



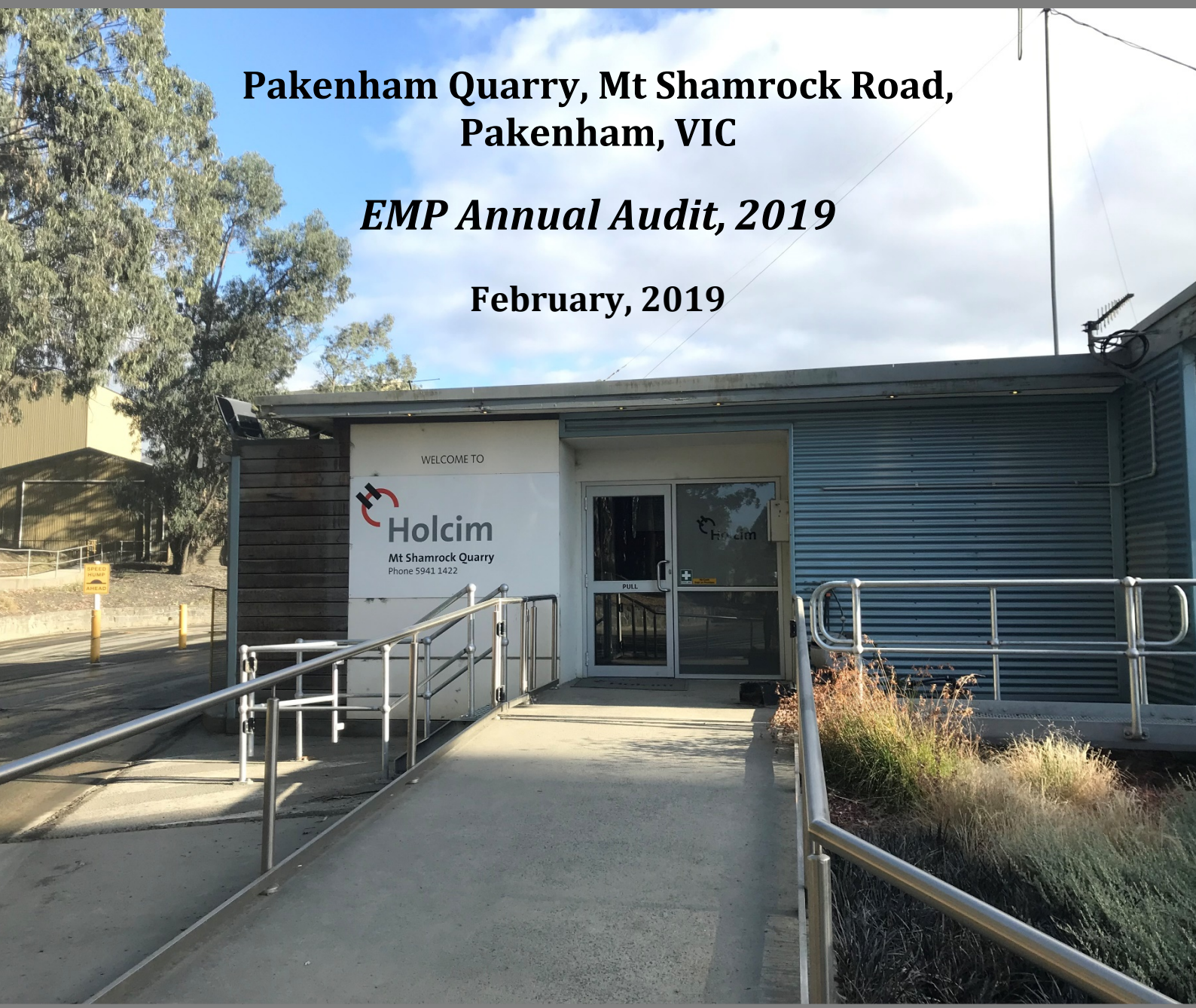
EnviroRisk

APPROVALS - SUSTAINABILITY - COMPLIANCE

**Pakenham Quarry, Mt Shamrock Road,
Pakenham, VIC**

EMP Annual Audit, 2019

February, 2019



for

Holcim Australia Pty Ltd

DISCLAIMER

AUDITING METHOD

This audit report is based on a representative sample of systems and information using the 'evidence based approach' as provided for in AS/NZS ISO 19011:2014 *Guidelines for auditing management systems*. This approach was adopted to verify that environmental risks are being systematically managed in accordance with the audit criteria as specified in the audit scope section of this report.

Information presented within the Report relies on:

- the completeness and accuracy of information provided by those personnel available for interview (after reasonable professional interrogation of the accuracy of such information); and
- the condition of the site as observed during the day(s) of the site inspection; and
- the completeness and accuracy of records, monitoring data and previous reports that were within the system or made available to support Audit enquiries.

It is emphasised that this Audit is a 'snapshot in time' and environmental conditions, business operations and/or management practices may vary at times following the audit period.

The detail provided within the audit report largely reports by exception; discussing areas identified for improvement far more than when commendable practices were observed and/or verified. This approach is considered to provide a more concise report, with a focus on continuous improvement.

The Audit Report is intended for those named on the distribution list. The Audit report should only be reproduced and distributed in full.

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QUALITY CONTROL



DOCUMENT REVISION HISTORY

Revision No.	Summary of Amendments	Reviewed by	Issued by	Issue Date
Draft		S Jenkins	S Leverton	4 Mar 2019
00	Addition of reference to sighting ALS lab reports for air quality monitoring.		S Leverton	8 April 2019

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General Information

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Audit Conducted By (Environmental Specialist)	
Lead Auditor:	Stephen Jenkins, Director, EnviroRisk Management
Signed:	
Auditor:	Simon Leverton, Senior Manager, EnviroRisk Management
Signed:	
Date Audit Completed:	20 th February, 2019
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Title:	Quarry Manager, Holcim
Audit Personnel	
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Report Distribution	
Matt Dodd	Quarry Manager, Holcim
Stephen Jenkins	EnviroRisk Management Pty Ltd (Master Copy)

Executive Summary

This report describes the outcome of an environmental audit conducted at Holcim's Mt Shamrock Road Quarry, Pakenham. The quarry has been in operation since 1974. In 2008 approval for the extension of quarry works was granted subject to the quarry being managed in accordance with an Environmental Management Plan (EMP). An EMP was prepared and approved in January, 2008. It has since been reviewed and revised, with the new version coming into effect in October 2015.

Auditee: Holcim Australia Pty Ltd – Mt Shamrock Road Quarry

Audit Scope: A detailed evaluation of compliance by Holcim with the requirements of the 'Mt Shamrock Quarry – Environmental Management Plan, version 3: August 2015'.

The audit comprised the conducting of interviews with a range of Holcim personnel, examination of documentation and records, a guided inspection of the quarry site and surrounding area, and the completion of a detailed protocol which listed all commitments contained within the EMP. Photographs were taken to illustrate items raised, and are attached to this report.

Recommendations for action have been prepared in tabular form, together with a listing of the specific EMP non-conformance(s) that were identified during the audit.

Audit findings:

The audit has found that over the last 12 month period the quarrying operations substantially conformed to the requirements of the EMP and its associated documents. The following commendable items were noted:

- Essentially no environmental complaints, and none relating to a target exceedance;
- Environmental quality monitoring data was mostly in compliance with limits specified in the EMP and EPA Licence, with minor exceptions relating to the latter;
- Objectives and targets specified in the EMP were mostly met – the two exceptions to this were minor;
- Recommendations from the previous audits have been implemented;
- Vegetation planting around the rim and rehabilitated faces of the quarry, and within the net gain offset areas, has been well managed and continues to progress well (particularly the net gain offset area);
- Solid wastes, and fuel/oil storage and handling areas are well managed and maintained, with two exceptions noted;

- From examining the minutes of meetings and contents of the quarterly reports, it appears that Holcim has engaged extensively with stakeholders (as represented in the ERC); and
- Inviting local CFA members to tour the site as part of the development of a bushfire management plan with CFA.

For the year 2018 all the objectives and targets specified in the EMP were met, except for the greenhouse gas emissions and the housekeeping targets (not established whether met or not). GHG emissions per tonne of product will vary from year to year depending on the demand for different products – Holcim advised that a more highly processed (and therefore of higher “embedded energy”) product mix was sought during 2018 than in previous years. It may therefore be more realistic to determine the GHG emission trend over the years and set an average reduction target.

The housekeeping metric or score was not introduced into the housekeeping checks until part way through the audit period, so an accurate score could not be determined for the year.

The tables on the following page summarise the status of achievement of the objectives and targets as set out in the EMP for each section for 2018 and the previous seven years (for which audits were conducted).

Four (4) minor non-conformances were identified and are described in detail in the table below, together with recommendations for corrective action. Additionally, eighteen (18) observations were made leading to recommendations for management improvement. These are listed in section 6.3 of this report.

Non-conformances and Recommendations for Corrective Action

EMP Ref.	Rating	Non-conformance	Recommendation
s.2.1.3	mnc	The weather monitoring station required to be operating and displayed in the Quarry Manager’s office was not in place.	Re-establish the weather monitoring station in the QM’s office, in operating condition.
s.2.3.3	mnc	No evidence was sighted confirming that slope stability checks are conducted after each blast.	Add slope stability check as an item in the blasting checklist form, and ensure that inspection forms are completed and included in each blast document folder.
s.2.14.3	mnc	Above ground bulk diesel storage tank situated in quarry pit and servicing quarry pump was not bunded.	Correct the AST bund through installation of drain pipe with fitted valve, or similar.
Part C, s.1.4.1	mnc	The Landscape and Rehabilitation Management Plan has not been reviewed as required.	Review the LRMP to ensure that it contains up to date and relevant land management practices, before the next stage of rehabilitation works commences, document the review and present to ERC for comment and agreement. The review should involve the contractor Naturelinks.

Environmental Audit: Mt Shamrock Quarry EMP, 2019 - Holcim

EMP Section	For the year 2009		For the year 2010		For the year 2011		For the year 2014		For the year 2015		For the year 2016		For the year 2017	
	Objective	Target	Objective	Target	Objective	Target	Objective	Target	Objective	Target	Objective	Target	Objective	Target
Air Quality	Achieved	Partially met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Noise	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Blasting	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Not met	Achieved	Met	Achieved	Met	Met	Met
Surface Water, Drainage, and Groundwater	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Not met
Slope Stability	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Greenhouse Gas Emissions	(not established)	Partially met	Achieved	Partially met	Achieved	Partially met	Achieved	Not met; to be revised	Achieved	Partially met	Achieved	Not met	Met	Met
Traffic Management	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Net Gain	Progress towards achievement	Met, however progress too slow	Progress towards achievement	Met	Progress towards achievement	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Cultural Heritage	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Fire Management	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Water Conservation	Achieved	Met	Achieved	Met	Achieved	Met	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Waste Management	Achieved	Not met	Achieved	Not met, in progress	Achieved	Not met, in progress	Achieved	Not met, in progress	Achieved	Not met, in progress	Achieved	Met	Met	Not met
Housekeeping/Preventative Maintenance	Achieved	(not established)	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Storage & Handling	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Donazzan's Dam Integrity	Achieved	Met	Not fully achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Rehabilitation & Vegetation	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met

EMP Section	For the year 2018	
	Objective	Target
Air Quality	Achieved	Met
Noise	Achieved	Met
Blasting	Achieved	Met
Surface Water, Drainage, and Groundwater	Achieved	Met
Slope Stability	Achieved	Met
Greenhouse Gas Emissions	Achieved	Not met
Traffic Management	Achieved	Met
Net Gain	Achieved	Met
Cultural Heritage	Achieved	Met
Fire Management	Achieved	Met
Water Conservation	Achieved	Met
Waste Management	Achieved	Met
Housekeeping/Preventative Maintenance	Achieved	(not established)
Storage & Handling	Achieved	Met
Donazzan's Dam Integrity	Achieved	Met
Rehabilitation & Vegetation	Achieved	Met

1.0 BACKGROUND

The Holcim Mt Shamrock Road Quarry has been in operation since 1974. In 2001 an application was made for the quarrying activities to be extended. An Environmental Effect Statement (EES) was prepared and after public comment and a panel review, permission for the extension was granted subject to all quarry works being managed in accordance with an Environmental Management Plan (EMP). An EMP was prepared for Holcim (then CEMEX) by EnviroRisk Management Pty Ltd (“EnviroRisk”) and issued on 18th January, 2008. The EMP has since been reviewed and revised, with the new version coming into effect in October 2015.

