



APPROVALS - SUSTAINABILITY - COMPLIANCE

***Environmental Management Plan  
Annual Audit***

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

**February, 2021**



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 19011:2019 *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.

**EnviroRisk Management Pty Ltd**  
**ABN 24 069 947 904**  
**PO Box 183 LARA VIC 3212**  
**P: 03 5282 3773**  
[www.envirorisk.com.au](http://www.envirorisk.com.au)


### **DOCUMENT REVISION HISTORY**

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## General Information

<b>Audit Title:</b>	Environmental Management Plan Annual Audit
<b>Site Office:</b>	Mt Shamrock Rd, Pakenham
<b>Site/ Dept. Manager:</b>	Matt Dodd, Quarry Manager
<b>Audit Conducted By (Environmental Specialist)</b>	
<b>Lead Auditor:</b>	Stephen Jenkins, Director, EnviroRisk Management
<b>Signed:</b>	
<b>Auditor:</b>	Simon Leverton, Senior Manager, EnviroRisk Management
<b>Signed:</b>	
<b>Date Audit Completed:</b>	10 <sup>th</sup> February, 2021
<b>Client Representative</b>	
<b>Name:</b>	Matt Dodd
<b>Title:</b>	Quarry Manager, Holcim
<b>Audit Personnel</b>	
<b>Interviewees/Attendees:</b>	Matt Dodd – Quarry Manager John Everett - Maintenance
<b>Report Distribution</b>	
Matt Dodd	Quarry Manager, Holcim
Stephen Jenkins	EnviroRisk Management Pty Ltd (Master Copy)

## Executive Summary

This report describes the outcome of the annual independent Environmental Management Plan (EMP) 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 quarrying works was granted subject to the quarry being managed in accordance with an EMP. The EMP was prepared and approved by the regulators in January, 2008. It has since been reviewed and revised, with the current 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 and other personnel, examination of documentation and records (audit evidence), a guided inspection of the quarry site and surrounding area, and the completion of a detailed protocol which lists all commitments and obligations contained within the EMP. Photographs were taken to illustrate items raised for attention and are appended to this report.

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

### **Audit Findings and Conclusions:**

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

- No environmentally related complaints were received and recorded;
- Environmental quality monitoring data was substantially in compliance with the limits specified in the EMP and EPA Licence, with exceptions relating to the latter;
- Objectives and targets specified in the EMP were met for all items other than air monitoring, greenhouse gas reductions and compliance with surface water obligations;
- 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 according to plan, despite the drought conditions of the previous year and resultant drought-affected die off on the western side of Mt Shamrock;
- Holcim has maintained an active and informative engagement with stakeholders (as represented in the ERC); and
- Holcim has demonstrated a proactive approach to environmental management, particularly in the areas of dust control, vegetation rehabilitation and waste management.

Five (5) non-conformances were identified (one major and four minor) and are set out in the Table 1 below. Thirty five (35) observations were made leading to recommendations to improve environmental management at the site. These and the recommendations to correct the non-conformances are listed in the Table 2 below.

Table 3 below 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 nine audits. For the year 2020 all the objectives and targets specified in the EMP were met, except for the air quality (partial), surface water and greenhouse gas emissions targets. Implementing the recommendations in this report should enable all objectives and targets to be met going forward.

It is concluded that, from an examination of the evidence made available during the audit, discussions with site personnel and inspections in and around the quarry area and surroundings, the EMP and related management documents are being substantially implemented. A small number of relatively minor items requiring attention were identified during the audit, and recommendations have been made for actions to address these. A major non-conformance was also identified (non-reporting of exceedances to EPA) that arose possibly as a result of a misunderstanding or miscommunication between Holcim personnel, but involved a small number of water quality exceedances that were marginally outside the EPA Licence limits.

**Table 1 - Non-conformances**

EMP Ref.	Rating	
s.A, 6.3	<b>MNC</b>	Non-compliant water quality monitoring data was not reported to EPA in the Annual Performance Statement.
s.B, 2.1.3	<b>mnc</b>	Dust deposition samples for three consecutive months were not retrieved from any of the sampling locations.
s.B, 2.4.2	<b>mnc</b>	A small number of pH and turbidity exceedances were recorded in samples taken at the EPA Licence discharge point during discharge of surface water from the site.
s.B, 2.4.2	<b>mnc</b>	The turbidity meter was found to be almost a year overdue for factory calibration, and standard turbidity and pH solutions are not being routinely used prior to conducting monthly water quality monitoring.
s.B, 2.6.2	<b>mnc</b>	The site did not meet its annual greenhouse gas emission reduction target.



**Table 2 – Recommendations & Improvement Opportunities**

EMP Ref.	Recommendation
s.A, 6.3 EPA Reporting	1. Notify EPA that the APS submitted in 2020 was in error and provide details of measures to be taken to avoid a recurrence. <b>MNC</b>
s.B, 2.1.3 Dust Monitoring	2. Document and implement contingency procedures in the event that the air quality monitoring contractor is unable to retrieve dust deposition samples at the specified intervals for transport to the laboratory for analysis. <b>mnc</b>
s.B, 2.4.2 Water Quality	3. Undertake an investigation into the cause(s) of the turbidity and pH exceedances measured at the EPA Licence discharge point during discharge of surface water from the premises. Implement necessary controls and other measures as necessary to ensure Licence discharge limits are met at all times. <b>mnc</b>
s.B, 2.4.2 Water Quality	4. Document and implement a water quality monitoring procedure that includes instructions on the correct use and field calibration of water quality monitoring instruments. The procedure should align with EPA sampling guidelines and the instrument manufacturers' specifications. <b>mnc</b>
s.B, 2.6.2 Energy Target	5. Investigate further measures that can be taken to achieve the annual greenhouse gas reduction target for the site. Include consideration of offsets such as carbon offset purchasing, and the sourcing of electricity from renewable generation. <b>mnc</b>
EMP Ref.	Improvement Opportunity
s.A, 4 ERC	i. Documents should be made available for download from the ' <i>allpossibilities</i> ' website page as soon as possible.
s.A, 5.1 External Specialists	ii. A suitably qualified and experienced specialist, should be appointed to conduct all training of site personnel in surface and groundwater quality monitoring activities, in accordance with EPA guidelines and best industry practice applicable at the time.
s.A, 6.2 Incidents	iii. Erect a large sign at the entrance to the site, and/or at the start of Mt Shamrock Road, clearly stating quarry open hours.
S.A, 7 Records	iv. Evaluate the feasibility of scanning all paper field monitoring records after completion and filing them on the site's intranet system.
s.A, 8.1 EMP Audit	v. Holcim to advise residents on the ERC that they are welcome to contact auditors during the EMP audit period to discuss issues/concerns – anonymity will be assured if required.
s.A, 9 Compliance	vi. All items in the Compliance Planner should have responsibilities assigned against them.

