Pollution Incident Response Management Plan (PIRMP)

Grant's Head Quarry

Revision:	Date:	Status:	Prepared/Reviewed by:
1	01.09.2023	Issued for use	D. Thiedeke

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Contents

21. ENVIRONMENTAL INCIDENT RESPONSE–POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

21.1 PURPOSE

C&A Hy-Tec Quarries have systems in place to ensure all environmental/pollution incidents and hazards are controlled and monitored in line with the relevant state legislation.

21.2 SCOPE

This element applies to all C&A Hy-Tec Quarry employees, contractors, sub-contractors and visitors to ensure that all individuals are aware of requirements with regards to environmental incident issues. This element is used in conjunction with ABL-HSE-GSS-11 for reporting. If a pollution incident occurs in the course of an activity, so that material harm to the environment (within the meaning of **Part 5.7 – Duty to notify pollution incidents -** section 147 – NSW POEO Act) is caused or threatened, the person carrying on the activity must immediately implement the site's pollution incident response management plan in relation to the activity required by this Part and report any incident / incidents that cause or threaten material harm **Immediately** after becoming aware of the incident.

21.3 PROCEDURE

All hazards relating to human health or the environment will be described in the Environmental Hazard Management Matrix (Appendix 8G). The details of the pre-emptive action to be taken to minimize or prevent any risk of harm to human health or the environment arising out of the relevant activity will be recorded in a JHA (Appendix 7C) and/or a Risk Assessment (Appendix 7D). Risks will be minimised using the Risk Management Process (Appendix 7K).

An inventory of potential pollutants on the premises will be recorded in a Hazardous Substance Register (Appendix 17B). This register will also include the quantity and location of the pollutant.

A description of the safety equipment or other devices that are used to minimize the risks to human health or the environment and to contain or control a pollution incident are listed in the PPE Equipment Matrix (Appendix 19B) and Hazard Register (Appendix 7F).

The names, positions and contact details of key individuals at the quarry are kept in the Management Structure Register (Appendix 4B).

The contact details of each relevant authority are required to be available and displayed. Examples of required authorities are below:

(a) EPA/OEH
(b) Local Council
(c) Local DPI office
(d) Safe Work
(e) Fire and Rescue
(f) Water Catchment Authority
(g) Ministry of Health
(h) Department of Agriculture, Water and the Environment

A neighbourhood contact list will be maintained at the site. In an emergency incident, the appropriate neighbours will be contacted by the Quarry Manager or delegate and will be updated as required by the Quarry Manager / delegate. Constant communication such as 2-way radios, mobile phones and Business Communication (Toolbox) Meetings etc. (Appendix 6B) will be used as early warning mechanisms to communicate with site staff and management throughout the incident or other times.

An Environmental Incident Definition and Response Flow Chart (Appendix 21A) has been produced for guidance on the process of dealing with a pollution incident. "Pollution" means:

(a) water pollution, or
(b) air pollution, or
(c) noise pollution, or
(d) land pollution.

Definition - "Pollution Incident" - means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

The mine plan (Appendix 3B) will show the location of the premises with the property boundary and any other relevant detail.
The qualifications and training competencies of all employees will be recorded as required in the Training Register (Appendix 11F).

It is a legislative requirement for this plan to be tested and updated on an annual basis and within one month of an incident. To complete this requirement a Pollution Incident Response Drill Report (Appendix 21B) has been prepared. The checklist includes the major elements of the plan that require testing. This PIRMP is to be reviewed and updated as required at least annually to ensure that incident response systems are fully functioning and are ready to be implemented if an incident occurs. This requirement shall be listed as an action item and scheduled on the environmental compliance planner. Training records should be stored on site and in the Hy-Tec Intranet data base.
The plan will be controlled and reviewed in accordance with Element 5. Any changes will be recorded along with the date in the SMS Amendment Sheet (Appendix 1A).

21.4 References

- *Environmental Protection Act 1994*
- *Protection of the Environment Operations Act 1997*
- *Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012*

Appendix 21A Environmental Incident Definition and Response Flow Chart

"pollution incident" means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

Meaning of material harm to the environment

(1) For the purposes of this Part:

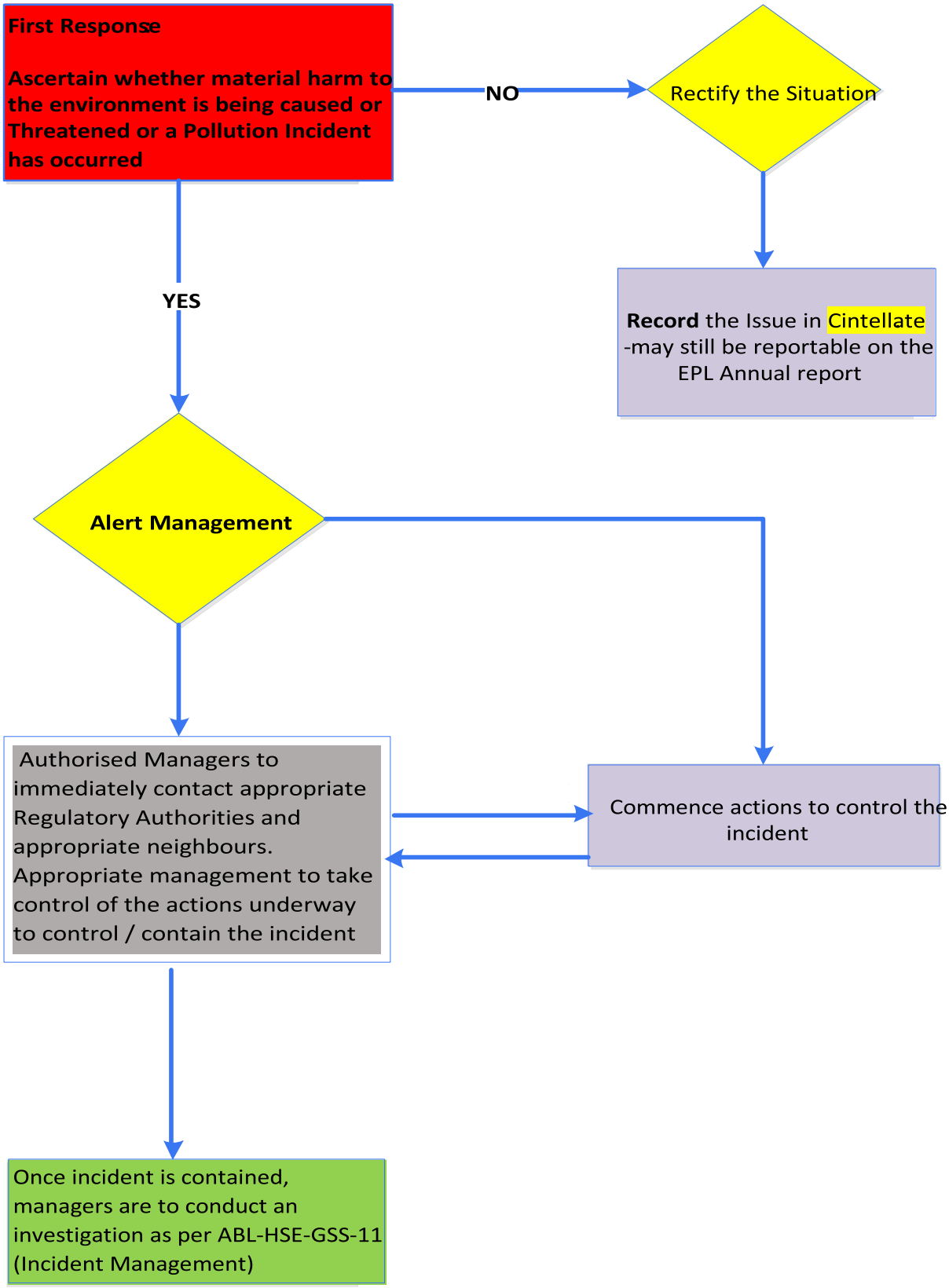
(a) harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

(2) For the purposes of this Part, it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.


First Response
Ascertain whether material harm to the environment is being caused or Threatened or a Pollution Incident has occurred
NO
Rectify the Situation
Record the Issue in Cintellate -may still be reportable on the EPL Annual report
YES
Alert Management
Authorised Managers to immediately contact appropriate Regulatory Authorities and appropriate neighbours. Appropriate management to take control of the actions underway to control / contain the incident
Commence actions to control the incident
Once incident is contained, managers are to conduct an investigation as per ABL-HSE-GSS-11 (Incident Management)

Appendix 21B

Environmental Response Plan Drill Report

Site/Location:		**Date of Drill / Environmental Issue**	
Method Used for initiating response:			
Time of Environmental incident:		**Was Management contacted?**	
Was Incident contained?		**Method/equipment used?**	
Was regulatory Authority notified?		**Name of reporting person?**	
Name of regulatory authority reported to		**Contact person at Reg. Authority?**	
Was incident adequately cleaned up?		**Was waste disposed of correctly?**	

Comments on the Drill / Environmental Emergency:

Corrective actions to be adopted as a result of this Drill / Environmental Emergency	By whom	By Date

Report Compiled by		**Date**	

EXTERNAL EMERGENCY RESPONSE ORGANISATIONS			
Service	Emergency Contact	General Enquiry	Address
Ambulance	**000**		
Department of Industry – **Water**	**02 93386600**	02 9338 6600	www.industry.nsw.gov.au/water
Department Planning & Environment	**1300 305695**		www.planning.nsw.gov.au
Department Primary Industries	**1300 814609**		www.resourcesregulator.nsw.gov.au
Doctor		(02) 5525 1111	152 Greenmeadows Drive Port Macquaire 2444
E.P.A	**131555**		
Fire Brigade	**000**	(02) 6559 9127	33 Castle St, Laurieton NSW 2443
Hospital	000	(02) 5524 2000	Wrights Rd, Port Macquaire NSW 2444
Port Macquarie Hastings Council	**(02) 6581 8111**		council@pmhc.nsw.gov.au
Ministry of Health		02 9391 9000	www.health.nsw.gov.au
Poisons Information Centre	N/A	13 11 26	www.poisonsinfo.nsw.gov.au
Police	**000**	(02) 6559 9044	101 Bold St, Laurieton NSW 2443
SafeWork	**13 10 50**	13 10 50	contact@safework.nsw.gov.au
State Emergency Service	**13 25 00**	N/A	www.ses.nsw.gov.au

If any emergency service (**Police, Fire or Ambulance**) is called to site, a nominated employee must meet the response team at the front gate (Lot 1 Ocean Drive, Bonny Hills) to the Quarry and escort them to the required location.

List of Neighbourhood contacts to be maintained at the Quarry – **For privacy reasons, this list is not to be published.**

Helicopter Directions For emergency purposes

Latitude & Longitude 31˚36'28.1'' South ——— 152˚50'11.5'' East

Being 31 degrees, 36 minutes and 28.1 seconds south / 152 degrees, 50 minutes and 11.5 seconds East