The extension of the quarry commenced in February, 2008. The aerial photographs in Appendix 2 show the quarry prior to extension works, two years after Stage 1 of the extension has commenced (i.e. 2010), one year further on from then (May, 2011), at April 2014, December 2015, December 2016, October 2017 and February, 2019. The land forming the extension is in the south west corner of the quarry, as shown in photograph 1.

This report describes the outcome of the annual audit of the EMP, conducted as specified in section 8.1 of that document. In preparing for this audit, the Auditor confirmed with Holcim that the Environmental Review Committee (ERC) was provided with a copy of the proposed audit scope and program.

2.0 OBJECTIVES

The objectives of this audit are to evaluate the extent of implementation of the EMP by Holcim over the audit period (Feb 2018 to Feb 2019), determine whether the limits within the EMP are being complied with, and provide a public report on the findings to Holcim for presentation to the ERC.

3.0 SCOPE & CRITERIA

The scope of the Audit is to complete a detailed evaluation of compliance by Holcim with the requirements of the *‘Mt Shamrock Quarry – Environmental Management Plan, version 3: August 2015’*. Specifically, the scope includes an examination of:

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

In addition, the status of progress towards implementing the recommendations of previous audits was reviewed. The audit was conducted by way of site interviews, documentation examination and accompanied site inspections at the Mt Shamrock quarry and its surroundings over the period 18th – 20th February, 2019.

4.0 AUDIT TEAM

The audit team comprised the following EnviroRisk personnel:

Stephen Jenkins - Project Director & Lead Auditor

Stephen is the Director of EnviroRisk Management and an Exemplar Global-accredited Lead Environmental Auditor (EMS, Compliance, Due Diligence and Facilities and Process). He is also a Certified Environmental Practitioner, and a Victorian EPA-appointed Environmental (Industry Facility) Auditor (appointed pursuant to the *Environment Protection Act, 1970*).

Stephen was formerly an operations scientist with the Victorian EPA, and worked as an environmental manager with Richard Oliver Risk Managers before establishing EnviroRisk Management in 1995. Stephen developed the AuditMASTER™ Environmental Management software package based on his many years of experience conducting reviews of Environmental Management Systems. He has conducted systems/risk audits of a large variety of sites including food processing, building and construction, automotive parts manufacturers, plastics and related industries.

Stephen's role in this project was as Audit Leader, providing expert input and direction, and quality-assuring deliverables through peer review. Stephen also visited the quarry and surroundings during the audit and sighted monitoring data and conducted a site inspection.

Simon Leverton – Auditor (water & waste specialist)

Simon is a Senior Project Manager and Exemplar Global-accredited Lead Environmental Auditor (EMS, Compliance, Site Contamination Assessment and Facility). He has over 43 years' experience as a scientist, and over 32 years in the environment industry. He is also a Certified Environmental Practitioner. Simon has a broad range of industrial expertise in both the public and private sectors. He worked for the Victorian EPA for 6 years during which time he managed works approvals and licences for a wide range of industries in the water and wastewater sectors, and landfills. He was also extensively involved in motor vehicle policy evaluation and development, enforcement, and community consultation programs. In the early 1990's he was a senior officer with WA's Water Corporation (trade waste) and later became pollution control manager for that state's then Waterways Commission. As Principal Environmental Scientist with GHD in Perth, Simon was involved in developing environmental management plans for numerous clients. Simon has extensive environmental auditing experience over a range of industry sectors, including quarries, brickworks and other building materials industries.

Simon undertook the site component of the audit, conducting interviews and inspections, and prepared all documentation for internal and client review, and finalised this to completion.

5.0 CRITERIA

The audit criteria are the documented references (obligations, commitments, requirements of and undertakings by the auditee) against which audit evidence is compared to determine whether they have been or are being met. The 'primary' criteria for this audit are set out in parts 1, 2 and 3 of the EMP. Associated 'secondary' criteria are those contained in relevant and applicable legal and other requirements, and are considered to represent industry best practice. The audit may make reference to these as appropriate.

An audit protocol, in table format, has been prepared to guide the progress and process of the audit, and record the findings. This is attached at Appendix 1. The protocol lists in the second column each commitment that is contained within the EMP (i.e. the primary criteria), with a chapter reference included opposite in the first column. Where management measures specified in the EMP have a timing requirement against them, this has been included in the left hand column of the protocol against each measure as appropriate. Areas shaded grey were not audited as these criteria have expired and/or were dealt with in previous audit(s).

The audit team has examined Holcim's actions in carrying out each of these commitments, and recorded the evidence of these actions (either documentary, or by observation during site inspection) in the far right column. The middle column is where the audit team has recorded any pertinent comments or other findings.

For each commitment, the audit team has determined whether the actions, and their timing, fully satisfy the commitment. If so, **conformance (C)** is indicated in the fourth column. If not, a non-conformance is recorded as either:

- **minor (mnc)** if the environmental impact of the non-conformance is likely to be contained within the site, or have limited off site impact, or is a documentation issue, or
- **major (MNC)** for a potential or actual significant off site impact on the environment, and/or a legal compliance issue, including non-compliance with prescribed limits in the EMP.

Where an opportunity for management improvement is identified, an **observation (O)** is recorded. Some criteria are not auditable for various reasons, such as not being relevant at the stage of the works being examined by the audit. In this case, the criterion is designated **not auditable (NA)** and an explanation of the reason for this is entered in the comments section.

Photographs have been taken of various locations around the site as evidence of the measures and actions taken to implement EMP commitments, and in some cases highlight opportunities for improvement. These are referenced in the protocol table where appropriate, and are reproduced in Appendix 2.

The audit has also made a determination of achievement against each of the objectives set out in the EMP, based on the overall findings, and also whether the specified targets have been met (fully, partially or not at all). The results of this are entered against each objective and target in the protocol, and summarised in tabular form in Section 6.1 below.

6.0 FINDINGS

6.1 General

The audit has found that over the last 12 month period the quarrying operations substantially conformed to the requirements of the EMP and its associated documents. The following commendable items were noted:

- Essentially no environmental complaints, and none relating to a target exceedance;
- Environmental quality monitoring data was mostly in compliance with limits specified in the EMP and EPA Licence, with minor exceptions relating to the latter;
- Objectives and targets specified in the EMP were mostly met – the two exceptions to this were minor;
- Recommendations from the previous audits have been implemented;
- Vegetation planting around the rim and rehabilitated faces of the quarry, and within the net gain offset areas, has been well managed and continues to progress well (particularly the net gain offset area);
- Solid wastes, and fuel/oil storage and handling areas are well managed and maintained, with two exceptions noted;
- From examining the minutes of meetings and contents of the quarterly reports, it appears that Holcim has engaged extensively with stakeholders (as represented in the ERC); and
- Inviting local CFA members to tour the site as part of the development of a bushfire management plan with CFA.

The following sections provide detail on the achievement of the EMP objectives and targets, the non-conformances identified and recommendations for corrective action, and recommendations for addressing observations made by the audit team.

6.1 Objectives & Targets

Table 6.1 summarises the outcomes of the audit with respect to the objectives and targets set out in Part B and C of the EMP, together with those from the previous seven audits. For the year 2018 all the objectives and targets specified in the EMP

were met, except for the greenhouse gas emissions and the housekeeping targets (not established whether met or not).

GHG emissions per tonne of product will vary from year to year depending on the demand for different products – Holcim advised that a more highly processed (and therefore of higher “embedded energy”) product mix was sought during 2018 than in previous years. It may therefore be more realistic to determine the GHG emission trend over the years and set an average reduction target.

The housekeeping metric or score was not introduced into the housekeeping checks until part way through the audit period, so an accurate score could not be determined for the year. However, examination of a sample of the inspection records indicated an overall high level of compliance with expectations.

Table 6.1 – Conformance with Objectives and Targets

EMP Section	For the year 2009		For the year 2010		For the year 2011		For the year 2014		For the year 2015		For the year 2016		For the year 2017	
	Objective	Target	Objective	Target	Objective	Target	Objective	Target	Objective	Target	Objective	Target	Objective	Target
Air Quality	Achieved	Partially met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Noise	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Blasting	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Not met	Achieved	Met	Achieved	Met	Met	Met
Surface Water, Drainage, and Groundwater	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Not met
Slope Stability	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Greenhouse Gas Emissions	(not established)	Partially met	Achieved	Partially met	Achieved	Partially met	Achieved	Not met; to be revised	Achieved	Partially met	Achieved	Not met	Met	Met
Traffic Management	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Net Gain	Progress towards achievement	Met, however progress too slow	Progress towards achievement	Met	Progress towards achievement	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Cultural Heritage	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Fire Management	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Water Conservation	Achieved	Met	Achieved	Met	Achieved	Met	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Waste Management	Achieved	Not met	Achieved	Not met, in progress	Achieved	Not met, in progress	Achieved	Not met, in progress	Achieved	Not met, in progress	Achieved	Met	Met	Not met
Housekeeping/Preventative Maintenance	Achieved	(not established)	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Storage & Handling	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Donazzan's Dam Integrity	Achieved	Met	Not fully achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met
Rehabilitation & Vegetation	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Achieved	Met	Met	Met

Table 6.1 – Conformance with Objectives and Targets (continued)

EMP Section	For the year 2018	
	Objective	Target
Air Quality	Achieved	Met
Noise	Achieved	Met
Blasting	Achieved	Met
Surface Water, Drainage, and Groundwater	Achieved	Met
Slope Stability	Achieved	Met
Greenhouse Gas Emissions	Achieved	Not met
Traffic Management	Achieved	Met
Net Gain	Achieved	Met
Cultural Heritage	Achieved	Met
Fire Management	Achieved	Met
Water Conservation	Achieved	Met
Waste Management	Achieved	Met
Housekeeping/Preventative Maintenance	Achieved	(not established)
Storage & Handling	Achieved	Met
Donazzan's Dam Integrity	Achieved	Met
Rehabilitation & Vegetation	Achieved	Met

6.2 *Non-conformances*

Four (4) minor non-conformances were identified and are described in detail in Table 6.2 below, together with recommendations for corrective action.

6.3 *Observations/Opportunities for Improvement*

Eighteen (18) observations were made, leading to the following recommended actions to address these and improve environmental management at the site:

1. Refresher training for Holcim's technical officer (J Everett) should be arranged, to be conducted by specialists as per s.5.1 of the EMP.
2. Ensure that all quarterly reports to the ERC are available from the facilitator's website.
3. Blue Atmosphere's summary reports should contain the following additional information –
 - a. commentary where data deviates from what is considered 'normal' (e.g. A7, June; A1, August)
 - b. specifications of measurement device being used (make and model of continuous dust monitor)
 - c. explanation of why PM₁₀ readout for some monitoring locations shows zero baseline
4. Relocate reactive dust monitor from background location (A7) to A6.
5. Revise the Environmental Monitoring Schedule (Appendix 11) to include the location of air quality background, and correct reference to locations in the table of locations.
6. Remove N8 from Noise Field Record. Include provision for entering the noise level at which the SLM was calibrated. Retain factory calibration certificate for SLM.
7. Revise Appendix 8 at the next EMP review to show the current blasting checklist being used, and correct reference to residents being notified by text.
8. Amend EMP at next revision to include revised EPA Licence conditions, and reflect these in the water quality monitoring procedure. Include field parameter measuring equipment daily calibration procedure in the water quality monitoring procedure.
9. Confirm with JJ Richards that, as Holcim's accredited agent, paper waste transport certificates do not need to be completed for each prescribed industrial waste consignment. These are only required when a non-accredited agent is used to transport PIW off-site. When this occurs, Holcim personnel must be fully trained to complete certificates correctly.
10. Implement the recommendations of the AECOM report (February, 2018) in relation to groundwater level gauging and impacts on the beneficial uses on properties surrounding the quarry.
11. Revise the EMP at the next review to correctly reference the current SEPP (Waters).
12. Stabilise the bare earth patches at the V-notch sampling location to ensure sediment is not entrained during flow and contaminates the sample being taken at the discharge point.
13. Implement the recommendations of the AECOM report (February, 2019) in relation to ensuring slope stability is monitored effectively, dams are stabilised, and risk of downslope damage is mitigated.
14. Slope stability inspections need to be conducted in accordance with the timing specifications as set out in Appendix 11 of the EMP.

