

Appendix 1

Draft Environmental Management Plan

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New Chiltern Quarry

Off Black Dog Creek Road, Chiltern



DRAFT ENVIRONMENTAL MANAGEMENT PLAN



Version 3: 20 October 2009

Figures by
R.W. Corkery & Co Pty Ltd.

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UNCONTROLLED IF PRINTED

Electronic copies of this EMP contain hyperlinks to specified items as per the following example —Internal Communication Clicking on the hyperlink will bring up that document to your screen.

Paper copies of this EMP include the specified items as appendices to the paper EMP.

Paper copies of this EMP must only be issued by the Quarry Manager. Once printed the document however is uncontrolled.



New Chiltern Quarry – Draft Environmental Management Plan

Foreword

This document is the Environmental Management Plan (EMP) for the new hard rock quarry to be established off Black Dog Creek Road, Chiltern. The EMP forms an integral part of Holcim's overarching Safety Health & Environment (SHE) Standards. It aims to provide the new Chiltern Quarry with guidance on operational, environmental, rehabilitation and monitoring management for the duration of site operations and into the rehabilitation stage.

Holcim (Australia) Pty Ltd is committed to the EMP and will integrate it into the sites daily activities.

signed

Date: _____

Harry Glaw
Quarry Manager, Chiltern Quarry

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ANNEXURES

(Note: SHE System documents have not been reproduced in this Draft version)

- 1. Environmental Monitoring Schedule**
- 2. Responsibilities Matrix (retained within the Holcim SHE system)**
- 3. Environmental Reporting Procedure (retained within the Holcim SHE system)**
- 4. Environmental Complaints Form & Register (retained within the Holcim SHE system)**
- 5. EMP Review Procedure (retained within the Holcim SHE system)**
- 6. Compliance Planner (retained within the Holcim SHE system)**

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SECTION A - ADMINISTRATION

1.0 INTRODUCTION

This Environmental Management Plan (EMP) has been designed for the new Chiltern Quarry owned and operated by Holcim Australia Pty Limited (Holcim).

Chiltern Quarry is permitted to carry out quarrying (extractive industry) by planning permit (to be confirmed) (Permit) issued by the Indigo Shire Council (Responsible Authority), and Work Authority 1391 (Work Authority) issued under the Extractive Industries Development Act 1995 (EIDA) by the Department of Primary Industries (DPI).

This EMP has been prepared to satisfy the following requirements:

- DPI Work Authority No. 1391;
- Planning Permit conditions (to be confirmed)
- native vegetation off-set requirements of the Department of Sustainability and Environment (DSE); and
- registered Cultural Heritage Management Plan issued by Aboriginal Affairs Victoria (AAV).

This EMP satisfies these requirements and contains the detail of the site’s environmental management. Holcim conducts its operations within the framework of its national Safety Health and Environment Management system (SHE). The EMP is encompassed within that framework as shown in the following diagram (Figure 1). As such, some procedures and other documents within the SHE Standard will apply to the EMP – where this is the case they have been clearly cross-referenced in the EMP (and hyperlinked where the EMP is an electronic copy).

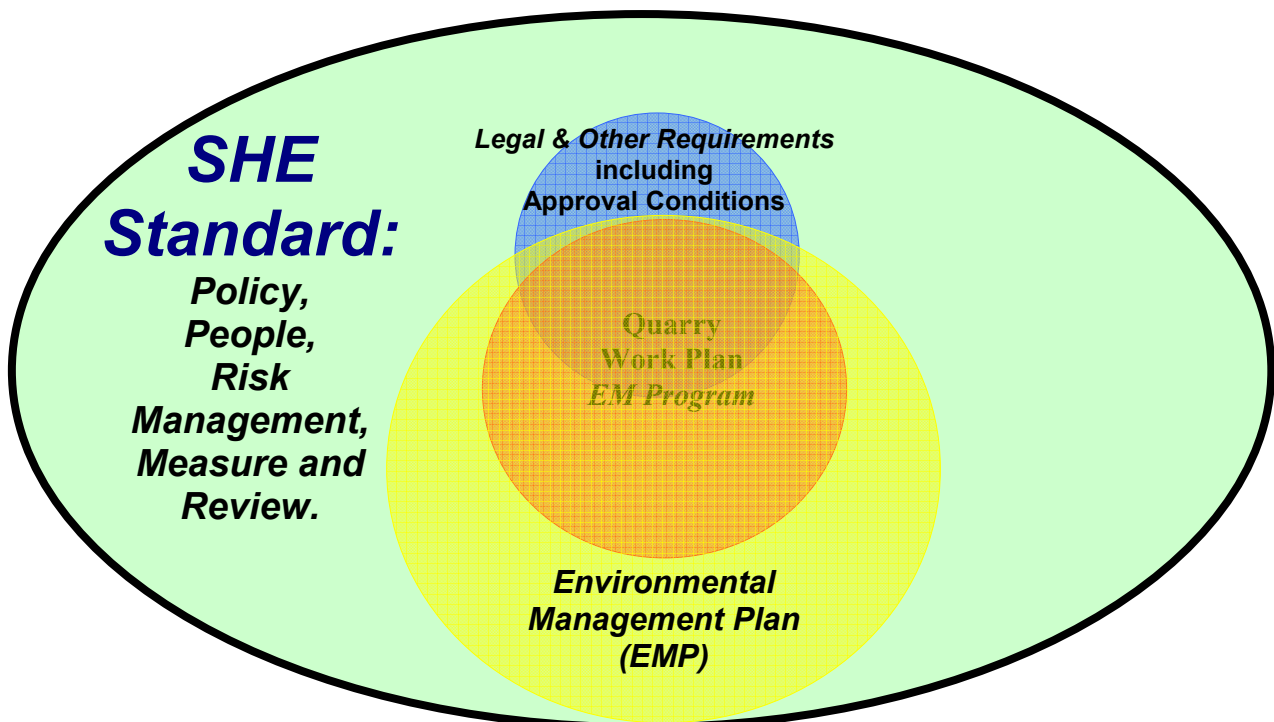


Figure 1: The Relationship between the EMP and Holcim’s SHE System

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2.0 CHILTERN QUARRY OPERATIONS

The SHE system follows the philosophy of all modern management systems in that it uses a risk management based approach. Key components are the self-assessment protocols provided so that each site can review its operations and identify opportunities for continual improvement.

2.0 CHILTERN QUARRY OPERATIONS

2.1 OVERVIEW

Holcim propose to operate the new Chiltern Quarry situated off Black Dog Creek Road, Chiltern, Victoria. The site, as described in the Permit and Work Authority, covers approximately 115ha and incorporates all or part of the following land titles and the enclosed Crown road reserves:

- Vol. 9538 / Folio 660 • Vol. 6111 / Folio 002
- Vol. 5041 / Folio 010 • Vol. 6569 / Folio 733
- Vol. 5876 / Folio 110

The operation involves:

- Removal of soil and overburden and its storage for later use, including for progressive rehabilitation works;
- Extraction of hard rock (hornfels) by drilling and blasting and its loading and transport to the processing plant;
- Crushing and screening of the rock into saleable product;
- Stockpiling, blending and sale of rock products on the site; and
- Off-site transportation of products by a variety of haulage vehicles.

A plan of the site, taken from the draft Work Plan, is shown in Figure 2. The blue coloured line shows Holcim's lease boundary, the red line is the extent of the land covered by the Work Authority, and the lilac line shows the extent of extraction.

The quarry operates under the following approvals:

- Indigo Shire Council (Council), Planning Permit **to be confirmed**; and
- DPI Work Authority 1391.

Note: The above approvals apply to the land bound by the Work Authority. However, this EMP applies to all land leased by Holcim at this site, that is, the Work Authority area plus additional contiguous surrounding land as outlined in blue in Figure 2.

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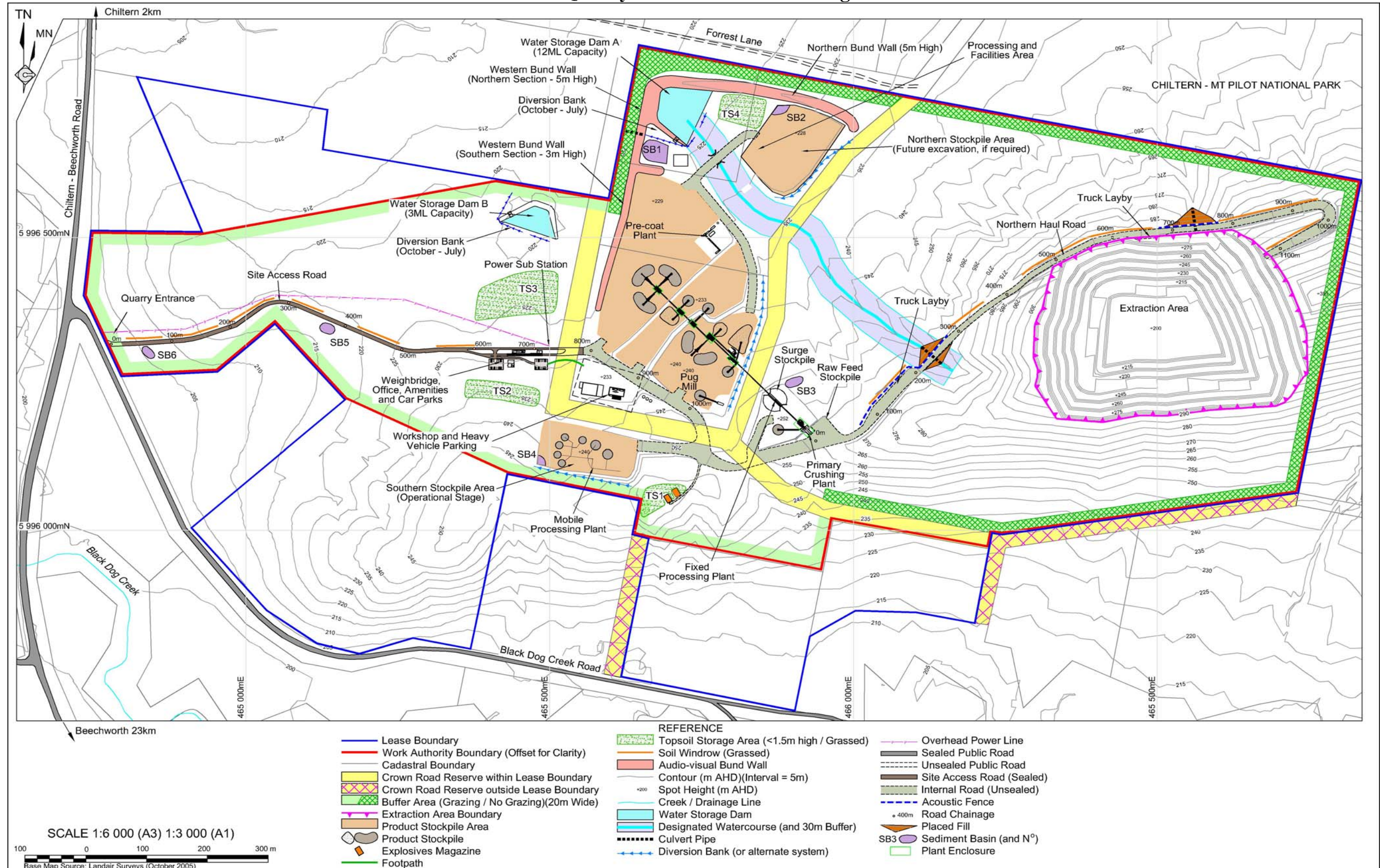


Figure 2: Plan of Quarry, showing the Work Authority area and extraction limit (from Work Plan)

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2.2 SITE DETAILS

Location:	Black Dog Creek Road, Chiltern
Access:	Black Dog Creek Road
Property Description:	all or part of the following land titles and the enclosed Crown road reserves: <ul style="list-style-type: none"> • Vol. 9538 / Folio 660 • Vol. 6111 / Folio 002 • Vol. 5041 / Folio 010 • Vol. 6569 / Folio 733 • Vol. 5876 / Folio 110
Tenure:	leasehold
Owner:	Gregory Bruce Eames
Zoning:	Farming
Local Authority:	Indigo Shire Council
Land Use:	Farming
Geology:	Hornfels, Granite and Metasediments
Topography:	Steep Ridgeline at hill to undulating slopes
Vegetation:	Mostly pasture with scattered native trees

2.3 HOURS OF OPERATION

The hours of operation for all site activities and product dispatch are listed in the table below. No activities will be carried out of a Sunday or on public holidays.