Planner	
s.B, 2.2.3 Noise	vii. Correct the reference to the SHE Guideline in the revised EMP.
s.B, 2.2.3 Noise & s.A, 6.3 External Comms	viii. Review the Environmental Reporting Procedure attached at Appendix 2 of the EMP. In particular, the section “Quarterly Reports” is ambiguous as it refers to monthly reports and quarterly reports. Amend procedure to delete reference to monthly reports, unless there are compelling reasons to retain monthly reporting, in which case the procedure should be amended to clearly spell this out.
s.B, 2.2.3 Noise	ix. On page 9 of the Minister’s Assessment Report attached at Appendix 12 of the EMP there is an incorrect reference to the noise limit descriptor. It should be $L_{Aeq}$ but is specified as $L_{A90}$ . A note to this effect should be attached for future versions of the EMP to avoid confusion. Also, the latest copy of the report (May 2008) should be attached.
s.B, 2.2.3 Noise	x. Given the changes to EPA noise control and monitoring requirements since the EMP was first prepared, and a new EP Act coming into force on 1 July 2021, a review of applicable noise limits and noise assessment methods is warranted. This should be done by an appropriately qualified environmental acoustician, and the EMP amended accordingly as required.
s.B, 2.2.3 Noise	xi. To ensure consistency and reliability in data gathering, Holcim should develop and implement a noise monitoring procedure that is to be followed by all persons conducting routine and periodic noise monitoring as specified in the monitoring schedule of the EMP.
s.B, 2.3.3 Blasting	xii. Review and if necessary, amend the Quarry Blasting procedure (Appendix 8) to reflect current practices.
s.B, 2.4.2 Surface Water	xiii. Amend the water quality data summary spreadsheet to include a calculation of the mean (not median) daily discharge at the v-notch weir, i.e. the sum of all discharge water volumes for the financial year, divided by the number of days that discharge over the weir occurred.
s.B, 2.4.2 Surface Water	xiv. The surface water management schematic for the site needs to be reviewed/revised to accurately indicate the current system of water movement (both pumped and gravitational flows) during the different seasonal and operational conditions applying at the site. It needs to include consideration of surface water draining to quarry works (and therefore potentially contaminated) and run-off from farmland and other vegetated areas going directly to the discharge point.
s.B, 2.4.2 Surface Water	xv. Include algal bloom information from the VicWater website in water quality monitoring procedure.
s.B, 2.4.2	xvi. Post a sign at the dual interceptor trap stating that pump-out service contractors must provide Holcim with a copy of the



Surface Water		EPA Waste Transport Certificate within 1 week of collection, or Holcim access the EPA portal to confirm their waste tracking is in order.
s.B, 2.4.2 Ground Water	xvii.	Holcim should implement the recommendations of the specialist Groundwater and Spring Review letter report dated 27/1/21.
s.B, 2.5.3 Slope Stability	xviii.	The recommendations in the specialist's slope inspection report should be entered into INX and actioned within appropriate timeframes. Where recommendations are impractical due to the steepness and inaccessibility of some sites, alternative strategies should be considered in consultation with specialists.
S.B, 2.8.4 Net Gain	xix.	Determine whether humane and appropriate deer control measures need to be implemented to avoid significant damage to vegetation in the offset areas.
s.B, 2.10.3 Fire Management	xx.	Update the Bushfire Management Plan to include the other pre-season preparations being done such as removing combustible materials etc.
s.B, 2.10.3 Fire Management	xxi.	Ensure that all Holcim personnel have participated in the annual evacuation drill.
s.B, 2.12.3 Waste	xxii.	Progress the development of further waste reduction measures by engaging waste contractors to assist the process.
s.B, 2.12.3 Waste	xxiii.	Develop and deliver a toolbox talk on waste management on the site, after further management measures have been agreed with the waste contractors.
s.B, 2.12.3 Waste	xxiv.	Confirm whether JJ Richards needs to provide an annual report to Holcim of waste collected and evidence of WTCs being obtained.
s.B, 2.12.3 Waste	xxv.	Prescribed waste storage bins need to be more clearly signed to prevent co-mingling with other wastes.
s.B, 2.13.3 Housekeeping	xxvi.	Rectify the poor seal between the pug mill bin and hopper, as identified on several occasions by the service contractor, where this will improve equipment functioning and reduce dust emissions.
s.B, 2.13.3 Housekeeping	xxvii.	Site should have a map with locations of each spill kit, kept up to date. The map is to be provided to Absorb (the kit service contractor) prior to their quarterly check and restock, to ensure all kits are checked.