15. Prioritise energy audit recommendations based on energy saved (assuming reasonable pay back times), and focus on implementing those that save the most energy first.
16. Implement through the INX system the recommendations of the Biosis off-set audit report (June, 2018) in relation to weed control works and twice yearly monitoring inspections.
17. Toolbox correct waste segregation practices, and develop pictorial guides to post at key collection points to assist staff/contractors to do the right thing.
18. Determine whether Holcim's waste contractor can provide suitable containers for collection of separated recyclable plastics.

6.4 Previous Audits – Status of Recommendations

Table 6.3 show the implementation status of the recommendations to correct non-conformances from the previous annual audit. All three recommendation have been satisfactorily addressed.

All recommendations from earlier audits have been closed out.

Table 6.2 - Non-conformances and Recommendations for Corrective Action

EMP Ref.	Rating	Non-conformance	Recommendation
s.2.1.3	mnc	The weather monitoring station required to be operating and displayed in the Quarry Manager's office was not in place.	Re-establish the weather monitoring station in the QM's office, in operating condition.
s.2.3.3	mnc	No evidence was sighted confirming that slope stability checks are conducted after each blast.	Add slope stability check as an item in the blasting checklist form, and ensure that inspection forms are completed and included in each blast document folder.
s.2.14.3	mnc	Above ground bulk diesel storage tank situated in quarry pit and servicing quarry pump was not bunded.	Correct the AST bund through installation of drain pipe with fitted valve, or similar.
Part C, s.1.4.1	mnc	The Landscape and Rehabilitation Management Plan has not been reviewed as required.	Review the LRMP to ensure that it contains up to date and relevant land management practices, before the next stage of rehabilitation works commences, document the review and present to ERC for comment and agreement. The review should involve the contractor Naturelinks.

Table 6.3 - Progress and Status of Non-conformances & Recommendations from 2018 Audit

Rating	Non-conformance	Recommendation	Status as at 18 Feb 2019
mnc	EPA Licence exceedances for suspended solids and TDS.	When rain causes discharge from site not due to Dam overflow, this should be investigated at the time and a substantiating report (with photographs and WQ field readings from other waters) prepared for submission to EPA outlining the circumstances to justify a claim of non-compliance.	Rain event generated discharge is recorded in field form, and visual check made on dam to confirm no discharge. COMPLETE
mnc	It is unclear whether Council/CFA were consulted in undertaking the annual on-site fire prevention works.	Ensure that the appropriate agencies are consulted when conducting the pre-fire period prevention works.	CFA invited to inspect site and assist in preparing the Bushfire Management Plan. COMPLETE
mnc	Annual waste to landfill target not met.	(see recommendations arising from opportunities for improvement)	Target effectively met for 2018. COMPLETE

7.0 REFERENCES

1. EPA Victoria, Legislation, guidelines, etc (various).
2. Mt Shamrock Quarry Environmental Management Plan, version 3, August 2015 and associated documents.
3. AS/NZS ISO14001:2016 *Environmental management systems*.
4. AS/NZS ISO19011:2014 *Guidelines for auditing management systems*.

Appendix 1

Audit Protocol

Section/ Timing	EMP Requirement – Summary	Auditor’s Findings & Comments	Conf*	Audit Evidence
<p>*Conformance is rated as follows:</p> <p>C - Conforms;</p> <p>MNC –Major non-conformance (potential or actual significant offsite impact on the environment, and/or legal compliance issue);</p> <p>mnc –Minor non-conformance (minor actual or potential environmental impact, may be contained within site or have limited off site impact; documentation issue);</p> <p>O – Observation; opportunity for improving the management system and/or operational controls exists.</p> <p>NA – Not Auditable or Applicable (see “Comments” section for reason why)</p>				
PART A				
2	<p>Quarry Operations –</p> <ul style="list-style-type: none"> • Production rate • Processes • Hours of operation 	<p>Approx. 1.1-1.2m t/y production rate. Hours are still current. No work has been conducted outside these hours, other than a 4 week period when a permit was granted for temporary sales-only activities (rescinded end of May, 2018, as no longer required.)</p> <p>Holcim advises no blasting has occurred outside the specified hours.</p>	C	<p>Planning Permitt No. T050156 – Temp amendment condition 11 (extension of hours), 30 April, 2018. Email from Holcim to Shire requesting permit cease end of May.</p>
3	<p>Roles & Responsibilities –</p> <ul style="list-style-type: none"> • Organisational chart 	As specified in the org chart; no change advised.	C	P11 of EMP
4	<p>Environmental Review Committee</p> <p>The ERC has been established, and will operate, under a procedure laid down by Council. Holcim will cover all the administrative costs of the ERC, including the fees of the Chairperson, and will provide secretariat services to the ERC. The ERC will monitor and review the performance of the quarry against the Permit, the Work Authority and this EMP (as varied from time to time), provide advice and facilitate community understanding of quarry operations and their management.</p>	<p>No change from last audit. Meets quarterly. Reports of meetings on website are up to date (a special meeting was held in May and replaced one of the quarterly meetings). Minutes indicate meetings cover a wide range of issues, and involve considerable technical detail when applicable.</p> <p>Holcim advises that no major issues arising. Some resident objection arose from extension of hours proposal. An ‘emergency’ extra ERC meeting called to discuss (May, 2018). Holcim has committed to go through normal committee process for all future proposals to change conditions of operation.</p>	C	<p>ERC Meeting quarterly reports 2018 (Feb, May, Sep); All Possibilities Consulting webpage.</p>

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<p>5</p>	<p>Training & Awareness A copy of this EMP is to be kept and displayed in the foyer of the Quarry gatehouse. The EMP will also be accessible by all Holcim-approved users on Holcim’s computer intranet.</p> <ul style="list-style-type: none"> ▪ 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. <p>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.</p>	<p>EMP induction and contractor induction, conducted through tool box talk. J Everitt conducts noise, water quality and chemical spraying activities. Refresher training for Mr Everett should be considered to ensure his knowledge and expertise is kept current.</p>	<p>C</p> <p>O</p>	<p>Tool Box Talk Form, 6 March, 2018 – includes EMP induction. Contractor inductions (sample). J Everitt – Chemical Application Cert (ECG), 26/3/10. ChemCert Accreditation – Naturelinks staff.</p>
<p>5.1</p>	<p>Personnel having responsibilities for carrying out</p>	<p>No training by outside specialists has occurred.</p>	<p>C</p>	<p>EMP version2 doc.</p>

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	<p>monitoring activities as specified in the monitoring program will be trained and tested for their competence to carry out such activities, and certified as such, by a specialist in the relevant field.</p> <p>An Appointment of Environment Training Specialists Procedure (Appendix 1) has been developed for this process and approved by (then) Department of State Development, Business and Innovation (now Economic Development, Jobs, Transport and Resources, DEDJTR).</p>			
6.0	<p>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.</p>	<p>2 environmental complaints recorded relating to -</p> <ul style="list-style-type: none"> • blasting vibration 7/11/18 (Holcim advises this was not a limit exceedance). Reportedly the complainant only wanted to make it known that the blast had been felt. • Beeper noise (3/5/18). Beeper on new plant arrival was changed to squawker. 	C	Complaints Register (INX)
6.1	<p>Internal Communications</p> <p>The SHE Guideline 2.2 Consultation sets out details of communications within Holcim on environmental issues, which for Pakenham Quarry is through the site’s Safety Improvement Team (SIT). The procedure describes how meeting outcomes are minuted and the minutes distributed to other employees. At SIT meetings</p>	<p>Monthly SIT meetings.</p> <p>Toolbox meetings</p> <p>SIT meetings track progress in EMP performance and implementation through audit completion, incident resolution, and compliance planner status. SIT meeting agenda now has a permanent agenda item for EMP Progress & Implementation.</p>	C	<p>SIT minutes sighted – Dec 2018;</p> <p>Toolbox book (pre-start) sighted - sample.</p> <p>Tree removal permit.</p>

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	<p>environmental progress and performance under the EMP will be reviewed and discussed, and actions authorised.</p> <p>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 2.1A - Toolbox Talk Form.</p>	<p>Toolbox meetings occur every morning – enviro issues raised as applicable.</p> <p>Example included discussion of tree removal near lunchroom – needed to get Shire approval.</p>		
<p>6.2</p>	<p>Incidents</p> <p>All environmental incidents are to be reported, recorded and investigated in accordance with SHE Guideline 5.1 - Incident Reporting, Recording & Investigation. The INX incident database (INX) is to be used for reporting and recording details of each incident and the measures taken to resolve it. The system automatically forwards incident notifications through to management for completion. Every incident and the details surrounding it are available through INX and is used by management for progress status and review purposes, and to compare against performance targets.</p>	<p>Hazards register sighted. 1 incident listed – airborne dust coming from silo feed pipe during fill operation by bulk tanker. Small hole was fixed on the spot by welding patch.</p> <p>Hazards arising from monthly site inspections and observations by staff are entered into INX for action. A number of these have been entered and actioned to close-out.</p>	<p>C</p>	<p>Register printout (since Jan 2018).</p>
<p>6.3</p>	<p>External Communications</p> <p>SHE Guideline 4.7 - Community Engagement details how Holcim facilities are required to communicate and engage with the wider community regarding local issues. The site-specific</p>	<p>ERC reporting – quarterly reports.</p> <p>Statutory reporting EPA</p> <p>Resident notification</p> <p>Quarterly reporting occurs prior to ERC meetings.</p>	<p>C</p>	<p>EMP – Appendix 2 – Env Reporting Procedure (28/11/13)</p> <p>Quarterly reports – on ERC website (Jul, Oct only)</p> <p>Annual Report to EPA (APS), Aug 18</p>

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	<p>Environmental Reporting Procedure (Appendix 2) specifies procedures for compliance reporting to the ERC and other stakeholders, and the frequency and nature of reporting of monitoring data, etc. Statutory reporting requirements such as those applying to the EPA Licence 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 (Note: Appendix 2 does not have this information; Appendix 8 specifies comms to ERC/residents re blasting).</p>	<p>Reports posted on website and made available to community (only Q3 and Q4 available when website visited).</p> <p>EPA Annual Report (APS) – minor water monitoring non-compliances were included.</p>	<p>O</p> <p>C</p>	
<p>6.4</p>	<p>Complaints</p> <p>A register of all complaints received is maintained as specified in Holcim’s SHE Guideline 5.1 – Incident Reporting, Recording & Investigation. Any complaint received, or referred by a government agency, is directly and accurately recorded and managed in INX which includes the provision for the following information (as specified). INX can be accessed electronically at any time by authorised Holcim users to view any complaints received and the actions taken. A full and up-to-date copy of the Complaints Register can be generated by INX and will be made available to members of the ERC upon request.</p>	<p>2 complaints (as commented on above). Included in Quarterly reports to ERC.</p>	<p>C</p>	<p>As above</p>

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	<p>A copy of all complaints received since the previous meeting of the ERC is to be provided to members of the ERC prior to each meeting of the ERC.</p> <p>A sign has been erected and maintained at the approach to Pakenham Quarry that clearly shows to approaching persons the following information: (as per EMP).</p>			
7	<p>Records</p> <p>Records that are generated as part of the EMP are to be managed according to QMS Procedure PN1.1 Control of Documents. This procedure specifies the identification, storage, protection, retrieval, retention and disposal of records required as part of this EMP.</p>	<p>Records are generally well maintained. Where this has not been the case, comments are made elsewhere in this protocol.</p>	C	<p>Records sighted during this audit.</p>
8.1	<p>EMP Audit</p> <p>EMP to be audited annually.</p>	<p>Holcim advises ERC notified of audit beforehand and given opportunity for input, etc. No feedback from ERC re audit program.</p>	C	<p>3rd quarter minutes of ERC meeting.</p>
8.2	<p>Procedure and Personnel Certification</p> <p>All monitoring procedures that form a part of this EMP have been certified by an expert in the relevant field as being appropriate (see also 5.1 Appointment of Specialist Consultants).</p> <p>Personnel conducting monitoring measurements and inspections have been certified by a specialist in the relevant field as being competent (see also 5.1 Appointment of Specialist Consultants).</p>	<p>Holcim advises no changes in specialists conducting monitoring.</p>	C	

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8.3	EMP Review Every 5 years.	Next review in 2020.	NA	
8.4	EMP Variation The EMP may be varied from time to time as changing circumstances require. All variations to the EMP must receive the written consent of the Minister for Planning. EMP variation will be conducted in accordance with the quarry’s EMP Review Procedure .	As above.	NA	
9	Compliance Planner The Compliance Planner (Appendix 7) details 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.	This is on the QM’s notice board and is being used to ensure timely completion of monitoring and other EMP-related activities. It is still in paper-copy format – QM’s preference.	C	Compliance Planner, 2018
PART B				
1	Operations & Impacts All significant environmental hazards and incidents are documented and recorded within the INX electronic database. The hazards associated with each operation and activity carried out at the quarry, together with the corresponding actual or	Holcim advises no change in site operations since last audit, therefore EMP is current for risks and hazards on site.	C	