Hours of Operation

Activity	Monday to Friday *	Saturday *
Site Establishment / Construction	7:00am – 6:00pm	7:00am – 6:00pm
Extraction – Drilling	7:00am – 6:00pm	7:00am – 2:00#pm
– Blasting	9:00am – 5:00pm	-
– Load and Haul	7:00am – 6:00pm	7:00am – 6:00pm
Processing – Interim	7:00am – 6:00pm	7:00am – 1:00pm
– Primary Crushing	7:00am – 6:00pm	7:00am – 1:00pm
– Secondary / Tertiary Crushing and Screening	7:00am – 6:00pm	7:00am – 1:00pm
Product Dispatch	6:00am – 6:00pm	6:00am – 1:00pm
Repairs & Maintenance	6:00am – 10:00pm	6:00am – 10:00pm

*Public holidays excluded

The queuing of product trucks outside the quarry entrance gate prior to 7:00am will not be permitted. Truck drivers would be informed, as part of the *Driver's Code of Conduct*, of the approximate periods during which school buses travel the section of the Chiltern-Beechworth Road between Black Dog Creek Road and the Hume Highway, namely:

Morning	Afternoon
7:45am - 8:00am (High School)	3:45pm - 4:00pm (Primary School)
8:10am - 8:30am (Primary School)	4:25pm - 4:40pm (High School)

Truck drivers will be required to exercise caution during these periods to avoid any incidents

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involving the school buses or any school children.

Except with the written approval of the Responsible Authority, blasting is restricted to between the hours of 9:00am and 5:00pm Monday to Friday. No blasting is to occur on a Saturday, Sunday or public holidays.

If blasting is approved outside these times, notice must be given to all potentially impacted residents, to the satisfaction of the Responsible Authority (see **COMMUNICATIONS & REPORTING – Section 5.3** for further details).

3.0 ROLES & RESPONSIBILITIES

Responsibilities of quarry employees and contractors under this EMP are set out in Responsibilities Matrix (Annexure 2). Reporting lines for staff are summarised in Figure 3.

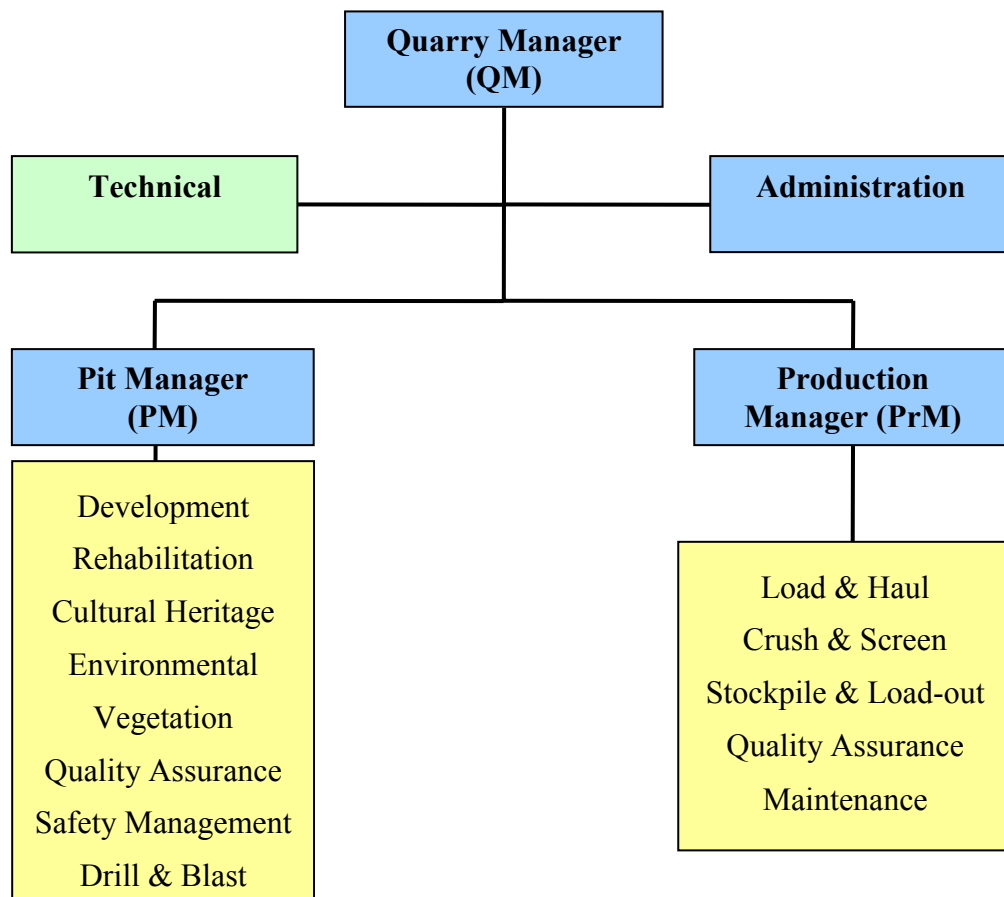


Figure 3: Organisation Chart – Chiltern Quarry

4.0 COMMUNITY CONSULTATION

Community updates will be managed in accordance with the Community Consultation Plan.

Information provided to the Community will include an Annual summary newsletter of the performance of the quarry against the Permit, the Work Authority and this EMP (as varied from time to time and authorised by DPI), and also any complaints made and resolved throughout the year.

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5.0 TRAINING & AWARENESS

A copy of this EMP is to be kept and displayed in the Quarry office building. The EMP will also be accessible by all Holcim-approved users on Holcim's computer intranet.

- All new and current employees will be briefed on the EMP as part of their site (re-)induction and training.
- All employees will receive re-induction training every year.
- All contractors working at the site will be briefed on the EMP as part of their site (re-)induction.
- Employees with specific key roles/responsibilities under the EMP will have their competency verified prior to being assigned to carry out those roles.

Records of training will be maintained within the SHE system.

Where no employees with suitable training are available to carry out specific key roles/responsibilities under this EMP, those roles/responsibilities will be carried out by suitably qualified persons or companies contracted by Holcim for that task.

Related documents:-

SHE Training Matrix
SHE Training Guideline
SHE Induction Booklet
SHE Induction Checklist
Chiltern SHE Training Plan

6.0 COMMUNICATION & REPORTING

Procedures have been developed for both internal (within Holcim) and external (between Holcim and external interested parties) communication and reporting. A separate procedure has been prepared to manage environmental complaints received from external parties such as members of the public and local residents.

6.1 INTERNAL COMMUNICATIONS

The SHE Guideline 2.2 Consultation sets out details of communications within Holcim on environmental issues, which for the Chiltern Quarry is through the site's SHE Improvement Team (SIT). The procedure describes how meeting outcomes are minuted and the minutes distributed to other employees. At SIT meetings environmental progress and performance under the EMP will be reviewed and discussed, and actions authorised.

Environmental issues will be raised with other employees at toolbox meetings which will be conducted as required. All toolbox meetings are recorded using the Attachment 2.5D Toolbox Talk Summary form.

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6.2 INCIDENTS

All environmental incidents are to be reported, recorded and investigated in accordance with SHE Guideline 5.1 - Incident Reporting, Recording & Investigation. The STARS Safety, Health & Environment Incident Notification Form is to be used for recording details of each incident and the measures taken to resolve it, through to management sign-off and completion. A summary of the key elements of all environmental incidents is maintained in the site's Incident Register which is used by management for progress status and review purposes, and to compare against performance targets.

6.3 EXTERNAL COMMUNICATIONS

The SHE Guideline 4.6 Community Awareness details how Holcim will communicate with the wider community to maintain their good neighbour standing. The site-specific Environmental Reporting Procedure (Appendix 3) specifies procedures for compliance reporting to the Government stakeholders, and the frequency and nature of reporting of monitoring data, etc. Statutory reporting requirements, where applicable, are also detailed in this procedure.

This procedure also details the steps to take in notifying residents living near the quarry when quarry activities are planned which have the potential for off-site impacts.

6.4 COMPLAINTS

A register of all complaints received is maintained as specified in Holcim's Environmental Complaint Response Procedure (SHE Guideline 4.6 –Community Awareness).

Any justified complaint received, or referred by a government agency, is accurately recorded on an Environmental Complaints Form (Appendix 4) which includes provision for the following information:

- a) the date and time of the complaint received;
- b) the date and time of the event or nuisance forming the subject matter of the complaint;
- c) the detail of the subject matter of the complaint;
- d) the identity and address of the complainant (if provided); and
- e) any action taken in response to the complaint.

An Environmental Complaints Register (Appendix 5) in the format specified in the SHE Guideline and summarising the complaints received and the actions taken, is maintained at the Quarry.

A full and up-to-date copy of the Complaints Register will be kept at the quarry and made available to Regulatory Authorities upon request.

A sign erected and maintained at the approach to the quarry off Black Dog Creek Road will include contact details (including out-of-hours) for inquiries about quarry operations.

7.0 RECORDS RETENTION

Records that are generated as part of the EMP are to be managed according to SHE Guideline 1.4 Administrative and Legal Requirements. This procedure specifies the identification, storage, protection, retrieval, retention and disposal of records required as part of this EMP.

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8.0 AUDIT, REVIEW & VARIATIONS

8.1 EMP AUDIT

The EMP will be audited every year by a suitably qualified and independent auditor. The scope of the EMP Audit will include:

- The actions taken in implementing the EMP;
- The compliance with prescribed limits; and
- The environmental monitoring conducted against the environmental monitoring program.

8.2 EMP REVIEW

The EMP will be reviewed by Holcim every 5 years coinciding with the review of Work Authority 1391. The review will be conducted in accordance with the quarry's EMP Review Procedure (Appendix 6).

8.3 EMP VARIATION

The EMP may be varied from time to time as changing circumstances require. EMP variation will be conducted in accordance with the quarry's EMP Review Procedure. All variations are required to be consistent with the Planning Permit and Work Authority.

9.0 MANAGER'S COMPLIANCE PLANNER

A Compliance Planner (Appendix 7) will be maintained to detail the activities to be carried out (on a monthly basis over the course of the specified 12 month period) to ensure that all environmental compliance obligations are met. Each activity in the spreadsheet is signed off upon completion, and the matrix is reviewed and if necessary revised where compliance obligations change during the 12 month period.

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SECTION B – OPERATIONAL MANAGEMENT & MONITORING

1.0 OPERATIONS & IMPACTS

A Significant Environmental Hazards (or “Significant Aspects and Impacts”) Register has been prepared (as an Excel spreadsheet) which lists the significant environmental hazards associated with each operation and activity carried out at the quarry, together with the corresponding actual or potential environmental impact(s) for each of the hazards. The columns on the right hand side of the Register list the procedures or other documented methods for controlling and mitigating the impacts. These documents are hyperlinked to the EMP, so the user can readily access the appropriate procedure. SHE Standard control procedures are generic and apply to all Holcim quarry sites, whilst the site-specific controls apply to Chiltern Quarry alone. The table also ensures that all identified risks and their corresponding impacts are addressed by a documented procedure or work practice guide.

To access the Register spreadsheet and the procedures and controls hyperlinks in the right hand columns, first click on the following hyperlink - [Significant Environmental Hazards Register](#). Register is as per Appendix 8.