Appendix 4B

Register of persons occupying positions in the Management Structure

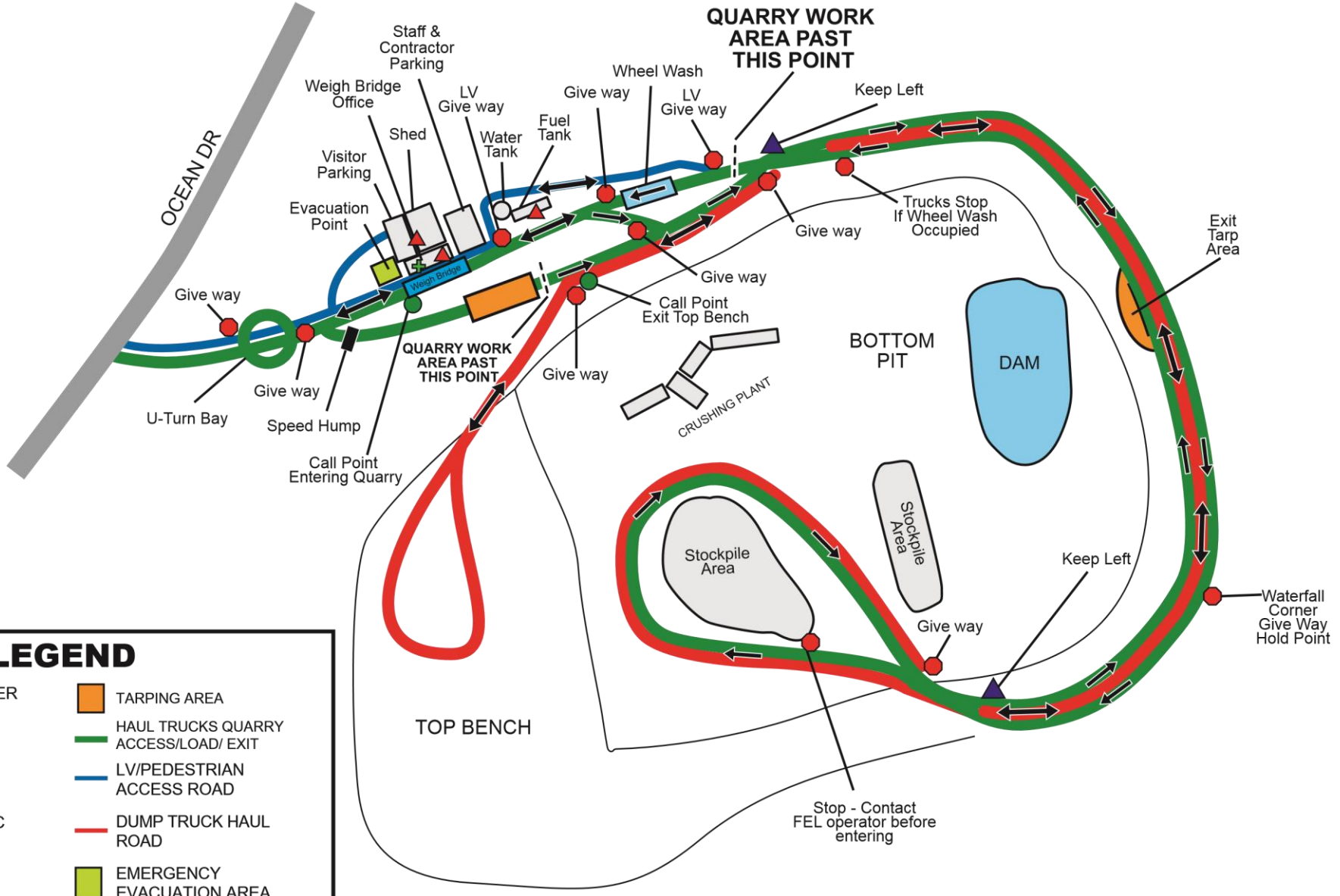
Position	Name	Start Date	Responsible for activating Incident Response Plan (Y/N)	Authority to Notify (Y/N)	Responsible to Manage Pollution Incident (Y/N)	Finish Date
Chief Operating Officer Concrete/Aggregate / Masonry	Andrew Dell (02) 9751 7115 / 0417 607 450	N/A	N	Y	N	
National Planning & Development Manager	Darryl Thiedeke (02 9751 7130 / 0409 652022)	N/A	N	Y	N	
Group Manager – Health, Safety & Environment	Steven De Musso 0439 740 293	N/A				
General Manager NSW & NNSW	David Cilento (02) 9751 7143 / 0418 162 498		N	Y	N	
Business Partner Health and Safety – CAM (NSW)	Joe Perulero 0479 188 381	N/A	N	Y	N	
Area Manager NNSW	Paul O'Connor (0438 599 834)	N/A	Y	Y	Y	
Rick Gleeson	Sales Manager NNSW Quarries (0447 697 122)	N/A	Y	N	Y	
Quarry Manager	Logan Marshall (0439 850 806)	N/A	Y	N	Y	
Production Supervisor – Grant's Head	Peter Cavanagh (0437 078 446)	N/A	Y	N	Y	
Quarry Leading Hand/Worker	Andrew Spicer (0448 726 495)	N/A	Y	N	Y	

Appendix 4B Register of persons occupying positions in the Management Structure

Quarry Tradesperson	Jed Bergin (0431 120 544)	N/A	Y	N	N	

GRANTS HEAD QUARRY

Ocean Dr, Bonney Hills



LEGEND

- FIRE EXTINGUISHER
- FIRST AID KIT
- STOP/ GIVE-WAY
- CALL POINT
- GENERAL TRAFFIC DIRECTION
- KEEP LEFT SIGN
- TARPING AREA
- HAUL TRUCKS QUARRY ACCESS/LOAD/ EXIT
- LV/PEDESTRIAN ACCESS ROAD
- DUMP TRUCK HAUL ROAD
- EMERGENCY EVACUATION AREA

OVERLOAD TIP OFF AREA - AS DIRECTED BY FEL OPERATOR

ChemAlert Colour Ratings

ChemAlert's distinct colour rating system to allows for an easy visual interpretation of the hazard level associated with chemical substances.

The three distinct colours and their meaning are as follows:

GREEN

Low Health Hazard with normal use.

User Check List:

- Read the SDS and ChemAlert report thoroughly before using the product
- Clarify any concerns you might have about the product or its application
- If PPE is specified, are workers experienced in its use?

AMBER

Moderate Health Hazard with normal use.

User Check List:

- Read the SDS and ChemAlert report thoroughly before using the product
- Clarify any concerns you might have about the product or its application
- Is there a safer substitute?
- Is the area adequately ventilated?
- Does the area of application need to be isolated?
- Is air monitoring required to evaluate exposure levels?
- Have safe work practices or procedures been established?
- If PPE is specified, are workers experienced in its use?

RED

High Health Hazard with normal use.

User Check List:

- Read the SDS and ChemAlert report thoroughly before using the product.
- Clarify any concerns you might have about the product or its application.
- Does the product need to be used (can the product or task be eliminated)?
- Is there a safer substitute?
- Is the area adequately ventilated?
- Does the area of application need to be isolated?
- Is there a first aid officer or nurse available?
- Is air monitoring required to evaluate exposure levels?
- Have safe work practices or procedures been established?
- Are medical records kept for those handling this product?
- If PPE is specified, are workers experienced in its use?

ChemAlert.

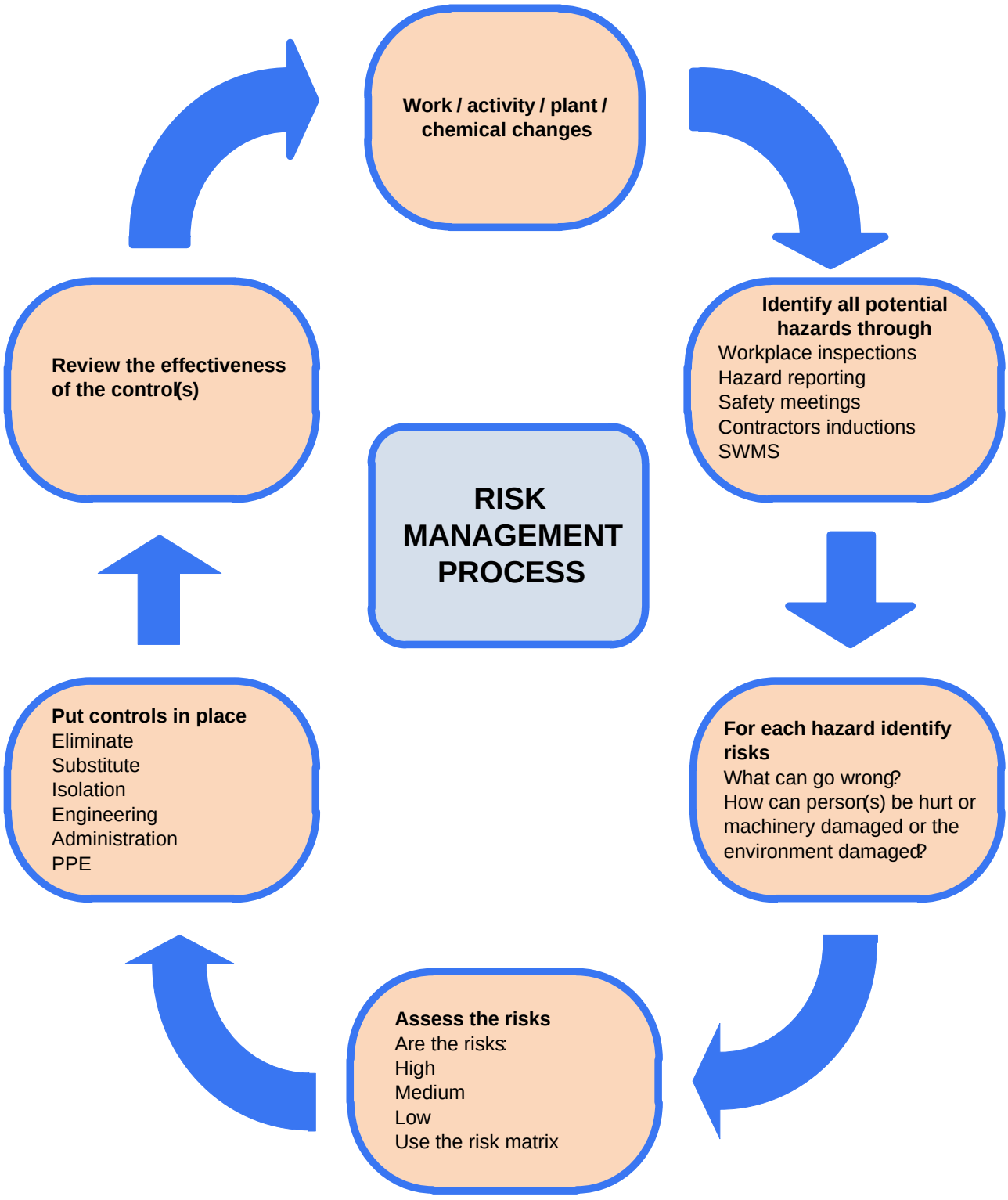
Stock Register

(Location Name: Adbri Limited/ CONCRETE & AGGREGATES/ NRTH NEW SOUTH WALES/ HY-TEC/ GRANST HEAD QUARRY/ WORKSHOP, Child Locations Included)
(Sort By: Product Name, Filter By: None)

Stock Number	Product Name				Supplier (Emergency Contact)				
	Hazardous	Dangerous Good	UN number	Packing Group	Hazchem Code	Status	In Stock Inventory	Risk Assessment	SDS Date
198	ACETYLENE				BOC LIMITED (AUSTRALIA) (1800 653 572 (24/7) (Australia only))				
	Yes	DG 2.1	UN 1001	-	2SE	Approved	Yes	Available	03-Mar-2023
772	AJAX SPRAY N WIPE STONE SAFE KITCHEN MULTI-PURPOSE BAKING SODA				COLGATE-PALMOLIVE PTY LTD ((02) 9037 2994)				
	Yes	No	-	-	-	Approved	Yes	Available	04-May-2021
2530	ALUMINIUM SULPHATE SOLID				SIGMA COMPANIES GROUP PTY LTD (1800 127 406)				
	Yes	No	-	-	-	None	Yes	-	03-Jun-2020
497	AUTOMOTIVE DIESEL FUEL				AMPOL AUSTRALIA PETROLEUM PTY LTD (FORMERLY CALTEX AUSTRALIA) (1800 033 111)				
	Yes	No	-	-	-	None	Yes	-	23-Jun-2021
2526	CHEMTECH CT20 WASH 'N' WAX				ITW AAMTECH AUSTRALIA (1800 039 008)				
	Yes	No	-	-	-	None	Yes	-	23-Dec-2022
2531	FLAMESTOP (ABE) (ABCE) EXTINGUISHERS				FLAMESTOP AUSTRALIA PTY LTD ((02) 9725 3322)				
	Yes	DG 2.2	UN 1044	-	-	None	Yes	-	14-Jan-2021
2529	HYDRATED LIME				CEMENT AUSTRALIA PTY LIMITED ((07) 3335 3000; 1300 236 368/ 13 11 26)				
	Yes	No	-	-	-	None	Yes	-	27-Mar-2023
2525	INOX MX8				CANDAN INDUSTRIES PTY LTD ((07) 5574 8205)				
	No	No	-	-	-	None	Yes	-	31-Oct-2021
2527	MINERAL TURPS				HAYMES PAINT ((03) 5342 6200 (7:30 to 5:30 Mon to Fri))				
	Yes	DG 3	UN 1300	PG III	3Y	None	Yes	-	22-Nov-2021
2528	MOBIL DELVAC 1 5W-40				AMPOL AUSTRALIA PETROLEUM PTY LTD (FORMERLY CALTEX AUSTRALIA) (1800 033 111)				
	No	No	-	-	-	None	Yes	-	20-Oct-2021
1094	MOBILGEAR 600 XP 220				AMPOL AUSTRALIA PETROLEUM PTY LTD (FORMERLY CALTEX AUSTRALIA) (1800 033 111)				
	No	No	-	-	-	None	Yes	Available	07-Oct-2021
1827	MOBILTRANS HD 10W				AMPOL AUSTRALIA PETROLEUM PTY LTD (FORMERLY CALTEX AUSTRALIA) (1800 033 111)				
	No	No	-	-	-	None	Yes	-	06-Oct-2021
1082	MOBILTRANS HD 30				AMPOL AUSTRALIA PETROLEUM PTY LTD (FORMERLY CALTEX AUSTRALIA) (1800 033 111)				
	No	No	-	-	-	None	Yes	-	06-Oct-2021
197	OXYGEN, COMPRESSED				BOC LIMITED (AUSTRALIA) (1800 653 572 (24/7) (Australia only))				
	Yes	DG 2.2 / 5.1	UN 1072	-	2S	Approved	Yes	Available	19-Aug-2021
1845	PREMIUM UNLEADED PETROL				AMPOL AUSTRALIA PETROLEUM PTY LTD (FORMERLY CALTEX AUSTRALIA) (1800 033 111)				
	Yes	DG 3	UN 1203	PG II	3YE	None	Yes	-	16-May-2019