s.B, 2.14.3 Storage & Handling	xxviii. Provide a bunding pallet or similar for the Roundup drum located in the sea container in the quarry works area.
s.B, 2.15.3 Donazzan's Dam	xxix. Implement the recommendations of the Donazzan's Dam 5-yearly inspection report through the site's INX system, assigning appropriate completion targets.
s.B, 2.15.3 Donazzan's Dam	xxx. Amend the Environmental Monitoring Schedule of the EMP (Appendix 11) to include piezometer monitoring in s.10 – Dam Integrity.
s.C, 2.4 Non- conformances	xxxi. The revised LRMP needs to clearly state what a non-conformance is in relation to various activities - it should be when something has gone wrong, outside of what is normal on-going maintenance, as well as those matters identified through audit/inspection.
s.C, 4.3 Weed & Vermin Control	xxxii. Consider implementing additional weed controls measures where excessive growth has been encountered.
s.C, 4.3.1 Herbicide Use	xxxiii. Review contractor herbicide suite to ensure the most appropriate herbicides are being used. This might entail the use of some that have residual properties yet are pesticides with low 'off-target' potential (e.g., refer NSW RMS Approved Pesticide list <a href="https://www.rms.nsw.gov.au/documents/about/environment/compliance/approved-pesticides-list.pdf">https://www.rms.nsw.gov.au/documents/about/environment/compliance/approved-pesticides-list.pdf</a> ). Amend the EMP wording to suit if necessary.
s.C, 4.9 Fencing & Signage	xxxiv. Consider updating signs on boundary fence so they reference Holcim rather than Readymix, to avoid confusion.
Monitoring Instrument Calibration	xxxv. Holcim establish system to ensure all factory calibrations of environmental monitoring instruments/equipment are carried out as required. This could be a register which lists all instruments and their calibration due date, sends reminders to relevant responsible persons, and warnings when calibration is out of date. Field calibration requirements should be included in all monitoring procedures, with calibration results recorded in all monitoring records and reports, whether prepared by Holcim personnel or its contractors. The above could be documented as a section within Appendix 11 of the revised EMP.

EMP Section	2009		2010		2011		2014		2015		2016		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 3 – Objectives and Targets

EMP Section	2018		2019		2020	
	Objective	Target	Objective	Target	Objective	Target
Air Quality	Achieved	Met	Achieved	Met	Achieved	Partially met
Noise	Achieved	Met	Achieved	Met	Achieved	Met
Blasting	Achieved	Met	Achieved	Met	Achieved	Met
Surface Water, Drainage, and Groundwater	Achieved	Met	Achieved	Met	Achieved	Not met
Slope Stability	Achieved	Met	Achieved	Met	Achieved	Met
Greenhouse Gas Emissions	Achieved	Not met	Achieved	Not met	Achieved	Not met
Traffic Management	Achieved	Met	Achieved	Met	Achieved	Met
Net Gain	Achieved	Met	Achieved	Met	Achieved	Met
Cultural Heritage	Achieved	Met	Achieved	Met	Achieved	Met
Fire Management	Achieved	Met	Achieved	Met	Achieved	Met
Water Conservation	Achieved	Met	Achieved	Met	Achieved	Met
Waste Management	Achieved	Met	Achieved	Met	Achieved	Met
Housekeeping/Preventative Maintenance	Achieved	(not established)	Achieved	Met	Achieved	Met
Storage & Handling	Achieved	Met	Achieved	Met	Achieved	Met
Donazzan's Dam Integrity	Achieved	Met	Achieved	Met	Achieved	Met
Rehabilitation & Vegetation	Achieved	Met	Achieved	Met	Achieved	Met

**Table 3 – Objectives and Targets (continued)**

## 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 18<sup>th</sup> January, 2008. The EMP has since been reviewed and revised by Holcim, with the current version coming into effect in October 2015. A further revision is currently in progress.

Works to extend 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 commenced (i.e. 2010), and at various stages thereafter until the present. 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 prior to commencement.

## 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 2020 to Feb 2021), determine whether the limits, commitments and undertakings set out in the EMP are being complied with and implemented, 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 undertake a detailed evaluation of compliance by Holcim with the commitments and requirements set out in 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 in accordance with the environmental monitoring program appended to the EMP.

In addition, the status of progress towards implementing the recommendations of previous audits was reviewed. The site component of the audit was conducted through site interviews, documentation examination and an accompanied site inspection at the Mt Shamrock quarry and its surroundings over the period 9<sup>th</sup> – 10<sup>th</sup> February, 2021. Prior to this a selection of audit evidence (in electronic format) was requested from Holcim for review by the auditors. This was done to reduce the auditors’ face-to-face time on site during the COVID-19 pandemic.

## 4.0 AUDIT TEAM

### ***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.

### ***Simon Levertton – 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 33 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 obligations, commitments, requirements and undertakings by the auditee against which audit evidence is compared to determine whether they have been met. The 'primary' criteria for this audit are set out in the three sections of the EMP. 'Secondary' criteria are the supporting documents appended to the EMP, applicable

legal and other requirements and, more generally, industry best practice. The audit report may reference these as appropriate.

The audit protocol (Appendix 1) is used to record the findings against each of the primary criteria. The protocol lists each EMP commitment together with its section reference. 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 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. Auditor comments were recorded in the middle column.

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 or commendable actions. These are referenced in the protocol where appropriate and shown in Appendix 2.

The audit included a determination of achievement against each of the objectives set out in the EMP, based on the overall findings, and also whether the specific objectives and targets for each section have been met (fully, partially or not at all). The results of this are summarised in Table 6.1 below.

## 6.0 METHODOLOGY

The audit was conducted in accordance with AS/NZS ISO 19011:2019 *Guidelines for auditing management systems*, and proceeded through the following stages:



### **6.1     *Audit Program (Schedule)***

Upon engagement, a draft audit program was prepared and submitted to Holcim for review and comment. The draft Program was submitted to the ERC for comment in December, 2020. In view of the COVID-19 pandemic currently occurring globally, the Program was modified from that previously followed to reduce the time spent on site by the auditors. No comments were received from Holcim in relation to the Program, however prior to commencement of the site component of the audit EnviroRisk increased the proposed onsite time allowance from 1.5 days to 2 days to ensure enough time for interviews and inspections was available.

### **6.2     *Pre-Audit Initial Evidence Review***

A list of documentary evidence (readily available and in electronic format) was provided to Holcim to supply to the auditors for review prior to the site component. The auditors also reviewed the outcomes and recommendations of the previous audit report.

### **6.3     *Site Component***

The site component commenced with a brief opening meeting with the Quarry Manager and other relevant and available personnel. Arrangements for the audit were confirmed as per the Audit Program.

The auditors then conducted a detailed site inspection accompanied by the Quarry Manager. The inspection included the quarry and rehabilitation areas, the screening vegetation plantings on the western rim of the quarry site, equipment 'graveyards', the EPA sampling point and observing a blast on the north-west wall. A second site inspection was conducted on day 2 that included the maintenance area and Donazzan's Dam discharge point.