2.0 MANAGEMENT OF SIGNIFICANT ENVIRONMENTAL HAZARDS

This section details:

- methods of operation and management measures required to be adopted to manage potential environmental impacts; and
- protective and mitigating measures to be implemented to manage the site’s significant environmental hazards (aspects).

2.1 Air Quality - Dust

The Protocol for Environmental Management, Mining and Extractive Industries (2007), prescribes up to ten indicators to be assessed, of which four (4) are relevant to the new Chiltern Quarry, namely; Dust Fall-out, PM₁₀, PM_{2.5} and respirable crystalline silica (RCS).

2.1.1 Objectives

To prevent dust from the Chiltern Quarry operation causing a nuisance at residences or sensitive sites in the surrounding area.

To ensure that dust levels do not adversely impact on the health and amenity of persons in the surrounding area.

2.1.2 Targets

100% Compliance with Permit requirements, namely the following levels to be achieved at any residence or other sensitive site:

- PM₁₀ no greater than 60 µg/m³ (24-hour average)
- PM_{2.5} no greater than 36 µg/m³ (24-hour average)
- RSC no greater than 3 µg/m³ (annual)
- Dust deposition no greater than 4g/m²/month (or no more than 2g/m²/month greater than background)

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No (0) justified complaints from sensitive receptors.

2.1.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Unpaved Surfaces	Dust emissions from unpaved surfaces are to be controlled using the following measures:	<u>Dust Management Plan</u> (Appendix 9)	QM	As required
	<ul style="list-style-type: none"> Wet suppression - all dust generating areas such as site roads will be watered, as required, to suppress dust during operation. 		QM	As required
	<ul style="list-style-type: none"> Water used for dust control may be dosed where appropriate with dust control additives to enhance stabilisation and reduce water use. 	-	QM	As necessary
	<ul style="list-style-type: none"> Relevant operations will be suspended if adequate water cannot be applied for dust control. 	<u>Work Plan- Section 3</u> (Appendix 10)	QM	During clearing
<ul style="list-style-type: none"> Revegetation of exposed surfaces, including the following measures: <ul style="list-style-type: none"> Vegetation and topsoil removal will be limited to the smallest practicable area and revegetated as soon as possible following clearance; Soil stockpiles will be revegetated 	QM		All times Works completion As required	

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	<p>with native vegetation when left for extended periods of time;</p> <ul style="list-style-type: none"> ○ The extent of areas prone to erosion will be restricted wherever possible; ○ Exposed surfaces will be rehabilitated in a timely manner in accordance with the conceptual Landscape Plan (Work plan). ○ Where revegetation or minimal land exposure is limited by procedural requirements, chemical (dust) suppression methods may be used. 			
Paved Surfaces	Site access road between quarry entrance and weighbridge will be sealed. All car parks and access to the car parks will be sealed.	-	QM	Prior to product despatch
Vehicles	<ul style="list-style-type: none"> ● On days of unfavourable conditions, a review of on site practices will be undertaken to identify actions that can mitigate dust generation. 	<u>Dust Management Plan</u>	QM	As necessary
	<ul style="list-style-type: none"> ● Load sizes will be 	-	Plant operators	All times

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	managed to avoid spillages.			
	<ul style="list-style-type: none"> Product trucks will be covered and enclosed with tarpaulins or dust covers 	-	Operators	All times
	<ul style="list-style-type: none"> Travel distance will be minimised through appropriate site layout and design. 	-	All staff	All times
	<ul style="list-style-type: none"> Vehicle movements will be restricted to defined areas. 	-	All staff	All times
	<ul style="list-style-type: none"> Speed limits will be defined (eg <25km/h), and where necessary enforced, for vehicles on the site. 	-	PM	All times
	<ul style="list-style-type: none"> Drivers are to obey the on-site speed limit. 	-	All staff	All times
	<ul style="list-style-type: none"> A wheel wash facility will be installed and used as required. 	-	All truck drivers	All times
Material Stockpiles	<p>Dust emissions from stockpiles will be mitigated where required to ensure targets are met by:</p> <ul style="list-style-type: none"> Wet suppression using water sprinklers or sprays; Covered storage of fine material; Limiting the height and slope of the stockpiles; Limiting drop heights from conveyors; and Use of wind breaks. 	<u>Dust Management Plan</u>	PM, Site Operators	As required

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Management Measure	Action	Procedure/Reference	Responsibility	Timing
Conveyors	<p>Dust emissions from conveyors will be minimised by:</p> <ul style="list-style-type: none"> ○ Partially enclosing conveyors; ○ Minimising drop heights; and ○ Appropriate design of hopper load systems to ensure a good fit with trucks, and use of appropriate wind shields for hoppers. 	<u>Dust Management Plan</u>	PrM	All times
Material Handling	<p>Dust emissions during material handling will be minimised by:</p> <ul style="list-style-type: none"> ○ Enclosing the primary crushing plant; ○ Enclosing the secondary/tertiary processing plants; ○ Minimising drop heights; ○ Regularly cleaning up any spillages; and ○ Appropriate design of hopper load systems to ensure a good fit with trucks, and use of appropriate wind shields for hoppers. 	<u>Dust Management Plan</u>	PrM Site Operators	All times
Reporting	<ul style="list-style-type: none"> • All site personnel will be instructed to immediately report situations resulting in elevated dust emissions to the 	SHE Induction Booklet	PM	All inductions

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	manager (or their supervisor).			
Monitoring	<ul style="list-style-type: none"> Continuous (real time) monitoring of PM₁₀ will be undertaken. 	(see s.2.1.4 of EMP)	QM	All times
	<ul style="list-style-type: none"> Monthly monitoring of dust deposition will be undertaken. 	(see s.2.1.4 of EMP)	QM	All times
	<ul style="list-style-type: none"> Quarry Manager to obtain daily weather forecast updates from reliable source such as Bureau of Meteorology website. 	-	QM	Daily
	<ul style="list-style-type: none"> An on-site weather monitoring station will be erected and the display installed in the Pit Manager's office. 	(see s.2.1.4 of EMP)	QM	Within 1 month of EMP approval
	<ul style="list-style-type: none"> Records of wind speed and direction at the quarry will be stored for a period of 12 months for subsequent reference in the case of complaints and to assist in interpreting dust monitoring data. 	-	PM	All times
	<ul style="list-style-type: none"> Dust emissions and potential dust generating activities and areas will be monitored visually during quarrying activities. 	-	All staff	All times
	<ul style="list-style-type: none"> A suitable "background" sampling location will be established to determine 	-	QM	Within 3 months of EMP approval

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	regional background dust deposition rates.			
	<ul style="list-style-type: none"> Analysis and reporting of dust samples for compliance will be undertaken by an experienced entity independent of the operator. 	-	PM	As required
	<ul style="list-style-type: none"> Community complaints will be monitored during works to assess the operations against objectives and targets. 	-	PM	All times
	<ul style="list-style-type: none"> Monthly Housekeeping inspections will be conducted which will include observed conditions and the effectiveness of preventative measures. 	(see s.2.13 of EMP)	PM	monthly
Reporting	PM ₁₀ data will be provided to the Pit Manager’s office from the ‘reactive real time dust monitoring stations’.	<u>SHE Guideline 4.6 Community Awareness</u>	PM	All times
	<ul style="list-style-type: none"> All complaints are to be recorded on the site Complaints Register. Justified complaints are to be reported as an “incident” in the Incident Report form. 		PM	All times
	<ul style="list-style-type: none"> All communication are to be undertaken as per the SHE Communication Procedure. 		All staff	All times
Corrective	<ul style="list-style-type: none"> Dust generating 	<u>Dust</u>	QM	All times

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Action	activities will be controlled by watering or other means to achieve compliance targets based visual observation, staff or community feedback.	<u>Management Plan</u>	QM	As required
	<ul style="list-style-type: none"> If necessary, dust generating activities will cease until corrective actions result in achievement of targets or wind conditions are such that targets are achieved. 			
	<ul style="list-style-type: none"> The site Incident Management procedure will be followed to rectify all reported dust incidents. 	<u>SHE Guideline 5.1 – Incident Reporting, Recording & Investigation</u>	PM All staff	All times

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2.1.4 Monitoring Schedule

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Fixed Station Continuous Dust Monitoring. 2x sites as indicated in Figure 1 of <u>Monitoring Schedule</u>	Deposition	Technical Officer	Monthly	AS/NZS 3580.10.1:2003 : Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method	Dust deposition 4g/m ² /month (no more than 2g/m ² /month greater than background if more than 4.)
At least two locations on work authority boundary in line with residences D and S. (Refer Figure 1 - <u>Monitoring Schedule</u> for locations.(i.e. 2x Reactive monitors will be used and rotated if necessary.)	Airborne Dust (PM ₁₀) as µg/m ³	Quarry Manager	Continuous whilst quarry in operation for initial 24 months	Real time dust monitoring with data logger and hourly averages. As there is no standard specified. A portable <i>DustTrak/ Osiris/ Airmetrics</i> type unit will be employed.	PM ₁₀ (1 hour ave.) – 64 µg/m ³ (ie 80% of the SEPP AQM criteria of 80 µg/m ³ to enable reactive management of dust emission).
A location representative of background conditions	Airborne Dust	Technical Officer	Check as required	Real time dust monitoring with data logger.	<u>N/A</u>
Weather Station (at site office)	Wind speed and direction	Technical Officer	Continuous (hourly averages)	Wind Velocity: AS 2923-1987, Guide for the Measurement of Horizontal Wind for Air Quality Applications	N/A

Note: Personal respirable dust monitoring is not within the scope of this EMP.

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2.2 Noise

2.2.1 Objective

To prevent noise from the Chiltern Quarry causing nuisance/annoyance to persons at noise sensitive sites in the surrounding area.

2.2.2 Targets

Compliance with the noise limits determined in accordance with EPA guidelines and Policy, namely:

Time of Day	Noise Limit dB(A) L_{Aeq}	
	Forrest Lane	Black Dog Creek Road and Deep Creek Road
Day 0700h to 1800h (M-F)	46	45
Evening 1800h to 2200h (M-F) Saturday 1300h to 1800h Sunday 0700 to 2200h	41	38
Night 2200h to 0700h	39	37

For residences located closer to the Hume Highway (west and northwest of the new Chiltern Quarry where there is higher background noise), the higher noise limits apply. For residences located south of the new Chiltern Quarry (where background noise is lower), the lower noise limits apply. Specifically, for residences located nearest to the quarry (and designated in the monitoring schedule) the following limits apply:

Time of Day	Noise Limits at Residence							
	A	B	C	D	M	P	Q	S
Day	46	46	46	46	46	45	45	45
Evening	41	41	41	41	41	38	38	38
Night	39	39	39	39	39	37	37	37

Source: Heggies (2009) – Table 10

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2.2.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Stage 1 – Establishment (0-4 months)	<ul style="list-style-type: none"> Commence construction of the northern and western bund walls. Bund wall to be constructed to a height of 5m and 3m respectively. 	-	QM	During Construction
	<ul style="list-style-type: none"> Ensure all equipment used on site has appropriate mufflers/controls and have sound power levels at least equal to (but not greater than) those relied upon in the noise assessment (Heggies, 2009). Contractors are required to provide this information before equipment is brought onto site. <p>OR</p> <ul style="list-style-type: none"> Selection of all new equipment is made to meet SHE Guidelines 3.17 – Noise. 	<u>SHE Guidelines 3.17 - Noise</u>	QM	
	<ul style="list-style-type: none"> Excavation of primary crushing plant pad. Lowered for acoustic shielding to approximately 255m to 250m AHD into the hill. 	-	QM	
	<ul style="list-style-type: none"> Restrict construction activities to one noisy activity at a time. A common sense approach to noise management is essential. 	-	PM	
	<ul style="list-style-type: none"> Regular preventative maintenance (PM) is performed on mobile equipment to reduce unnecessary vibrations and rattles. 	<u>Quarry PM Schedules</u>	PrM	
	<ul style="list-style-type: none"> A sign will be erected and maintained, in a place that is clearly visible to truck drivers leaving the quarry, advising that trucks should avoid using engine brakes on local roads. 		QM	

