel will be working on site at any time. These may include the SSE, site manager, administration, machinery/plant operators and other personnel such as equipment service contractors. Visitors must remain under the supervision of an authorised Cherrabah Granite Mine representative at all times when on site. Responsibilities for the following positions have been developed:

- SSE
- Site Manager
- Supervisors
- Employees
- Contractors, Subcontractors & Consultants
- Visitors

The proposed employees and contract operators are detailed in FIGURE 3.1.



FIGURE 3.1: ORGANISATIONAL STRUCTURE

The relevant sections of the governing legislation have been included in each position description. Employees, contractors and visitors will be advised about their responsibilities during their induction and via their Position Descriptions (PDs).

The responsibilities for each of the positions are to remain part of this SBMP. Changes to this system must be approved by the Site Manager and updated in this document. All mining operations must comply with the conditions of the approvals and relevant EA conditions (**Appendix 5**).

3.1 SSE

The Site Senior Executive (SSE) is responsible for all aspects of site safety, health, environment and community relations. The SSE's responsibility is outlined in the Mining and Quarrying Safety and Health Act (1999) (the Act), Mining and Quarrying Safety and Health Regulation (2001) (the Regulation), the Environmental Protection Act (1994) and the Sustainable Planning Act (2009). In addition, the SSE is responsible for administration of Company Policy. These responsibilities relate to risk management, incident reporting, safety and health obligations and records and reporting as well as environmental management of the site and community liaison/management.

The Safety and Health Management of the mine is administered by the Department of Natural Resources and Mines (DNRM). The environmental aspects of the mine are administered by the Department of Environment and Heritage Protection (EHP). The requirements for Community relations are outlined in Company Policy. It is also the SSE's responsibility to ensure that all new employees/contractors are aware of the SBMP and its relevance to their role at the mine site.

3.2 Site Manager/Supervisor

The Site Manager is responsible for daily site operations at the mine and incorporates the appropriate management of all persons working at the site including employees, contractors, sub-contractors and consultants. The Site Manager must report all incidents, hazards or near misses to the SSE. If the SSE is not on site at the time of an incident, the Site Manager must assume control until the nominated SSE returns to site.

3.3 Employees

Employees have the responsibility of managing the risk of injury or illness to themselves or any other person in the workplace, to ensure the risk is at an acceptable level. Employees must comply with standard work procedures applying to their work as part of this SBMP. Employees must take action immediately if an unsafe situation is identified and notify the Site Manager of all hazards and near misses as soon as practicable. Employees must also comply with Company policy.

3.4 Contractors, Sub-contractors & Consultants

All persons in this category who are working at Cherrabah Granite Mine under the Site Manager are subcontracted to Joyful View Unit Trust (the Mine Owner/Operator). All contractors have the obligation to work safely, and specifically, have the following responsibilities:

- Duty of care to themselves and those around them.
- Take action immediately if an unsafe situation is identified to guard against the hazard.
- Inform the Site Manager of all hazards and safety concerns immediately.
- Inform the SSE of any prescription medicine they are taking that may affect their performance at work.

All contractors must complete a site-specific induction before commencing work. All contractors shall be made aware of their obligations under this SBMP during the site-specific induction.

3.5 Visitors

Visitors entering Cherrabah Granite Mine shall complete the induction or otherwise be supervised by the Site Manager at all times. No work shall be undertaken by a visitor without completing the site visitor induction. As for all other personnel on-site, visitors also have obligations with regard to safety (especially with duty of care and the reporting of unsafe situations).

4. SAFETY ADMINISTRATION

The aim of this section is to ensure that all safety systems and tools are maintained and controlled in a consistent manner. It will ensure that they are current, approved for use and available at all times.

4.1 Fire Preparedness

Fire presents a risk at Cherrabah Granite Mine and the appropriate steps should be taken to prevent its occurrence.

4.1.1 Location of Fire Extinguishers

All machinery on site at the mine will be fitted with a Dry Chemical Powder fire extinguisher. This includes all contractor equipment and light vehicles. Also larger equipment such as excavators may also be fitted with on-board fire suppression to prevent or minimise damage from engine fires. Fire extinguishers will also be fitted to all buildings and will be appropriately signposted to highlight their location.

Fire extinguishers are checked for charge and condition daily as part of the regular prestart inspection programme to ensure they remain operable at all times. Any damaged fire extinguishers will be immediately repaired. An independent contractor from the local area will be engaged to maintain and service fire extinguishers.

When using fire extinguishers, the operators must not expose themselves to the unnecessary risk of personal injury or harm.

4.1.2 Bush Fires

Given the abundance of natural combustible fuel load (grass, logs, trees, etc.) in the area, bush fires are a distinct risk, especially in dry, hot weather. Also, the steep terrain is conducive to very quick-moving fires, especially if the wind is blowing in an adverse direction.