The interviews and sighting of audit evidence were conducted in the site office over the afternoon of day 1 and the whole of day 2. Interviewees were Matt Dodd (Quarry Manager) and John Everett (Maintenance Manager).

At the end of day 2 a closing meeting was held with the Quarry Manager at which the preliminary audit findings were presented (subject to further evidence that was being collected by the auditee).

## **7.0     FINDINGS & DISCUSSION**

### **7.1     *Overall***

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

- No environmentally related complaints were received and recorded;
- Environmental quality monitoring data was substantially in compliance with the limits specified in the EMP and EPA Licence, with exceptions relating to the latter;

- Objectives and targets specified in the EMP were met for all items other than air monitoring, greenhouse gas reductions and compliance with surface water obligations;
- 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 according to plan, despite the drought conditions of the previous year and resultant drought-affected die off on the western side of Mt Shamrock;
- Holcim has maintained an active and informative engagement with stakeholders (as represented in the ERC); and
- Holcim has demonstrated a proactive approach to environmental management, particularly in the areas of dust control, vegetation rehabilitation and waste management.

Five (5) non-conformances were identified (one major and four minor) and are set out in Table 1. Thirty five (35) observations were made leading to recommendations to improve environmental management at the site.

Table 2 shows the implementation status of the recommendations to correct non-conformances from the previous EMP audit. One recommendation has been completed, one is imminent for completion, two are well in progress to completion and one is substantially completed and part of an on-going effort. All recommendations from earlier EMP audits have been closed out.

## **7.2 Surface Water Quality Management & Monitoring**

At different times of the year a small number of pH and turbidity exceedances were measured in samples taken at the EPA Licence discharge point while surface water was discharging through the v-notch weir and offsite. The measured pH in these samples was between 9 and 10, and the turbidity in other samples was between 40 and 50 NTU (Licence maximum limit is 30 NTU). At the time the elevated turbidity was recorded, the field notes indicated that water from the quarry works area was not discharging via overflow from Donazzan's Dam. However the monthly quarry pumping record indicated that water was being pumped to the Dam from the quarry. It is not clear whether the Dam was overflowing at the time of sampling and contributing to the discharge at the v-notch weir. The field notes referred to rainfall occurring, although this did not correspond with the monthly rainfall data record maintained at the site. There appears to be some confusion with site personnel that a discharge from the site that is not from pumped quarry water via overflow from Donazzan's Dam is not a discharge for the purposes of the EPA Licence and does not therefore need to be monitored for water quality. This is however not the case - any discharge from the site via the v-notch weir sampling point must be sampled, analysed and recorded in accordance with the Licence.

A major non-conformance was found in relation to the non-reporting of the Licence exceedances. A recommendation is made in this report that the exceedances be investigated to determine their root cause. This may entail a program of water quality monitoring at

various locations within the site, under different conditions (i.e. seasonal such as after rainfall, dam overflow or not, etc.). Elevated turbidity in the discharge could arise from a number of sources, such as the entrainment of settled material in Donazzan's Dam during its overflow, scouring of drainage line sediment during Donazzan's Dam discharge, contaminated run-off from exposed areas outside of the quarry works area, or a combination of these and other sources. Holcim should seek the assistance of a suitably qualified and experienced surface water run-off pollution control expert. A related improvement recommendation is made that the surface water management schematic for the site be updated to clearly indicate pumped and gravity flows during the various operating conditions and under different weather conditions and may be accompanied by explanatory text for further clarity.

It was also found through audit interview that the water quality measurement instruments in use are not being calibrated with standard solutions prior to each sampling round (i.e. field calibration). The turbidity meter was also found to be almost a year out of date for its factory calibration. Measurement uncertainties may have contributed to the elevated readings referred to above. Recommendations are therefore made in relation to the proper use and field calibration of water quality monitoring equipment, codifying this in a water quality monitoring procedure that aligns with EPA guidelines and best practice, and ensuring training in this area is adequate to address this finding.

### **7.3 Air Quality Monitoring**

The absence of a significant part of the dust deposition dataset due to unavoidable circumstances (ill health of the contractor) needs to be addressed through implementing appropriate backup contingencies. These should be documented in the environmental monitoring plan and activated sufficiently ahead of time to enable samples to be retrieved and sent for analysis.

### **7.4 Noise Monitoring**

There have been considerable changes in EPA's noise limit setting and monitoring requirements since the EMP was first issued. Further major changes to EPA requirements are imminent, with the new Environment Protection Amendment Act, 2019, coming into force on 1 July, 2021. It is therefore recommended that a review of the applicable noise limits and assessment method be conducted by a specialist acoustic consultant, and that the EMP be revised to reflect current requirements. A noise monitoring procedure should be prepared, based on the new EPA requirements, and used as a guide for personnel engaged in monitoring noise from the quarry.

### **7.5 Waste Management**

Effective waste management is an on-going process. Holcim's initiative to engage its waste contractors to help in improving the on-site separation and storage facilities and collection/disposal services is commended. A recommendation to deliver an awareness refresher toolbox

to relevant personnel is also made, along with one to improve bin signage to make correct segregation easier for personnel.

### **7.6 Weed & Vermin Control**

Relatively high rainfall conditions during 2020 appear to have stimulated the growth of weeds in the screening and rehabilitation areas. A recommendation is therefore made to implement additional weed control measures to ensure weeds can be effectively controlled. A recommendation was also made to review the herbicides currently being applied. The LRMP requires that non-residual herbicides be used, however some residual herbicides were used over the past year. The appropriateness or otherwise of using herbicides with some residual properties should be re-visited, guided by expertise in this area.

It was noted that a deer was observed in the net gain offset area during maintenance works by the contractor. A recommendation is made to consider whether control measures are necessary to prevent significant damage to vegetation by these animals.

### **7.7 Monitoring Instrument Calibration**

Instruments and equipment used for carrying out environmental monitoring under the EMP are owned and operated by Holcim personnel, owned by Holcim and operated by contractors to Holcim, or owned and operated by the contractors. It is essential to the integrity and reliability of the data collected during the monitoring program that all measurement instruments are calibrated as per their respective manufacturer's specifications and in accordance with EPA guidelines and relevant industry standards. This applies both to regular factory calibrations, and to calibration "in the field" (usually done immediately prior to a monitoring round). A recommendation is made for Holcim to establish a system to ensure all factory calibrations are carried out as required. Field calibration requirements should be included in all monitoring procedures, with calibration results recorded in all monitoring records and reports, whether prepared by Holcim personnel or its contractors.