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Stage 2 – Fixed Plant Construction Stage (5-36 months)	<ul style="list-style-type: none"> Enclose all crushing and screening plants. Enclosed by 0.6mm sheet steel cladding and lined with internal insulation. 		PrM	During Construction
	<ul style="list-style-type: none"> Construct northern haul road within cutting and erect acoustic fence along drain line areas. Road excavated 4m to 9m within the hillside. 		PrM	
Stage 3 - Operations (36+ months)	<ul style="list-style-type: none"> Adhere to approved hours of operation. 		QM	During Operations
	<ul style="list-style-type: none"> Extraction area is to be so orientated as to minimise noise impact on nearest residences. 		QM	
	<ul style="list-style-type: none"> Maintain site access road and internal roads regularly. 		PrM	
	<ul style="list-style-type: none"> Minimise use of empty trucks to reduce truck body noise. 		PrM	
	<ul style="list-style-type: none"> All plant and equipment on site will be regularly serviced to ensure sound power levels remain at or below levels nominated in the noise assessment. 	<u>Quarry PM Schedules</u>	PrM	
	<ul style="list-style-type: none"> Ensure all equipment used on site has appropriate mufflers/controls. Contractor vehicles and equipment are to be inspected provide to operating on site. <p>OR Selection of all new equipment is made to meet SHE Guidelines 3.17 – Noise.</p>		PrM	
	<ul style="list-style-type: none"> Only broadband reversing beepers or similar will be installed and used on all earth moving equipment. 		QM	
Monitoring	<ul style="list-style-type: none"> Monitoring of community complaints will be undertaken during the extraction works to assess achievement of the objectives and targets, as required. 	<u>Environmental Complaints Register</u>	PM	During works

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	<ul style="list-style-type: none"> Monitoring of noise at noise sensitive locations will be undertaken as per the Monitoring Schedule. 		PM	As per Schedule
	<ul style="list-style-type: none"> Monthly Housekeeping inspections will be carried out to assess noise conditions and the effectiveness of preventative measures. 		PM	monthly
Reporting	<ul style="list-style-type: none"> All complaints are to be recorded on the site <u>Environmental Complaints Register</u>. Justified complaints are to be reported as an “incident” in the Incident Report form. 	<u>Environmental Complaints Form; SHE Guideline 5.1 - Incident Reporting, Recording & Investigation.</u>	QM, PM All staff	As required
	<ul style="list-style-type: none"> All internal communication to be undertaken as per the <u>SHE 2.1 Communication Procedure</u>. 	<u>SHE 2.1 Communication Procedure.</u>	All staff	As required
	<ul style="list-style-type: none"> Monitoring results will be kept in the office of the QM and be made available for inspection at reasonable notice during normal working hours. 	<u>Environmental Reporting Procedure</u>	QM	
Corrective Action	<ul style="list-style-type: none"> In the event that noise from site operations exceeds the specified targets at a sensitive site, strategies for noise abatement will be developed and implemented to achieve compliance. 		QM	As applicable

2.2.4 Monitoring Schedule

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Routine noise monitoring at closest sensitive receptors surrounding the quarry. (see Figure 1 – <u>Monitoring Schedule</u>)	Noise level at all Monitoring Locations	Technical Officer	Quarterly during Stages 1 & 2, then Annually during Stage 3	State Environmental Protection Policy (Control of noise from commerce industry and trade) No. N-1 1989 (as amended)	As per s.2.2.2
Monitoring in response to a “justified complaint”	Noise level at Complainant’s Residence	Technical Officer	As required	As above.	As per s.2.2.2

Note: Personal noise exposure monitoring is not covered in this EMP.

2.3 Blasting

2.3.1 Objective

To ensure that vibration from blasting operations is controlled to comply with Worksafe Victoria environmental guideline limits for new operations.

To ensure that blasting operations generally are conducted in a manner that minimises the risk of adverse environmental impact.

2.3.2 Targets

100% compliance with DPI environmental guideline limits for new operations, namely:

Ground Vibration: 5mm/s for 95% of blasts over 12 months
10mm/s for all blasts

Air Vibration: 115dBL for 95% of blasts over 12 months
120dBL for all blasts

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2.3.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Blasting Operations	<ul style="list-style-type: none"> Blasting will be carried out in general accordance with the SHE Guideline 3.18 – Blasting & Explosives, and in strict accordance with the quarry Blasting Management Plan (Appendix 12). 	<u>SHE Guideline 3.18 – Blasting & Explosives; Blasting Management Plan</u>	QM	All blasting events
	<ul style="list-style-type: none"> Ensure area within National Park is quarantined prior to blasts within 100m of the Park. 	<u>Blasting Management Plan</u>	QM	All relevant blasts
	<ul style="list-style-type: none"> No blasting will occur on a Saturday, Sunday or public holidays. 	<u>Blasting Management Plan</u>	QM	All times
Monitoring	<ul style="list-style-type: none"> Air and ground vibration resulting from blasts will be monitored at three locations displayed on Annexure 1 to permit the vibration at the nearest sensitive sites to be reliably estimated. 	<u>Blasting Management Plan</u>	QM	All blasting events

2.3.4 Monitoring Schedule

Site	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Monitoring Stations (to be determined, refer Figure 1 – <u>Monitoring Schedule</u>) or as directed by an Inspector.	Peak Particle Velocity (PPV) (Ground Vibration) Air Blast (Air Vibration)	Specialist Consultants Specialist Consultants	Every blast Every blast	<u>Department of Primary Industries Environmental Guideline - Ground Vibration and Airblast Limits for Blasting in Mines and Quarries 2001 – New Sites</u>	See s.2.3.2

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2.4 Visual Amenity

2.4.1 Objective

To limit as far as practicable the adverse impacts of quarry operations and activities on the visual amenity of residents on surrounding properties, Chiltern township and motorists travelling on regional and State Roads..

2.4.2 Targets

Compliance with (or completion of) all actions specified within this EMP.

2.4.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Stage 1- Site Establishment (0 to 4 months)	<ul style="list-style-type: none"> Minimise areas of disturbance and maintain good housekeeping. 		QM	During Establishment
Stage 2- Fixed Plant Construction Stage (5 to 36 months)	<ul style="list-style-type: none"> Buildings, cladding and equipment to be a grey/green hue/neutral colour to blend in with the surrounding environment. 	Building works specifications	QM	Prior to & during Construction
	<ul style="list-style-type: none"> Plant native vegetation strategically around the operational areas to restrict views from surrounding roads and residences of site components and operations. 			
	<ul style="list-style-type: none"> Plant native vegetation in road reserves (either in bare areas or supplementary planting amongst existing trees) within the Work Authority Area. 			
	<ul style="list-style-type: none"> Construct the northern and western bund walls to assist in restricting views of the site and product loading operations. The outside faces of the bund walls to be hydro-seeded to establish vegetation. 			
	<ul style="list-style-type: none"> Investigate options to plant tree screening near residences adjacent to Forrest Lane to limit views of site components and operations. 			

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Stage 3- Operations	<ul style="list-style-type: none"> Adopt staged extraction plans which focus on extraction “within” the ridgeline as much as possible. 		QM	Throughout operations
	<ul style="list-style-type: none"> Undertake supplementary planting within a zone around the perimeter of the extraction area, where practicable. 			
	<ul style="list-style-type: none"> Affect blast restoration of eastern extraction faces from 354m to 290m AHD by randomly vegetating with bag-bombing with soil and seed. 			
	<ul style="list-style-type: none"> Progressively revegetate upper benches (275m/290m AHD) following extraction activities. 			
	<ul style="list-style-type: none"> Shield trucks travelling to and from the primary crushing plant in road cutting (supplement acoustic fences with painting and/or vegetation). 			
	<ul style="list-style-type: none"> Maintain native vegetation to ensure plant survival and weed control. 		PM	Through out operations

2.4.4 Monitoring

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Stage 1 - Housekeeping	Site Inspection		weekly	Checklist	No non-conformances
Stage 2 & 3- Screening vegetation	Site Inspection		Monthly	Checklist, Annual Photographs from four defined photo points (at noon)	Screening is effective – visual observation

2.5 Surface Water, Drainage, & Groundwater

2.5.1 Objective

To minimise any potential impact on the receiving waters.

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To progress water management such that any discharge to surface waters is during periods of very high rainfall only.

To ensure that water discharged from the Quarry does not adversely impact on the beneficial uses of downstream users and receiving waters.

To ensure that the beneficial uses of groundwater at the site are protected.

2.5.2 Targets

2.5.2.1 Surface Waters

Overflow from the site will enter a series of dams on the immediate neighbours' property and, if continuing to overflow further dams before entering Black Dog Creek. Water quality overflowing into these dams will be managed such that it is not harmful to humans or have unacceptable impacts on animals, and so that the impact on surface waters is minimised. Adopted indicators for flow into Dams:

Indicator	Objective
Electrical Conductivity	The 75th percentile level of Electrical Conductivity shall be less than 1,500 $\mu\text{S}/\text{cm}$.
pH	The 25th percentile pH level shall be greater than 6, whilst the 75th percentile pH level should be less than 9 pH units.
Toxicants	As specified in Table A4, SEPP (WoV), 2003.

In Black Dog Creek, 100% compliance with the relevant receiving water quality indicators as specified in SEPP (Waters of Victoria), namely:

Indicator	Objective
Total Phosphorus	The 75th percentile concentration of total phosphorus shall not be greater than 25 $\mu\text{g}/\text{L}$.
Total Nitrogen	The 75th percentile concentration of total nitrogen shall not be greater than 900 $\mu\text{g}/\text{L}$.
Dissolved Oxygen	The 25th percentile concentration of DO shall not be less than 85% saturation, or greater than 110% saturation.
Turbidity	The 75th percentile level of turbidity shall be less than 10 NTU.
Electrical Conductivity	The 75th percentile level of Electrical Conductivity shall be less than 1,500 $\mu\text{S}/\text{cm}$.
pH	The 25th percentile pH level shall be greater than 6.5, whilst the 75th percentile pH should be less than 8.3 pH units.
Toxicants	As specified in Table A4, SEPP (WoV), 2003.

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2.5.2.2 Groundwater

100% compliance with the relevant groundwater quality indicators at the Work Authority boundary as specified in SEPP (Groundwaters of Victoria), namely:

Aquifer Type	TDS Range	Segment	Maximum Beneficial Use	Indicator	Objective
Granite	200 – 500 mg/L	A1	Potable (desirable)	Those specified for raw water for drinking water supply in the AWQG-FMW*.	<ul style="list-style-type: none"> TDS < 501 mg/L Groundwater shall not be affected to the extent that any water quality indicator is greater than the level of that indicator specified for raw water for drinking water supply in the AWQG-FMW*. The constituents of groundwater shall not be affected in a manner or to an extent that leads to tainting.
Alluvial	950 – 1,140 mg/L	A2 - B	Potable (acceptable)		<ul style="list-style-type: none"> Groundwater shall not be affected to the extent that any water quality indicator is greater than the level of that indicator specified for raw water for drinking water supply in the AWQG-FMW*. The constituents of groundwater shall not be affected in a manner or to an extent that leads to tainting.
Shale/sandstone	900 – 3,300 mg/L	A2 - B	Irrigation, stock watering	Those specified for irrigation/livestock in the AWQG-FMW*.	<ul style="list-style-type: none"> Groundwater shall not be affected to the extent that any water quality indicator is greater than the level of that indicator specified for irrigation/livestock in the AWQG-FMW*.