Open fires must not be lit without an approved permit from the local fire warden.

Care must be exercised to prevent ignition occurring and appropriate bush fire-fighting equipment must be readily at hand. The site has a 2000L firefighting trailer stationed at the resort but the mine site water cart/truck will be available as the main fire-fighting

utility. Assistance is requested from the local rural fire brigade as necessary. Other ancillary equipment (e.g. utility vehicle-mounted spray units, knapsacks, etc.) may be required to be on stand-by if there is an elevated fire risk situation.

All personnel undertaking fire-fighting must be trained and competent prior to performing this task.

Bushfire management is covered in Section 11.16 and the Bushfire Management Plan is contained in APPENDIX 10.

4.2 First Aid

First Aid kits are located in the site office, shed and in each site vehicle. The Site Manager will ensure the contents are adequately maintained. Appropriate signage shall be installed on the building or vehicle to ensure the location of the nearest First Aid kit is known. A person qualified in Apply First Aid shall be employed at the site during operating hours.

4.3 Safety Data Sheets

Safety Data Sheets (SDS) provide the information needed to safely handle hazardous materials at Cherrabah Granite Mine. All persons working at the mine are required to familiarise themselves and comply with the procedures as documented in each SDS for managing all chemicals on site but, particularly, hazardous substances (listed in Section 4.4 below).

A register of SDS's is contained below and in **Appendix 2**. All employees must be made aware of the SDS register location by the Site Manager. The register must be updated on a monthly basis for each SDS that is added or removed. Site personnel will also have ready access to an electronic register to ensure they have real-time access to the latest versions of SDS's.

4.4 Hazardous Substances

Hazardous substances are those which have the potential to harm human health and the environment. At Cherrabah Granite Mine the hazardous substances, their location and application are as follows. Note that the register may change when operations commence.

Fuel Type/ Oil	Description	Class	SDS/ Identifier
Diesel	Diesel	Combustible Liquid Class C1	http://chemdata.lupinsys.com/products/4 3450/ CAL0027601
Hydraulic Oil	-	Combustible Liquid Class C2	http://chemdata.lupinsys.com/products/4 2097/ CAL0001901
Multi-grade Engine Oil 15W40	15W40	None Available	http://www.caltex.com.au/sites/Marine/M SDS/DELO%20400%20MULTIGRADE% 20SAE%2015W-40.pdf /2696
Gear Oil Multi- grade 80/90	80/90 Multi-grade	None Available	http://www.kemmfg.com/html/msds/6337 00MS.pdf
Auto Transmission Fluid	STF	Combustible Liquid Class C2	http://chemdata.lupinsys.com/products/4 <u>3131/</u> 2915
Unleaded Petrol	ULP	Combustible Liquid Class C1	http://chemdata.lupinsys.com/products/4 3314/ 200
Brake Fluid	-	Combustible Liquid Class C2	http://chemdata.lupinsys.com/products/4 3576/ CAL0011801

TABLE 4-1 REGISTER OF HAZARDOUS SUBSTANCES

Hazardous substances must be stored as per the requirements specified in their specific Safety Data Sheets. TABLE 4-1 will be upgraded as the mine develops and recommended oils etc are obtained for the equipment types.

4.5 Document Control

The Site Manager is responsible for the maintenance of this Site Based Management Plan and other relevant documentation as identified below for Cherrabah Granite Mine. These documents shall be kept current and stored in the site office in a location known and accessible to all employees.

All documents shall have a name, version number, date and author clearly labelled. The following documentation must be kept in the Mine Record as stipulated in s. 59 of the Act:

- All reports findings and recommendations resulting from, inspections, investigations and audits carried out at the site;
- All directives issued by DNRM or EHP;
- A record of all remedial action taken as a result of directives issued by DNRM or EHP;
- A record of and reports about all serious accidents and high potential incidents that occur at site; and
- All other information that may be prescribed under the Act or Regulations.

4.6 Mine Record

Additionally, a Mine Record will be maintained by the Site Manager and stored in the Site Office. The purpose of the Mine Record is to ensure a record is kept for all incidents, accidents, visitors, etc. The following information shall be documented in the Mine Record:

- Incidents, Accidents and Near Misses
- Record of Contact with Consultants, DNRM, EHP etc
- Toolbox meetings and Safety Meetings
- Training
- Visitors to Site
- Site Inspections and Audits (including Environmental Audits)
- High and Medium risk activities and items identified in JRA's, Inspections and Audits
- Others, as required

4.7 Environmental Reporting and Communication

All employees have a duty of care towards the environment. It is important that any situations which may cause environmental harm are addressed and appropriate actions are taken to minimise harm. The organisational structure details the management hierarchy with the Site Manager (or delegate) being the main person to report environmental matters. If the environmental matter is urgent, such as an emergency release, notification shall be made to the SSE and the appropriate administering authority.