**Table 1 - Non-conformances**

EMP Ref.	Rating	Non-conformance
s.A, 6.3	<b>MNC</b>	Non-compliant water quality monitoring data was not reported to EPA in the Annual Performance Statement.
s.B, 2.1.3	<b>mnc</b>	Dust deposition samples for three consecutive months were not retrieved from any of the sampling locations.
s.B, 2.4.2	<b>mnc</b>	A number of pH and turbidity exceedances were recorded in samples taken at the EPA Licence discharge point during discharge of surface water from the site.
s.B, 2.4.2	<b>mnc</b>	The turbidity meter was found to be almost a year overdue for factory calibration, and standard turbidity and pH solutions are not being routinely used prior to conducting monthly water quality monitoring.
s.B, 2.6.2	<b>mnc</b>	The site did not meet its annual greenhouse gas emission reduction target.

**Table 2 - Progress and Status of Non-conformances & Recommendations from 2020 Audit**

EMP Ref.	Rating	Non-conformance	Recommendation	Status as at 9 Feb 2021
2.2.3 Noise	mnc	Rental water truck has reverse beeper, not squawker.	Replace reversing device on water truck.	New watering truck has been purchased. <b>COMPLETED</b>
2.6.2 GHG Emissions	mnc	Holcim did not meet its energy reduction target of 3% year on year.	Investigate further measures to reduce energy usage per tonne of product delivered. These could include benchmarking the site against similar sites in Australia and overseas, and adopting strategies used elsewhere (as applicable).	Site is considering the purchase of renewable energy offsets as a way of achieving its GHG emissions reduction target. <b>IN PROGRESS</b>
2.12.3 Waste Man't	mnc	Waste streams at maintenance/service area not being properly segregated.	Develop further measures to ensure: <ul style="list-style-type: none"> <li>co-mingling of recyclable and regulated wastes in landfill skip ceases;</li> <li>use of inappropriate or improperly labelled waste bins within workshop ceases, by removing bins from site;</li> <li>cardboard waste is compacted in the cardboard recycling skip.</li> </ul>	Storage practices had noticeably improved, although co-mingling of some prescribed wastes was found. Further labelling and education is recommended. Holcim advised it is engaging with its waste contractors to review and improve the site's waste segregation, storage and removal processes. <b>IN PROGRESS</b>
2.14.3 Storage/ Handling	mnc	Engine coolant drums outside bunded area in oil/grease container at maintenance area.	Make sure all chemicals are properly stored.	A single minor non-conformance was identified, otherwise chemicals are correctly stored. <b>ON-GOING</b>
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.	Expected to be completed within 2-3 weeks as part of the 5-yearly EMP review. <b>COMPLETION IMMINENT</b>

Table 3 – Objectives and Targets

EMP Section	2009		2010		2011		2014		2015		2016		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 3 – Objectives and Targets (continued)

EMP Section	2018		2019		2020	
	Objective	Target	Objective	Target	Objective	Target
Air Quality	Achieved	Met	Achieved	Met	Achieved	Partially met
Noise	Achieved	Met	Achieved	Met	Achieved	Met
Blasting	Achieved	Met	Achieved	Met	Achieved	Met
Surface Water, Drainage, and Groundwater	Achieved	Met	Achieved	Met	Achieved	Not met
Slope Stability	Achieved	Met	Achieved	Met	Achieved	Met
Greenhouse Gas Emissions	Achieved	Not met	Achieved	Not met	Achieved	Not met
Traffic Management	Achieved	Met	Achieved	Met	Achieved	Met
Net Gain	Achieved	Met	Achieved	Met	Achieved	Met
Cultural Heritage	Achieved	Met	Achieved	Met	Achieved	Met
Fire Management	Achieved	Met	Achieved	Met	Achieved	Met
Water Conservation	Achieved	Met	Achieved	Met	Achieved	Met
Waste Management	Achieved	Met	Achieved	Met	Achieved	Met
Housekeeping/Preventative Maintenance	Achieved	(not established)	Achieved	Met	Achieved	Met
Storage & Handling	Achieved	Met	Achieved	Met	Achieved	Met
Donazzan's Dam Integrity	Achieved	Met	Achieved	Met	Achieved	Met
Rehabilitation & Vegetation	Achieved	Met	Achieved	Met	Achieved	Met

### **7.8 Objectives & Targets**

Table 3 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 nine audits. For the year 2020 all the objectives and targets specified in the EMP were met, except for the air quality monitoring (partial), surface water and greenhouse gas emissions targets.

Implementing the recommendations in this report should enable all objectives and targets to be met going forward.

## **8.0 CONCLUSIONS & RECOMMENDATIONS**

It is concluded that, from an examination of the evidence made available during the audit, discussions with site personnel and inspections in and around the quarry area and surroundings, the EMP and related management documents are being substantially implemented. A small number of relatively minor items requiring attention were identified during the audit, and recommendations have been made for actions to address these. A major non-conformance was also identified (non-reporting of exceedances to EPA) that arose possibly as a result of a misunderstanding or miscommunication between Holcim personnel, but involved a small number of relatively minor water quality exceedances.

Table 4 sets out our recommendations for addressing the non-conformances and improvement opportunities identified in this audit.