Appendix 7K

Risk Management Process



Health & Safety	Negligible	Minor	Serious	Significant	Catastrophic
	Minor Injuries requiring First aid Treatment. No ongoing health effects. Near Miss with the potential consequence for the injuries above	Single or multiple injuries requiring medical treatment No ongoing health effects. Near Miss with the potential consequence for the injuries above.	Single or multiple injuries requiring hospitalisation and incurred a loss of more than one full shift. Near Miss with the potential consequence for the injuries above.	Single severe injury causing irreversible permanent disability or impairment or single fatality. Near Miss with the potential consequence for the injuries above.	Incident with short or long term effects causing multiple fatalities. Near Miss with the potential consequence for the injuries above.
Environmental Impact	Minor incident with minimal or no lasting effects. Onsite uncontrolled release immediately contained. Clean-up completed within 12 hours. Less than 5 litre spill	Incident with minor effects on the environment. Onsite uncontrolled release not immediately contained or minor off site release. Clean-up completed within 72 hours. 10 to 20 litre spill.	Incident with medium term effects on the environment. Offsite uncontrolled release with an effect on the environment for one year.	Incident with serious environmental effects. Offsite uncontrolled release not contained causing of up to 10 years impact duration.	Catastrophic incident with impairment of the ecosystem function. Significant and identifiable risk to humans, animals and plant species.
Community	Low level incident Public concern restricted to one local complaint	Minor- medium impact issue Public concern with a small local group Potential for local media attentions	Medium impact issue Ongoing public concern with a local group or community Involvement of non-government organisation - Local media	Serious social incident Ongoing local and/or state issue. Involvement of government department/s and non-government organisations. National Media	Very Serious Incident Ongoing state or national issue. Involvement of federal government department/s and non-government organisations. National media
Cost or Damages	**< $10K**	$10K - $50K	$50K - $150K	$150K - $1M	**> $1M**
Investigation Team	Local Supervisor or Manager OHS representative or member of the OHS committee	Plant Manager Team Leader / Supervisor OHS Representative or Member of the OHS committee	Plant Manager (Investigation leader) HSE Manager Manager external to site OHS Representative or member of the OHS committee	Manager External to site or discipline (Investigation Manager) HSE Manager Site Manager OHS Representative External resources or assistance as required	Manager External to site or discipline (Investigation Manager) HSE Manager Site Manager OHS Representative External resources or assistance as required
Investigation Outcomes	Completion of incident report form including: Brief report covering: • Description of incident • Contributing factors • Prevention Measures	Completion of incident form: Brief report covering the following: • Brief statement from person's involved and witnesses • Description of incident • Contributing factors • Prevention measures	Completion of incident form: Investigator Terms of Reference. Incident timeline. Detailed report covering the following: • Detailed statement for person's involved and witnesses • Description of incident • Contributing factors • Recommendations and prevention measures	Completion of incident form: Investigator Terms of Reference. Incident timeline. Detailed report covering the following: • Detailed statement for person's involved and witnesses • Description of incident • Contributing factors • Recommendations and prevention measures	Completion of incident form: Investigator Terms of Reference. Incident timeline. Detailed report covering the following: • Detailed statement for person's involved and witnesses • Description of incident • Contributing factors • Recommendations and prevention measures

ABL-HSE-GSS-07-01 RISK ASSESSMENT TOOL

"Uncontrolled Copy When Printed"

Risk Assessment Guidance

Refer to consequence table in "ABL-HSE-GSS-07-04 HSE Risk Assessment Process". Only Safety examples are provided below.

CONSEQUENCE (the extent of the harm or damage with current controls in place)

Negligible	- Minor Injuries requiring First aid Treatment.
Minor	- Single or multiple injuries requiring medical treatment.
Serious	- Single or multiple injuries requiring hospitalisation and incurred a loss of more than one full shift.
Significant	- Single severe injury causing irreversible permanent disability or impairment or single fatality.
Catastrophic	- Incident with short or long term effects causing multiple fatalities.

LIKELIHOOD (the chance of the situation occurring with current controls in place)

Rare	- The consequence may only occur in exceptional circumstances or 'the probability is close to zero'.
Unlikely	- The consequence is not likely to occur. There is confidence that it will not occur although it is conceivable.
Possible	- The consequence could occur sometime or 'I've heard of it happening'.
Probable	- The consequence is likely to occur. It is known to occur, or not surprised as it has happened' several times.
Very Likely	- It is almost certain that the consequence will occur. Common or frequent occurrence.

CONSEQUENCE	LIKELIHOOD				
	Rare	Unlikely	Possible	Probable	Very Likely
Negligible	1	2	4	7	11
Minor	3	5	8	12	16
Serious	6	9	13	17	20
Significant	10	14	18	21	23
Catastrophic	15	19	22	24	25

Appendix 8G

Environmental Hazard Management Matrix

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Dust	Traffic Plant Cleaning	**Worker Health Issues;** Eye injuries/infections due to airborne dust. Respiratory problems due to inhalation. Skin allergic reactions due to contaminated dust. **Environmental Issues;** Downpour of rain washing silt and contaminants into waterways. Dust contamination affecting local ecosystem biodiversity. Airborne dust carried off site.	Monthly dust monitoring results consistently below the required concentrations. Worker exposure and protection provided proved acceptable.	**Worker Health Measurement;** Currently sourcing external company to carry out worker dust exposure survey. Workers Health examinations conducted annually. **Environmental Measurement;** Monthly and annual water and dust collection samples analysed.	**Worker 13** **Environment 17**	Water truck used on a regular basis during operating hours to minimise dust production from haul road traffic. Quarry office access road re-surfaced with asphalt to minimise dust production and reduce material track marks leaving quarry. Dust suppression system continually improved and more effective methods sourced. Work area kept clean and tidy to prevent build up of dust/debris. Suitable PPE ie respirator or dust mask available and used when necessary. Policies in place regarding mandatory use of eye protection i.e. double eye protection when grinding. Workers trained in the selection and use off appropriate eye and respiratory protection. Confined space to be cleared of all atmospheric hazards and air quality monitored by competent person before and during confined activities. Ensure sufficient ventilation is available before entry proceeds. (Extraction fans must be used if welding is being carried out) Test results to return readings within allocated concentrations, if pollutant concentrations exceeded, contingency plans implemented. Continuous sampling apparatus in place for airborne dust monitoring.	**Worker 9** **Environment 13**	All

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
	Blasting					Blasting is carried out by competent external contractors with the minimizing of dust and fly-rock production considered, along with compliance with blast monitoring requirements – Overpressure of max 115dBl and vibration of max 5mm/s. Blasting only to carried out between the hours 10am to 3pm Monday to Friday		
Waste Material	Production Office	**Environmental Issues;** General waste disposal. Site Waste leaving quarry site into local catchments.	Council limits production to 120,000t per annum extracted from the premises. Minimal waste product is produced..	**Environmental Measures;** Production and subsequent waste quantities recorded.	**Worker 1** **Environment 8**	Quarry produced overburden is to be reused in rehabilitation program Daily production monitored and filed in database. Office waste collected and disposed of off-site in an approved manner.	**Worker 1** **Environment 5**	LM

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Heat	Sun Plant/Machinery Hot Work Tools	**Worker Health Issues;** Dehydration. Exhaustion. Skin Damage.		**Worker Health Measures;** Incident and near miss reports. Worker Health Examinations	**Worker** 13 **Environment** 1	Sunscreen and drinking water located in offices. Employees to partake in safe work methods with regard to heat, including adequate PPE. Employees educated on the dangers of heat stress and methods to combat the problem. Working in heat and dehydration educational signs displayed in crib rooms. First aid officer on site during working hours. Adequate first aid equipment available. Long sleeves and trousers to be worn during work activities and a hat to be worn when working outdoors. Ensure compliance with work/rest requirements as outlined in ABL-HSE GOS-29-02 Fatigue Management Requirements. Drivers to be instructed in Fatigue Management requirements. Mobile equipment to have functioning air conditioning system installed, when necessary windows tinted to protect drivers from sun exposure. Screens in place to segregate work area. Hot work signs erected. Only competent/trained personnel to carry out hot work. Ensure hot work is conducted in a designated hot work area with a Hot Work Permit/JSA/SWMS to be completed and filed.	**Worker** 9 **Environment** 1	All

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Noise	Traffic Plant Blasting	**Worker Health Issues;** Industrial deafness.	No noise monitoring has been carried out, but external contractor is being sourced for worker noise exposure survey.	**Worker Health Measurements;** Worker Health Examinations. Worker Noise Exposure survey currently being sourced by external company. Worker noise PPE and knowledge examined to determine adequacy. Quarry boundary to be monitored to determine level of quarry produced noise. Compliance with blast monitoring requirements – Overpressure of max 115dBl and vibration of max 5mm/s. Blasting only to carried out between the hours 10am to 3pm Monday to Friday	**Worker 21** **Environment 1**	Hours of work. Monday – Friday 06.00-18:00. Saturday - 6.00am to 14.00 Regular maintenance carried out on equipment to minimise noise production. Sound proofing on mobile plant engine compartments. Instruction on selection and use of suitable hearing protection. Hearing protection worn as required. PPE signage displayed in appropriate locations. Noise limits – not to exceed the background noise level for the area by more than 5dB(A), measured at the nearest residential receivers.	**Worker 14** **Environment 1**	All

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Hazardous Substances	Chemicals Fuels Waste Oil (plant/machinery)	**Worker Health Issues;** Chemical burns. Fume inhalation. Poisoning. Flammable substances. **Environmental Issues;** Hazardous substances leeching into groundwater/waterways.		**Worker Health Monitoring;** Incident and Near miss reports. Workers health examination conducted. **Environmental Measures;** Catchments water quality monitoring monthly and annually. Yearly Swamp monitoring. Annual Environmental Monitoring Report developed by external contractor.	**Worker 13** **Environment 21**	Hazardous materials and MSDS register kept and maintained on site. Suitable storage facilities/ bunded area available to be made available as required with development. Suitable PPE available and used as required. Safer substances sourced and used where possible. Personnel suitably trained/informed in the process of refuelling plant, generators and handling of hazardous substances. Maintenance to be carried out in designated area. Danger signage in place (Corrosive Substance, etc). Procedures in place for major environmental incidents. Spillages cleaned up immediately using spill kits available. All spill kit stocks maintained, correct spill kit procedure form located with each spill kit. Further in regards to spills: Large Spill 1) In the case of large spills contact relevant personnel 2) Stop leak without risk. 3) Move containers from spill area. 4) Approach the release from upwind 5) Prevent entry into sewer, water courses, basements or confined areas. 6) Wash spillages into an effluent treatment plant or proceed as follows. 7) Contain and collect spillage with non- combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place into a container according to local legislation. 8) Determine flammability and if required use spark-proof tools and explosive proof equipment. Dispose of	**Worker 9** **Environment 14**	All

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
						via a licensed waste disposal contractor 9) Contaminated absorbent material may pose the same hazard as the spilt product 10) In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment. 11) Recover product from the surface 12) Dispose of via an appropriately licensed waste disposal <u>Small Spill</u> 1) Stop leak without risk. 2) Move containers from spill area 3) Absorb with an inert material and place in appropriate waste disposal container. 4) Determine flammability and if required use spark-proof tools and explosion-proof equipment. 5) Dispose of via an appropriately licensed waste disposal. Oils and hydraulic fluids to be disposed of in accordance with Environmental legislation. First aid officer on site during working hours. Adequate first aid equipment available.		

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Water	Dams Surrounding Wetland System Rainfall	**Environmental Issues;** Water contamination. River Ecology.	Quarry effects on groundwater levels negligible.	**Environmental Measures;** Water samples tested quarterly around site along with sampling conducted when water is discharged from site. Annual monitoring of Swamp to survey water quality and ecology. Additional annual testing carried out on quarry catchments. Monthly bore water monitoring conducted for groundwater level and quality.	**Worker 1 Environment 21**	Individual catchments (sump) analyzed for best fit water management plan. 2 standing water monitoring locations, and 3 nested sets (2 wells) of groundwater monitoring locations for quarterly testing. Inspections carried out monthly and after heavy rainfall events to examine the soundness of water management systems. Diversion drains constructed around the quarry, diverting clean runoff from upslope catchments around the quarry. In the case of water breach Contingency Plan to be implemented, involving spill stations and CAR system in QMS. Periodic removal of consolidated sediment from the Quarry Road sediment basins. Water management systems will employ regular maintenance to ensure effectiveness. Including regular inspections and cleaning of under road storm water pipes. Runoff from all disturbance areas is directed to internal sump. Water levels monitored and pumped from sump to ensure sufficient capacity in the event of significant rain event.	**Worker 1 Environment 18**	LM

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
	Groundwater / general site compliance					Annual Report submitted to EPA with a summary of water monitoring results. Prior to ground disturbance activities upslope diversion banks and downstream sediment retention will be implemented.		