5. SAFETY & HEALTH MANAGEMENT SYSTEM

A Safety and Health Management System (SHMS) will be developed for the Cherrabah Granite Mine prior to commencement of operations. The SHMS will be compliant to the Mining and Quarrying Safety and Health Act 1999 to ensure that a process exists that will continually allow work hazards to be identified, the risks of these hazards assessed and controls implemented to remove or reduce the risk to the lowest practicable level.

The SHMS will include, but is not limited to the following components;

- Health and Safety Policies and Procedures;
- Leadership and Commitment;
- Establishment of a Safety Management Group;
- Hazard Identification and Risk Management;
- A Hazard and Incident/Accident Reporting System;
- Hazard and Incident/Accident Investigation;
- Safety Inspections and Audits;
- Documentation and Record Management;
- Management Review of Safety Performance;
- Communication of Safety Information to all levels within the Company;
- Safety Training.

6. ENVIRONMENTAL AUDITING AND INSPECTION

The aim of this section is to develop an inspection system to identify and report environmental performance. These inspections will be completed regularly and will use the performance objectives to ensure the system identifies any deficiencies in current environmental management and opportunities for continual improvement.

The Site Manager will conduct an inspection of the site at least monthly or every campaign (if operation is not continuous) with records to be kept in the Mine Record.

The objectives of the monthly inspection will be to identify the following:

- Check compliance with standard environmental practices and procedures.
- Potential problems with tasks, work places or equipment;
- Equipment deficiencies such as wear and tear that may lead to contamination;
- Improper employee actions increasing the risk of environmental harm;
- Changes in process or material that may have occurred without completing an Environmental Risk Assessment;
- Effect of changes in process or material;
- Inadequacies in remedial actions taken to resolve previous environmental hazards;
- Work environment hazards (dust, noise, vibration, hazardous substances, etc)
 presence of, and change in level.

Daily pre-start meetings (Toolbox Meetings) will also be held within each work area to provide the opportunity for employees to provide feedback on current site environmental management.

Third Party Environmental Audits by an independent consultant will be carried out on an annual basis to ensure compliance with the performance objectives and outcomes.

7. EMERGENCY PLANNING

7.1 Contact List

TABLE 7-1 SITE PHONE NUMBERS

Name Position		Work Number	Mobile
TBA	SSE	ТВА	TBA
Enoch Ren	Site Contact (JVUT)	(07) 3255 0538	0425 967 799
Fran (Admin)	Cherrabah Resort	(07) 4667 9177	-
Carl Morandy	Planning & Environmental Consultant (Ausrocks)	(07) 3376 6839	0404 778 394

TABLE 7-2 EXTERNAL PHONE NUMBERS

Name	Number
Warwick Hospital	(07) 4661 6900
Warwick Ambulance Service	000
Warwick Police	(07) 4660 4444 or 000
Warwick Fire Service	000
General Emergency Number	000
Mobile Phone Emergency Number	112
Department of Natural Resources and Mines.	(07) 3896 3216
EHP Emergency Hotline	1300 130 372
Ausrocks Pty Ltd (Consultants)	(07) 3376 6839, 0404 778 394

7.2 Environmental Emergency Procedure

The following steps will be followed in response to an Emergency:

- 1. The Site Manager or delegate will notify all personnel, including contractors and visitors via two-way radio system of the emergency situation and the requirement to immediately proceed to the Muster Point (visitor car park).
- 2. The Site Manager or delegate will proceed immediately to the Muster Point to confirm all personnel are safely at the muster point.
- 3. An assessment of the emergency situation is to be conducted and the appropriate authority contacted (refer Table 7-2 above).
- 4. All personnel are to remain at the Muster Point until the emergency situation has been deemed safe by the Site Manager or delegate and a return to work instruction given.

- 5. If a work area is affected by the situation, a Job Risk Assessment will be completed to assess the presence of additional hazards or an increased risk and appropriate controls implemented prior to the recommencement of work.
- 6. If determined necessary by the Site Manager or delegate, DNRM will be informed of the emergency situation and the actions taken to control the situation.
- 7. An incident investigation may be required to identify the cause of the emergency situation and any available controls or modifications necessary to reduce the risk of a repeat occurrence.

Site personnel shall not disturb the scene of an emergency other than to protect further injury or to prevent further damage.

7.3 Emergency Vehicles Entering Site

In the case of an emergency service being called to site, they are to be directed to:

From Warwick on Warwick-Killarney Road turn right into Cullendore Road then turn right into to O'deas Road and then left to Keogh Road - follow until the end of the road to where the mine gate is located. Follow site signage from the mine gate.