**Table 4 – Recommendations & Improvement Opportunities**

EMP Ref.	Recommendation
s.A, 6.3 EPA Reporting	1. Notify EPA that the APS submitted in 2020 was in error and provide details of measures to be taken to avoid a recurrence. <b>MNC</b>
s.B, 2.1.3 Dust Monitoring	2. Document and implement contingency procedures in the event that the air quality monitoring contractor is unable to retrieve dust deposition samples at the specified intervals for transport to the laboratory for analysis. <b>mnc</b>
s.B, 2.4.2 Water Quality	3. Undertake an investigation into the cause(s) of the turbidity and pH exceedances measured at the EPA Licence discharge point during discharge of surface water from the premises. Implement necessary controls and other measures as necessary to ensure Licence discharge limits are met at all times. <b>mnc</b>
s.B, 2.4.2 Water Quality	4. Document and implement a water quality monitoring procedure that includes instructions on the correct use and field calibration of water quality monitoring instruments. The procedure should align with EPA sampling guidelines and the instrument manufacturers' specifications. <b>mnc</b>
s.B, 2.6.2 Energy Target	5. Investigate further measures that can be taken to achieve the annual greenhouse gas reduction target for the site. Include consideration of offsets such as carbon offset purchasing, and the sourcing of electricity from renewable generation. <b>mnc</b>
EMP Ref.	Improvement Opportunity
s.A, 4 ERC	i. Documents should be made available for download from the <i>allpossibilities</i> website page as soon as possible.
s.A, 5.1 External Specialists	ii. A suitably qualified and experienced specialist, should be appointed to conduct all training of site personnel in surface and groundwater quality monitoring activities, in accordance with EPA guidelines and best industry practice applicable at the time.
s.A, 6.2 Incidents	iii. Erect a large sign at the entrance to the site, and/or at the start of Mt Shamrock Road, clearly stating quarry open hours.
S.A, 7 Records	iv. Evaluate the feasibility of scanning all paper field records after completion and filing them on the site's intranet system.
s.A, 8.1 EMP Audit	v. Holcim to advise residents on ERC that they are welcome to contact auditors during the EMP period audit to discuss issues/concerns – anonymity will be assured if required.
s.A, 9 Compliance Planner	vi. All items in the Compliance Planner should have responsibilities assigned against them.
s.B, 2.2.3 Noise	vii. Correct the reference to the SHE Guideline in the revised EMP.

s.B, 2.2.3 Noise & s.A, 6.3 External Comms	viii.	Review the Environmental Reporting Procedure attached at Appendix 2 of the EMP. In particular, the section “Quarterly Reports” is ambiguous as it refers to monthly reports and quarterly reports. Amend procedure to delete reference to monthly reports, unless there are compelling reasons to retain monthly reporting, in which case the procedure should be amended to clearly spell this out.
s.B, 2.2.3 Noise	ix.	On page 9 of the Minister’s Assessment Report attached at Appendix 12 of the EMP there is an incorrect reference to the noise limit descriptor. It should be $L_{Aeq}$ but is specified as $L_{A90}$ . A note to this effect should be attached for future versions of the EMP to avoid confusion. Also, the latest copy of the report (May 2008) should be attached.
s.B, 2.2.3 Noise	x.	Given the changes to EPA noise control and monitoring requirements since the EMP was first prepared, and a new EP Act coming into force on 1 July 2021, a review of applicable noise limits and noise assessment methods is warranted. This should be done by an appropriately qualified environmental acoustician, and the EMP amended accordingly as required.
s.B, 2.2.3 Noise	xi.	To ensure consistency and reliability in data gathering, Holcim should develop and implement a noise monitoring procedure that is to be followed by all persons conducting routine and periodic noise monitoring as specified in the monitoring schedule of the EMP.
s.B, 2.3.3 Blasting	xii.	Review and if necessary amend the Quarry Blasting procedure (Appendix 8) to reflect current practices.
s.B, 2.4.2 Surface Water	xiii.	Amend the water quality data summary spreadsheet to include a calculation of the mean (not median) daily discharge at the v-notch weir, i.e. the sum of all discharge water volumes for the financial year, divided by the number of days that discharge over the weir occurred.
s.B, 2.4.2 Surface Water	xiv.	The surface water management schematic for the site needs to be reviewed/revise to accurately indicate the current system of water movement (both pumped and gravitational flows) during the different seasonal and operational conditions applying at the site. It needs to include consideration of surface water draining to quarry works (and therefore potentially contaminated) and run-off from farmland and other vegetated areas going directly to the discharge point.
s.B, 2.4.2 Surface Water	xv.	Include algal bloom information from the VicWater website in water quality monitoring procedure.
s.B, 2.4.2 Surface Water	xvi.	Post a sign at the dual interceptor trap stating that pump-out service contractors must provide Holcim with a copy of the EPA Waste Transport Certificate within 1 week of collection, or Holcim access the EPA portal to confirm and sign off their waste tracking is in order.
s.B, 2.4.2 Ground Water	xvii.	Holcim should implement the recommendations of the specialist Groundwater and Spring Review letter report dated 27/1/21.

s.B, 2.5.3 Slope Stability	xviii.	The recommendations in the specialist's slope inspection report should be entered into INX and actioned within appropriate timeframes. Where recommendations are impractical due to the steepness and inaccessibility of some sites, alternative strategies should be considered in consultation with specialist.
S.B, 2.8.4 Net Gain	xix.	Determine whether humane and appropriate deer control measures need to be implemented to avoid significant damage to vegetation in the offset areas.
s.B, 2.10.3 Fire Management	xx.	Update the Bushfire Management Plan to include the other pre-season preparations being done such as removing combustible materials etc.
s.B, 2.10.3 Fire Management	xxi.	Ensure that all Holcim personnel have participated in the annual evacuation drill.
s.B, 2.12.3 Waste	xxii.	Progress the development of further waste reduction measures by engaging waste contractors to assist the process.
s.B, 2.12.3 Waste	xxiii.	Develop and deliver a toolbox talk on waste management on the site, after further management measures have been agreed with the waste contractors.
s.B, 2.12.3 Waste	xxiv.	Confirm whether JJ Richards needs to provide an annual report to Holcim of waste collected and evidence of WTCs being obtained.
s.B, 2.12.3 Waste	xxv.	Prescribed waste storage bins need to be more clearly signed to prevent co-mingling with other wastes.
s.B, 2.13.3 Housekeeping	xxvi.	Rectify the poor seal between the pug mill bin and hopper, as identified on several occasions by the service contractor, where this will improve equipment functioning and reduce dust emissions.
s.B, 2.13.3 Housekeeping	xxvii.	Site should have a map with locations of each spill kit, kept up to date. The map is to be provided to Absorb (the kit service contractor) prior to their quarterly check and restock, to ensure all kits are checked.
s.B, 2.14.3 Storage & Handling	xxviii.	Provide a bunding pallet or similar for the Roundup drum located in the sea container in the quarry works area.
s.B, 2.15.3 Donazzan's Dam	xxix.	Implement the recommendations of the Donazzan's Dam 5-yearly inspection report through the site's INX system, assigning appropriate completion targets.
s.B, 2.15.3 Donazzan's Dam	xxx.	Amend the Environmental Monitoring Schedule of the EMP (Appendix 11) to include piezometer monitoring in s.10 – Dam Integrity.
s.C, 2.4 Non-conformances	xxxi.	The revised LRMP needs to clearly state what a non-conformance is in relation to various activities - it should be when something has gone wrong, outside of what is normal on-going maintenance, as well as those matters identified