* AWQG-FMW - Australian Water Quality Guidelines for Fresh and Marine Waters, 2000

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2.5.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Stage 1- Site Establishment (0 to 4 months)	<ul style="list-style-type: none"> Preparation and implementation of an Erosion and Sediment Control Plan (ESCP) for the site. 	EPA Guidelines “Environmental Guidelines for Major Construction Sites”.	QM	Pre and post establishment phase
	<ul style="list-style-type: none"> Installation of temporary sediment and erosion control measures (eg. sediment fencing and gabion baskets). Temporary measures to be maintained until permanent measures are in place. 	ESCP		
	<ul style="list-style-type: none"> Construct catch drains, diversion banks and sediment basins and swales along the lower side of the site access road. Where possible swales will be grassed to assist capturing sediment. Native species to be planted. 			
	<ul style="list-style-type: none"> Construct rock-lined and/or grassed swale drains to divert dirty surface water to Sediment Basins. 		PM	
	<ul style="list-style-type: none"> Construct diversion bunds/drains around proposed stockpile areas. Surface drains will be planted with native grasses. 		PM	
	<ul style="list-style-type: none"> Install culverts over drainage lines during the construction site access road. Careful attention to be paid to culvert inlets and outlets. 		PM	

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	<ul style="list-style-type: none"> Enlarge and construct Dams A and B and construct bypass structures. Bypass structures are required to direct all summer flows around the water storage dams. 			
Stage 2- Fixed Plant Construction Stage (5 to 36 months)	<ul style="list-style-type: none"> Revegetate all (including soil stockpiles) disturbed areas that are no longer required. Revegetation to be undertaken with native species. 	ESCP	QM	
	<ul style="list-style-type: none"> Construct truck wash-down areas and dirty water collection systems. Water from wash-down areas and workshops would be directed to oil separators and containment systems. 	Wastewater Management procedure	PM	
	<ul style="list-style-type: none"> Regularly inspect (and repair) all erosion and sediment control measures. Inspect monthly or after significant rain events. 	ESCP	QM	
Stage 3- Operations	<ul style="list-style-type: none"> Construct and maintain a sump in the active extraction area designed to catch all rainfall (and ultimately any groundwater) that enters the extraction area. 	-	QM	
	<ul style="list-style-type: none"> All hydrocarbons (fuels) to be securely stored. All storage tanks to be self bunded or bunded with an impervious surface and a capacity to contain 110% of the largest storage tank capacity. 	Hazardous Materials and Dangerous Goods Storage and Handling procedure		

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	<ul style="list-style-type: none"> All mobile equipment will be refuelled in the designated area adjacent to the workshop. The designated area is to be bunded and regularly inspected. 	Plant Refuelling procedure		
	<ul style="list-style-type: none"> All surface water management controls (diversion/catch drains, sediment basins etc) are to be regularly inspected and cleaned of accumulated sediment. Inspections will be carried out monthly or following substantial rain events. 	ESCP		
	<ul style="list-style-type: none"> All water from wash-down areas and workshops is to be directed to oil/water separators and containment systems. All oily waters will be removed from site by approved/licensed contractors. Sediments will be periodically removed and managed of in accordance with good practice. 	<u>PM Schedules</u>		
	<ul style="list-style-type: none"> Maintain vegetated areas to reduce the velocity of the surface water runoff. 	ESCP		
Surface Water Quality monitoring	<ul style="list-style-type: none"> Discharge of stormwater from the site will be monitored (for both quality and discharge volume) at times when discharge occurs. 	Monitoring Schedule	QM	
	<ul style="list-style-type: none"> 			

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Groundwater Monitoring	<ul style="list-style-type: none"> Groundwater quality monitoring will be conducted as required to confirm that beneficial uses are being protected. This will include selective monitoring of groundwater on neighbouring properties – depth, EC, presence of odour. 	Monitoring Schedule		As required
	<ul style="list-style-type: none"> 			

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2.5.4 Monitoring Schedule

Item / Location	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Sediment Basins (1-6) Storage Dams (A, B)	Visual Inspection for sediment and algae.	Technical Officer	Monthly	Direct Observation	N/A
Dams A & B Surface water discharge points (to be determined)	Electrical Conductivity (EC) Total Suspended Solids (SS) pH Turbidity Visible floating oil, grease, scum, litter or other objectionable floating matter	Technical Officer	Weekly during discharge	Water Sampling Procedure	s.2.5.2.1 above

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2.6 Greenhouse Gas Emissions

2.6.1 Objective

To minimise greenhouse gas (GHG) emissions resulting from quarry works and operations.

2.6.2 Targets

Achieve:–

- GHG target To be determined (t CO₂-e/ tonne product)

2.6.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Energy Action Plan	<ul style="list-style-type: none"> • Aim for continuous improvement of GHG intensity of production by identifying and controlling energy intensive processes; 	(Holcim Energy Policy) Commitment to Greenhouse – EEO Act requirements		
	<ul style="list-style-type: none"> • Regular monitoring and reporting of energy use and GHG emissions; 			
	<ul style="list-style-type: none"> • Review and further evaluation of all transportation within the quarry against current industry fuel efficiency benchmarks; 			
	<ul style="list-style-type: none"> • Nominate an energy co-ordinator within the quarry to ensure that steps are taken to meet energy and GHG reduction targets; and 			
	<ul style="list-style-type: none"> • Incorporate energy and GHG awareness into training of managers and supervisors. 			
	<ul style="list-style-type: none"> • 			

2.6.4 Monitoring

Item	Test	Responsibility	Frequency	Assessment Methodology	Criteria
Fuel usage	-	OIM	Annual	Usage per tonne	L/ tonne processed
Electricity usage	-	OIM	Annual	KWh per tonne	MW/hr/ tonne processed
Explosives usage	-	OIM	Annual	Tonne per tonne	

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2.7 Traffic Management

2.7.1 Objectives

To minimise the impact of quarry traffic on the local amenity.

2.7.2 Targets

Compliance with (or completion of) all actions specified in the s.2.7.3 of this EMP.

2.7.3 Management Measures

Management Measure	Action	Procedure/Reference	Responsibility	Timing
Stage 1 – Site Establishment	<ul style="list-style-type: none"> Road works to be carried out at the intersection of the Chiltern-Beechworth Road and Black Dog Creek Road to better and more safely accommodate turning quarry traffic. 	GTA consultants' report, 24/3/09	QM	Within 12 months of approval
Materials from Trucks falling onto Roadways	<ul style="list-style-type: none"> The wheels of all trucks leaving the site must be clean before trucks travel onto any part of the public road network. All trucks leaving the site will be cleaned by passing through the wheel wash facility at the gatehouse. 	Vehicle/wheel wash procedure	PM All operations staff Contractors	All times
	<ul style="list-style-type: none"> All vehicles carrying materials from the site must be loaded and transported in a manner which prevents spillage of materials onto a public road. 	-		
Truck Movements	<ul style="list-style-type: none"> All vehicles associated with quarry activities, including trucks and machinery, must enter and exit the site via Black Dog Creek Road. 	Site Specific Quarry Rules in <u>SHE Guideline 2.3 "Ex-Bin Driver – Site Safety Induction"</u>	Contractors	All times

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Management Measure	Action	Procedure/Reference	Responsibility	Timing
Signage	<ul style="list-style-type: none">A sign to be erected and maintained, and clearly visible to truck drivers leaving the quarry, advising that trucks avoid using engine brakes on Black Dog Creek Road and within the town boundary.	(also see preceding reference)	PM	

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2.7.4 Monitoring

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Truck wheels clean before entering public roadways	Visual inspection – wheels and roads	Technical Officer	Monthly	Housekeeping check ⁺	No dirt tracked onto public roadways
Spillage of materials from vehicles leaving site	Visual inspection – vehicles and roads	Technical Officer	Monthly	Housekeeping check ⁺	No materials spilled onto public roadways
Truck queuing during early morning movements	Visual inspection – vehicles	Technical Officer	Monthly	Housekeeping check ⁺	No queuing of trucks during early morning movements (pre-6:00am)
Signage	Visual inspection	Technical Officer	Monthly	Housekeeping check	Sign is clearly visible to truck drivers leaving the quarry.

Note: + - any daily noted excursions are to be recorded within the incident register.

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2.8 Net Gain OFFSET Management Plan

2.8.1 Specific Flora /Fauna Management

2.8.1.1 Objective

To project and provides for specific endangered flora and fauna.

2.8.1.2 Targets

- Increase in Narrow Goodenia coverage/
- Successful re-introduction of Swainson-Pea
- 100% relocation of reptile species during site establishment and prior to entering new extraction areas
- Confirmed sightings of Regent Honeyeater and Swift parrot on site.

2.8.1.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Nest Boxes	<ul style="list-style-type: none"> • Installation of 100 roost boxes on various tree across Extraction block 	Regular site rounds	QM	Prior to Stage 2 works
Fencing	<ul style="list-style-type: none"> • Establish fencing to control animal entry in accordance with the off-set management plan 	Off-set Mgt Plan- Biosis	QM	Site Establishment stage
Narrow Goodenia	<ul style="list-style-type: none"> • Ensure area is protected from sheet and rabbit access. • Mark out plots • Plants to be watered if stressed due to drought • Liaise with NGO as required to assist recruitment measures • Refer also to Net gain Section 2.8 	Off-set Mgt Plan- Biosis	QM	As per off-set plan specifications
Reptiles	<ul style="list-style-type: none"> • Instruction of reptile salvage program before woks • Engagement of ecologist to assist with review and relocation of reptiles preceding site establishment and new extraction stages. i.e. inspection of logs and habitat rocks. • Any remove vegetation is to be distributed around the extraction block for use as habitat 	Reptile salvage Protocol	QM	A week prior to commencement of Stage excavations

2.8.2 Net Gain Offset Management Plan

2.8.2.1 Objective

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To provide vegetation that offsets the loss of vegetation associated with the Quarry and provides a net gain of Habitat Hectares.

2.8.2.2 Targets

Establishment of vegetation in accordance with the Native Vegetation Management Strategy

2.8.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Appointment of Offset Site Manager	<ul style="list-style-type: none"> A contactor with expertise in revegetating the local indigenous vegetation community will be appointed to manage the re-establishment of indigenous understorey vegetation in the offset areas. The contractor will be required to provide further detail on the methods to be used in a detailed works program prior to commencement of works. The contractor will prepare a schedule to implement measures contained within the Net Gain Offset Management Plan (NGOMP) such that offset vegetation site(s) are established, managed and maintained. 	Biosis Research assessment report, January, 2009	PM	Within 3 month of EMP approval
Site Identification & Protection	<ul style="list-style-type: none"> The offset site(s) will be fenced in order to clearly delineate the sites' extent. Fencing will be of a standard rabbit-proof farm fence. 	NGOMP	PM,	

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Management Measure	Action	Procedure/Reference	Responsibility	Timing
	<ul style="list-style-type: none"> An appropriate sign will be erected to inform residents/visitors of the site's ecological characteristics, purpose and value. 			
Plant Propagation	<ul style="list-style-type: none"> Plants of local provenance will be propagated, or seeds collected for dispersal as specified in the NGOMP. 	NGOMP	OSM	
Site Preparation	<ul style="list-style-type: none"> The offset site will be prepared over a minimum six (6) month period through: <ol style="list-style-type: none"> monthly sprays of existing (introduced) vegetation to deplete the weed soil seed bank; cut and paint and/or drill and fill weedy shrubs such as Hawthorn, Briar Rose and Blackberry; 	NGOMP	OSM	6 months
Planting	<ul style="list-style-type: none"> Appropriate species will be planted/recruited (natural and assisted) within the offset sites. Planting / recruitment densities will comply with the minimum revegetation standards provided by DSE (DSE, 2006). Initiation of Swainson Pea re-introduction program (in concert with specialist NGO (e.g. Friends of Chiltern-Mt Pilot National Park). 	Biosis Research assessment report, January, 2009	OSM	As appropriate to year 10

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Plantings Maintenance	<ul style="list-style-type: none"> Plantings will be maintained over a 10 year period, taking all necessary measures to ensure: <ul style="list-style-type: none"> (a) survival and growth of the plants, and (b) good appearance or presentation of the plantings. 	NGOMP	QM	10 years from EMP approval
	<ul style="list-style-type: none"> Plantings that do not survive will be replaced. 		OSM	As required
	<ul style="list-style-type: none"> Supplementary watering of plantings will be carried out as required and permitted by prevailing water restrictions. – with particular attention on the Narrow Goodenia sites. 		OSM	As required
	<ul style="list-style-type: none"> Weed (including identified woody weed) control works will be conducted on a monthly basis during the primary weed season (June to December inclusive) and at other times as required. 		OSM	Monthly during June-December
	<ul style="list-style-type: none"> Pulse grazing and/or biofuel control exercised. 		OSM	Early Spring
Offset Site Management Audit/ Monitoring	<ul style="list-style-type: none"> A management audit/monitoring exercise will be undertaken at 1, 2, 3, 5 and 10 years after planting to evaluate performance. 	-	OSM	After years 1, 2, 5, 7 and 10

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
	<ul style="list-style-type: none"> Audit/monitoring of the offset site will be conducted by a qualified ecologist. 	-	OSM	-
	<ul style="list-style-type: none"> Any additional management actions identified by the audit will be implemented through the incident management system. 	<u>SHE Guideline 5.1 – Incident Reporting, Recording & Investigation</u>	OSM	As appropriate
Audit Reports	<ul style="list-style-type: none"> All audit reports will be forwarded to the DPI. 		QM	Within 1 month of report receipt.