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Fire	Plant/Mobile Plant. Bushfires. Electrical Fires. Power Tools Hot Work	**Worker Health Issues;** Burns to employees. Smoke inhalation **Environmental Issues;** Flora and Fauna destruction. Bushfire.		**Worker Health Measurement;** Incident and Near Miss reports. **Environmental Measures;** Local fire department fire hazard level monitoring.	**Worker 22 Environment 22**	Ensure hot work is conducted in a designated hot work area and Hot Work Permit/JSA/SWMS to be completed and filed. Only competent/trained personnel to carry out hot work. Screens in place to segregate work area. Equipment to be in good condition and suitable for the task. Electrical equipment must be tested and tagged in accordance with AS3760. Firefighting equipment fitted to all mobile plant. Employees to be trained in first attack firefighting. Use of flame retardant material to cover susceptible equipment. Adequate fire extinguishers located throughout site. Use of correct PPE for the task/job. Periodic testing of Fire extinguishers is conducted by an external service provider. First aid officer on site during working hours. Fire warden present on site during work hours. Adequate first aid equipment available. Bush fire emergency procedure in place. All Hy-Tec mobile plant used on site to be fitted with fire suppression technology.	**Worker 15 Environment 22**	All Fire Wardens;

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Biodiversity Destruction	Land clearance Ecosystem Contamination	**Environmental Issues;** Loss of local flora and fauna.		**Environmental Measures;** Annual wetland ecology survey carried out by external company. All water to be sampled prior to discharge	**Worker 1** **Environment 23**	Vegetation Management Plan in place with both immediate and long term plans. All bund wall areas are rehabilitated with native flora. Long term objectives include post quarry life plans to ensure after life quarry footprint is minimal. Company Flora and Fauna surveys conducted annually across all parts of quarry lease area, along with annual springtime wetland study conducted by external organization. Conduct peak session Koala observations (May – June & Nov-Dec), with sightings being recorded. Flora and Fauna species catalogued annually to determine biodiversity fluctuation. Any threatened species identified and plans put in place for protection. Weed control carried as required	**Worker 1** **Environment 18**	LM

Adelaide Brighton Ltd

HY-TEC

Grants Head Quarry - Risk Register

This contents of this risk assessment will be reviewed when new risk idenitfied, procedural review and/or risk / controls not adequate

Risk Identification			Risk Score Without Controls (Inherent Risk)			Control			Risk Score with Controls (Residual Risk)			Further Action Required
Work Activity	Risk relating to activity	Causes (What can cause the hazard to occur)	Consequence (Catastrophic = Principal Hazard)	Likelihood	Inherent Risk Score	Principal Hazard (if Applicable) Control / Management Plan	Control Description	Highest Control Level Achieved (Hierarchy of Controls)	Consequence (Catastrophic = Principal Hazard)	Likelihood	Residual Risk Score	Action Required to achieve Desired Residual Risk (to be managed in Cintillate)
Electrical - Component Lifecycle Management	> Electrical equipment develop risk which can caused hazard to workers.	> Electrical components can fail due to the amount of use and age.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Electrical component to be replaced as per OEM, Australian Standards or Mine Design Guidelines recommendations. > Schedule for replacement to be managed via gearbox. > Repaired or replaced as per safety alerts or information from industry or regulator.	Engineering / Redesign	Significant	Rare	10	
Electrical - Contractor Management	> Competence of contractors completing work at quarry.	> Electrical work / engineering work is outsourced to a contractor(s).	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> All plant and equipment to be designed and maintained to the appropriate Australian standards. > All electrical contractors are to have applicable trade certificates or appropriate engineering documentation. > Electrical tradesperson is nominated to NSW regulator. > All contractors must have appropriate insurances managed by site pass. > Quarry Manager to shall check and maintain a records for the competency of all	Engineering / Redesign	Significant	Unlikely	14	
Electrical - Equipment to test electrical equipment.	Electric shock from using electrical test equipment.	> Failure of equipment. > Incorrect equipment used. > Exposed live electrical points.	Significant	Possible	18	Electrical Engineering Control Plan	> All electrical test equipment must be designed for testing the level of voltage anticipated. > Voltage tester must not expose workers to the risk of electric shock. > Test leads and testing devices should be provided with over current protection. > Be free from damage and cracks in insulation. > Also electrical testing screw drivers are not permitted.	Isolation	Serious	Unlikely	9	
Electrical - General Electrical Risks	> Electric shock / electrocution to workers.	> Workers touching electrical components they do not understand. > Poor or dangerous wiring.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Only trained and competent workers are to touch electrical components, people approved to work on electrical components must be authorised by the Quarry Manager. > Isolation points to great physical breaks in power to complete tasks, lock out tagged out. > Inspection and testing of electrical equipment. > Inspections and testing completed on electrical components. > Electrical components shall be fitted with residual current devices. > Drawing of electrical systems. > Electrical systems within protected areas (washdown areas) will be minimum IP55, electrical systems which are outside shall be a minimum of IP56. All other work areas should be accessed.	Engineering / Redesign	Significant	Rare	10	
Electrical - High Voltage work	Electrocution	> High voltage	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Site does not have high voltage electrical.	Elimination	Negligible	Rare	1	
Electrical - Maintenance	> Electrical equipment develop risk which can caused hazard to workers.	> Electrical components can fail due to the amount of use and age.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	Regular maintenance shall be completed ensuring: > Operation of electrical installation and not impaired by interference, damage or wear. > Live parts are insulated and workers are protected from inadvertent contact. > Earth leakage systems operates effectively. > Not exceeding operating limits. > The installation does not have the potential to start a fire. > Safety integrity limits (SIL) are maintained.	Isolation	Significant	Rare	10	
Electrical - New electrical installations to site.	> New plant / structures can bring new hazards to site.	> Unknown / unforeseen risks / processes	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> All new electrical components brought onto the quarry to have design risk review completed, prior to construction. > All new electrical systems brought onto site to have commissioning plan develop and tested for continuity of earth, insulation resistance, polarity, correct circuit connections,	Engineering / Redesign	Significant	Rare	10	
Electrical - Portable powered tools	Electric shock from using tool	> Poorly maintained tool. > Tool being used beyond its capacity.	Significant	Possible	18	Electrical Engineering Control Plan	> Use battery powered tools as oppose to electrical tools. > All electrical tools must be tagged and tested and inspected by a competent person. > Electric power tools must be inspected prior to use.	Substitution	Serious	Unlikely	9	
Electrical - Power Distribution	Electrocution from powerlines	> In ground powerlines > Over head powerlines	Significant	Possible	18	Electrical Engineering Control Plan	> Austen quarry has no overhead powerlines. > Clearance work permit to be completed if working near overhead power lines or excavating near powerlines on site.	Elimination	Significant	Rare	10	
Electrical - Restoration of Power	Electrocution from restoration of power	> Daily starting of generator	Significant	Possible	18	Electrical Engineering Control Plan	> Prestart inspection to be completed prior to starting generator for the day. > Procedure and training for starting of generator. > Generated started with out people working within vicinity.	Engineering / Redesign	Serious	Unlikely	9	
Electrical - Restoration of Power	Electrocution from restoration of power	> Overload trip > Short Circuit trip	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Reset of power to be completed by an electrician after, fault is identified and repaired. > further tests also carried out to determine it is safe to start-up. > Started with out people working within vicinity.	Engineering / Redesign	Serious	Unlikely	9	
Electrical - Restoration of Power	Electrocution from restoration of power	> Circuit breaker reset > Blown fuse	Significant	Possible	18	Electrical Engineering Control Plan	> Reset only complete if the fault is known, if fault is unknow then electrician shall complete reset. > If trip occurs second time electrician shall investigate trip. > Lock Out / Tag Out shall be used for replacement of fuses.	Engineering / Redesign	Serious	Unlikely	9	
Electrical - Switchboards and Distribution Boards	> Worker entering switchboard or distribution board in which they are not permitted to access.	> Workers are unaware they are not to access board.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> All boards must be locked preventing worker access. > Only authorised persons are to able to access boards. > Access to cables behind boards are only permitted when competent and with a clearance to work permit. > Signage in place to warn of electrical installations and access is restricted.	Isolation	Significant	Rare	10	

Electrical - Switchboards and Distribution Boards	Fire on switchboard / distribution board.	> Dust and heat causing over heating of distribution boards.	Significant	Possible	18	Electrical Engineering Control Plan	> Boards are contained in sealed room free from dust and contaminates. > Power distribution rooms are also air condition. > Multiple exit points from power distribution rooms, and easy to get away from boards. > No combustible material stored in distribution rooms > Signage indicating controls.	Engineering / Redesign	Minor	Unlikely	5	
Electrical - Work on live electrical circuits	Electrocution	> Live electrical work	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> ABL employees and contractor are not permitted to work on live circuits.	Elimination	Negligible	Rare	1	
Explosives - Air quality / contaminates post blast	> Workers / community exposed to dangerous levels of airborne contaminates.	> Wind speed / direction. > Poor blast design.	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Controls as per risk (Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica)). > Onsite monitors to determine is blast dust is exiting site. > Exclusion zones for workers. > Notification to public and workers on blasting days. > Blasting to be postponed is weather conditions not suitable. > EPA licencing regarding dust generated effecting off site.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Explosives - Airblast Overpressure & Ground Vibration.	> Overpressure & Ground Vibration causing injuries to workers / community	> Poor design and plan for blast	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Blasts are designed for each specific location, developed by quarry manager in consultation with the shot firer. > Exclusion zones to be in place for when blast occurs, including safety margin for expected Overpressure / Vibration. > Notification to public (neighbours 48 hours prior) and workers on blasting days. > Monitors in place for Overpressure and Vibration, these are to be reviewed in post blast review.	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15	
Explosives - Generation of fly rock	> Fly rock causing injuries to workers / community	> Drill hole stem lengths incorrect, generating face burst and fly rock.	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Shot firer to plan blast hole depth during planning phase. > Exclusion zones to be in place for when blast occurs, including safety margin for expected fly rock distances. > Notification to public (neighbours 48 hours prior) and workers on blasting days. > Post blast review to verify hole depths and exclusion zones are sufficient, for fly rock.	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15	
Explosives - Misfire during blasting.	> Injury to worker, worker being too close to misfire shot.	> Unfired blast holes, Unfired detonator and/or Unfired product, identified post blast	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Exclusion zone established when if unfired explosive found. > Shot firer shall manage the misfire, and potentially attempt to refire the shot. > If the shot can not be refired it shall be extracted with a vacuum truck and diluted with water.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Explosives - Misfire during blasting.	> Injury to worker, worker being too close to misfire shot.	> Unfired detonator / explosive found during excavation.	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Exclusion zone established when if unfired explosive found. > Competent shot firer to return to site to manage un detonated explosive. > Investigation to be completed on incident.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Explosives - Preparing for blast.	> Injuries to workers and/or local community. > Damaged to culturally significant sites and other community infrastructure.	> Poor design of blast. > Blasting outside of licenced / approved times.	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Blasts are designed for each specific location, developed by quarry manager in consultation with the shot firer. > Blast design shall include, drilling plan, blast hole size / load and address other hazards and misfires. > Shot firing is out sourced to a competent company, contracts and shot firers companies are managed through site pass. > Shot firers / company shall provide safe systems of work for Hy-Tec review. > Buffers to be established for indigenous heritage / culturally significant sites. > All blasting must comply with site licences and restrictions.	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15	
Explosives - Storage of explosives	> Detonation / theft of explosives	> Blast cancelled, unplanned event keeping explosives on site.	Catastrophic (Principal Hazard)	Possible	22	Explosives Control Plan	> Explosives are not to be stored on site, shot firer contractors shall only bring explosives onsite when they are needed. > In an unforeseen event requires the explosives to be stored on site the Shot Firer must work with the site to develop a plan, ensuring they are compliant with the Explosives Act 2003 and appropriate Australian Standards.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Fire - External fire event potentially affecting the site.	> Workers being stuck onsite due to fire risk. > Fire fighting agencies accessing site being unaware of risk. > Workers on site to protect assets.	Fire event onsite due to offsite fire event (bush fire).	Catastrophic (Principal Hazard)	Possible	22	Fire Prevention and Protection Management Plan	> Emergency management plan for external fire event. > Emergency rations to be onsite for minimum 5 days (including food and water). > The site shall develop a fire plan for the specific fire event, ensuring water carts etc. have water to extinguisher spot fires. > Site shall have tools in place for external communication during a fire event and utilise government websites to manage approaching fire and weather conditions. > Sites shall have provisions for some sleeping. > Sites need to manage road closures and enable workers to leave prior to roads being closed if possible. > Open areas need to be available to get to separate people from the fire risk.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Fire - External fire event potentially affecting the site.	> Fire to assets / people.	Fire event onsite due to offsite fire event (bush fire).	Catastrophic (Principal Hazard)	Possible	22	Fire Prevention and Protection Management Plan	> Site shall have emergency management plan developed. > Fire management plan shall be available and visible within site. > Maps in place of the site. > Engage with fire authority, to show site and discuss fire plans, prior to incident.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Fire - Hot Work	Fire as a result of hot work outside of workshop.	> Unknown hazards due to hot work.	Catastrophic (Principal Hazard)	Unlikely	19	Fire Prevention and Protection Management Plan	> All hot work outside of the workshop must be completed with a hot work permit. > Fire extinguishers must be in place for hot work, as well as wetting areas when outside with combustible material. > Hot works are not permitted outside during total fire bans.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Fire - Management of fire equipment	Failure of fire equipment when needed.	> Poorly maintained or incorrect fire equipment.	Catastrophic (Principal Hazard)	Possible	22	Fire Prevention and Protection Management Plan	> All fire equipment must be inspected as per OEM recommendations or Australian Standards. > Workers must be trained in fire equipment. > Suitable volume and type of fire equipment must be in place for each different emergency type.	Engineering / Redesign	Serious	Possible	13	
Fire - Plant / Mobile Plant	> Fire while people are in or operating mobile plant.	> Malfunction within machine.	Catastrophic (Principal Hazard)	Rare	15	Fire Prevention and Protection Management Plan	> Machines are inspect pre shift for any signs of potential faults. > All machines on site are inspected and maintained as per OEM recommendations. > Machines are fitted with fire extinguishers enabling workers to escape machinery. > Machines are easy to escape from or have multiple evacuation methods.	Engineering / Redesign	Serious	Rare	6	