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	potential environmental impact(s) for each of the hazards are also available for viewing by all authorised personnel. SHE standard control procedures are generic and apply to all Holcim aggregates site, whilst the site specific controls apply to Pakenham Quarry alone.			
2.1	Air Quality			
2.1.1	<p>Objective</p> <p>To prevent dust emissions from the Pakenham Quarry operation from causing a nuisance at residences or sensitive sites within the surrounding area.</p> <p>To ensure that dust levels do not adversely impact on the health and amenity of persons in the surrounding area.</p>	Objectives have been achieved.	C	No complaints. No evidence to the contrary re health and amenity. Targets have been met, with exceedances shown to be caused by extraneous sources.
2.1.2	<p>Targets</p> <p>100% Compliance with Permit requirements , namely the following levels to be achieved at any residence or other sensitive site:</p> <p>PM₁₀ no greater than 64 µg/m³ (1-hour average)</p> <p>Dust deposition no greater than 4g/m²/month (no more than 2g/m²/month greater than background)</p> <p>No (0) justified complaints from sensitive receptors.</p>	<p>Reactive Monitoring – no exceedance.</p> <p>Deposition – no exceedances</p> <p>No justified complaints received.</p>	C	Blue Atmosphere - monthly AQM reports (Jan-Dec 2018)
2.1.3	Management Measures			
As required	Dust emissions from unpaved surfaces are to be	Water carts (1) operate during quarry operations (6	C	Observation

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	controlled using the following measures: Wet suppression - all dust generating areas such as site roads will be watered, as required, to suppress dust during operation.	days/wk) when no stripping occurring.		
As required	Water used for dust control may be dosed where appropriate with dust control additives to enhance stabilisation and reduce water use.	Holcim advises no dosage of additives is used.	NA	Pers. comm. – M D
As necessary	Relevant operations will be suspended if adequate water cannot be applied for dust control.	Ops stopped on 1 occasion due to excessive heat and wind – considered not reasonable to control excessive dust (Jan 2018).	C	INX report
	<p>Revegetation of exposed surfaces, including the following measures:</p> <ul style="list-style-type: none"> o Vegetation and topsoil removal will be limited to the smallest practicable area and revegetated as soon as possible following clearance; o Soil stockpiles will be allowed to self-seed when left for extended periods of time; o The extent of areas prone to erosion will be restricted wherever possible; o Exposed surfaces will be rehabilitated in a timely manner in accordance with the Landscape Rehabilitation and Management Plan (LRMP). o Where revegetation or minimal land exposure is limited by procedural requirements, chemical (dust) suppression methods may be 	Rehabilitation is proceeding well, and in accordance with the LRMP (see details below).	C	Observation; photographs

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	used.			
As necessary	On days of unfavourable conditions, a review of on site practices will be undertaken to identify actions that can mitigate dust generation.	Additional sprays at dump hopper (sensors), and conveyor 6. Holcim looked at trends in dust monitoring data year-on-year to see if improved controls are showing in these data. Still in progress, but showing good control below limit.	C	Work orders – sighted (Conveyor 6 - Feb, 2019; Dump – June 2018),
As necessary	Unpaved roadways will be watered on a needs basis during load and haul activities to minimise dust from vehicle movement.	Haul roads mostly observed to be well watered and not generated excessive dust.	C	Observation; photographs
All times	When moving stock, load sizes will be managed to avoid spillages.	Drivers inducted – new drivers identified by weighbridge personnel. Inductions available in multiple languages – a commendable addition.	C	Driver inductions (sample)
All times	Speed limits will be defined and communicated to all machinery operators. Where necessary speed limits will be enforced by quarry management.	Limits signed. Also shown on plan on office wall. Some mobile plant/vehicles have speed alerts. No obvious speeding vehicles observed during the audit.	C	Direct observation
As necessary	Paved/sealed roadways within the quarry will be maintained in a clean state to minimise dust from vehicle movement.	Holcim advises a street sweeper deployed weekly – sealed surfaces only. Some dust was observed on the road leading out of the quarry gate but this was relatively minor and not visible after 30m or so.	C	Sweeper seen in action during audit.
All times	All road registered vehicles that cart quarried materials shall be covered by suitable tarpaulins or enclosed blinds prior to leaving the quarry and entering public roadways.	Periodic checks are made of vehicles. Weighbridge inspection. Inspection data are reported to ERC in quarterly reports. One non-compliance identified (Q3) – advised that vehicle was stopped and this was immediately corrected.	C	Observation; Quarterly Report to ERC (tarping checks)
All times	All road registered vehicles, other than passenger	Wheel wash was in operation. No problems with	C	Observation

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	cars (GVM <4t), will pass through the wheel wash facility prior to leaving the quarry and entering public roadways.	this equipment reported.		
As necessary	Roadways immediately beyond the site entrance will be regularly inspected and swept to prevent the build-up of material.	Weekly road sweeper deployed.	C	As above.
All times	Travel distance will be minimised through appropriate site layout and design.	Diesel usage per tonne product is recorded – this is related to haulage fuel use. Shows consistency with last year, and reduction over 2017.	C	Site plan, direct observation
All times	Vehicle movements will be restricted to defined areas.		C	Observation
All times	Speed limits will be defined, and where necessary enforced, for vehicles on the site.	25kph (stockpiles area) and 40 kph on haul roads. 30kph in defined areas.	C	Signs in place
As required	Dust emissions from stockpiles will be mitigated where required to ensure targets are met by: <ul style="list-style-type: none"> o Wet suppression using sprinklers; o Covered storage of fine material; o Limiting the height and slope of the stockpiles; o Limiting drop heights from conveyors; and o Use of wind breaks. 	Water truck used on stockpiles, sprinklers installed. Conveyors can be raised/lowered to minimise drop heights. Process area is still quite dusty. Most dust suppression is achieved with water cart application.	C	Direct Observation.
All times	Dust emissions from conveyors will be minimised by: <ul style="list-style-type: none"> o Minimising drop heights; and o Appropriate design of hopper load systems to ensure a good fit with trucks, and use of appropriate enclosures for hoppers. 	Measures are in place.	C	Observation during inspection.
All times	Dust emissions during material handling will be	No change from last audit. Some dust noted to be	C	Observations (photographs); work

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	minimised by: <ul style="list-style-type: none"> o Minimising drop heights; o Regularly cleaning up any spillages; and o Appropriate design of hopper load systems to ensure a good fit with trucks, and use of appropriate enclosures for hoppers. 	emitting from primary crushing plant. On-going preventative maintenance as per PM schedule.		orders – Apr 18 – skirt replacement on conveyor.
All inductions	All site personnel will be instructed to immediately report situations resulting in elevated dust emissions to the manager (or their supervisor).	No change to induction booklet. QM advises that personnel do call for water cart if not operational for a while. Verbal communications occurring on a daily basis.	C	MD, pers comm.
All times	Monthly monitoring of dust deposition.	No exceedances.	C	See above
Within 1 month of EMP approval	A weather monitoring station with display will be installed in the Pit Manager’s office.	MD reports the on-site tablet not currently in place – was not working.	mnc	Observation
All times	Records of wind speed and direction will be stored on or off site for a period of 12 months. If the records are stored off site, the data must be readily available to the site for analysis by the site personnel or their representatives in the case of complaints and to assist in interpreting dust monitoring data.	Holcim advises consultant (BA) has files downloaded and available if needed. Not able to sight at this audit.	C	
All times	Dust emissions and potential dust generating activities and areas will be monitored visually during quarrying activities.	Monthly site checks to monitor for a range of issues including dust. No dust related issues noted during checks.	C	Sample of Monthly checks sighted (Feb, Mar Jun).
Within 3	A suitable “background” sampling location will be	A7 Station.	C	

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months of EMP approval	established to determine regional background dust deposition rates.			
As required	Analysis and reporting of dust samples for compliance will be undertaken by an experienced entity independent of the operator.	<p>ALS does analysis of deposition samples, and BA does reporting (deposition and reactive).</p> <p>BA’s summary reports should contain the following additional information –</p> <ul style="list-style-type: none"> • Commentary where data deviates from what is considered ‘normal’ (e.g. A7, June; A1, August). • Provide specifications of measurement device (DustTrak? Model?) • Explanation of why PM10 readout for A1 shows zero baseline 	C O	BA summary reports for 2018 sighted; examples of ALS reports sighted (22/2/18, 9/3/18).
All times	Community complaints will be monitored during works to assess the operations against objectives and targets.	Holcim advises no air related complaints have been received.	C	
Monthly	All data is reviewed by an external consultant. In the event of any exceedances the site is notified immediately and relevant data is forwarded to the Quarry Manager.	<p>Humidity sensor now incorporated into weather monitor.</p> <p>BA recommended relocation of ‘background’ reactive monitor to a sensitive receptor (subject to ERC agreement). This should be progressed as soon as possible. It is suggested that the monitor be located at A6.</p>	C O	Blue Atmosphere monthly reports – Jan-Dec 2018.
All times	One (1) hourly average PM ₁₀ data will be provided to the Pit Manager’s office from the ‘reactive monitoring stations’.	The arrangement with BA is that they contact QM when hourly PM ₁₀ exceeds the limit. No exceedances.	C	

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All times	All complaints are to be recorded in the INX database.	See above in Section A. No dust complaints received.	C	INX records
All times	All communications are to be undertaken as per the SHE Communication Procedure.		C	ERC minutes
As required	Monitoring data are to be provided to ERC as per the SHE Communications Procedure.	Quarterly reports provided to ERC.	C	Quarterly reports to ERC.
All times	Dust generating activities will be controlled by watering or other means to achieve compliance targets based on reactive monitoring data, visual observation or staff feedback.	As described above.	C	Observation Monitoring data as noted above
As required	If necessary, dust generating activities will cease until corrective actions result in achievement of targets, or wind conditions are such that targets are achieved.	1 work cessation during audit period as described above.	C	Pers comm – MD
All times	The site Incident Management procedure will be followed to rectify all reported dust incidents.	Exceedances are recorded as incidents. No dust incidents recorded.	C	
2.1.4	Monitoring Schedule	Monitoring is conducted as per the schedule in Appendix 11 (detailed above). Schedule needs to be revised to include location of background, and reference in table of locations.	C O	
2.2	Noise			
2.2.1	Objective To prevent noise from the Pakenham Quarry causing nuisance/annoyance to persons at noise sensitive sites in the surrounding area.	Objective achieved.	C	No complaints of excessive noise. Monitoring data, 2018. Observation
2.2.2	Targets	Met. No exceedances recorded.	C	Monitoring data, 2018.

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	<p>Compliance with the noise restrictions specified in the Permit, namely noise emanating from operations on the site, other than noise associated with blasting activities, must not exceed 45dB(A) L_{Aeq} measured at the nearest sensitive site outside Holcim site boundary.</p> <p>Noise emanating from works associated with the construction of noise attenuation mounds is exempt from this limit except that it must not exceed 68dB(A) L_{Aeq} at any time.</p>	No mounds constructed	NA	Direct observation
2.2.3	Management Measures			
As required	Extra acoustic measures will be implemented when excavation activities occur within 10m (vertical) of the quarry rim, eg. bunding along the perimeter of the works area.	Not required – no exceedances measured.	NA	Holcim advice.
	The base of the secondary crusher will be enclosed and access doors kept closed at all times.		C	Direct observation; photographs
Within 2 months of EMP approval	Broadband reversing beepers (squawkers) or similar will be installed and used on heavy earth moving equipment.	Holcim advises this is the case on all long-term plant on site. One new item of plant had beeper – complaint received. Plant immediately rectified.	C	
Complete	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 Mt Shamrock Road. (see EMP s.2.7 of EMP).	Signs in place (black lettering on yellow background, 2 off).	C	Observation

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As required	Regular preventative maintenance (PM) is performed on mobile equipment to reduce unnecessary vibrations and rattles.	Service report from Densley Diesel Services. Service includes check for unusual noise. Preventative Maintenance program operated to ensure plant and equipment is maintained as required. Schedule status is regularly reviewed to ensure tasks do not fall behind due date.	C	Service Reports (sample sighted, 2018)
During works	Monitoring of community complaints will be undertaken during the extraction works to assess achievement of the objectives and targets, as required.	No complaints received.	C	INX Register
As per Schedule	Monitoring of noise at noise sensitive locations will be undertaken as per the Monitoring Schedule (EMP s.2.2.4).	All sites comply. N8 needs to be removed from field log form. Field form should include noise level used to calibrate SLM. Factory calibration certificate to be retained. Wind direction being recorded – some extraneous noise occurring, now being noted in log.	C O	Noise Monitoring field notes and monitoring records (2018); SLM inspected being operated.
Monthly	Monthly Housekeeping inspections will be carried out to assess noise conditions and the effectiveness of preventative measures.	Monthly housekeeping checks are conducted. A boundary noise subjective check is made as part of these, and noticeable sources noted for further investigation.	C	See section 15 below on housekeeping checks
As required	All complaints are to be recorded in INX.	None recorded.	NA	INX Register
As required	All internal communication to be undertaken as per the SHE 2.1 Communication Procedure .	Noise monitoring data reported to ERC on 3-monthly basis as per procedure.	C	Quarterly reports to ERC – sample sighted
	Monitoring results will be kept in the office of the		C	Data as per above.