2.8.4 Monitoring

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Offset Site Management Audit	-	PM	End of years 1, 2, 3, 5 & 10		Compliance with Permit and DSE Net Gain Guidelines

2.9 Cultural Heritage

2.9.1 Objective

To ensure that in the event that site works uncover or otherwise identify items of indigenous cultural or heritage significance, appropriate steps are taken to preserve, report and record such items.

2.9.2 Targets

No items of indigenous cultural or heritage significance are found on the site that have not been properly preserved, recorded and reported in accordance with applicable legislated requirements.

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2.9.3 Management Measures

Management Measure	Action	Procedure/ Reference	Responsibility	Timing
General	<ul style="list-style-type: none"> A Cultural Heritage Induction booklet will be prepared. The booklet will contain specific instructions for actions to be taken if items of cultural significance are recognised during earthworks undertaken within the Work Authority boundary. The instructions will be supported by clear pictures/diagrams etc. as appropriate. 	Aboriginal Affairs Victoria publications	PM	Prior to commencement of works.
	<ul style="list-style-type: none"> All persons working on the site (Holcim employees and contractors) will receive a copy of the CHI booklet and be inducted as to its content during their normal site work Safety, Health and Environment induction and all subsequent re-inductions. 	Site Induction	QM	All inductions/re-inductions
	<ul style="list-style-type: none"> Any works in the Block (i.e. the proposed area to be used for Native Large Old Tree Off-sets and identified as where artefacts were found) will require inspection with a RAP representative prior to disturbing. 	CHMP	PM	Prior to disturbing

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2.10 Fire Management

2.10.1 Objective

To ensure that the risk of fire is minimised.

2.10.2 Targets

No uncontrolled fires.

2.10.3 Management Measures

Management Measure	Action	Procedure/Reference	Responsibility	Timing
Fire Prevention Works	<ul style="list-style-type: none"> Establish off-site fire prevention measures to be followed during periods of high fire risk. 	Consultation with local Fire Authority	PM	Within 3 months of EMP approval
	<ul style="list-style-type: none"> Undertake annual on-site fire prevention works, prior to the declaration of the “Fire Danger Period”, in consultation with the Responsible Authority and the local Country Fire Authority. This may include biomass controls in the native vegetation off-set areas. 	- NGOMP	PM	Annually
Vehicle Access	<ul style="list-style-type: none"> Access for all emergency vehicles will be provided and maintained at all times through the site. 	-	QM	All times
Equipment	<ul style="list-style-type: none"> Fire prevention and response equipment will be provided and maintained in accordance with the Holcim Emergency Response Procedure and Quarry Emergency Procedures flip chart. No use of hot work equipment during total fire ban days unless under a Permit from DSE. 	<u>SHE Guideline 1.8 – First Aid-Emergency Response</u>	PM	All times

2.10.4 Monitoring

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Fire/evacuation drill	Fire/evacuation alarm sounded without prior notice	QM	annually	Quarry Emergency Procedures flip chart	All personnel safely evacuate in timely manner
Smoke detectors	Detector sounded (battery replaced)	PM	6 monthly	Manufacturer’s specification	All units fully

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
					operational
Fire prevention works	Inspection	PM	Annually prior to “Fire Danger Period”	Visual observation	Completed as agreed with Responsible Authority/CAFA
Fire fighting equipment - mobile	Equipment fully operational	QM	6 monthly	Manufacturer’s specification	No faults
Fire fighting equipment - other	Systems and equipment fully operational	QM	AS1851	AS1851 – Maintenance of fire protection systems and equipment	No faults/failures

2.11 Water Conservation

2.11.1 Objective

To conserve water supplies.

2.11.2 Targets

Implement measures to reduce the use of water supply.

2.11.3 Management Measures

Management Measure	Action	Procedure/Reference	Responsibility	Timing
Water Conservation	<ul style="list-style-type: none"> Install rainwater tanks to collect water to be used for non-potable purposes. 	-	PM	Within 6 months of quarry establishment
	<ul style="list-style-type: none"> Identify and quantify all uses of water on the site, and develop and implement practical measures to reduce water usage through water conservation fixtures/fittings, and/or substitution. 	-	PM	Within 12 months of quarry operation
Monitoring	<ul style="list-style-type: none"> Record mains water usage for the site from meter. 	-	PM	Monthly
Supply	<ul style="list-style-type: none"> Progress use of Recycled water at quarry 	-	PM	Ongoing initial 5 years

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2.12 Waste Management & Minimisation

2.12.1 Objective

Minimise waste quantities, comply with legislative requirements and progress towards the recycling and re-use of all wastes.

2.12.2 Targets

Establishment of quantifiable and achievable waste reduction targets within 12 months of Approval.

All recyclable materials removed from waste stream to landfill.

2.12.3 Management Measures

Management Measure	Action	Procedure/Reference	Responsibility	Timing
Waste Minimisation	<ul style="list-style-type: none"> Characterise all waste streams and develop measures to: <ul style="list-style-type: none"> minimise site waste generation; segregate waste groups; and direct all recyclable/re-usable wastes away from landfill wherever possible. 	<u>EPA Waste Audit Guidelines</u>	PM	
	<ul style="list-style-type: none"> Silt removed from the settling ponds and silt traps will be incorporated into product stockpiles or overburden materials for use in progressive reclamation. 	-	Site Operators	As required
	<ul style="list-style-type: none"> All prescribed industrial waste (PIW) such as waste oil will be stored, and transported from the site, in accordance with EPA prescribed waste transport regulations and associated guidelines. 	<u>EPA PIW Guidelines</u>	PM	As required
	<ul style="list-style-type: none"> The site's septic sewage system will be pumped out regularly, and waste appropriately disposed of. 	-	PM	annual

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Management Measure	Action	Procedure/ Reference	Responsibility	Timing
Monitoring	<ul style="list-style-type: none"> Conduct a waste survey to establish the types, quantities and re-cycling/ re-use percentages for all site wastes. 	-	PM	Within 12 months of operations
	<ul style="list-style-type: none"> Use the outcomes of the survey to set quantifiable and achievable waste reduction targets for the site for each waste stream identified. 	-	PM	Annually

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2.13 Housekeeping/Preventative Maintenance(PM)

2.13.1 Objective

Establish effective housekeeping checks and preventative maintenance programs to control environmental hazards.

2.13.2 Targets

Housekeeping audits identify no more than 5% non-conformance practices (except where applied to authority approval/permit conditions, where 0% non-conformance applies)

2.13.3 Management Measures

Management Measure	Action	Procedure/ Management	Responsibility	Timing
Housekeeping	<ul style="list-style-type: none"> • Housekeeping checks will include the following environmental issues: <ul style="list-style-type: none"> ○ Chemical and fuel bunding; ○ Bund content and drainage point valve in off position (and locked); ○ Spill clean-up and spill kit equipment contents; ○ Waste container labelling; ○ Tarping practices; ○ Road and vehicle cleanliness; ○ Unusual noises; ○ Visual dust presence of significance; and ○ Segregation of inert type wastes from solid and from industrial wastes. 	<u>EPA Bunding Guidelines</u>	PM	Monthly
Preventative Maintenance	<ul style="list-style-type: none"> • PM system checklists are available to capture: <ul style="list-style-type: none"> ○ Fixed System Dust Suppression ○ Watering truck ○ Water spays and lines ○ Spill Kits • Dust extraction units will be serviced annually. 	<u>PM schedules</u>	PM	Monthly/ annually Annually
Weed Control (Whole Work Authority Area)	Visual monitoring & Spraying Follow up Inspection & spraying	Off-set Mgt Plan	PM	As required

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2.14 Storage & Handling Controls

2.14.1 Objective

To minimise chemical and fuel run-off and land contamination due to spillage/ release/ stormwater flushing.

2.14.2 Targets

No visible oils/fuels in stormwater discharging from discharge point.
No significant soil contamination.

2.14.3 Management Measures

Management Measure	Action	Procedure/ Management	Responsibility	Timing
Storage Controls	<ul style="list-style-type: none"> Signage will be maintained around bunded fuel tanks describing the filling procedure to be followed. 	WorkCover guidelines	PM	All times
	<ul style="list-style-type: none"> All fuels and chemicals in containers over 100 litres will be bunded when stored or in use. 	<u>EPA Bunding Guidelines</u>		All times
	<ul style="list-style-type: none"> Captured rainwater within fuel/oil storage bunds will be confirmed by visual observation to be free of floating hydrocarbons prior to re-use of the site. 	-		As required
Soil Clean up	<ul style="list-style-type: none"> Areas of significantly hydrocarbon-contaminated soil will be excavated and remediated in accordance with the Hydrocarbon Land-farming Procedure. 	<u>Hydrocarbon Land-farming Procedure</u>	PM	As required

2.14.4 Explosives Use & Storage

Explosives are used for primary blasting in accordance with the requirements of the DPI and Worksafe Victoria. Bulk explosives are used on site and these are delivered from an external supplier. The quantity of bulk explosives required for one shot is pre-determined and only the required quantity of explosives are delivered to the site. Surplus explosive is removed from the site by the supplier. Only detonators are to be stored in the on-site magazines.

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2.15 Dam Integrity

2.15.1 Objective

To maintain the structural integrity of Storage Dams.

2.15.2 Targets

No leakages, spills or other containment failures associated with the Dams.

2.15.3 Management Measures

Management Measure	Action	Procedure/ Management	Responsibility	Timing
Monitoring	<ul style="list-style-type: none">Dam integrity will be checked by visual observation.	Site Inspection Checklist	QM	monthly

2.15.4 Monitoring Schedule

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
As above					

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2.16 Landscape

2.16.1 Objectives

The objectives are to -

- minimise the visual impact of the proposed quarry activities from surrounding viewpoints
- stabilise soil.
- create an environment that will provide habitat for local and migratory fauna.
- create a safe and functional landscape.
- reinforce the local landscape character through the use of indigenous EVC units of the Chiltern area
- address drainage issues.

Further objectives are to -

- ensure that existing vegetation is maintained where practicable,
- ensure that landscape screening and rehabilitation is successfully established and subsequently maintained,
- ensure that vehicles entering or leaving the site do not spread weed seeds to or from the site.

2.16.2 Targets

Successful establishment and maintenance of landscape screening and rehabilitation in accordance with the Work Plan and to the satisfaction of the DPI and the Responsible Authority.

Maintenance of existing vegetation where practicable.