Fire - Pressurised gas cylinders	Pressurised gas cylinders failing causing risk.	> Fire spreading to cylinder storage. > Failure of gas cylinder causing flammable risk. > Storage of non compatible material.	Significant	Possible	18	Fire Prevention and Protection Management Plan	> All cylinders must be stored upright, and chained, in designated storage area. > All cylinders must be inspected to ensure they are free from damage and complaint to Australian standards. > Cylinders are exchanged through supplier, ensuring they are complaint. > SDS must be consulted with to ensure non compatible items are not stored together. > All gas cylinders shall be isolated from areas, by either one-hour firewall or by minimum of three metre distance.	Isolation	Serious	Possible	13	
Fire - Refuelling of vehicles	Vehicle catching fire due to being on during refuelling.	> Vehicle being on during refuelling. > Ignition sources within refuelling area.	Catastrophic (Principal Hazard)	Unlikely	19	Fire Prevention and Protection Management Plan	> All refuelling to occur in designated refuelling areas. > All vehicles refuelled onsite are diesel not unleaded petrol. > Closed systems for refuelling, minimal oxygen within fuelling areas. > Vehicles must be turned of during refuelling, unless completed under specific risk assessment. > No ignition sources are permitted within refuelling areas. > Fire extinguishers / fire protection systems. > Daily pre start inspections on vehicles. > All refuelling equipment, purpose built and inspected.	Engineering / Redesign	Significant	Rare	10	
Fire - Spontaneous Combustion	> Site has no risk of spontaneous combustion		Negligible	Rare	1	Principal Hazard However Not Present on Site	> Nil no risk present	Elimination	Negligible	Rare	1	
Fire - Storage Oils / flammables	Fire of oils / flammable liquids	> Fire spreading to oil / flammable storage.	Catastrophic (Principal Hazard)	Unlikely	19	Fire Prevention and Protection Management Plan	> All flammable material must be stored in flammable storage cabinets. > All chemicals must be labelled. > All chemicals shall be stored in suitable lidded containers. > SDS must be consulted to not store incompatible material together. > Flammable material must be stored away from ignition sources.	Isolation	Significant	Rare	10	
Fire - Waste oils / flammables	Fire of waste oils / flammable liquids	> Poor housekeeping of flammable equipment leading to fire or making fire worse.	Significant	Unlikely	14	Fire Prevention and Protection Management Plan	> All rags must be disposed of correctly, and work areas cleaned at the end of the job. > All waste oil must be stored in designed oil storage containers. > Suitable fire extinguishers within areas to manage flammability risk. > Large volumes of flammable material not stored on site.	Administrative	Significant	Rare	10	
Fire - Welders / cutters	Welding / cutting of material.	> Fire / explosion of welding equipment.	Significant	Unlikely	14	Fire Prevention and Protection Management Plan	> Regular inspections of all welding and cutting units. > All cables and leads must be kept free from grease and oil. > Flash back arrestors must be fitted to all welders / cutters. > Welding screens must be in place to prevent injuries to other workers. > All people welding must wear the correct PPE. > Fire extinguishers must be in place for welding / cutting.	Engineering / Redesign	Serious	Unlikely	9	
Fixed Plant & Structures - Boot (Bin)	Worker falling into the bin.	> Workers needs to access bin area or unintentional access of bin area. > Haul truck / Loader falling into bin.	Significant	Possible	18	Not Applicable	> Pedestrians to not access boot unless under Clearance to work permit. > Haul Truck Drivers are not to leave cabin when parked at the boot. > Tyre bump stop in place to prevent truck falling into the bin (Boot)	Engineering / Redesign	Significant	Rare	10	> Signed to be installed indicating no pedestrian access.
Fixed Plant & Structures - Boot (Bin)	Rocks spilling out of the bin, causing injury to worker below the bin.	> The bin can be over full, > Larger load of rock to go into bin.	Significant	Possible	18	Mechanical Engineering Control Plan	> Boot (bin) has edge spillage boards which are 1800mm higher than the boot. > Every 5 years a mechanical engineer completes inspections of all plant and structures for signs of fatigue. > Workers are not to be within 6 metres of the bottom of the boot when loads are being tipped into the bin. > Haul truck sizes are designed in accordance with volume of material the boot can handle. > All workers wear hard hats when outside of vehicles within quarry.	Isolation	Significant	Rare	10	> Tool box talk and signage to be in place explaining no go area for base of boot. > Register to be developed of what is to be inspected every 5 years.
Fixed Plant & Structures - Conveyors	Entanglement of operator within conveyor.	> Worker can access conveyor with potential to get entangled.	Significant	Possible	18	Not Applicable	> All conveyor are guarded to prevent access. > Work on conveyors to be done under a Clearance to work permit and lock out, tag out process. > LOTO in place to prevent unplanned plant movements. > Conveyor siren starts prior to conveyor start. > Conveyors are fitted with emergency stop lanyard.	Engineering / Redesign	Serious	Unlikely	9	
Fixed Plant & Structures - Conveyors	Fires within bearing / rollers	> No grease within bearing causing friction fire to start.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Weekly inspection of whole tertiary, inspecting all elements. > Daily visual inspection of plant prior to start up. > Bearing temperature inspection > Weekly shutdown maintenance > Fire extinguishers on plant. > Workers operate within vicinity of operating plant.	Administrative	Serious	Rare	6	
Fixed Plant & Structures - Conveyors	Debris falling from conveyor, impacting worker.	> Overloading conveyors. > People accessing conveyor at incorrect place.	Serious	Possible	13	Mechanical Engineering Control Plan	> Largest size rock around 350mm with minimum potential fall height. Workers do not need to access between boot and tertiary crusher, post tertiary crush maximum rock size is 20mm. > Workers wear hard hats when outside walking around site. > Workers to only pass under conveyor system under designated walkways. > Skirt rubbers at transfer points, skirt rubbers centralise rocks onto centre of the conveyor. > Guarding in place to prevent people accessing mechanical access to dangerous areas.	Substitution	Minor	Rare	3	> Enclose conveyor under designated walkways.
Fixed Plant & Structures - Conveyors	Failure of plant structures.	> Heavy corrosion of plant caused by dust and elements.	Catastrophic (Principal Hazard)	Unlikely	19	Mechanical Engineering Control Plan	> Every 5 years a mechanical engineer completes inspections of all plant and structures for signs of fatigue. > Weekly inspection of whole tertiary, inspecting all elements. > Daily visual inspecting of whole plant prior to start up.	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15	
Fixed Plant & Structures - Conveyors	Cuts and lacerations from conveyor belts.	> Conveyors can have sharp edges.	Minor	Probable	12	Not Applicable	> Workers generally do not need to handle conveyor belts. > Worker wear category 3 cut resistant gloves.	PPE	Negligible	Unlikely	2	
Fixed Plant & Structures - Crushers	Falling into the crusher.	> Maintenance activities / inspections of crusher.	Significant	Possible	18	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into crusher, > Guarding inspected daily during prestart to ensure all guarding is in place. > Any other work bar inspection / top up oil requires clearance to work permit and working at heights permit.	Isolation	Significant	Rare	10	
Fixed Plant & Structures - Crushers	Engulfment within crusher, during maintenance.	> Maintenance activities / inspections of crusher.	Significant	Unlikely	14	Mechanical Engineering Control Plan	> Lock Out, Tag Out for all worker to be completed where worker needs to access crusher. > Any other work bar inspection / top up oil requires clearance to work permit and working at heights permit.	Isolation	Minor	Rare	3	

Fixed Plant & Structures - Crushers	Entanglement within crusher drive components.	> Maintenance activities / inspections of crusher.	Significant	Unlikely	14	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into crusher, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work bar inspection / top up oil requires clearance to work permit and working at heights permit.	Isolation	Significant	Rare	10	
Fixed Plant & Structures - Crushers	High pressure injections from hydraulic systems	> Failure of hoses and seals.	Significant	Unlikely	14	Mechanical Engineering Control Plan	> All high pressure hydraulic components that propose a potential risk have burst protection in place or guarding. > Lock Out, Tag Out for all worker working on hydraulic systems.	Engineering / Redesign	Serious	Rare	6	> Develop dear doctor letter for a HPI injury and emergency response plan.
Fixed Plant & Structures - Crushers	> Limb pinch between moving parts of machine.	> Maintenance activities / inspections of screens.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into crusher, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work bar inspection / top up oil requires clearance to work permit and working at heights permit.	Isolation	Minor	Rare	3	
Fixed Plant & Structures - Crushers & Screens	Fall into crusher or screen resulting in injury or fatality	Removing blockages from crushers and screens	Significant	Possible	18	Mechanical Engineering Control Plan	> Hand rails and suitable guarding in place to prevent accidental fall into danger areas > Warning signs in place to inform of inherent dangers. > 2 persons working in the area at all times	Engineering / Redesign	Significant	Rare	10	
Fixed Plant & Structures - Crushers & Screens	Incident within confined space	Parts of the crusher are confined spaces for workers.	Significant	Possible	18	Not Applicable	> Only registered and qualified persons are allowed to conduct work in confined spaces in accordance with AS2865 - Safe work in a confined space. > A clearance to work and confined space permit must be used when entering confined space. > Air quality monitored during confined space activities, adequate ventilation must be present prior to entry. > Ensure sufficient ventilation is available before entry proceeds. (Extraction fans must be used if welding is being carried out)	Administrative	Significant	Unlikely	14	
Fixed Plant & Structures - Screens	> Pinch between moving parts of machine. > Limb crush points	> Maintenance activities / inspections of screens.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into screen, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit.	Isolation	Minor	Rare	3	
Fixed Plant & Structures - Screens	Entanglement within screens.	> Maintenance activities / inspections of screens.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into screen, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit.	Isolation	Minor	Rare	3	
Fixed Plant & Structures - Screens	Engulfment within screens, during maintenance.	> Maintenance activities / inspections of screens.	Significant	Unlikely	14	Mechanical Engineering Control Plan	> Lock Out, Tag Out for all worker to be completed where worker needs to access screens. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit.	Isolation	Minor	Rare	3	
Fixed Plant & Structures - Tertiary crushing plant	Fall from heights - Parts of plant are elevated with the potential for workers to fall from heights.	> Completing pre start inspections and greasing moving parts. > Slips while on plant, due to wet surfaces	Significant	Possible	18	Mechanical Engineering Control Plan	> All plant is guarded to prevent workers fall from height, handrails. > Only workers with operational need access tertiary crusher platforms. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit. > Workers wear lace up safety footwear. > Anti slip construction of walking surfaces on tertiary crusher plant.	Engineering / Redesign	Significant	Rare	10	
Ground & Strata Management - Bench Failure	> Bench may fail causing injuries to workers below or workers on the bench.	> Bench may fail due to weathered material. > Pooling of water or rain event washing away material. > Undercut of highwall.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Geotechnical studies undertaken of benches. > Daily visual inspection looking for evidence of ground stability or strata failure. > Drilling and operations completed as per pit design. > Catch benches in place.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Ground & Strata Management - Dumping	> Dumping over water or over a highwall.	> Movement of dump. > Incorrect position of vehicle to dump. > Debris from dumping not cleared.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Floor shall be slopping upwards. > The Quarry Manager or Supervisor shall determine safe distance from the tip edge, a minimum of 5 metres from windrow to be used. > The dozer shall remain on the dump at all time while tipping is occurring. > Should the dump / tip edge show signs of cracking, tipping shall stop and the face be reinspected. > All unsuitable material for this operation shall be diverted.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Ground & Strata Management - Fill areas / Overburden	> Subsidence / wash away of fill areas.	> Poor compaction of fill areas. > Water ingress into fill areas causing wash away. > Design failures / maintenance of dump areas. > Seismic event.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Filled areas shall be designed and compacted as per geotechnical report. > Daily inspections of working areas. > Water pressure & corrosion to be considered for design of fill areas. > Sumps to be in place. > Post a seismic activity, fills areas shall be inspected for possible failure. > Dump / fill areas should be no higher than 20 metres unless advised received from geotechnical advice. > Persons shall not access the toe of a dump on foot unless an inspection has been completed prior for loose material / rocks. > Should dump areas be unsafe, geotechnical advice sort and access prohibited until remedial work has taken place. > For any abnormal events a risk assessment must be completed to develop a plan to	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Ground & Strata Management - Highwall Failure	> Failure of highwall (Wedge / Slop failure).	> Incorrect slop angle, too steep. > Loose material on highwall. > Excessive highwall face height. > Undercut of Highwall.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Daily visual inspection looking for evidence of ground stability or strata failure.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	