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	QM and be made available for inspection at reasonable notice during normal working hours.			
Monthly	Monitoring data will be provided to ERC in accordance with the Environmental Reporting Procedure.	See above	C	
As applicable	In the event that noise from site operations is above 45 dB(A) L _{Aeq} as measured according to SEPP N-1 at a sensitive site, strategies for noise abatement will be developed and implemented to achieve compliance.	No readings above the specified level have been obtained that are attributable to quarry noise.	C	Noise Monitoring Results (2018)
2.2.4	Monitoring Schedule	Daily monitoring conducted as required during mound works (at N2 & N3); fortnightly for other locations. N8 needs to be removed from field recording form.	C	Fortnightly and daily noise monitoring data sheets 2018
2.3	Blasting			
2.3.1	<p>Objective</p> <p>To ensure that vibration from blasting operations is controlled to comply with DPI environmental guideline limits for new operations.</p> <p>To ensure that blasting operations generally are conducted in a manner that minimises the risk of adverse environmental impact.</p>	Objectives have been achieved.	C	Blasting monitoring data (sample) – 5 Sep, 2018; 10 Aug, 2018; 12 July, 2018.
2.3.2	<p>Targets</p> <p>100% compliance with DPI environmental guideline limits for new operations – PPV 5mm/sec for 95% of blasts in 12 Month period.</p>	Targets met. No exceedances.	C	See below.

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	Peak Airblast of 115dB for 95% of blasts in 12 Month period.			
2.3.3	Management Measures			
All blasting events	Blasting will be carried out in general accordance with the SHE Guideline 3.18 – Blasting & Explosives, and in strict accordance with the Quarry Blasting Procedure (Appendix 8).	<ul style="list-style-type: none"> The Blasting Checklist being used is a different and shorter version than the one shown in Appendix 8 – App 8 needs to be revised in the next EMP review to reflect this. Only one resident texted – Don Petty. This is different to what is stated in the procedure at App 8. Add slope stability inspection to blasting checklist, and include inspection report with blast documentation. Given relative stability of slopes observed from monthly inspections, post-blast inspections may no longer be warranted, however this should be risk-assessed and ERC input sought. <p>Evidence provided showing vibration monitoring equipment is being calibrated in accordance with manufacturer’s specifications.</p>	<p>C</p> <p>O</p> <p>mnc</p>	Documentation for blasts (sample selected as specified above); calibration certificates for vibration monitors.
All times	Except with the written approval of the Responsible Authority, blasting will be restricted to between the hours of 11:00am and 12:00 noon and between 2:00pm and 3:00pm Monday to Friday. No blasting will occur on a Saturday, Sunday or public holidays. If blasting is approved	Times are complied with.	C	As above and below.

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	outside these times, notice must be given to all potentially impacted residents, to the satisfaction of the Responsible Authority.			
All blasting events	Air and ground vibration resulting from blasts will be measured at the nearest sensitive sites to the extraction area, or some other convenient location that will permit the vibration at the nearest sensitive site to be reliably estimated. The current monitoring locations (see Figure 1 in the Monitoring Schedule) namely the quarry office (V1), the north-east corner (V2), Toomuc Valley Road (V3) and Waterhouse property (V4) will continue to be used to assess blast noise and vibration.	One resident is notified prior to each blast. As noted above, the EMP (Appendix 8) states two residents should be notified.	C	Blasting records file – sample of blast documents and records (blasting checklist, etc.).
	Vibration measurements will be monitored. In the event that the vibration measurements indicate that the 95% DPI regulatory guideline limits may be exceeded in future blasts, the blasting specification and shot-firing practice must be reviewed and modifications made, as appropriate, to ensure continuing compliance.	No exceedances noted. Calibration certificates for all monitors sighted – all current.	C	Summary of monitoring results sighted. Calibration Certificates for 5 monitors sighted.
2.3.4	Monitoring Schedule	Vibration monitoring report not found with blast documentation in one instance sampled (see above).	C	Vibration Monitoring Reports for blasts.
2.4	Surface Water, Drainage and Groundwater			
2.4.1	Objectives To minimise any potential impact on receiving	Objectives achieved.	C	

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	<p>waters.</p> <p>To progress water management such that any discharge to surface waters is during periods of very high rainfall only.</p> <p>To ensure that water discharged from the Quarry does not affect the beneficial uses of the receiving waters.</p> <p>To assess any long term trends in groundwater levels.</p>			
2.4.2	<p>Targets</p> <p>100% compliance with the requirements of the EPA Licence.</p> <p>100% conformance with groundwater level monitoring requirements</p>	<p>1 minor indicative licence exceedance reported – SS approx. 3x limit. Turbidity measured during sampling was however recorded as low – error in sampling determined to be cause of SS exceedance. Auditor agrees this was a reasonable assumption.</p>	C	EPA Licence 544; BNR 26/6/18
2.4.3	<p>Management Measures</p>			
December 2008	<p>Implement pump and containment systems such that quarry surface water runoff is captured and re-used from Donazzan’s Dam to uses around the site. Before water is allowed to flow from Donazzan’s Dam to the v-notch discharge point it will be tested to confirm its permissible TDS concentration. This WMS will enable the site to reduce discharge events & any possible TDS breaches.</p>	<p>WQ is tested during discharge events, and samples taken for off-site analysis. No exceedances against licence noted, other than as described above. EPA licence has been amended (10/7/18) – SS no longer needs to be measured in discharge, only field parameters (turbidity, conductivity, pH).</p> <p>Amend EMP to reflect changes in EPA Licence conditions.</p>	<p>C</p> <p>O</p>	<p>WQ records – field record sheets, laboratory reports; APS Report to EPA (for period 1/7/17-30/6/18).</p>
During 2007/8	<p>The following landscape works will be carried out:</p> <ul style="list-style-type: none"> o Planting around the outside edge of 	<p>Settled at 2010 audit.</p> <p>Beaching completed, and upgraded during previous</p>	NA	

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	Donazzan’s Dam with reeds native to the area.	audit period.		
	o Rock-line the spillway immediately downstream of Donazzan’s Dam.			
	o Regrade spillway embankments to encourage plant growth to a slope of 1V:5H or 1V:3H.			
During 2007/8	o Plant native species within the spillway downstream from the outlet at Donazzan’s Dam to the receiving waterway.			
During 2007/8	o Plant native species within the spillway upstream from the inlet to Donazzan’s Dam from the Quarry.			
completion by end 2008	Reinstate riparian vegetation along the waterway downstream of Donazzan’s Dam and undertake planting in terrestrial areas surrounding the waterway.	Settled at 2015 audit.	NA	
All times	Discharge of water from the site will be managed and monitored (for both quality and discharge volume) in accordance with the EPA Licence.	As above. Amend procedure to reflect current EPA Licence conditions. Include measurement equipment calibration steps in the procedure.	C O	Field Record Forms – various sampled.
Every 12 months	Sediment in the settlement ponds is removed at least once every 12 months and stockpiled within other areas of the quarry.	Sediment was removed from one pond in May.	C	MC earthmoving invoice, 14/5/18
	Algae will be controlled by: <ul style="list-style-type: none"> o maintaining flowing water across ponds and Donazzan’s Dam, o minimising nutrient input, eg. by 	Noted that Donazzan’s Dam is being inspected monthly – the monitoring schedule only requires inspection after a storm event. No algal growth noted during the year.	C	Inspection Check lists (sample sighted)

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	<p>maintaining a septic tank pump out frequency of at least once a year,</p> <ul style="list-style-type: none"> ○ maximising nutrient uptake, discharge or isolation from the water column, ○ maximising dissolved oxygen levels by circulating water, ○ ensuring water bodies receive sufficient water to provide regular and significant overflows, ○ ensuring water bodies have no stagnant zones, and that all sections of the water bodies are subject to flowing water when rainfall enters the system,, ○ managing the catchment areas directly upstream of Donazzan’s Dam to reduce the amount of nutrients entering a water body, and ○ reviewing ponds and dams to evaluate and act to avert potential stagnant areas. 			
As required	<p>In the event of algal bloom(s);</p> <ul style="list-style-type: none"> ○ Water body flushing to break up and inhibit algal growth, and dissolved air flotation and surface skimming to remove algal mass, will be considered as short term remedial measures, ○ a specialist will be engaged to assist with treatment and removal, 		NA	

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	<ul style="list-style-type: none"> o records will be kept of all such occurrences to help determine likely trends that could assist in future water body management, o chemical treatments (eg. use of herbicides/algicides) will only be used as a last resort measure if required, and then only with prior approval from the relevant government agency (for water bodies situated on existing creeks). 			
All times	The plantings undertaken as part of the water quality management system will be maintained in accordance with the Landscape and Rehabilitation Management Plan (eg weed control, plant replacement).	Well maintained.	C	Observation, photographs
During initial clearing	Areas of vegetation disturbance and ground cover shall be minimised during opening up of new operational areas to prevent erosion.	Initial clearing completed.	NA	
All times	Clearing and construction activity associated with the development of the site shall be carried out in accordance with "Construction Techniques for Sediment Pollution Control" EPA Publication No 275 (as amended).	Observed to be conducted satisfactorily.	C	Observation
As required	Soil stockpiled for later rehabilitation works will be stored in mounds no greater than 2m high and contoured and grassed to minimise erosion. Mounds will be constructed and located to	Stockpiles observed to be self-seeding.	C	Direct observation

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	minimise any visual disturbance and to avoid contamination with other materials.			
As required	Overburden will be stored in worked out areas of the excavation for later use in rehabilitation, or sold or used to rehabilitate final faces when terminal faces are available. Overburden storages will be constructed to control drainage and maintain stability.	Overburden being located within quarry where rock has been removed.	C	Direct observation
As required	Diversion drains will be provided around the top of the quarry and workings to direct surface run-off away from operational areas.		C	Direct observation
As required	Channelling of water flow (rill formation) will be minimised and any channel flows stabilised.	No rill erosion noted.	C	Direct observation
As required	Where practical, erodable areas that remain bare and undisturbed for long periods (i.e. greater than 2 months) will be stabilised by covering with mulch, anchored fabric or topsoil covered and seeded with Sterile Rye grass.	Where practicable this has been done.	C	Direct observation, photographs
As required	The dual triple interceptor system treating washwater from the plant and equipment wash down pad will be regularly maintained in effective working condition.	<p>Pumped out in Feb & Sep, 2018 (Toxfree). Both workshop and pug mill TITs.</p> <p>Pink copy of WTC needs to be lodged with EPA within 7 days of consignment. Holcim personnel signing off WTC need to be aware of how to complete Part A correctly – EPA guidelines should be referenced for this. However, no paper WTC’s needed if using an accredited agent.</p>	<p>C</p> <p>O</p>	Pump out docket and EPA waste transport certificates (#1437689, 1334395)