		through audit/inspection.
s.C, 4.3 Weed & Vermin Control	xxxii.	Consider implementing additional weed controls measures where excessive growth has been encountered.
s.C, 4.3.1 Herbicide Use	xxxiii.	Review contractor herbicide suite to ensure the most appropriate herbicides are being used. This might entail the use of some that have residual properties yet are pesticides with low 'off-target' potential (e.g., refer NSW RMS Approved Pesticide list <a href="https://www.rms.nsw.gov.au/documents/about/environment/compliance/approved-pesticides-list.pdf">https://www.rms.nsw.gov.au/documents/about/environment/compliance/approved-pesticides-list.pdf</a> ). Amend the EMP wording to suit if necessary.
s.C, 4.9 Fencing & Signage	xxxiv.	Consider updating signs on boundary fence so they reference Holcim rather than Readymix, to avoid confusion.
Monitoring Instrument Calibration	xxxv.	Holcim establish system to ensure all factory calibrations of environmental monitoring instruments/equipment are carried out as required. This could be a register which lists all instruments and their calibration due date, sends reminders to relevant responsible persons, and warnings when calibration is out of date. Field calibration requirements should be included in all monitoring procedures, with calibration results recorded in all monitoring records and reports, whether prepared by Holcim personnel or its contractors. The above could be documented as a section within Appendix 11 of the revised EMP.

## 9.0 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 ISO19011:2019 *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><b>C</b> - Conforms;</p> <p><b>MNC</b> –Major non-conformance (potential or actual significant offsite impact on the environment, and/or legal compliance issue);</p> <p><b>mnc</b> –Minor non-conformance (minor actual or potential environmental impact, may be contained within site or have limited off site impact; documentation issue);</p> <p><b>O</b> – Observation; opportunity for improving the management system and/or operational controls exists.</p> <p><b>NA</b> – Not Audited or Applicable (see “Comments” section for reason why)</p>				
	<p>by all Holcim-approved users on Holcim's computer intranet.</p> <ul style="list-style-type: none"> <li>All new and current employees will be briefed on the EMP as part of their site (re-)induction and training.</li> <li>All employees will receive re-induction training every year.</li> <li>All contractors working at the site will be briefed on the EMP as part of their site (re-induction).</li> <li>Employees with specific key roles/responsibilities under the EMP will have their competency verified prior to being assigned to carry out those roles.</li> </ul> <p>Records of training will be maintained within the SHE system.</p> <p>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>all personnel being updated.</p> <p>J&amp;K Everett, B Appleby, T Lewis – water training.</p>		
5.1	<p>Personnel having responsibilities for carrying out monitoring activities as specified in the monitoring program will be trained and tested for their competence to carry out</p>	<p>As above.</p> <p>We were advised that J Everett did not receive training on the use of field calibration solutions by Fisher &amp; Fisher. <b>We therefore</b></p>	<p><b>C</b></p> <p><b>O</b></p>	<p>EMP version2 doc.</p>

Section/ Timing	EMP Requirement – Summary	Auditor's Findings & Comments	Conf*	Audit Evidence
<p>*Conformance is rated as follows:</p> <p><b>C</b> – Conforms;</p> <p><b>MNC</b> – Major non-conformance (potential or actual significant offsite impact on the environment, and/or legal compliance issue);</p> <p><b>mnc</b> – Minor non-conformance (minor actual or potential environmental impact, may be contained within site or have limited off site impact; documentation issue);</p> <p><b>O</b> – Observation; opportunity for improving the management system and/or operational controls exists.</p> <p><b>NA</b> – Not Audited or Applicable (see “Comments” section for reason why)</p>				
	<p>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>	<p><b>recommend that a specialist (eg from ALS) be appointed as the environmental training specialist for all water and groundwater quality monitoring activities on the site (where performed by a non-specialist), and that the training provided enables/certifies the trainees to conduct the monitoring in accordance with the relevant parts of the EPA guidelines current at the time.</b></p>		
<b>6.0</b>	<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>			
<b>6.1</b>	<p><b>Internal Communications</b></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 environmental progress and performance under the EMP will be reviewed and discussed, and actions authorised. Environmental issues will be raised with other employees at toolbox meetings which</p>	<p>Monthly SIT meetings. Includes regular dust control topic for discussion.</p> <p>Toolbox meetings – daily pre-start.</p> <p>SIT meetings track progress in EMP performance and implementation through audit completion, incident resolution, and compliance planner status.</p> <p>SIT meeting agenda now has a permanent agenda item for EMP Progress &amp; Implementation.</p> <p>Toolbox meetings occur every morning – enviro issues raised as applicable.</p> <p>Toolbox pre-start talks are logged in Tool box</p>	C	SIT minutes sighted, Jan-Dec 2020. Toolbox Record Books sighted.