Or

Navigate to mine gate at GPS Position: UTM Co-ordinates; 411,348 mE, 6,855,379mS Degrees; 28° 25' 30.13" S, 152° 05' 41.29" E

If mobile service cannot be obtained on site use the phone in the site office. A person is to be positioned at the main access gate to direct the emergency vehicles to the scene.

7.4 Dealing with Trespassers

All persons coming onto Cherrabah Granite Mine site must be authorised by the Site Manager. All visitors to the site must report to the site office upon arrival. Any unauthorised entry on the site will be referred to the local Police constabulary as soon as possible. The site maintains standard rural fences, other barriers where required and signage to deter unauthorised entry.

8. TRAINING

Cherrabah Granite Mine has a comprehensive training scheme. All employees and contractors must have the appropriate competencies to perform all tasks expected of them as detailed in their work description (including the operation of machinery and equipment) at the Cherrabah Granite Mine site. These competencies will be recorded in the training/competency register. Employees must not undertake any task unless they have the competencies to do so.

8.1 Training / Competency Register

A training/competency register will be maintained for all employees. This register will list all training completed by the employee, including a record of all competencies (permits, tickets) that they hold, e.g. fork lift, first aid, environmental auditing etc. If the Site Manager has deemed a person competent to operate mobile plant or other equipment, then the Site Manager will sign off on this training and keep a Mine Record entry of how they deemed them competent. If an external provider is used then a record of the permit number will be recorded. The Training/Competency Register is contained in **APPENDIX 3**.

8.2 Training Scheme

The training needs of all employees will be regularly reviewed and the training scheme is contained in **APPENDIX 3**.

The Site Manager is responsible for the review and implementation of the training/competency register and training plan.

9. FITNESS FOR WORK

We are committed to ensuring that all people working at Cherrabah Granite Mine are in a physical and mental state that will allow them to fulfill their work competently without putting themselves and others at risk.

All employees, contractors and visitors will be made aware of the site's **zero tolerance policy** on alcohol, drugs and fatigue or anything else that affects a person's ability to perform at an acceptable level of risk.

It is the responsibility of the individual to bring to the attention of the SSE any prescription medicine that they are taking. Where necessary, appropriate medical advice will be sought to ensure that no person on the site is put at an unacceptable level of risk.

All workers must complete a fitness assessment to:

- a) Determine whether or not they are fit for duty; and
- b) Monitor the impact of the work environment on their health and safety.

Where a fitness assessment indicates that there is an issue, an appropriate course of action must be determined and followed to address the issue.

10. EQUIPMENT

All equipment used at Cherrabah Granite Mine must be regularly inspected and suitably maintained to ensure it is in a safe working condition. Operators will be responsible for conducting pre-start checks and reporting all defects or items requiring the attention of specialised maintenance technicians. Site personnel will not attempt to conduct maintenance beyond their capabilities or qualifications. Section 2 – Roles and Responsibilities identifies the Contractors used for maintenance. Appropriate exclusion zones shall be established around equipment operating at the site, especially where there is minimal visibility or where radio communications are insufficient.

The equipment used by Cherrabah Granite Mine for the base case includes the following:

- Front end loader
- Excavator & Rockbreaker
- Stitch Drill
- Diamond Wire Saw
- Blade Saw
- Water truck
- 4WD Light Vehicles
- Forklift
- Generators

Other contractor equipment will be utilised as required to safely operate the mine. Minor equipment maintenance and repairs will be conducted where safe to do so on site but all major repairs and rebuilds will be carried out off-site at a contractor facility.

11. ENVIRONMENTAL MANAGEMENT

Current site plans detailed in **Appendix 6** provide an overview of the site and the proposed environmental management measures. Environmental Management is also covered by the following external documents:

- APPENDIX 7 Rehabilitation Management Plan
- APPENDIX 8 Stormwater Management Plan
- APPENDIX 9 Dust Impact Assessment
- APPENDIX 10 Bushfire Management Plan
- APPENDIX 11 Refuse Management Plan
- APPENDIX 12 Visual Amenity
- APPENDIX 13 Consultant Reports

11.1 Environmental Risk Management

Where environmental risk is identified with any site operations it is recommended that an Environmental Risk Assessment be completed with an appropriately qualified person and advice can also be sought from EHP and the Administering Authority.

11.2 Handling Complaints

Any complaint received will be directed to the appointed/authorised person (Site Manager or SSE). Where applicable and if required, the complaint should be forwarded to the relevant administering authority, entered in the Mine Record and recorded on the site complaints register. Similarly, complaints redirected from EHP or Council should be recorded and appropriate action taken. The complaints register template is included in **Appendix 4**.