Ground & Strata Management - Highwall Failure	> Highwall may fail causing injuries to workers below or workers on top of the highwall due to water.	> Water pooling behind highwall. > Large weather event washing away parts of highwall. > Incorrect slop design (Too Steep). > Incorrect bench design (Too Narrow). > Ground water within pit. > Undercut of Highwall.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Daily visual inspection looking for evidence of ground stability or strata failure. > Regular performance monitoring to be undertaken of highwalls. > Face height shall not exceed the Geotechnical report requirements. > Geotechnical Engineer shall be engaged as required to reassess mining methodology. > Faces of highwall to not exceed 15 metres, or higher than the loader / excavator can reach for the purposes of scaling.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Ground & Strata Management - Highwall Failure	> Highwall may fail causing injuries to workers below or workers on top of the highwall.	> Seismic activity	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Post a seismic activity, highwall shall be inspected for possible failure, daily inspections. > Face height shall not exceed the Geotechnical report requirements. > Blasting shall also be completed in accordance with the explosives control plan.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Ground & Strata Management - Highwall Failure	> Fracture of Highwall due to Blast.	> Blast onsite weakening strata and causing potential failure onsite.	Catastrophic (Principal Hazard)	Unlikely	19	Ground Control Management Plan	> Site is designed, for blasting activities to take place. > Comply with explosives control plan. > Post blast inspection conducted > Bunding built to capture loose rocks which could fall from highwall. > Scaling completed on highwalls to remove loose rock	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15	
Ground & Strata Management - Water Management	> Water may corrode / damage structure within the pit.	> Water pooling behind highwalls and road surfaces. > Large weather event washing away parts of highwall. > Ground water within pit.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Ground water shall be stored in a sump or pumped to a suitable area. > Water drainage paths shall be established around site, so water does not pool at the toe or crest of critical slops. > Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Daily visual inspection looking for evidence of ground stability or strata failure. > Regular performance monitoring to be undertaken of highwalls. > Face height shall not exceed the Geotechnical report requirements. > Geotechnical Engineer shall be engaged as required to reassess mining methodology.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Ground & Strata Management - Working near base of highwall	> Highwall may fail causing injuries to workers below highwall face.	> Failure of highwall	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design, and faces shall not exceed the geotechnical requirements. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Catch benches shall be in place. > People and vehicles shall not be with 15 metres of the toe of a highwall unless they have a specific task to do.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Health Effects - Biological Health	> Health effects due to virus / disease	> Unknown sources. > Water contamination.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Follow recommendation from state and federal governments and world health organisation. > Risk assess any health pandemics. > Bottle water for drinking and town water purchased for hand washing etc. > Process water regularly used to prevent stagnate water.	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Health Effects - Psychosocial Hazards	> Physiological hazards for workers.	> Work / Job Stress > Non work related factors	Significant	Possible	18	Health Control Plan	> Employee assistance program available for workers and promoted. > Workers have access to support through different levels of management. > Regular reviews with workers on performance and expectations.	Administrative	Significant	Rare	10	
Health Effects Air Quality & Dust - Asbestos	> Inhalation of asbestos within workplace	> Asbestos in Buildings. > Asbestos naturally occurring.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> No Asbestos onsite.	Elimination	Negligible	Rare	1	
Health Effects Air Quality & Dust - Community exposed to dust working onsite.	> Dust onsite due to mining operations, effecting community health.	> Mining a product with a high silica content. > Breaking rock to make dust and little rocks. > Wind.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> Dust monitors on perimeters to monitor if dust is leaving site. > Silica content of product known (product has high silica content). > Local Community is a significant distance from mine. > Water used within processes to reduce airborne dust (Watercart / stockpile sprays / sprinkler systems)	Isolation	Significant	Rare	10	
Health Effects Air Quality & Dust - Dust generated on roads from vehicles (Crystaline Silica).	> Workers inhaling silica dust when moving around the site.	> Vehicles on roads generating dust.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> People shall not walk around quarry for general access, people shall be transported by vehicle to parts of the quarry. > All vehicles access the quarry shall have windows up at all times. > All vehicles accessing quarries shall have air conditioning, with air set to recycle. > Water cart / sprinkler system available to wet roads. > All vehicles shall have door seals which are regularly inspected and replaced as per OEM recommendations.	Isolation	Serious	Unlikely	9	> In prestart inspections, include comment re checking for signs of excessive dust in cabin, this shall then trigger the cabin to cleaned filters and doors seals to be inspected also. > Move air conditioning unit inspection from "low" risk faults to medium to high, would we accept operating machines if air conditioning not working? > Establish regular cleaning regime for cleaning vehicle cabins / potentially weekly or less. > All vehicles operating onsite must have an enclosed cabin.
Health Effects Air Quality & Dust - Dust in Workshop (Crystaline Silica).	> Dust and mud build up in workshop, exposure to workers when needs to be cleaned. > Dust in service area.	> Workers need to sweep up dust and mud in workshop. > Dust settles on equipment. > Dirt floor within service area.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Mud guards on vehicles, particularly articulated vehicles. > Vehicles are wash down prior to entering workshop. > Some dust does enter workshop, however is washed out to minimise exposure.	Administrative	Minor	Unlikely	5	
Health Effects Air Quality & Dust - Fume exposures	> Health effects due to fume exposure.	> Chemicals onsite. > Mobile plant / vehicles.	Significant	Unlikely	14	Health Control Plan	> All chemicals onsite are known and SDS is reviewed, dangerous inhalation risk chemicals are not required on site. > Chemicals are stored in well ventilated areas. > Vehicles operate outside in will ventilated areas.	Engineering / Redesign	Serious	Rare	6	
Health Effects Air Quality & Dust - Human movement generating dust (Crystaline Silica).	> Workers inhaling silica dust when within vehicle cabin. > Dust within offices / lunchrooms, continuing worker exposure during break times.	> Areas where people enter / exit vehicles or offices having product build up.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Vehicles are not to be swept out, however vacuumed out and wiped down with a damp cloth. > Rooms have doors seals. > Rooms have air-conditioning which are regularly serviced.	Administrative	Serious	Unlikely	9	> Establish regular cleaning regime for cleaning vehicle cabins / potentially weekly or less. > In prestart inspections, include comment re checking for signs of excessive dust in cabin, this shall then trigger the cabin to cleaned filters and doors seals to be inspected also.

Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Mining a product with a high silica content. > Breaking rock to make dust and little rocks. > Wind.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Site completes three yearly dust exposure monitoring of work groups (SEGs). (frequency of testing may vary due to exposure). > Silica content of product known (product has high silica content). > Workers complete 5 yearly health Surveillance for silica exposure health effects. (frequency of surveillance may vary due to exposure). > Water used within processes to reduce airborne dust (Watercart / stockpile sprays / sprinkler systems). > All vehicles onsite shall have an enclosed cabin, with air condition and adequate door seals. > Regular / inspections maintenance to take place on all equipment seals and filtration systems (OEM recommendations). > Operations to stop if the dust can not be controlled on hazardous weather days. > Workers walking around site have respirators available. > Workers are trained in silica and exposure risks.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Operating vehicle / mobile plant. > Excavating. > Grading. > Loading, > Tipping.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Water used within processes to reduce airborne dust (Watercart / stockpile sprays / sprinkler systems). > All vehicles onsite shall have an enclosed cabin, with air condition and adequate door seals. > Regular / inspections maintenance to take place on all equipment seals and filtration systems (OEM recommendations). > OEM maintains vehicle where applicable. > Windows on vehicles must be closed at all times. > Cabins to be cleaned regularly, wiped with wet cloths and vacuumed.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Drilling for shot.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Drill rig must have a fully operational dust collector. > Drill bench is prepped prior to drilling. > Drill rig shall have an enclosed cabin, with air condition and adequate door seals. > Windows on vehicles must be closed at all times. > Cabins to be cleaned regularly, wiped with wet cloths and vacuumed. > Vehicle doors must be left closed when out of the vehicle. > Completed cabin leak detection testing. > No unauthorised to bench whilst drilling operations in place.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Blasting	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Access is restricted to blast area. > Blasting will not take place if weather conditions are not acceptable. > Blast management plan in place and all people suitable distance from blast and airborne dust / fume. > Post blast examination to not take place until the dust has settled. > Further blasting risk assessment in blasting section of this risk assessment.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Crushing operations. > Conveyor transport.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Wetting product prior to and during the crushing process. > Water sprays on conveyors. > Signed restricted access to crushing plant. > Crusher has enclosed cabin, with air condition and adequate door seals, air conditioner to be serviced every month. > Site completes three yearly dust exposure monitoring of work groups (SEGs). (frequency of testing may vary due to exposure). > Workers complete 5 yearly health Surveillance for silica exposure health effects. (frequency of surveillance may vary due to exposure). > In plant design minimise drop distances between product transfer points. > Operations to stop if the dust can not be controlled on windy days or frost. > Workers walking around site have respirators available.	Isolation	Significant	Unlikely	14	> Complete static dust monitoring to determine high risk areas around crushing plant. > Look to separate people from crushing plant, utilise cameras / hood respirators for inspections. > Skirts / coverage on transfer points.
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Crushing plant maintenance and cleaning.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Wash/wet screens and structures, prior to maintenance. > Extended grease lines in place from restricted space. > Use of small mobile equipment to access under conveyors and structures. > Use disposable coveralls and dust respirators (and trained) when completing maintenance on dusty areas. > Clothing can be washed onsite. > Workers are trained in silica and exposure risks and trained in correct use / fitment of respirators.	Engineering / Redesign	Significant	Unlikely	14	
Health Effects Air Quality & Dust -Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Washing operations. > Conveyor transport. > Movement of vehicles around site. > Wind.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Site completes 3 yearly dust exposure monitoring of work groups (SEGs). (frequency of testing may vary due to exposure). > Site is a wet process, and does not generate dust through dredge and washing operation (furthermore, product is not crushed down so does not normally form a fine powder). > The site has its own weather station, which enables the site to monitor conditions where dust could generate. This enables the site to water cart operation in risk areas. > Workers are trained in silica and exposure risks.	Isolation	Significant	Unlikely	14	> Workers complete 5 yearly health Surveillance for silica exposure health effects. (frequency of surveillance may vary due to exposure).
Health Effects on Body - Diesel powered vehicles and machinery.	> Inhalation of diesel particulate.	> Diesel powered vehicles can generate diesel particulate.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Vehicles operate in open spaces and all vehicles operate with windows up, with air conditioning. > Vehicles are also fitted with particulate filters. > Workers do not work in diesel fume. > Diesel powered machinery maintained as per OEM recommendations. > Diesel exhaust to be away from open window and building windows.	Isolation	Minor	Rare	3	
Health Effects on Body - Ergonomics	> Musculoskeletal disorders	> Poorly designed equipment. > Hazardous manual handling.	Serious	Possible	13	Health Control Plan	> All equipment designed with ergonomic consideration. > All new machinery is risk assessed through our Change Management process. > Routine tasks have operating procedures and risk assessments in place. > Permit system in place for non routine task. > Hazardous Manual Handling Standard - ABL-HSE-GOS-12.	Engineering / Redesign	Serious	Unlikely	9	