2.16.3 Management Measures

Management Measure	Action	Procedure/Reference	Responsibility	Timing
Stage 1- Site Establishment (0 to 4 months)	<ul style="list-style-type: none"> • Portable facilities to be as best possible placed in areas already screened by vegetation 			
Stage 2- Fixed Plant Construction Stage (5 to 36 months)	<ul style="list-style-type: none"> • Screen areas along road reserves 			Plant within 12 months
Stage 3- Operations	<ul style="list-style-type: none"> • Screen areas as suggested by community 			As required

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2.16.4 Monitoring Schedule

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Erosion & Sediment Control (Work Authority boundaries)	Visual inspection during stripping and earthworks	QM	Weekly when stripping	Clear water, (suspended solids test if requested)	Compliance with EPA guidelines
Landscape views from vantage points	Photographic summary	PM	Annual	Same location, same focal length	-

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SECTION C – REHABILITATION: PROVISION, STATUS & PLAN UPDATE

1.0 REHABILITATION & VEGETATION

1.1 OBJECTIVES

The main objectives for the landscape and rehabilitation of the quarry operations area are to:

- create an ecological community with a predominance of indigenous species to provide a contribution to net gain objectives and habitat hectares.
- minimise the visual impact of the proposed extension from surrounding viewpoints
- stabilise soil.
- create an environment that will provide habitat for local and migratory fauna.
- create a safe and functional landscape.
- reinforce the local landscape character through the use of indigenous EVC units of the Chiltern area
- address drainage issues.

Further objectives are to:

- ensure that existing vegetation is maintained where practicable,
- ensure that landscape screening and rehabilitation is successfully established and subsequently maintained. minimise the visual impact of the quarry operation upon the existing landscape of the local area,
- ensure that vehicles entering or leaving the site do not spread weed seeds to or from the site.

1.2 TARGETS

Successful establishment and maintenance of landscape screening and rehabilitation in accordance with the Work Plan attachment *Landscape and Visual Impact Assessment, ERM* (February, 2009) and Off-set Management Plan (Biosis Research, 2009) to the satisfaction of the DPI.

Maintenance of existing vegetation where practicable to do so.

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1.3 DESIGN METHODOLOGY

The Landscape and Visual Impact Assessment report sets out design methodologies to achieve these objectives and targets. The progressive quarry excavation will require on-going rehabilitation activities to control erosion, and make all earthworks safe and as compatible as possible with the surrounding landscape. Construction and revegetation will be undertaken in accordance with the Landscape and Rehabilitation Management Plan (LRMP) and other studies forming part of supporting documentation for the Work Plan (as applicable) to achieve successful rehabilitation. These are fully described in the respective reports and are briefly summarised below.

Batter and Bench Profiles within the Extraction Area

- The rehabilitation batters will be developed at a grade not steeper than 75° with 5m wide benches every 10m of vertical height.
- The benches will be backsloped at a grade of 1:10 (V:H) towards the toe of the batter so that surface drainage water flows into the drains at the toe of the batter.
- The benches will be sloped at a low longitudinal grade so that the drainage water can move towards a defined drop-down point to the next lower bench.
- Selected sections of the 290m AHD and 275m AHD benches will be partially covered with up to 2m of overburden to provide a substrate for tree and shrub growth.

This system will be repeated around the perimeter of the quarry so that water leads to the purpose-designed water bodies in the floor of the quarry.

Planting Programs

- Rehabilitation batters will be hydro-seeded with sterile Rye Grass to form an immediate cover and protect the surface before the native species establish and develop.
- All subsequent plantings will comply with the Ecological Vegetation Communities Mapping of Northern Slopes. It is proposed to use the Grassy Woodland species for benches above 290m AHD and the Valley Grassy Forest for any benches below 290m AHD.
- A variety of planting techniques such as tube and cell planting, direct seeding and hydro-mulching to achieve the final development of canopy species, mid-storey species, low shrubs and ground covers.

Details of the species to be planted is given in the OMP.

Floor of Extraction Area

- The infrastructure on the quarry floor consists of a gently sloping floor and sump all of which will be progressively relocated as the extraction area is deepened. Each sump will be designed in part to provide habitat for native fauna principally through the provision of a sloping entry into each sump.
- The remaining area will be planted to grassland, scattered shrub and overstorey canopy.
- It is planned to use sterile rye grass as an initial ground cover and then introduce native grass species.

Maintenance

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- Plant growth will be monitored to identify the success of the various species and assess future requirements.
- Monitoring and record keeping are essential components for assessing which species will be the most successful at the site.
- Plants will be watered as required until established or to the satisfaction of a DPI inspector in consultation with the Responsible Authority.
- Weeds will be controlled.
- Tube stock will be protected with tree guards which provide some protection from browsing animals, both native and exotic.
- Fencing will be maintained to exclude stock from newly planted areas.

Maintenance of rehabilitated areas is described in further detail in the following section.

1.4 MANAGEMENT MEASURES

1.4.1 General

The Landscape and Rehabilitation Management Plan (LRMP) has been prepared to deal with general rehabilitation and landscaping under the Work Plan and associated documentation, slope stability planting, net gain planting and surface water plantings, as required by the Permit. This plan addresses issues relating to maintenance including plant establishment, erosion control, weed control, planting protection, fencing, safety and other relevant management issues.

The LRMP covers all planting and rehabilitation within the quarry operational and non-operational areas. Detailed management measures associated with the net gain area are set out in the Net Gain Offset Management Plan (NGOMP) referenced in s.2.8 of this EMP.

The LRMP deals in detail with the management of the following aspects of quarrying operations as they relate to landscape and rehabilitation:

- Vehicle Management - Inspection of Vehicles, Clean down of Machinery, Vehicles and Equipment, Use of public roads and pathways, Provision of public safety
- Topsoil Scraping and Stockpiling
- Weed and Vermin Control, and Herbicide Use
- Existing Vegetation Management, including:
 - Seed Collection
 - Topsoil spreading
 - Hydro-seeding
 - Setting out works
 - Fencing and Signage
 - Supervision
 - Cleaning Up
 - Erosion control
 - Maintenance during plant establishment period of 52 weeks
- Soil Testing

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Reference should be made to the LRMP for all such issues arising as part of the ongoing maintenance of landscaped and rehabilitated areas.

1.4.2 Ongoing and Post-Operations Management

Ongoing maintenance, monitoring and rectification will be carried out by, and under the direction of, the site Rehabilitation (“Rehab”) Manager and will include (but not necessarily be limited to):

- Maintenance of the surface of site access tracks.
- Maintenance of all fences and signs.
- Pruning branches overhanging and imposing on access tracks.
- Monitoring and control of weeds as necessary, ensuring weed controllers have attended a DSE ‘Farm Chemical User Course’ or equivalent and have appropriate approvals.
- Monitoring health of retained and planted vegetation and checking for pests and diseases.
- Monitoring stability of berms and berm walls.
- Replant terrestrial planted areas that have failed and provide significant gaps on the horizon line.
- Regrading necessitated by erosion and washouts.
- Rehabilitation of quarry water management system.
- Treatment of disease or other infestation in vegetation as necessary and as approved in consultation with DSE.
- Control of pest animal species.

At the completion of all quarrying activities, the site is to be reviewed to ascertain plant losses. Replanting as part of the ongoing monitoring and maintenance is to continue for a period of 12 months after completion of extraction after which the planting will rely on natural regeneration.)

1.4.3 Monitoring, Reporting and Review

A site Rehab Manager is to be appointed with responsibility for the following:

- Ensuring any contractors and staff are aware of the LRMP and its requirements;
- Carrying out any monitoring, testing and corrective actions;
- Reporting and reviews as specified in this LRMP;
- Land management practices undertaken;
- Rehabilitation works completed;
- Complaints received and properly recorded and actioned;
- Non-conformances and corrective actions; and
- Results of site inspections.

The Rehab Manager is to submit land management reports to the Quarry Manager every 6 months from the commencement of rehabilitation. These reports will summarise the implementation of the LRMP and consider environmental impacts and processes and will include comment on:

- Land management practices undertaken;
- Rehabilitation works completed;
- Complaints received;
- Non-conformances and corrective actions;

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- Results of site inspections;
- Results of water quality testing;
- Health of existing indigenous vegetation;
- Recruitment of indigenous vegetation into rehabilitation and landscape areas;
- Weed invasion;
- Erosion;
- Water quality; and
- Proposed alterations to the LMRP in line with the current best practice.

1.5 MONITORING

Performance monitoring against the LMRP will be undertaken annually.

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Annexure 1

Environmental Monitoring Schedule

New Chiltern Quarry



20th October, 2009

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□ New Chiltern Quarry Monitoring Schedule Summary

This document summarises the monitoring and testing requirements for the development and operation of the HOLCIM new Chiltern Quarry. The accompanying Locality Plan (Figure 1) shows the monitoring and testing locations referred to by the various schedules.

It is intended that the results of the monitoring will be reviewed at least annually and the schedule revised as necessary to ensure only meaningful data is being collected and effective control of the impacts of the development and operations are being achieved.

Wherever possible, monitoring will be conducted by trained company personnel.

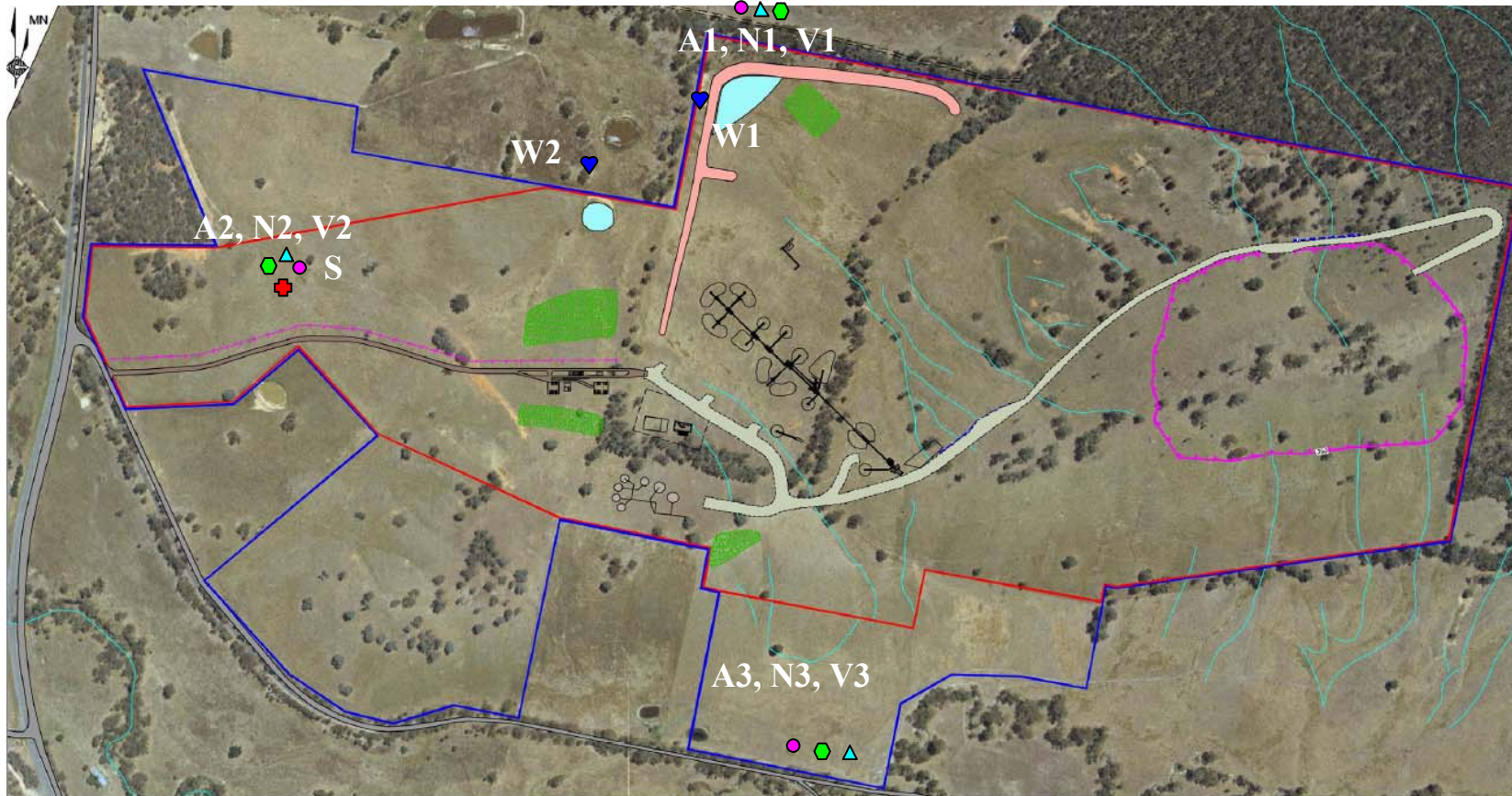
Item	Test	Done By	Frequency	Standard / Criteria
Airborne Dust	High Volume	Specialist consultants or HOLCIM Personnel	Hourly results for 1 day each month for initial 24 months	Work Authority
Deposited Dust	Deposition Rate	HOLCIM Personnel	Monthly	
Operating Noise	Noise Monitoring (hand-held)	Specialist consultants	Monthly during Site Establishment and Quarterly during Stage 2	State Environmental Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1, 1989 (as amended)
Blasting	Air Blast Ground Vibration	Shot Firer / Manager / Specialist consultant	Each blast	Planning Permit Conditions
Surface Water	Spot sample (pH, EC, O & G)	HOLCIM personnel \ Specialist consultants	Within 8 hours of discharging commencing. (weekly during discharge)	Stock Water Dam Beneficial Use
Slope Stability Dam A	Visual assessment Geotechnical Report	HOLCIM personnel \ & Specialist consultants as required Specialist consultants	Annually 5 years	Planning Permit Conditions
Greenhouse Gases	Recording power and diesel usage	HOLCIM personnel	Annually	EPA Publication No. 824
Traffic Management	Visual assessment	HOLCIM personnel	Monthly	Planning Permit Conditions
Net Gain Offset Site	Management Audit	Specialist consultants	End of years 1, 2, 3, 5 & 10	Planning Permit Conditions & DSE Net Gain Guidelines
Fire Management	Inspections, AS1851	HOLCIM personnel \	6-monthly, annually	Australian Standard
Rehabilitation & Vegetation	Landscape Report Status Report & Recommendation	HOLCIM personnel \ Specialist consultants	Annually 5 Year	Work Authority Conditions