11.3 Keeping Environmental Records

Records must be kept of the environmental performance for the mine, including monitoring results following a complaint investigation. The following activities require records to be kept;

- A record of all environmental relevant activities and approval conditions to be kept on site.
- Records of all environmental monitoring results.
- Records of waste/refuse transfers.
- All incidents with fauna to be recorded.

- An environmental complaint register to be kept in the site office.
- All spills to be recorded as incidents with EHP to be notified of any environmental incidents that result in a release to the environment that exceed the limits stated in the EA Conditions.

11.4 Environmental Monitoring

- At relevant periods specified in the EA, water quality testing will be completed at the designated basin spillways or discharge point although drainage and catchment areas will be design to appropriately manage sediments during the design storm event.
- A gravimetric dust monitor shall be established between the site and the neighbours to record dust emissions from the site.
- Following a verified complaint, noise monitoring shall be conducted at the neighbour's property in accordance with the EA.

11.5 Methods for Protection of Watercourses

The following actions will be carried out to minimise the site's impact on watercourses:

- Implement and maintain effective physical barriers to protect watercourses.
- Prevent spillage when refuelling and provide appropriate bunding.
- Maintain effective erosion and sediment control measures.
- Install and regularly clean out sedimentation basins.
- Maintain drainage channels and diversion bunds.
- Implement an active waste management program.
- Develop an active weed management program.
- Implement an environmental risk management program.
- Provide appropriate employee training for environmental procedures.

Water monitoring points will be setup at each of the basin spillways to monitor in the event of discharge from the sediment basins. The Stormwater Management Plan further details the protection of watercourses (**APPENDIX 8**).

11.6 Site Water Balance

It is proposed that, for a normal rainfall year, the site water storage will hold sufficient water to sustain the required production for that year, taking into account rainfall, annual water use and site losses due to evaporation. The site gains and losses are summarised as follows:

Gains: These include daily rainfall and associated runoff and catchment in the site dams either as contaminated water associated with the site disturbed areas or diverted uncontaminated water (Refer Stormwater Management Plan **APPENDIX 8**).

Losses: These include evaporation, water added to product material to attain optimum product moisture, water used in road watering as well as dust reduction in the extraction, crushing and screening process.

11.7 Site Clearing

Prior to vegetation clearing that is required to undertake the activity, relevant advice is sought from EHP and DNRM. Vegetation clearance within mapped areas of remnant Least Concern, Of Concern or Endangered vegetation within the site is prohibited without a permit under the *Vegetation Management Act 1999*. Where a permit has been issued by EHP for the clearance of remnant vegetation, all clearance must take place in accordance with the terms and conditions of that permit. An Ecology Assessment Report (EAR) has been prepared by Ecological Survey & Management (EcoSM) and is attached in **APPENDIX 13**.

11.8 Cultural Heritage

JVUT has implemented strategies to ensure it complies with its cultural heritage duty of care under the Aboriginal Cultural Heritage Act 2003 (Qld). This includes assessment of archaeological and cultural values and the identification of appropriate impact avoidance strategies for the life of the project.

11.9 Training – Environmental Issues

Staff will be trained in the Company Environment Policy to increase awareness in environmental issues that may occur on site. During this training, all employees, where relevant to their work area, will be made aware of the following:

- Use of water truck for dust suppression.
- Know and understand the noise impacts on the neighbouring residences.
- Maintenance of site roads and drainage systems and promoting a working knowledge of the site drainage system design.
- Recognising and reporting any drainage issues to the relevant person.
- Management of sediment collection.

- Handling of injured wildlife.
- Identifying nuisance weed species.
- Reporting any complaints on environmental issues to the relevant person.
- Understanding the importance of monitoring and maintaining data and the relevance of the data, maximum allowable limits and detection limits and how it relates to their work areas.
- All site works to be approved by an authorised person.

The Site Manager, will be appointed as the principal contact between the community and employees and relevant government organisations in order to provide consistent and credible feedback in relation to issues raised and considered important to the community.

Staff will be trained to competent levels in the following areas;

- Implementation of the Environment Policy.
- The company's objectives in relation to environmental performance.
- Introduction of procedures that minimise environmental impacts.
- Identification of environmental hazards and contingency plans to handle unplanned occurrences.
- The site organisation structure with associated roles for each employee.
- Record keeping to high standards on environmental issues.

11.10 Rehabilitation Management Plan

The Rehabilitation Management Plan has been developed and will be updated in accordance with the EA conditions. It is planned that where offcuts and broken rock (waste) cannot be sold as a by-product, it shall be used for site rehabilitation. The rehabilitation management plan is shown in **APPENDIX 7**.