Health Effects on Body - Fitness for work	> Fitness for work (fatigue)	> Insufficient time to recover between shifts. > Poor shift start and finish times.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> All personnel shall comply with ABL-HSE-GOS-29-02 Fatigue Management. > A site specific fatigue risk assessment shall be undertaken if an employee works more than 60 hours in a week.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Health Effects on Body - Fitness for work	> Fitness for work (drugs / alcohol)	> Worker under the effects of drugs and/or alcohol.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> Workers shall tell their supervisor if they are on any prescription medication. > Random drug and alcohol testing of workers. > Workers shall have zero alcohol in their system.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Health Effects on Body - Fitness for work	> Fitness for work (fatigue)	> Insufficient time to recover between shifts. > Poor shift start and finish times.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> All personnel shall comply with ABL-HSE-GOS-29-02 Fatigue Management. > A site specific fatigue risk assessment shall be undertaken if an employee works more than 60 hours in a week.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Health Effects on Body - Fitness for work	> Fitness for work (drugs / alcohol)	> Worker under the effects of drugs and/or alcohol.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> Workers shall tell their supervisor if they are on any prescription medication. > Random drug and alcohol testing of workers. > Workers shall have zero alcohol in their system.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Health Effects on Body - Hazardous Substances	> Unknown health effects from being exposed to hazardous substances.	> Exposures to hazardous substances.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Register onsite of all hazardous substances. > SDSs kept onsite and accessible. > For all chemicals brought onto site the SDS is reviewed ensuring any additional controls re implemented. > Attempt to replace dangerous chemicals with lower risk chemicals. > Workers are trained in the safe use and handling of the substances. > Signage in place for any specific chemical hazards. > All flammable goods stored in suitable storage locations.	Engineering / Redesign	Serious	Unlikely	9	
Health Effects on Body - Hot Weather / High Humidity	> Heat stress / heat stroke.	> Hot weather / humidity.	Serious	Possible	13	Health Control Plan	> Mobile plant fitted with air conditioners, and all office spaces / building fitted with air conditioners. > Potential to increase breaks if needed or postpone work with no protection from heat. > Workers able to carry water with them, in vehicles / on job. > Workers have long pants, shirts, hat and sunscreen to protect them from UV.	Elimination	Minor	Unlikely	5	
Health Effects on Body - Noise	> Industrial hearing loss.	> Continual noise over 85dBA	Serious	Possible	13	Health Control Plan	> Workers operate within vehicle cabins, vehicle cabins are designed to be under exposure standard. > Buy quite, buying machinery which when in cabin operates at low decibels. > Workers isolated from noisy equipment and breaks taken away from noisy areas. > Noise survey mapping completed on a 5 yearly basis. > Noise monitoring conducted on the mine site. > Hearing protection available. > Signs indicating areas where excessive noise may be and where hearing protection is needed. > Machinery maintained to minimise noise.	Administrative	Serious	Unlikely	9	
Health Effects on Body - Vibration	> Effects on body due to vibration	> Vibration while operating mobile plant.	Serious	Possible	13	Health Control Plan	> Workers operate within vehicle cabins, vehicle cabins and seats are designed to reduce / eliminated vibration exposure. > Maintenance on mobile plant as per OEM recommendations. > Incident / hazard reporting processes.	Engineering / Redesign	Minor	Unlikely	5	
Inundation / Inrush - Gas	> Site is an open cut quarry and there is no risk of gas in workings.		Negligible	Rare	1	Inundation and Inrush Management Plan	> Nil no risk present	Elimination	Negligible	Rare	1	
Inundation / Inrush - Water offsite.	> Water from quarry affecting local community.	> Man made dams and rivers / lakes over flowing or giving way impacting local community.	Significant	Rare	10	Inundation and Inrush Management Plan	> Site is away from local community and possible flood risk from quarry. > Quarry is designed to only capture the water they are licenced to hold, in excessive rain event water will run off quarry in controlled manner. > Pumps able to move quarry water offsite in controlled manner. > Inspections and management of water within and leaving quarry. > Diversion systems in place such as, overflow channels, direct water away from workings and structure of dams.	Engineering / Redesign	Serious	Rare	6	
Inundation / Inrush - Water onsite.	> Water into workings putting worker at risk of drowning.	> Quarry water washing through site.	Significant	Rare	10	Inundation and Inrush Management Plan	> Water drains from product very slowly. > Pipelines and drains in place to divert the incoming water into the quarry sumps. > Sumps built to capture and store water. > Water can be pump around site to manage water.	Engineering / Redesign	Serious	Rare	6	
Inundation / Inrush - Water onsite.	> Water into workings putting worker at risk of drowning.	> Man made dams and rivers / lakes above workings giving away, washing through site.	Significant	Rare	10	Inundation and Inrush Management Plan	> Sites designed with all dams at low points on the site, water washing through site is limited to what pumps can push up hill. > Roads and areas where water pools is inspected post rain event and during daily inspections. > Diversion systems in place such as, overflow channels, direct water away from workings and structure of dams. > Regular inspections of dams and dam walls. > Quarry sized pumps in place.	Isolation	Serious	Rare	6	
Inundation / Inrush - Water onsite.	> Water into workings putting worker at risk of drowning.	> Ground water rising into workings.	Serious	Unlikely	9	Inundation and Inrush Management Plan	> Flow of ground water into working is very slow. > Inspection of quarry each day to ensure no excessive water. > Pumps in place to move water out of working areas.	Engineering / Redesign	Minor	Unlikely	5	
Inundation / Inrush - Water onsite.	> Water into workings putting worker at risk of drowning.	> Significant rain event	Significant	Rare	10	Inundation and Inrush Management Plan	> Site work to stop in excessive rain events, as roads and visibility could be un safe. > Sites designed with all dams at low points on the site, water washing through site. > Roads and areas where water pools is inspected post rain event and during daily inspections. > Diversion systems in place such as, overflow channels, direct water away from workings and structure of dams.	Engineering / Redesign	Serious	Rare	6	
Mine Shaft & Winding Systems	> No risk onsite.	> No risk onsite.	Negligible	Rare	1	Not Applicable	> No risk onsite.	Elimination	Negligible	Rare	1	
Outburst - Gas	> Site is an open cut quarry and there is no risk of gas in workings.		Negligible	Rare	1	Principal Hazard However Not Present on Site	> Nil no risk present	Elimination	Negligible	Rare	1	

Plant & Structures - Maintenance of plant	> Unable to complete safe maintenance / servicing on equipment.	> Safety devices not fitted to plant.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All plant on sire must be risk assessed ensure safety devices and warning signals are in place and in suitable positions. > Inspections in place to ensure safety devices are in working order, apart of pre start up inspection. > Servicing completed on safety and warning systems. > Lock Out / Tag Out process, to verify isolation points re effective. > Clearance to work permit to be completed for non standard maintenance tasks. > Upon completion of maintenance work, all plant to returned to operational design.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	
Plant & Structures - Maintenance of plant	> Injuries to person	> Release of energy	Significant	Possible	18	Not Applicable	> All plant to be designed to enable isolation of energy sources. > Lock Out / Tag Out and Clearance to work process. > Machinery Preventative maintenance and inspections.	Isolation	Significant	Rare	10	
Plant & Structures - Boom Lift (Boom Length Greater than 11m)	> Person fall from boom lift	> Failure of boom lift	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> People using boom lift must have the applicable high risk work licence. > Boom lift must be fitted with crusher bar. > Boom lift capacity must not be exceeded. > People working within basket must be attached to basket with lanyard. > Boom lift used must be suitable for all terrain. > Exclusion zone to be in place for people not working with boom lift.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Contractor Management	> Competence of contractors completing work at quarry. > Advising risky solutions	> Mechanical engineering work is outsourced to a contractor(s).	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> Mechanical engineer to complete 5 yearly inspection of all fixed plant and structures. > All plant and equipment to be designed and maintained to the appropriate Australian standards. > All mechanical contractors are to have applicable trade certificates or demonstrate minimum of 2 years working within industry, completing that style of task. > All contractors must have appropriate insurances managed by site pass. > Quarry Manager to shall check and maintain a records for the competency of all contractors who complete maintenance works.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Diesel powered vehicles.	> Inhalation of diesel particulate.	> Diesel powered vehicles can generate diesel particulate.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> Risk is managed in airborne contaminates control plan, however vehicles operate in open spaces and all vehicles operate with windows up, with air conditioning. > Vehicles are also fitted with particulate filters. > Also workers do not work in diesel fume.	Isolation	Minor	Rare	3	
Plant & Structures - Hirer Plant & Equipment	> Hirer plant and equipment used on site.	> Unknown / unforeseen risks / processes	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All new plant brought onto the quarry to be risk assessed prior to use. > All hirer plant brought onto site, to used under clearance to work permit and any other applicable permits. > Hire equipment suppliers to be of suitable ABL standard to provide equipment to ABL sites. > Procurement processes to establish suitable suppliers as well as sub contractor suppliers to principal ABL contractors.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Inspections / Maintenance of plant	> Plant develop risk which can caused hazard to workers.	> Plant and structures can deteriorate over time and operation.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All plant is to be maintained as per OEM specifications, Australian Standards, Mine Design Guidelines and information from relevant safety alerts. > Life cycle of plant to also be establish as per OEM recommendations, and maintenance completed by qualified person(s). > All plant has a daily visual inspection, pre start-up inspection. > All plant has a weekly detailed operational inspection, all inspection points have induvial item numbers. > Bi Monthly quarry inspections completed. > Off highway vehicles shall be inspected for every 250hrs of service. > All fixed plant has a 5 yearly external inspection by external mechanical engineer, register of equipment is stored in gearbox. > If inspections identify any issues, corrective action is developed and entered into Gearbox for completion. > Quarry manager will review / verify all inspections are completed.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Ladders & Scaffolding	> Worker fall from ladder.	> Failure of ladder enabling worker to fall.	Significant	Possible	18	Mechanical Engineering Control Plan	> All ladders shall have a formal 3 monthly inspection completed. > All portable ladders shall Australian standards and be of industrial quality, capacity 150kg or greater. > All scaffolding shall be completed by a scaffolding company who has qualified scaffolders.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Lifting with cranes.	> Fall of load.	> failure of lifting equipment	Catastrophic (Principal Hazard)	Unlikely	19	Mechanical Engineering Control Plan	> No person to stand or be under suspended load. > All crane lifts must have a lift plan with clearance to work or procedure for lift. > Cranes must be compliance with Australian standard. > All lifting equipment must be inspected every three months. > Qualified dogman to sling appropriate loads.	Isolation	Serious	Unlikely	9	
Plant & Structures - New plant to site / Modification to plant	> New plant / structures can bring new hazards to site.	> Unknown / unforeseen risks / processes	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All new plant brought onto the quarry to have design risk review completed, prior to construction. > All new plant brought onto site to have commissioning plan develop and executed to look for possible risk. > All new plant to have an management of change completed, reviewed by either the OEM or qualified engineer. > A operational risk assessment (pre start up safety review) to be completed on all new plant to look for new introduced risks. > All new plant to be designed and built as per Australian standards.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Non Destructive Testing	> Plant develop risk which can caused hazard to workers.	> Parts of plant can fail due to the amount of use	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> Non destructive testing to be completed on equipment as per OEM, Australian Standards or Mine Design Guidelines recommendations. > Schedule for Non destructive testing to be managed via gearbox. > All non destructive testing to be completed by a NATA certified testing facility. > If non destructive testing is cost prohibitive, item is to be replaced prior to item being out side of service life.	Engineering / Redesign	Significant	Unlikely	14	