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Quarterly	Groundwater level gauging will be conducted quarterly, and an annual evaluation undertaken, to determine how the groundwater levels respond to the following: <ul style="list-style-type: none"> o Seasonal rainfall changes; o Extension of the quarry; o Revegetation to parts of the plateau surface; and o Progressive rehabilitation of quarry. 	Consultant’s report concludes groundwater levels correlate well with rainfall, and variation is within that shown by historical data. Beneficial uses of groundwater in the area not considered to be adversely affected by quarrying activities. Holcim should implement the recommendations contained in the consultant’s report, including revisions of the relevant section of the EMP (after consulting with ERC members).	C O	AECOM, Letter Report, 6/2/18
Annual	Properties surrounding the quarry will be regularly assessed to confirm that the assessed beneficial uses of groundwater (in accordance with SEPP Groundwaters of Victoria) on the properties is supported by actual practices.	As above. EMP needs to be revised to reference SEPP(Waters).	C O	As above.
Fig 4&5	Water Management System			
2.4.4	Monitoring Schedule	Bare earth above sampling point at V-notch weir could affect turbidity of discharge; soil should be stabilised here.	C O	As specified above. Photograph 17
2.5	Slope Stability			
2.5.1	Objective To ensure slopes both outside and within the Quarry are as stable as possible to minimise the risk of landslip.	Achieved		No slips/landslides reported.
2.5.2	Target No avoidable landslips.	Met.	C	

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2.5.3	Management Measures			
As specified in the s.173 Agreement	Planting of deep-rooted trees in landslip areas (i.e. as revealed within EES report Slope Stability, Figure 6, <i>2001 Aerial Photography Interpretation</i> and Figure 8 URS 2005) will progressively be undertaken in accordance with the Landscape Plans (ref.. Work Plan Annex B Non-Operational Area - Landscape Plan).	Established in 2015 audit	NA	
	Surface drainage will be established in the vicinity of the identified landslip prone areas to minimise infiltration of rainfall run-off.	Established in 2010 audit	NA	
	Areas where surface drainage is known from historical observation to exacerbate landslips, (i.e. Figure 6, <i>2001 Aerial Photography Interpretation</i> URS 2005) will be regraded to direct water away from landslip areas.	As above	NA	
Within 3 months of EMP approval	The drainage conditions at the spring (Figure 6, <i>2001 Aerial Photography Interpretation</i> URS 2005) will be assessed and surface drainage established if ponding of water is evident.	As above	NA	
As required	Any indications of slope instability such as cracking, heaving or settlement, increased areas of seepage or any other unexpected movement will be referred to a geotechnical specialist for advice.	AECOM inspection conducted 4 Jan, 2019. It concluded that typically there was evidence of small relocations of larger former landslips at some land masses. Recommendations were made concerning frequency of inspections and the completion of works to stabilise farm dams that showed varying levels of degradation. Report	C	SSMWI-01 Record Sheets – 2018; AECOM Letter report, dated 5/2/19.

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		<p>referred to remedial actions for these that need completion (tabulated in report).</p> <p>Holcim should implement the recommendations of the AECOM report to ensure slope stability is monitored effectively, dams are stabilised, and risk of downslope damage is mitigated.</p>	O	
	Regular visual monitoring of the slopes in Toomuc Valley on land owned by Holcim will be conducted.	Note inspection frequency mis-match.	C	As above – inspection checklists
	Monitoring of the condition of any vegetation or new drainage and replanting or repairs will be undertaken as necessary as part of Landscape and Rehabilitation Management Plan.		C	As below
As required	The progressive excavation will require ongoing rehabilitation activities to control erosion, and then make all the earthworks safe and compatible as possible with the surrounding landscape. Construction and revegetation will be undertaken in accordance with consultant’s reports and requirements as per the site Work Plan.		C	As per LRMP below
As required	The rehabilitated slopes will require construction of internal and surface drainage, vegetation establishment, fill compaction, trial sections, and development of technical specifications under the guidance of a geotechnical specialist and reviewed with the Department of Primary Industries in accordance with the Work Plan Landscape and	(see LRMP section below)	C	

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	Rehabilitation Report specifications.			
As specified in Monitoring Schedule	Regular visual monitoring of all slopes including any rehabilitated slopes, overburden stockpiles, operating faces and crushed stockpiles will be conducted and if any change in the slope conditions (such as cracking, heaving or settlement of the quarry walls or floor, increased areas of seepage or any other unexpected movement) is observed, specialist geotechnical advice will be sought.	See below re frequency of inspections. Inspection frequency schedule should be revised in light of AECOM’s latest slope stability report.	C	Monthly Slope Stability Checklists (sample)
2.5.4	Monitoring Schedule	The frequency of inspections currently being undertaken is different from that specified in the EMP (Appendix 11) – this needs to be corrected at EMP review.	C O	As indicated above (internal monthly checks and AECOM annual landslip report)
2.6	GHG Emissions			
2.6.1	Objective To minimise greenhouse gas (GHG) emissions resulting from quarry works and operations.	Achieved.	C	
2.6.2	Targets Implement the recommendations of the Energy Action Plan, as updated from time to time. Achieve current annual targets, namely (by Aug 2008) – <ul style="list-style-type: none"> • Electricity 5% reduction or 197 t CO₂-e • Fuel 5% reduction or 72 t CO₂-e 	Less fuel was used, an increase in explosive use occurred, and an increase in electricity (on a per tonne basis).	O	GHG calculation spreadsheet.
2.6.3	Management Measures			

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All times	Aim for continuous improvement of GHG intensity of production by identifying and controlling energy intensive processes as part of Holcim national Energy Efficiency Opportunities (EEO) program.	Site is working through recommendations of energy audit. Many remain outstanding and overdue, however Holcim advises that items are being progressed. Holcim should prioritise audit recommendations based on energy saved, and focus on implementing those that save the most energy first.	C O	Audit Actions Schedule
As required	Regular monitoring and NGER reporting of energy use and GHG emissions.	Holcim advises that NGER reporting is done internally through Holcim Head Office.	NA	
Within 12 months of EMP approval	Review and further evaluation of all transportation within the quarry against current industry fuel efficiency benchmarks;	Settled at 2011 audit.	C	
Completed	Nominate an energy manager within the quarry to ensure that steps are taken to meet energy and GHG reduction targets; and	QM has overall responsibility.	C	
All times	Incorporate energy and GHG awareness into training of managers and supervisors.	Demonstrated in previous audits.	NA	Plant operator training certificates.
2.6.4	Monitoring Overall reduction target of 3% in CO ₂ -e (t) for combined fuel, electricity and explosives usage.	Not met for 2018. Greater energy per tonne of product produced was expended due to high electricity usage to meet demand for more highly processed product, compared to previous years.	C	GHG Calculator (spreadsheet), 2018
2.7	Traffic Management			
2.7.1	Objective To minimise the impact of quarry traffic on the	Objective is being achieved to the extent practicable.	C	

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	local amenity.			
2.7.2	Target Compliance with (or completion of) all actions specified in the s.2.7.3 of this EMP.	Complies – target met.	C	
2.7.3	Management Measures			
By 29 th June, 2009	Construction of a left hand turn deceleration lane at the south west approach to the Mt Shamrock Road and Pakenham Road, subject to VicRoads consent.	Settled at 2010 audit	NA	
All times	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 and truck wash facility at the main gate (see s.2.1.3 of EMP).		C	Observation by Weighbridge Operator
	All vehicles carrying materials from the site must be loaded and transported in a manner which prevents spillage of materials onto a public road.	Drivers are inducted – states minimum requirements.	C	As above
All times	Early morning truck movements are to be scheduled to avoid queuing outside the boundary of the site.	No trucks accepted before 7am – signage in place.	C	Induction records (sample sighted), induction booklet.
	All vehicles associated with quarry activities, including trucks and machinery, must enter and exit the site via Mt Shamrock Road.		C	Observation
	A sign to be erected and maintained, and clearly visible to truck drivers leaving the quarry, advising that trucks avoid using engine brakes on Mt	Sign in place.	C	Observation

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	Shamrock Road.			
2.7.4	Monitoring Housekeeping checks (monthly)	Random checks of tarpaulin compliance. One non-conformance found in August, 2018. Site reports this was immediately rectified.	C	Gatehouse operator – visual checks; ERC Quarterly report (visual checks data)
2.8	Net Gain Management Plan			
2.8.1	Objective To provide vegetation that offsets the loss of vegetation associated with the Quarry and provides a net gain of Habitat Hectares.	Long term objective – progress continues to be made towards achieving it.	C	Photographs 13, 14
2.8.2	Target Establishment of vegetation in accordance with the Native Vegetation Management Framework and the Net Gain Offset Management Plan (NGOMP, Biosis Research, September 2007 – Appendix 13) by January 2009 (as specified in the s.173 Agreement)	Area is maintained by Naturelinks. Weeding and some planting done. Biosis report notes that the OMP targets have been met and exceeded. Recommends on-going weed control works, and twice yearly monitoring inspections.	C O	Biosis Research, June 2018 (Y10 Monitoring of Offset Management Plan Implementation).
2.8.3	Management Measures			
Within 3 month of EMP approval	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.	Settled at 2011 audit	NA	
Within 2	The offset site (as identified in Figure 2 of the	Fencing is being well maintained.	C	Observation; Biosis, June 2018

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months of OSM appointment	NGOMP) will be fenced in order to clearly delineate the site’s extent.			
	An appropriate sign will be erected to inform residents/visitors of the site’s ecological characteristics, purpose and value.	Signage complies.	C	Observation; Biosis, June 2018
To commence immediately upon appointment of OSM	Plants of local provenance will be propagated, or seeds collected for dispersal as specified in the Appendix to the NGOMP.	On-going planting is occurring by Naturelinks.	C	Naturelinks progress reporting, 2018
6 months	The offset site will be prepared over a minimum six (6) month period through: (a) monthly sprays of existing (introduced) vegetation to deplete the weed soil seed bank; (b) cut and paint and/or drill and fill weedy shrubs such as Hawthorn, Briar Rose and Blackberry; (c) installation of a shallow layer of mulch (less than 5 cm deep) to prevent soil loss but not inhibit the germination of weeds.	Established in previous audit.	NA	
As appropriate to year 10	Appropriate species will be planted/recruited within the offset site. Planting / recruitment densities will comply with the minimum revegetation standards provided by DSE (DSE, 2006).	Biosis report indicates revegetation standards exceed minimum.	C	Observation; Biosis, June 2018

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10 years from EMP approval	Plantings will be maintained over a 10 year period, taking all necessary measures to ensure: (a) survival and growth of the plants, and (b) good appearance or presentation of the plantings.		C	As above.
As required	Plantings that do not survive will be replaced.		C	Observation; Biosis, June 2018
As required	Supplementary watering of plantings will be carried out as required and permitted by prevailing water restrictions.	Reportedly this is done.	C	Naturelinks, pers comm
Monthly during June-December	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.	Biosis June 2018 indicates good results for woody weeds, however herbaceous weeds are more difficult to control – on-going effort needed.	C	Naturelinks’ Work Plan (as above); JE Weeds removal works (includes quarry site).
After years 1, 2, 5, 7 and 10	A management audit/monitoring exercise will be undertaken at 1, 2, 5, 7 and 10 years after planting to evaluate performance and thus compliance with the Permit.		C	Biosis, June 2018
	Audit/monitoring of the offset site will be conducted by a qualified ecologist.	Confirmed through LinkedIn profile check.	C	
As appropriate	Any additional management actions identified by the audit will be implemented through the INX system as an audit and inspection event type.	Evidence not sighted. Ensure that Biosis’s recommendations for additional actions (as specified above) are implemented through the INX system.	O	
Within 1 month of report	All audit reports will be forwarded to the ERC for its information.	Holcim advises that this was done.	C	MD, pers comm

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receipt.				
2.8.4	<p>Monitoring OMP Audit (Years 1,2,5,7,10) Visual inspection (6-monthly in Mar, Sep) of offset area to identify rabbit-caused damage - where significant damage identified, rabbit proof fence to be installed.</p>	Biosis’ Y10 Audit completed.	C	Biosis, June 2018
2.9	Cultural Heritage			
2.9.1	<p>Objective Preserve, by relocation, all items of cultural heritage identified in accordance with Wurundjeri ‘Consent to Disturb’ (“Consent”) conditions.</p>	All works now completed.		
2.9.2	<p>Targets 100% compliance with Consent conditions.</p>	Met.		
2.9.3	Management Measures			
During works	A copy of the Consent (Appendix 14) must be on-site and available for inspection during works associated with this permit.	Settled at 2013 audit.	NA	
Prior to stripping	<p>Prior to any soil stripping taking place on the site:</p> <ul style="list-style-type: none"> o all Indigenous stakeholders will be notified; and o any hay will be baled to allow Indigenous stakeholders to survey the cleared land. o ensure that the conditions as specified in the Consent to Disturb dated 17th May, 2007, and 4th September, 2007, are 	Completed.	NA	