Rehabilitation Management		
Goals	 To minimise the ongoing impact of mine operations by implementing an effective rehabilitation management strategy. 	
Responsibility	All personnel	
Performance	 Maintain an acceptable visual amenity over the life of the mine; 	
Objective	 Successfully rehabilitate the land to its final land use after completion of operations. 	
	 Maintain topsoil stockpiles and the inherent seed bank to ensure they are suitable for re-use during rehabilitation; Batter terminal slopes in the pit to suit the final use; 	
Mitigation	 Restrict unauthorised entry (install fence) to any long term site water storage and high faces; 	
Measures	 Undertake appropriate rehabilitation by ripping and placing topsoil on site areas where the earth has been compacted by heavy vehicle movements (stockpile area and site roads); Re-contour waste/overburden stockpiles to suit the natural 	
	landform and encourage revegetation appropriately.	
Performance Measures	 Rehabilitate the site to suit the final land use; Progressively rehabilitate to ensure the disturbed area is minimised. 	
Monitoring /	Bogular auditing of rehabilitation progress where progressive	
Auditing /	• rehabilitation is undertaken with reference to the performance	
Reporting	objectives.	
Corrective	Investigations undertaken and corrective actions implemented	
Action	as a result of a non-conformance will be documented within the Environmental Audit Checklist	

11.11 Stormwater, Erosion and Sediment Control

A detailed Stormwater Management Plan is included in **APPENDIX 8**; this plan outlines the stormwater, erosion and sediment control procedures for the Cherrabah Granite Mine.

Stormwater, Erosion & Sediment Control		
Goals	 To minimise the amount of contaminated stormwater runoff generated by the site. To control on-site erosion and minimise sediment build up. To prevent contaminated stormwater from leaving the site. 	
Responsibility	All personnel	
Performance Objective	 Focus on reducing the quantity of contaminated stormwater generated on site through effective erosion controls; No impact on council roads or state roads infrastructure due to localised flooding from the site; Minimise or eliminate untreated stormwater leaving the site; Operate effective stormwater treatment devices to treat contaminated stormwater; 	
Mitigation Measures	 Maximise the diversion of clean stormwater around the disturbed area; Minimise topsoil exposure and protect topsoil stockpiles; Minimise the size of disturbed areas; Minimise runoff velocity to prevent scouring; Carry out staged excavations and progressively rehabilitate if practicable; Topsoil to be campaign stripped, stockpiled and re-used for rehabilitation as soon as practicable; Install contour banks on open slopes and place rock bars along drainage channels; In extreme rainfall events temporary sediment control measures will be implemented in areas to reduce the impact on the receiving environment. 	
Performance Measures	 Erosion control measures installed and/or maintained prior to each rain event; No sediment build-up in basins (20% basin depth max sediment storage); Mitigation measures as per the Stormwater Management Plan. 	
Monitoring / Auditing / Reporting	 Regular audits prior to each wet season and as per the Stormwater Management Plan. 	
Corrective Action	 Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist. 	

11.12 Air Quality Management

An assessment of the impact of dust on the surrounding residences has been conducted by Ausrocks. The report assesses the dust generated by the development and its likely impact on the nearest neighbours, it recommends mitigation measures to reduce the impacts to an acceptable level. This report is attached in **APPENDIX 9**.

Air Quality Management				
Goals	 To minimise the impact of nuisance air emissions (visible dust and nuisance dust) to the receiving environment. To ensure dust generated by the development does not exceed a maximum deposition level of 120mg/m²/day, and total suspended particles of 90 micrograms/m³ in accordance with the <i>Environmental Protection (Air) Policy 2008</i>. 			
Responsibility	All personnel			
Performance Objective	 No complaints of dust nuisance from neighbouring residences; Deposited dust within specified regulatory limits when monitoring requested; 			
Mitigation Measures Performance Measures	 Ensure all road trucks have tarped loads; Maintain sufficient storage of stormwater for use as dust suppression for haul roads and stockpiles, particularly during the dry season; Watering of haul road and access roads within site at a rate of up to 2litres/m2/hour during dry and/or high wind speed conditions; Rock drill to have and appropriate dust extraction system with collector fitted to rig or wet drilling via water sprays; Progressive rehabilitation of mining benches; Monitor the prevailing wind direction and prepare to implement additional mitigation measures if unfavourable wind is observed; and Appropriate exhaust systems to be installed and maintained on all combustion engines to reduce particulate emissions. 			
Monitoring /	 Gravimetric dust monitoring to be instigated if requested by the administering authority following a complaint: 			
Auditing / Reporting	 Regular audits of dust suppression equipment as per manufacturer standards; Report all complaints to the administering authority. 			
Corrective Action	 Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist. 			