Plant & Structures - Pressure vessels	> Pressure vessel failure causing explosion.	> Not maintained or inspected. > Collision with pressure vessel.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All pressure vessel must be inspected annual, by an external qualified provider. > Pressure vessels must comply with Australian Standards. > All pressure vessels must be protected from collision with mobile plant. > All portable pressure vessels must be stored in a secured place. > Pressure vessels fitted with pressure relief valves.	Isolation	Serious	Rare	6	
Plant & Structures - Vehicles with rubber tyres.	> Failure of Rim or tyres.	> Poor maintenance of rim or tyre enabling failure.	Significant	Possible	18	Mechanical Engineering Control Plan	> All rims to complete non destructive testing (10000 hours on new or 5000 hours on pre tested) as per OEM / Australian Standards. > Person who completes work on rims / tyres must be competent in rim management, with competence managed in site pass and preferable work for the OEM. > Daily inspections completed on wheel assemblies and tyres. > Tyres are inspected to ensure inflation is correct as per OEM requirements, tyres shall be tested with a pressure gauge.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Vehicles with rubber tyres.	> Failure of Rim or tyres.	> Rubber tyre vehicles which have come into contact with electricity or heating.	Catastrophic (Principal Hazard)	Unlikely	19	Mechanical Engineering Control Plan	> Any rubber tyred vehicle which has come into contact with high voltage electricity or heating shall be isolated in a 300m exclusion zone for a minimum of 24 hours.	Isolation	Serious	Rare	6	
Road - Bodies of Water	> Vehicle enter body of water.	> Unaware of body of water.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Barriers shall be erected within 5 metres of the sloping edge, not the waters edge. > Signage in place warning of locations of bodies of water.	Isolation	Serious	Rare	6	
Road - Design of roads within quarry	> Collision of vehicles.	> Poor roads / conditions enabling vehicle collision.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All two-way travel roads must be 3 times the width of the widest vehicle, if not possible road must include radio call point and vehicle passing points. > Ideally two way roads would have a centre berm to separate vehicles. > No road shall be narrower than 1.5 times the width of the widest vehicle which will travel along it. > All berms shall be half the wheel height of the biggest vehicle site. > Roads shall be made of suitable material and maintained so they are in a safe condition. > Roads should be under a 1/10 grade, roads with a steeper grade shall have a specific risk assessment. > Corners shall be designed with cross-falls of no greater than 5 degrees. > Drainage provision shall be installed on all roadways and benches to removed pooled water. > Where possible centre berms shall be used as a road divider. > Intersections, Crests and blind corners should be eliminated, if they can not be	Engineering / Redesign	Significant	Unlikely	14	
Road - Interaction with Power Lines	> Vehicle collision with overhead powerlines	> Unknown vehicle height. > Unknown powerline height.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All powerlines on site shall be buried underground, to prevent possible collision. > If it is not possible signage must determine the location of powerlines and vehicle height restrictions must be in place.	Engineering / Redesign	Significant	Rare	10	
Road - Maintenance of Roads	> Unplanned movement of vehicle travelling on roads, causing collision.	> Road condition deteriorates due to poor maintenance.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Road ways must be regularly graded and watered. > All workers must be notified at pre-start or toolbox talk, if roads are in poor condition or being maintained during shift. > Obstacles and debris shall be removed from road ways. > Road ways shall be inspected for cracking, sinking or slippages during / after any periods of heavy rain.	Engineering / Redesign	Serious	Unlikely	9	
Road - Refuelling Stations	> Vehicle collides with re fuelling station	> Unplanned movement of vehicle, roll away.	Significant	Possible	18	Roads and Other Vehicle Operating Areas Management Plan	> Refuelling stations shall be listed on a sites traffic management plan. > Refuelling stations must be designed and constructed as per AS1940. > Physical barriers must be in place to prevent collision with refuelling stations.	Isolation	Serious	Unlikely	9	
Road - Traffic Management	> Unplanned movement of vehicle travelling on roads, causing collision.	> Vehicle operators not aware of road rules.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All vehicles have two way radios to call operators who may be not following road rules. > All people are inducted to site and trained in traffic management rules. Plus annual refresher training of drivers. > Signage onsite directing vehicles, and signage is compliant to AS1744:1975. > Signage is in visible location where they do not generate a hazard and they are place far enough away from a hazard to enable an operator to stop.	Engineering / Redesign	Significant	Unlikely	14	> Site shall complete specific site walk through risk assessment for traffic management, identifying heights of berms, one / two way roads, placement of signage, speed limits, radio call points, parking areas, and dealing with road hazards (Crests, blind corners, Intersections), pedestrian integration.
Road Vehicle Operations - Access and Egress of all Mobile Plant.	> Fall while accessing or exiting mobile plant.	> Design of access / egress. > Damage to access / egress.	Serious	Possible	13	Not Applicable	> Three points of contact for accessing mobile plant. > Fall protection in place for mobile plant. > Review each piece of plant for access and egress, prior to introduction to site. > Mobile plant operators have appropriate PPE. > Pre-Start inspection on all mobile plant.	Engineering / Redesign	Serious	Rare	6	
Road Vehicle Operations - Collision with fixed plant	> Collision with fixed plant	> Machinery needs to access areas near fixed plant to tip / load.	Significant	Possible	18	Roads and Other Vehicle Operating Areas Management Plan	> Speed limits within congested 15km/h. > Signage reinforcing all site speed limits. > Reversing cameras in place. > Designated stop and hold points, and exclusion zones.	Administrative	Serious	Possible	13	
Road Vehicle Operations - Congested Work Areas	> Collision of vehicles within congested work zones Heavy Vehicle V Heavy Vehicle	> Certain work areas (Boot, Loader, Stockpile area, loading zones) have multiple vehicle movements.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Speed limits within congested 15km/h. > Radio communication between vehicles > Signage reinforcing all site speed limits. > Reversing cameras in place. > Flashing lights for dust / dawn operations. > Designated stop and hold points, and exclusion zones. > Reversing alarms on equipment.	Isolation	Serious	Possible	13	
Road Vehicle Operations - Congested Work Areas	> Collision of vehicles within congested work zones Heavy Vehicle v Light Vehicle	> Certain work areas (Boot, Loader, Stockpile area, loading zones) have multiple vehicle movements.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Speed limits within congested 15km/h. > Radio communication between vehicles, light vehicles must give way to all heavy vehicles. > Signage reinforcing all site speed limits. > Reversing cameras in place. > Flashing lights and whip flags on light vehicles. > Designated stop and hold points, and exclusion zones.	Isolation	Serious	Possible	13	

Road Vehicle Operations - Fire on mobile plant.	> Fire on mobile plant.	> Failure on mobile plant causing fire.	Significant	Possible	18	Fire Prevention and Protection Management Plan	> Fire fighting equipment in place to enable driver to escape from vehicle, and of suitable size for self escape. > Fire extinguishers tested every 6 months. > Workers trained in fire equipment. > Pre start inspection on machinery and equipment maintained as per OEM recommendations.	Engineering / Redesign	Significant	Rare	10	
Road Vehicle Operations - General Vehicle Movements	> Collision of vehicles.	> Unknown vehicle movement, > Unable to see other vehicle. > Vehicle causing more severe injury to occupants.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All vehicles must be fitted two-way radios, > All vehicles must have a flashing light, > Head lights, indicator lights and brake lights. > Vehicles <4.5 Tonne must be fitted with whip flags. > All mobile plant must be fitted with reversing beepers and a fire extinguisher. > All public road going vehicles, must meet road worthy inspections for NSW. > All Off Highway vehicles must comply with maintenance as prescribed from regulator and OEM. > Roads designed to protect workers and minimise integration between heavy and light vehicles, 3x width of widest vehicle for two-way roads, single way roads 1.5 width of widest vehicle. > Workers are trained and competent to drive vehicle. > Collision avoidance technology, vehicle reversing alarms.	Engineering / Redesign	Significant	Unlikely	14	
Road Vehicle Operations - General Vehicle Movements	> Collision with building / Structure.	> Building in position where run away vehicle can have collision.	Catastrophic (Principal Hazard)	Unlikely	19	Roads and Other Vehicle Operating Areas Management Plan	> Speed calming devices installed. > Barricading and Bollards to slow/stop vehicles. > Separation between vehicles and pedestrian areas. > Run off areas for vehicles. > Speed limit onsite 30km/h. > Road is maintained to prevent it being slippery.	Engineering / Redesign	Serious	Rare	6	
Road Vehicle Operations - General Vehicle Movements	> Collision with person.	> Unknown vehicle movement, > Unable to see other person	Significant	Possible	18	Roads and Other Vehicle Operating Areas Management Plan	> Designated walk ways for pedestrians, pedestrians not to walk around moving heavy vehicles. > Pedestrians where high visibility clothing. > All mobile plant must be fitted with reversing beepers. > All public road going vehicles, must meet road worthy inspections for NSW. > All Off Highway vehicles must comply with maintenance as prescribed from regulator and OEM.	Isolation	Significant	Rare	10	
Road Vehicle Operations - General Vehicle Movements	> Collison with other Vehicle, structure or pedestrian.	> Driver not fir for work (fatigue or drugs / alcohol. > Distracted mobile phone (personal device).	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> No mobile phones to be taken with in vehicles >4.5T GVM. > No vehicle <4.5T GVM drivers are permitted to use mobile phones when driving on a quarry site, hands free or otherwise. > Drivers trained in fatigue management and have regular breaks. > All persons onsite must be free from the effects of drugs or alcohol. > Onsite random drug and alcohol testing.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Road Vehicle Operations - Loading box trailers for light vehicles (<4.5T GVM)	> Failure of trailer.	> Overload vehicle > Bucket damages vehicle	Significant	Possible	18	Not Applicable	> Light vehicle box trailer to not be loaded on site.	Elimination	Negligible	Rare	1	
Road Vehicle Operations - Loading of tipper trailers.	> Failure of tipper vehicle.	> Overloading of truck / trailer.	Minor	Possible	8	Not Applicable	> Maximum capacity of tippers are known. > Scales on loader to indicate weight of load. > loader driver qualified and evenly distributes load. > All tipper vehicles are site inspected. > two communication between truck driver and loader driver.	Administrative	Minor	Rare	3	
Road Vehicle Operations - Operating vehicle in poor visibility conditions	> Collison with other Vehicle, structure or pedestrian.	> Night, > Smoke, > Fog.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Vehicles are fitted with head lights and tail lights. > All vehicle have flashing lights. > Reflective tape, signs and clothing. > Consider halfling speed limits when low visibility.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	> Include in control plan.
Road Vehicle Operations - Roll over / Fall Over	> Vehicle roll over or fall over	> Poor road condition, > Load shift, > Too fast in corner,	Catastrophic (Principal Hazard)	Probable	24	Mechanical Engineering Control Plan	> Further information in Roads and other vehicle control plan. > All vehicles must be fitted with seat belts and must be warn for all vehicle movements. > Workers must not travel in a vehicle seat which does not have a seat belt for each seat. > Maximum speed limit on site is 30 km/h. > Roads are inspected and maintained as per roads and other vehicle control plan. > Excavators must transport loads as low to the ground as possible. > All mobile plant fitted with roll over protection.	Engineering / Redesign	Serious	Unlikely	9	
Road Vehicle Operations - Tarping Load	> Driver falling from vehicle, prime mover and trailers.	> Driver need to tarp up load. > Drivers need to alight vehicle. > Uneven surfaces	Significant	Unlikely	14	Roads and Other Vehicle Operating Areas Management Plan	> All vehicles are loaded onsite, must have automatic tarps or be able to be tarped up from the ground. > Prime movers are fitted with compliant stairs and vehicle access systems. > All vehicles must be fundamentally stable (on level ground) prior to existing the vehicle.	Engineering / Redesign	Serious	Unlikely	9	

Appendix 19B PPE Matrix

PERSONAL PROTECTIVE EQUIPMENT

Note: PPE use is a "minimum" risk control measure, however it can be used in conjunction with other safety controls.

LEGEND– M= Mandatory R = Recommended if required

SITE SPECIFIC RULES WILL DETERMINE WHAT PERSONAL PROTECTIVE EQUIPMENT (PPE) MUST BE WORN

PPE Type / Hazard/Activity	Safety Helmet	Hearing Protection	Eye Protection	Safety Boots	Long Clothing	Hand Protection	Hi-Vis Clothing	Respiratory Equipment	Face Shield	Welding Mask	Safety Harness	
Employees/visitors	M	R	M	M	M		M					
Plant Operation	M	M	M	M	M	R	M	R	R			
Mechanical Maintenance	M	R	M	M	M	R	M	R	R		R	
Fabrication Work	M	M	M	M	M	M	M	R	R	R	R	
Hazardous Substances	M	R	M	M	M	M	M	R	R			
Workshop Activities	M	M	M	M	M	R	M	R	R	R		
Office Work				M	M		M					
Working at Heights	M	R	M	M	M	R	M	R	R	R	M	
Confined Spaces	M	M	M	M	M	R	M	R	R	R	R	
Cleaning Activities	M	R	M	M	M	R	M	R	R		R	

Concrete & Aggregates

PIRMP Document Control — Grant's Head Quarry

Pollution Incident Response Management Plan Review Sheet				
Plan	Revision No	Date	Review	Approved by (Planning and Development)
PIRMP	1.0	08.03.2013	Reviewed – no changes	D.Thiedeke
PIRMP	1.0	15.05.2014	Reviewed – minor changes made	D.Thiedeke
PIRMP	2.0	04.05.2015	Reviewed – update contacts	D.Thiedeke
PIRMP	3.0	12.05.2016	Reviewed – no changes	D.Thiedeke
PIRMP	4.0	09.05.2017	Reviewed – update contacts	D.Thiedeke
PIRMP	5.0	11.05.2018	Reviewed – no updates	D.Thiedeke
PIRMP	6.0	12.03.2019	Alterations to numerous sections	D.Thiedeke
PIRMP	7.0	06.10.2021	Minor changes to Element 21, Appendix 21A and Management Structure Register	D.Thiedeke
PIRMP	8.0	01.09.2023	Minor changes to Element 21, Appendix 17B Appendix 21A and Management Structure Register	D.Thiedeke