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	complied with.			
As applicable during works	Upon the discovery of suspected human remains all works must cease. The Wurundjeri Tribe Land Compensation and Cultural Heritage Council Inc. interim Chief Executive Officer, Aboriginal Affairs Victoria, the Victoria Police and the State Coroner’s Office must be notified immediately.		NA	
	Controlled Archaeological Excavation - AAV 7921-680 – Shamrock AS1 Before any ground disturbance there will be controlled hand excavation of 100% of the archaeological deposits at site AAV7921-680 – Shamrock AS1, apart from the “plough zone” (top 15 cm of site) as per the 4 th September, 2007 Consent Amendment.	Settled at audit 2013.	NA	
	This excavation will be conducted by a qualified archaeologist and involve representative/s from the Wurundjeri Council.	As above	NA	
All times during excavation	The archaeological excavation and recording methods will meet the standards set by Aboriginal Affairs Victoria (AAV) guidelines.		NA	
Report within 4 weeks of completion of excavation.	Following the completion of the excavation there will be analysis of the artefacts excavated and a report produced outlining the results of this analysis.	Completed	NA	

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Complied with during excavation	<p>Sieving of Site Deposits - AAV 7921-679 – Shamrock IA3, AAV 7921-678 – Shamrock IA2, AAV 7921-681 – Shamrock AS2 and AAV 7921-697 – Shamrock IA4, AAV 7921-651</p> <p>The sites listed above will be subject to mechanical scrapes to a depth of between in 10-15cm to allow identification of any Aboriginal cultural material.</p>	Completed.	NA	
	The scrapes will continue until sterile deposits are reached.		NA	
All times during excavation	In the event that stratigraphic deposits or some other important Aboriginal cultural feature is uncovered during these scrapes, all work will stop and the deposits will be excavated by controlled excavation (any such deposits excavated by controlled excavation will be analysed and reported upon to the standards outlined in the AAV guidelines).		NA	
	All soil mechanically excavated at each of these sites will be mechanically sieved to ensure retrieval of all artefacts down to sterile deposits, and in accordance with the agreement between the Wurundjeri Council and Rinker Australia Pty Limited made under Condition 24 of the Consent.		NA	
	This process involving artefact identification during sieving will be carried out by a qualified archaeologist and will involve representatives from the Wurundjeri Council.		NA	

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Report within 4 weeks of completion of excavation.	Any artefacts found in a non-stratigraphic context will be photographed and recorded by a qualified archaeologist. This material will be analysed and appropriately documented by an archaeologist.		NA	
Prior to construction works within extraction limit	Monitoring Ground Disturbance within Extraction limit Prior to construction works commencing within the extraction limit there will be monitoring of the disturbance of soil deposits by an archaeologist and representatives from the Wurundjeri Council.	As detailed above.	NA	
Prior to construction works within extraction limit	Areas of ground surrounding the known sites and within the proposed extraction limit will be subject to mechanical scrapes to a depth of between in 10-15cm to allow identification of any Aboriginal cultural material.	Settled at 2010 audit	NA	
	The scrapes will continue until sterile deposits are reached.			
	There will be at least one Wurundjeri representative assigned to each scraper.			
	In the event that stratigraphic deposits or some other important cultural feature is uncovered during these scrapes, all work will stop and the deposits excavated by controlled excavation.			
	Any such deposits excavated by controlled excavation will be analysed and reported upon to			

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	the standards outlined in the AAV Guideline for Conducting Aboriginal Heritage Assessments.			
	Any artefacts found in a non-stratigraphic context will be photographed and recorded by a qualified archaeologist. This material will be analysed and appropriately documented by an archaeologist.			
As appropriate	Once all artefacts found have been properly analysed they will be returned to the Wurundjeri Council and will be relocated within the general vicinity at the discretion of the Wurundjeri Council.		NA	
During all works subject to the Consent	Officers from Aboriginal Affairs Victoria will be invited to access the site for the purpose of monitoring adherence to all conditions of the Consent and the Permit as specified in this EMP.		NA	
2.10	Fire Management			
2.10.1	Objective To ensure that the risk of fire is minimised.	Objective has been achieved. Commendably, Holcim has developed a bushfire management plan in consultation with local CFA (who sent members to inspect the site late in 2018).	C	
2.10.2	Target No fires	Met – none reported.	C	
2.10.3	Management Measures			
Within 3 months of EMP	Establish off-site fire prevention measures to be followed during periods of high fire risk.	Established in previous audit.	NA	

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approval				
Annually	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.	Bushfire Management Plan has been updated. CFA came on site, and reportedly are satisfied with the plan.	C	BMP, 2018; photos of CFA visit.
All times	Access for all emergency vehicles will be provided and maintained at all times through the site.	Access is provided.	C	Observation
All times	Fire prevention and response equipment will be provided and maintained in accordance with the Holcim Emergency Response Procedure and Quarry Emergency Procedures flip chart.	Alarms, smoke detectors and extinguishers checked as per SHE procedure and monitoring schedule (National Fire Solutions). Extinguishers checked as required.	C	NFS Attendance Record 9/5/18 & 22-23/11/18 (Fire Ext)
2.10.4	Monitoring (see EMP)	Evac drills (two done) – action to install extra alarm in workshop. Smoke alarms tested June and December. Fire suppression systems in mobile plant (6) – auto systems are overdue for servicing.	C	Drill record, 31/8/18; INX entry – new alarm siren. Smoke alarm test sheets.
2.11	Water Conservation			
2.11.1	Objective To conserve potable water supplies.	Objective achieved.	C	
2.11.2	Target Implement measures to reduce the use of mains water supply.	Holcim advises that there is no mains water supply at the site.	NA	
2.11.3	Management Measures			
	Install rainwater tanks to collect water to be used for non-potable purposes. (Dec 07)	Holcim advises water for non-potable use is obtained from Donazzan’s Dam, or from pit storage (Southern Hole).	C	

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2.12	Waste Management			
2.12.1	<p>Objective Minimise waste quantities, comply with legislative requirements and progress towards the recycling and re-use of all wastes.</p>	Overall, the objective is being achieved.	C	
2.12.2	<p>Target Maintain the generation of waste to landfill at 0.6t/month.</p>	Target exceeded marginally (0.61 t/month average by end of year). Considered to be met.	C	Waste Summary Table
2.12.3	Management Measures			
Timing	Action			
June 2008	<p>Characterise all waste streams and develop measures to:</p> <ul style="list-style-type: none"> o minimise site waste generation; o segregate waste groups; and o direct landfilled wastes to recycle/re-use wherever possible 	<p>Waste types are mostly being segregated and prescribed waste is disposed of in accordance with EPA regs. Recycling occurring for paper/cardboard. Site should develop and implement measures to further reduce landfill waste.</p> <p>Some co-mingling of waste noted (prescribed waste in landfill skip). Toolbox waste segregation and develop pictorial guides to post at key collection points.</p>	C O	As above; direct observation, photograph 10
June 2008	Develop quantifiable and achievable targets for the reduction of waste volumes for each of the identified waste groups, and the measures to be taken to achieve the targets.	Site advises it has reinforced need for personal waste segregation in lunch room. Some waste items are being diverted from landfill, e.g. wood waste, through informal means – providing to residents.	C	
As required	Silt removed from the settling ponds and silt traps will be incorporated into product stockpiles or	Holcim advises that this is the case when done – identified in monthly site inspections.	C	Observation; monthly inspection checklists (sample sighted)

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	overburden materials for use in progressive reclamation.			
As required	All prescribed industrial waste (PIW) such as waste oil is to be stored, and transported from the site, in accordance with EPA prescribed waste transport guidelines (references 7 & 8)	JJ Richards collects waste oil, drums, rags etc. Accredited Agent appointment (19/6/17). EPA waste certificates not able to be readily located. As an Accredited Agent, Richards should not be using paper WTCs.	C O	JJ Richards Dockets (various including WTC); Liberty OneSteel Annual Statement. Photograph 8.
Annual	The site’s septic sewage system will be pumped out regularly.	Two septics maintained.	C	Plendrive Waste Disposal – invoice Dec 18
Annual	Conduct an annual waste survey to establish the types, quantities and re-cycling/ re-use percentages for all site wastes.	Data for landfill and steel is in spreadsheet – shows trending decline in load mass over last 3 years.	C	Spreadsheet of waste consigned off site through weighbridge
Annually	Use the outcomes of the annual survey to set quantifiable and achievable annual waste reduction targets for the site for each waste stream identified.	Talk to JJ Richards – can they provide plastics recycling receptacles?	C O	
2.13	Housekeeping/Preventative Maintenance			
2.13.1	Objective Establish effective housekeeping checks and preventative maintenance programs to control environmental hazards.	Achieved.	C	
2.13.2	Target			

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	Housekeeping audits identify no more than 5% non-conformance practices (except where applied to Consent conditions, where 0% non-conformance applies)	Weekly/monthly inspections cover all issues. Not known whether target has been met.	O	
2.13.3	Management Measures			
Timing	Action			
Monthly	Housekeeping checks will include the following environmental issues: <ul style="list-style-type: none"> o Chemical and fuel bunding; o Bund content and drainage point valve in off position; o Spill clean-up and spill kit equipment contents; o Waste container labelling; o Tarping practices; o Road and vehicle cleanliness; o Unusual noises; o Visual dust presence of significance; and o Segregation of Inert type wastes from solid and from industrial wastes. 	Scoring is occurring however it did not commence until during the year – cannot determine whether target was achieved.	C O	General housekeeping and Hazard Inspections – 2018 (sample); Environmental Housekeeping Inspection reports – 2018 (sample).
Monthly/ annually	PM system checklists are available to capture: <ul style="list-style-type: none"> o Fixed System Dust Suppression o Watering truck and sweeper vehicles o Water spays and lines o Spill Kits <p>Dust extraction units will be serviced annually.</p>	Three dust collectors - serviced <u>quarterly</u> . Contractor recommendations are being captured in SAP system for action. Examples sighted. Water Truck is regularly maintained to keep in good working order.	C	Wamgroup – Silo venting and Dust extraction service records (Jan, 2019, Sep, Aug, Mar 2018); PM inspection reports – Weekly Running inspections – tertiary, primary, secondary (sample); Water Truck maintenance history.
2.14	Storage & Handling			

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2.14.1	Objective To minimise chemical and fuel run-off and land contamination due to spillage/ release/ stormwater flushing.	Objective achieved.		
2.14.2	Target No visible oils/fuels in stormwater discharging from discharge point. No significant soil contamination.	Targets met.	C	Observation
2.14.3	Management Measures			
All times	Signage will be maintained around bunded fuel tanks describing the filling procedure to be followed.		C	Observation
All times	All fuels and chemicals in containers over 100 litres will be bunded when stored or in use.	Diesel fuel tank at quarry pit pump set was not bunded. Diesel tank at Dam pump shed double-skinned.	mnc	Observation – photograph 9, 15, 16
As required	Captured rainwater within fuel/oil storage bunds will be released through triple interceptor prior to release to the stormwater system.		C	Observation
As required	Areas of significantly hydrocarbon-contaminated soil will be excavated and remediated in accordance with the Hydrocarbon Land-farming Procedure.	None reported.	NA	Observation
2.14.4	Explosives Use & Storage Explosives are used for primary blasting in accordance with the requirements of the DPI. Bulk explosives are used on site and these are delivered from an external supplier. The quantity of bulk	Settled during 2011 audit. Explosives bunker has now been demolished and removed (Jan, 2017).	NA	

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	explosives required for one shot is pre-determined and only the required explosives are delivered to the site. Surplus explosive is removed from the site by the supplier.			
2.15	Donazzan’s Dam Integrity			
2.15.1	Objective To maintain the structural integrity of Donazzan’s Dam.		C	
2.15.2	Target No leakages, spills or other containment failures associated with the Dam.	None reported. Target met.	C	
2.15.3	Management Measures			
5 yearly	Engage specialist geotechnical consultant to review dam structural integrity. Next review to be conducted in 2020.	Piezometers checked monthly – no standing water.	C	Monthly checks, 2018.
PART C				
1	Rehabilitation and Vegetation			
1.1	Objectives The main objectives for the landscape and rehabilitation of the quarry operations area are to: <ul style="list-style-type: none"> • 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 	Objectives have been achieved commensurate with the current stage of the extension and rehabilitation works.	C	Photographs 11-12