11.13 Noise and Vibration Management

Ausrocks have completed an assessment of the potential noise and vibration impacts from the proposed mine. Due to the significant distance between the operation and the nearest neighbours it is considered that appropriate mitigation measures will be able to be implemented on site to control the emissions satisfactorily.

	Noise and Vibration Management
Goals	 To minimise the impact of nuisance noise and vibration on sensitive receptors; To ensure noise and vibration generated by the development does not exceed regulatory limits at sensitive receptors.
Responsibility	All personnel
Performance Objective	 Receive no complaints from neighbouring residences in relation to nuisance noise or vibration emissions; Keep below any regulatory noise or vibration limits imposed on the mine.
Mitigation Measures	 Site activities to be undertaken by qualified personnel; Maintain processing equipment such a saws, and drills to an acceptable standard to reduce nuisance noise emissions; Appropriate mufflers to be installed and maintained on all combustion engines; Minimise incidental noise such as reverse beepers or radios especially after operating hours.
Performance Measures	 Respond to valid complaints and implement remediation measures in a timely manner; Receive regular positive feedback from consultation with neighbours during operation.
Monitoring / Auditing / Reporting	 Conduct noise or vibration monitoring if requested by the administrating authority following a complaint; Report all complaints to the administering authority.
Corrective Action	 Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist.

11.14 Pest and Weed Management

The spread of weeds to and from the site will be controlled using an active weed management approach. Guidelines will be set so that vehicles/plant that come into contact with contaminated soil will be washed down. Any listed noxious weeds identified on site will be actively controlled in an ongoing site weed management program. The weed management strategy includes:

- Monitoring in the form of regular observations by site personnel for weeds of management concern (groundsel, lantana etc);
- Eradication of weeds of concern in accordance with the Queensland Biosecurity Act 2014.
- Promotion of weed identification and management strategies in the site induction.

Pests will be managed in consultation with relevant key parties such as local government and environmental groups. The control of pests is required on site regardless of the mine's presence. The current pest management practices on site are likely to remain in place but may be more targeted around the mine operation due to the presence of activity which may attract pests. Due to the population of spot-tailed quolls on site it is recommended that the following guideline be followed regarding the use of 1080 baits:

Glen and Dickman (2003b) recommend that mound bait stations should not be used where there are populations of Spot-tailed Quolls, and that baits should be buried below the ground in these areas. Subsequent reviews have indicated that mound baiting, with baits buried to a depth of greater than 10 cm may reduce the likelihood of quolls uncovering baits (APVMA 2008; Glen et al 2007). To reduce the likelihood of individual quolls taking several baits in a short space of time, which may be fatal, bait stations should be spaced further than 200 m apart (APVMA 2008). A period of free-feeding should precede the use of toxic baits where quolls may be present. Free-feeding involves placing non-toxic baits in mounds covered with sand or raked soil so that animal footprints can be identified to confirm visitation by target animals.

Source: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=75184

Pest and Weed Management		
Goals	To minimise declared pests on site;To reduce the introduction and spread of weeds.	
Responsibility	All personnel including visitors.	
Performance Objective	 No nuisance from declared pests; Eradication of current weed species within mine site; No new weed species introduced on site. 	
Mitigation Measures	 Annual spraying for pests in all site buildings; Vehicles to be washed down if contact with noxious weeds is made. Annual weed eradication program with a focus on spraying or removing juvenile weeds prior to them spreading. Carry out selective baiting of pests as per regulatory guidelines with specific care to be taken around 1080 baiting due to quolls. 	
Performance Measures	 Respond to pest complaints in a timely manner through pest treatment by a licenced subcontractor; Actively monitor weed infestations and keep weeds to <1% cover over the mine site. 	
Monitoring / Auditing / Reporting	 Regular auditing of pest management procedures in accordance with the SBMP. Monitor and treat weeds on site and report any introduction of noxious weeds; 	
Corrective Action	 Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist. 	

11.15 Traffic Management

A Traffic Engineering Assessment for the Cherrabah Granite Mine has been provided in **APPENDIX 13**. The haul route to the Warwick-Killarney Road is north via Keoghs Road, then O'Deas Road, then Cullendore Road. It is expected that all haul trucks will use this route. The existing haul route has been assessed as adequate for haulage up to 5,000t/a but upgrades are recommended for increased haulage over 5,000t/a.