Note: See locality plan for legend to monitoring locations

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Holcim new Chiltern Quarry

Figure 1: Environmental Monitoring Locations



LEGEND:

- A = Air monitoring location
- ▲ N = Noise Monitoring location
- ⬡ V = Blast Vibration and Noise Overpressure location
- ◆ W = Surface Water Sampling Point
- ⊕ S = Weather Station

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(i) Monitoring Station Locations

Monitoring Station		Description	GPS Co-ordinates
A1	Air Monitoring	Continuous Airborne Fine Particles (Reactive Monitor), Deposition dust gauge	TBC
A2	Air Monitoring	Continuous Airborne Fine Particles (Reactive Monitor), Deposition dust gauge	TBC
A3	Air Monitoring	Continuous Airborne Fine Particles (Reactive Monitor), Deposition dust gauge	TBC
N1	Noise Survey Point	Routine and Periodic Noise Monitoring	TBC
N2	Noise Survey Point	Routine and Periodic Noise Monitoring	TBC
N3	Noise Survey Point	Routine and Periodic Noise Monitoring	TBC
V1	Vibration/ Overpressure Noise	Every Blast	TBC
V2	Vibration/ Overpressure Noise	Every Blast	TBC
V3	Vibration/ Overpressure Noise	Every Blast	TBC
W1, W2	V-notch Weir, Surface water discharge	Weekly during discharge	TBC

TBC = To Be Confirmed

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Fixed Station Dust Fall out Monitoring.	Deposition	Technical Officer (certified in accordance with the independent certification procedure)	Monthly	AS/NZS 3580.10.1:2003 : Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method	Dust deposition 4g/m ² /month (no more than 2g/m ² /month greater than background)
3x Reactive monitors will be used at Air monitoring locations specified.	Airborne Dust (PM ₁₀) as µg/m ³	Quarry Manager	Continuous between November – March	Real time dust monitoring with data logger and hourly averages. As there is no standard specified. A portable DustTrak/ Osiris/ Airmetrics type unit will be employed.	PM ₁₀ (1 hour ave.) – 64 µg/m ³ <i>(i.e. 80% of the SEPP AQM criteria of 80 µg/m³ to enable reactive management of dust emission)</i>
Weather Station (Refer Figure 1 for Location)	Wind speed and direction	Technical Officer (certified in accordance with the independent certification procedure)	Continuous (hourly averages)	Wind Velocity: AS 2923-1987, Guide for the Measurement of Horizontal Wind for Air Quality Applications	N/A

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Routine noise monitoring surrounding the quarry. (see Figure 1)	Noise level at all Monitoring Locations	Technical Officer (independently certified)	Monthly	State Environmental Protection Policy (Control of noise from commerce industry and trade) No.	Day 0700-1800hrs 45 – 46 dB(A) L _{Aeq}

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
				N-1 1989 (as amended)	
Periodic noise monitoring at commencement of change in quarry activities e.g. near surface extraction.	Noise level at all Monitoring Locations	Technical Officer (independently certified)	Daily until consistent compliance obtained	State Environmental Protection Policy (Control of noise from commerce industry and trade) No. N-1 1989 (as amended)	Day 0700-1800hrs 45 dB(A) L_{Aeq}
Periodic noise monitoring during noise attenuation mound construction works	Noise level at all Monitoring Locations	Technical Officer (independently certified)	Daily during mound works	State Environmental Protection Policy (Control of noise from commerce industry and trade) No. N-1 1989 (as amended)	Day 0700-1800hrs 56 dB(A) L_{Aeq}
Monitoring in response to a “justified complaint”	Noise level at Complainant’s Residence	Technical Officer (independently certified)	As required	State Environmental Protection Policy (Control of noise from commerce industry and trade) No. N-1 1989 (as amended)	Day 0700-1800hrs 45- 46 dB(A) L_{Aeq} Night: 37- 49 dB(A) L_{Aeq}

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Monitoring Stations V1, V2 and V3 (refer Fig 1) or as directed by an Inspector.	<p>Peak Particle Velocity (PPV) (Ground Vibration)</p> <p>Air Blast (Air Vibration)</p>	<p>Specialist Consultants/ Blasting Contractor.</p> <p>Specialist Consultants/ Blasting Contractor.</p>	<p>Every blast</p> <p>Every blast</p>	<p>Department of Primary Industries Environmental Guideline - Ground Vibration and Airblast Limits for Blasting in Mines and Quarries 2001 – New Sites</p>	<p>PPV 5mm/sec for 95% of blasts in 12 month period. PPV 10mm/sec for 100% of blasting in 12 month period.</p> <p>Peak Airblast of 115dBL for 95% of blasts in 12 month period. Peak Airblast of 120dBL for 100% of blasts in 12 month period.</p>

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Dams #A and #B	Visual Inspection for sedimentation and algae.	Technical Officer (independently certified)	At least monthly	Direct Observation	N/A
Sediment Ponds	Visual Inspection for sedimentation and algae.	Technical Officer (independently certified)	At least monthly and following substantial rainfall events	Direct Observation	N/A
V-notch Weir	Flow Rate (Volume, time, date and duration of each discharge event)	Technical Officer (independently certified)	Continuous whilst discharge occurs	Standard Spreadsheet calc.	Annual Volume (TBD by EPA)

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria [#]
Overburden Stockpiles, Crushed Stockpiles and Operating Faces	Visual inspection for changes in seepage conditions, cracking, movement (bulging or slips)	Technical Officer	Six monthly (or at completion of overburden placement or removal) After heavy rain	Direct Aerial Observation Walk-over	N/A
Rehabilitation of Operational Areas	Visual inspection for changes in seepage conditions, cracking or movement (bulging or slips)	Technical Officer	Annually	Direct Observation	N/A
Land Slips	Visual Inspection of vegetation planting spring and land surface stability	Technical Officer	Six monthly & after heavy rain	Direct Observation	N/A
New Planting or drainage works	Visual Inspection of vegetation planting and land surface stability	Technical Officer	Within 6 months following works	Direct Observation	N/A

Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Fuel usage	-	OIM	Annual	Usage per tonne	
Electricity usage	-	OIM	Annual	KWh per tonne	
Explosives usage	-	OIM	Annual	Tonne per tonne	

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Construction of intersection improvements	N/A	QM	6 monthly	Progress status report	On track to meet timing requirement
	VicRoads or Council approval		At completion of works	N/A	To VicRoads or Council satisfaction
Truck wheels clean before entering public roadways	Visual inspection – wheels and roads	Technical Officer	Monthly	Housekeeping check ⁺	No dirt tracked onto public roadways
Spillage of materials from vehicles leaving site	Visual inspection – vehicles and roads	Technical Officer	Monthly	Housekeeping check ⁺	No materials spilled onto public roadways
Truck queuing during early morning movements	Visual inspection – vehicles	Technical Officer	Monthly	Housekeeping check ⁺	No queuing of trucks during early morning movements (pre-7:00am)
<i>‘Trucks must not use engine brakes near town’ signage</i>	Visual inspection	Technical Officer	Monthly	Housekeeping check	Sign is clearly visible to truck drivers leaving the quarry. Re-inforced in Drivers Code of Conduct

Note: + - any daily noted excursions are to be recorded within the incident register.

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Offset Site Management Audit	-	PM	End of years 1, 2, 3, 5 & 10	DSE, 2004 (reference 7)	Compliance with Permit and DSE Net Gain Guidelines (reference 6)

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Fire/evacuation drill	Fire/evacuation alarm sounded without prior notice	Quarry Manager	annually	Quarry Emergency Procedures flip chart	All personnel safely evacuate in timely manner
Smoke detectors	Detector sounded (battery replaced)	Technical Officer	6 monthly	Manufacturer's specification	All units fully operational
Fire prevention works	Inspection	Technical Officer	Annually prior to "Fire Danger Period"	Visual observation	Completed as agreed with Responsible Authority/CFA
Fire fighting equipment – mobile	Equipment fully operational	Technical Officer	6 monthly	Manufacturer's specification	No faults
Fire fighting equipment – other	Systems and equipment fully operational	Technical Officer	AS1851	AS1851 – Maintenance of fire protection systems and equipment	No faults/failures

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Dam Integrity Review	To be nominated by Specialist	Specialist Geotechnical Consultant	5 years	To be nominated by Specialist	Certification statement by specialist

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Item	Test	Responsibility	Frequency	Assessment Methodology	Acceptance Criteria
Landscape & Rehabilitation Development	Status Report & Recommendation	Independent Expert	2 yearly or as required by DPI Inspector in consultation with Council	Approved Work Plan, Landscape and Rehabilitation Management Plan	Compliance to Work Plan, OMP
		Rehab Manager	6 monthly	Work Plan, Landscape and Rehabilitation Management Plan	Compliance to Work Plan, OMP
Litter (Work Authority boundaries and office/operational areas)	Status Report & Recommendation	Rehab Manager	6 monthly	Work Plan, LRMP	Compliance to Working Plan, OMP
Erosion & Sediment Control (Work Authority boundary)	Visual inspection during stripping and earthworks	Rehab Manager	Weekly when stripping	Clear water, (suspended solids test if requested)	
Weed Control (Whole Work Authority Area)	Visual monitoring & Spraying Follow up Inspection & spraying	Rehab Manager	Twice yearly (October, December/ January)	LRMP	Absence of noxious weeds; Effective control achieved