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	<p>extension from surrounding viewpoints</p> <ul style="list-style-type: none"> • 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 Pakenham area • address drainage issues. • 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	<p>Targets Successful establishment and maintenance of landscape screening and rehabilitation in accordance with the Work Plan attachment <i>Landscape and Rehabilitation Report, ERM (January 2005)</i> and the <i>Landscape & Rehabilitation Management Plan, 2007, (LRMP)</i> to the satisfaction of the DPI and the Responsible</p>	<p>Targets have been met – screening vegetation continues to grow well and is effective. Extensive weed control activities evident within quarry site (see comments and evidence cited in the Net Gain Offset section). Reportedly plantings are periodically watered to maintain viability.</p>	C	<p>Photograph 13-14, report cover photograph.</p>

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	Authority. Maintenance of existing vegetation where practicable.			
1.4	Management Measures			
1.4.1	<p>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, 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.</p> <p>The LRMP covers all planting and rehabilitation within the quarry operational and non-operational areas.</p> <p>The LRMP deals in detail with the management of the following aspects of quarrying operations as they relate to landscape and rehabilitation:</p> <ul style="list-style-type: none"> Vehicle Management - Inspection of Vehicles, Clean down of Machinery, Vehicles and Equipment, Use of public roads and pathways, 	<p>LRMP separately audited as follows -</p> <p>LRMP 2.1 Rehab Manager is Matt Dodd, QM, Holcim. Works are conducted by Holcim Personnel (JE) and Naturelinks (contractor).</p> <p>LRMP 2.2 Reporting (3 monthly) to QM. – No longer relevant. Land Management Reports (every 2 years) – not being done. However Naturelinks provides monthly update to QM.</p> <p>LRMP 2.3 Complaints. No complaints received to date.</p> <p>LRMP 2.4 Non-Conformances. None reported.</p> <p>LRMP 2.5 Soil Testing – not applicable, no contaminant testing of soils.</p> <p>LRMP 2.6 – Review. It has been noted in an earlier audit report (2012) that it is difficult to review and</p>	<p>C</p> <p>C</p> <p>C</p> <p>NA</p> <p>NA</p> <p>NA</p> <p>mnc</p>	<p>LRMP, June 2014, Rev 3 (appended to EMP)</p> <p>3 monthly report to ERC (2 examples reviewed)</p> <p>Vegetation Monitoring sheets (monthly), weed control records (daily work logs)</p>

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	<p>Provision of public safety</p> <ul style="list-style-type: none"> • Topsoil Scraping and Stockpiling • Weed and Vermin Control, and Herbicide Use • Existing Vegetation Management, including: <ul style="list-style-type: none"> ○ 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 <p>Reference should be made to the LRMP for all such issues arising as part of the on-going maintenance of landscaped and rehabilitated areas.</p>	<p>revise the LRMP outside of the EMP review process. However, it is important that the whole LRMP be periodically reviewed as to its continued relevance and suitability. The LRMP should therefore be reviewed (to “ensure that it contains up to date and relevant land management practices”) before the next stage of rehab works commences, and outcomes documented and presented to ERC for comment and agreement (as per page 4 of the LRMP. Note the last sentence on that page incorrectly refers to the EMP). The review should include and involve Naturelinks personnel.</p> <p>LRMP 4.1.1/4.1.2 Vehicle Inspection/Clean Down. Naturelinks has now changed pre-start checklist to include vehicle clean down if there is risk of weed/pest transfer. Procedure also sighted.</p> <p>LRMP 4.2.3 – Use of Public Roads. Roads observed to be free of debris.</p> <p>LRMP 4.1.4 – Safety. Viewing platform in quarry.</p> <p>LRMP 4.2 Topsoil. Observed to be stored appropriately.</p>	<p>C</p> <p>C</p> <p>C</p> <p>C</p>	<p>Naturelinks documentation on vehicle hygiene (part of pre-start for site entry)</p> <p>Observation</p> <p>Observation (cover photograph)</p> <p>Observation</p>

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		<p>LRMP 4.3 Weed/Vermin Control. Weed spraying is done. Locations recorded. Nominated weeds are targeted.</p> <p>LRMP 4.3.1 Herbicide Use. Reportedly Round-up, Garlon, Kamba/Dicamba (all non-residual) used.</p> <p>LRMP 4.4 Existing Veg Man’t. These items are done, as relevant – plant conditions monitored and reported on</p> <p>LRMP 4.5 Seed Collection. Completed at last audit.</p> <p>LRMP 4.6 Topsoil Spreading. Not relevant at this stage (applies after works ceases)</p> <p>LRMP 4.7 Hydro-seeding. Done on batters at southern end of quarry.</p> <p>LRMP 4.8 Setting Out. Settled at last audit.</p> <p>LRMP 4.9 Fencing & Signage. Holcim advises signage in place (not observed during this audit).</p> <p>LRMP 4.10 Supervision. As for previous audit report.</p>	<p>C</p> <p>C</p> <p>C</p> <p>C</p> <p>NA</p> <p>C</p> <p>NA</p> <p>C</p> <p>C</p>	<p>Naturelinks – Annual Summary of monthly works 2018, Annual Report 2017/18, Annual Works Plan (2018) Daily weed control reports (JE). Weed Management plan showing timing for treatments. JE – Chemicals Certificate (#6183), 26/3/10</p> <p>Observations; Vegetation Monitoring Record Sheets (monthly) – sample sighted.</p> <p>Naturelinks annual summary of works, 2018,</p>

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		<p>LRMP 4.11 Cleaning Up. Site observed to be clean.</p> <p>LRMP 4.12 Erosion Control. Finger drains installed at rehab area. Silt fencing in place.</p> <p>LRMP 4.13 Maintenance during first Year. Settled at last audit.</p>	<p>C</p> <p>C</p> <p>NA</p>	<p>Observation</p>
1.4.2	Ongoing & Post-Operations Maintenance			
	<p>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):</p> <ul style="list-style-type: none"> • 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 	<p>LRMP 5.0 On-going Maintenance.</p> <p>No change from previous audit. Maintenance currently occurring by Holcim personnel during operational phase of quarry.</p>	<p>C</p>	<p>Vegetation Monitoring Monthly reports (sample sighted)</p>

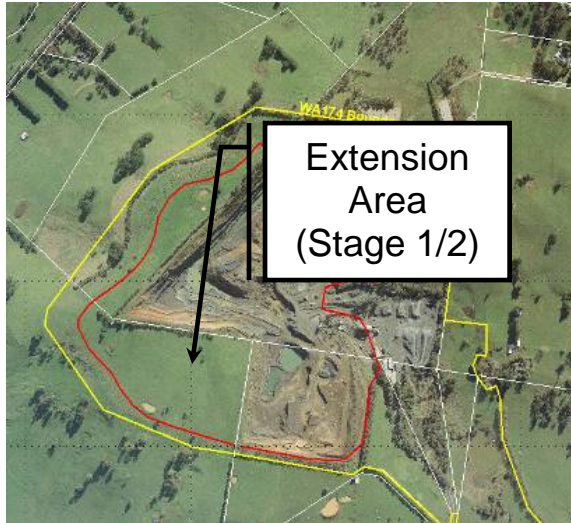
Section/ Timing	EMP Requirement – Summary	Auditor’s Findings & Comments	Conf*	Audit Evidence
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	<p>failed and provide significant gaps on the horizon line.</p> <ul style="list-style-type: none"> • Regrading necessitated by erosion and washouts. • Rehabilitation 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. 			
	<p>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.)</p>	<p>Not applicable at this time.</p>	<p>NA</p>	
<p>1.4.3</p>	<p>Monitoring, Reporting & Review A site Rehab Manager is to be appointed with responsibility for the following:</p> <ul style="list-style-type: none"> • 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; 	<p>See section above.</p>		

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	<ul style="list-style-type: none"> • Complaints received and properly recorded and actioned; • Non-conformances and corrective actions; and • Results of site inspections. 			
	<p>The Rehab Manager is to submit land management reports to the Quarry Manager and the ERC during the quarrying phase 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:</p> <ul style="list-style-type: none"> • Land management practices undertaken; • Rehabilitation works completed; • Complaints received; • Non-conformances and corrective actions; • 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. 	<p>3 monthly report is submitted to ERC by QM, providing a brief summary of works completed.</p>	<p>C</p>	<p>EMP Progress Update reports to ERC – Quarters 1, 2, 3 & 4</p>
<p>1.5</p>	<p>Monitoring</p>	<p>Independent status report considered to apply to post-closure rehabilitation of internal faces of</p>	<p>C</p>	<p>3 monthly report to ERC; Weed control reports (Holcim)</p>

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		<p>quarry, therefore not relevant at this stage.</p> <p>Weed control acceptable – see above comments.</p> <p>Sed. Control – see above comments.</p>		

Appendix 2

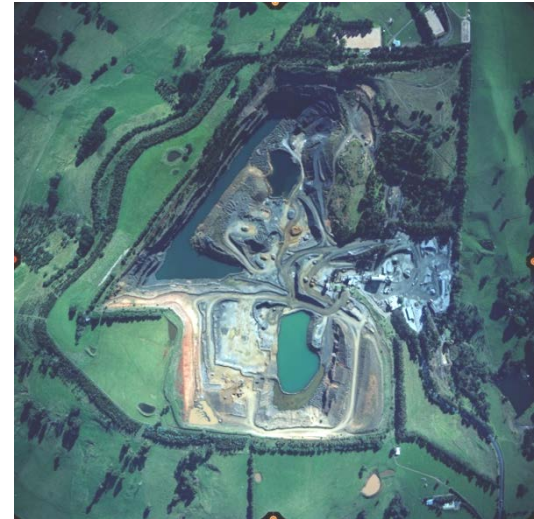
Photographs



Photograph 1: Before extension



Photograph 2: January 2010



Photograph 3: May 2011



Photograph 4: April 2014



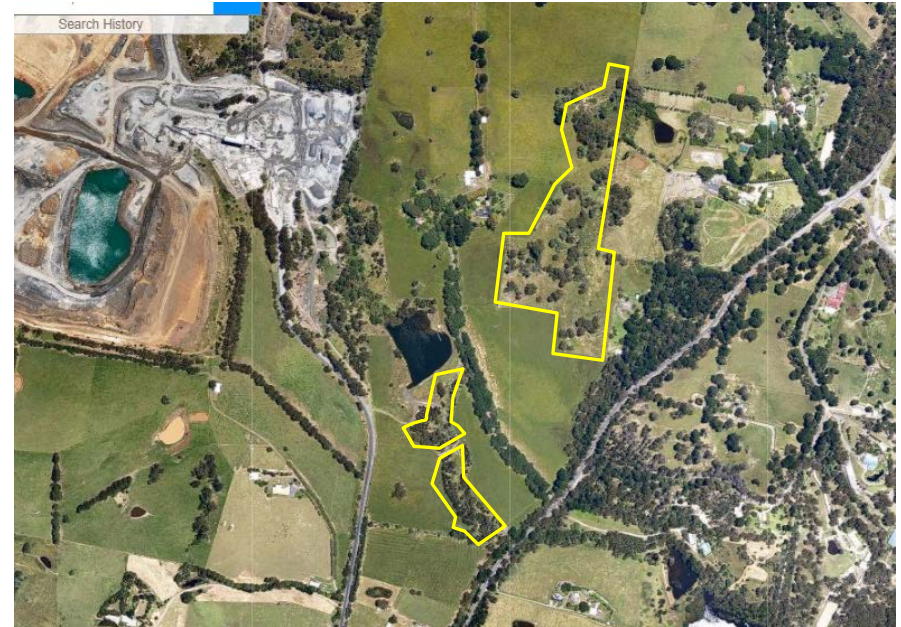
Photograph 5: December 2015



Photograph 6: December, 2016



Photograph 7: October, 2017 (above). Net Gain Offset areas are shown outlined in yellow. For comparison, the photo opposite is from Jan, 2014.





Photograph 8: February, 2019. Offset areas outlined in yellow.



Photograph 9: Diesel tank at quarry pit – bund drain pipe is open.



Photograph 10: Co-mingling of recyclable wastes in landfill skip (at equipment graveyard).



Photograph 11: Rehabilitation areas progressing. Low dust from quarry noted.



Photograph 12: As above.



Photograph 13: Net Gain Offset area. Vegetation is well established.



Photograph 14: As above.



Photograph 15: Spill kit in pump shed at Donazzans Dam.



Photograph 16: As above – bund is cracked however fuel tank is double-skinned.



Photograph 17: V-notch weir at EPA sampling point. Bare earth above sampling point could affect turbidity of discharge; soil should be stabilised here.