Traffic Management		
Goals	 To safely manage on-site traffic flow to reduce the interaction between light and heavy vehicles. To safely transport material from the site via the designated transport routes. 	
Responsibility	All personnel	
Performance Objective	 No accidents or incidents involving site vehicles on the internal or external road network. 	
Mitigation Measures	 Provide safe and clear roadways around the site to avoid, where possible, the interaction between heavy vehicles and light vehicles; Install appropriate signage along the roadways to provide direction; Comply with speed restrictions and/or drive to conditions; Provide a safe location for visitors to access the site office; Maintain on-site roads to an acceptable standard through regular maintenance. Provide an appropriate upgrade of roads in a staged manner as proposed in the Traffic Engineering Assessment. 	
Performance Measures	 Uninterrupted flow of traffic around the site; No dangerous corners or low visibility areas on site roads. 	
Monitoring / Auditing / Reporting	 Regular weekly audits of internal site road conditions by the Site Manager; All incidents and accidents to be reported; As they enter or leave the site, haul truck drivers to notify site of any road hazards they encounter or observe. 	
Corrective Action	 Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist. 	

11.16 Bushfire Management

The main sources of potential bushfires are lightning strikes, neighbouring properties burning off and hot work site operations such as welding. A Bushfire Management Plan is included in **APPENDIX 10**.

Bushfire Management		
Goals	• To minimise the impact of a high hazard bushfire on site.	
Responsibility	All personnel including neighbouring residences.	
Performance	 No high hazard bushfires on site. 	
Objective	 Controlled burn off if recommended by the relevant government department. 	
Mitigation	 Maintain fire breaks around site to prevent fire spreading; Grass fires are not to be lit without an approved permit from the local fire warden; 	
Measures	 Do not carry out hot work such as welding over grass or flammable material such as oils; 	
	 Fixed infrastructure (including fuel storage) to be located within Low Bushfire Hazard areas. 	
Performance	 Prevent the spread of bushfires; 	
Measures	No fire outbreaks from the site.	
Monitoring /	Conduct regular inspections of fire breaks:	
Auditing /	 Audit the site's fire resistance/protection measures following 	
Reporting	the occurrence of a local bushfire.	
Corrective	Investigations undertaken and corrective actions	
Action	implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist.	

11.17 Waste Management

A Refuse Management Plan has been developed for the site, which is attached in **APPENDIX 11**.

Waste Management		
Goals	 To appropriately store, handle and dispose of waste; Actively minimise waste generated in everyday operations and promote recycling where possible. 	
Responsibility	All personnel.	
Performance Objective	 No land contamination by waste; Effectively re-use or recycle suitable waste generated on site; Site maintained in a clean and tidy manner. 	
Mitigation Measures	 Install suitable bins (general waste, recycling etc) at selected locations at the site; Non-recyclable waste to be disposed in the bins provided on site; Collected waste transferred to a licenced waste disposal site by a licenced waste disposal contractor; Store non-hazardous waste in stockpiles or suitable containers at designated waste locations on site until off-site disposal can be arranged; Any bulk waste stored on site must be appropriately bunded to ensure no contamination occurs; Hazardous wastes (oils, chemicals etc) should be managed in accordance to relevant regulatory requirements, refer to the SDS for more information; Soil contamination to be appropriately managed to prevent health risks to personnel. 	
Performance Measures	 Log of waste transferred to licenced waste disposal site; Reduce the risk of land contamination from waste generated on site. 	
Monitoring / Auditing / Reporting	 Regular audits in accordance with the SBMP, with implementation of the recommendations and corrective actions; SDS's readily accessible and to be kept with all hazardous substances; Spills to be documented and reported; Daily inspections by the Site Manager for housekeeping (general waste/rubbish) 	
Corrective Action	 Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist. 	

11.18 Visual Amenity

An assessment of Visual Amenity has been undertaken for the proposed development at the site, which is attached in **APPENDIX 12**.

Visual Amenity		
Goals	To maximise beneficial amenity of the site during the life of the development	
Responsibility	All personnel	
Performance Objective	 To receive positive/favourable feedback from neighbours regarding amenity of the site. 	
Mitigation Measures	 Install suitable buffers (earth bunds and vegetation) if required to preserve the visual amenity of the nearest neighbours Develop the mine in a manner that reduces exposure to the nearest neighbours. Maintain close communication with the nearest neighbours to discuss possible temporary disruption to amenity during the construction phase. Maintain close communication with the neighbours to establish an open and honest feedback system. Rehabilitation to be done in a progressive manner. 	
Performance Measures	 Restoration of the site to a suitable and sustainable final land use. 	
Monitoring /	Audits in accordance with the SBMP, with timely	
Auditing /	implementation of recommendations and corrective actions;	
Reporting	 Ongoing consultation with the nearest neighbours to discuss concerns. 	
Corrective	Investigations undertaken and corrective actions	
Action	Implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist.	

Corporate Environmental Policy

Safety Data Sheets (to be added as required)

Training Scheme and Competency Register

Complaints Register

Development Approval Conditions

Site Plans

Rehabilitation Management Plan

Stormwater Management Plan

Dust Impact Assessment

Bushfire Management Plan

Refuse Management Plan

Visual Amenity

Consultant Reports