Section/ Timing	EMP Requirement – Summary	Auditor's Findings & Comments	Conf*	Audit Evidence
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	will be conducted as required. All toolbox meetings are recorded using the Attachment 2.1A - Toolbox Talk Form.	book.		
<b>6.2</b>	<p><b>Incidents</b></p> <p>All environmental incidents are to be reported, recorded and investigated in accordance with SHE</p> <p>Guideline 5.1 - Incident Reporting, Recording &amp; 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 – 7 minor incidents recorded.</p> <p>Oil leak detected from interceptor. TIT pumped out as a precaution.</p> <p>False dust deposition exceedances (due to bush fire, or pollen {confirmed with ash analysis}).</p> <p>Truck presentations (5) occurred prior to 7am (outside site control). Not permitted to enter. Sign at entrance gate stating hours of entry (<b>print is quite small</b>).</p> <p>Trees being destroyed by kangaroos – remedial action taken.</p>	<p><b>C</b></p> <p><b>O</b></p>	Register printout (since Feb 2020); observation.
<b>6.3</b>	<p><b>External Communications</b></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 Environmental Reporting Procedure (Appendix 2) specifies procedures for</p>	<p>ERC reporting – quarterly reports.</p> <p>Statutory reporting EPA (Annual Performance Statement - APS).</p> <p>Resident notification.</p> <p>Quarterly reporting occurs prior to ERC meetings. Reports posted on website and</p>	<b>C</b>	EMP – Appendix 2 – Env Reporting Procedure (28/11/13) Quarterly reports – on ERC website (Feb, May, Aug, Nov) Annual Report to EPA (APS, 1/7/19-30/6/20), dated 14/7/20; Blasting Records (s.2.3) – sample

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	<p>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>made available to community (<b>however see section A, 4 above</b>)</p> <p>EPA Annual Report (APS) – no non-compliances reported, <b>however this audit has identified four water discharge non-compliances (see section B, 2.4 below)</b>. We understand that the incorrect APS was the result of a misunderstanding of what constitutes a discharge for the purposes of the EPA Licence. Further comment is provided in s.7.2 of this audit report.</p> <p>Key resident (D Petty) contacted prior to each blasting event.</p>	<b>MNC</b>	<p>sighted. Blast observed 9<sup>th</sup> Feb.</p>
<b>6.4</b>	<p><b>Complaints</b></p> <p>A register of all complaints received is maintained as specified in Holcim's SHE Guideline 5.1 – Incident Reporting, Recording &amp; 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</p>	<p>Commendably, no complaints were received or recorded for the period.</p>	NA	

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	<p>time by authorised Holcim users to view any complaints received and the actions taken.</p> <p>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>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>			
<b>7</b>	<p><b>Records</b></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 and complete. However, <b>paper monitoring records were found to occasionally be not well collated in files.</b></p>	<p><b>C</b> <b>O</b></p>	<p>Records sighted during this audit.</p>
<b>8.1</b>	<p><b>EMP Audit</b></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>	<p><b>C</b></p>	<p>3<sup>rd</sup> quarter minutes of ERC meeting.</p>



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		<b>Holcim requested to emphasise to residents on ERC that they are welcome to contact auditors during the audit period to discuss issues/concerns – anonymity will be assured if required.</b>	<b>O</b>	
<b>8.2</b>	<p><b>Procedure and Personnel Certification</b></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 <b>5.1 Appointment of Specialist Consultants</b>).</p> <p>Personnel conducting monitoring measurements and inspections have been certified by a specialist in the relevant field as being competent (see also <b>5.1 Appointment of Specialist Consultants</b>).</p>	Holcim advises one change in specialists conducting monitoring. Coffey was replaced by AECOM for the 5 yearly dam survey.	C	
<b>8.3</b>	<p><b>EMP Review</b></p> <p>Every 5 years.</p>	Review in progress, to be completed within a few weeks of this audit.	C	
<b>8.4</b>	<p><b>EMP Variation</b></p> <p>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 <a href="#">EMP Review Procedure</a>.</p>	As above.	NA	



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<b>2.1</b>	<b>Air Quality</b>			
<b>2.1.1</b>	<p><b>Objective</b></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 fully achieved. No nuisance or dis-amenity likely to have been caused.	C	No complaints. No evidence to the contrary re health and amenity.
<b>2.1.2</b>	<p><b>Targets</b></p> <p>100% Compliance with Permit requirements , namely the following levels to be achieved at any residence or other sensitive site:</p> <p>PM<sub>10</sub> no greater than 64 µg/m<sup>3</sup> (1-hour average)</p> <p>Dust deposition no greater than 4g/m<sup>2</sup>/month (no more than 2g/m<sup>2</sup>/month greater than background)</p> <p>No (0) justified complaints from sensitive receptors.</p>	<p>Targets have been partially met - dust deposition monitoring frequency schedule was not complied with.</p> <p>Reactive Monitoring – no quarry-triggered exceedances recorded.</p> <p>Deposition – no quarry-triggered exceedances for the data obtained.</p> <p>Bushfires caused some deposition and smoke-affected exceedances not related to quarry activities.</p> <p>The dust deposition dataset was not complete due to deposition bottles not being collected (July, August, September)</p> <p>No justified complaints received.</p>	mnc	Blue Atmosphere - monthly AQM reports (Jan-Dec 2020)
<b>2.1.3</b>	<b>Management Measures</b>			
As required	Dust emissions from unpaved surfaces are to be controlled using the following measures:	Water cart (new) operates during quarry operations (6 days/wk) when no stripping	C	Observation – truck observed in action.

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	Wet suppression - all dust generating areas such as site roads will be watered, as required, to suppress dust during operation.	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.	Not done last year. Commendably, a single suspension of works occurred as a pre-emptive action due to weather conditions. Recorded as an incident.	C	INX record.
	Revegetation of exposed surfaces, including the following measures: <ul style="list-style-type: none"> <li>Vegetation and topsoil removal will be limited to the smallest practicable area and revegetated as soon as possible following clearance;</li> <li>Soil stockpiles will be allowed to self-seed when left for extended periods of time;</li> <li>The extent of areas prone to erosion will be restricted wherever possible;</li> <li>Exposed surfaces will be rehabilitated in a timely manner in accordance with the Landscape Rehabilitation and Management Plan (LRMP).</li> </ul>	Rehabilitation is proceeding very well, and in accordance with the LRMP (see details below). Topsoil stockpiles appear stable. Exposed areas along NW rim are not reportedly a dust generation problem.	C	Observation; photographs

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	<ul style="list-style-type: none"> <li>Where revegetation or minimal land exposure is limited by procedural requirements, chemical (dust) suppression methods may be used.</li> </ul>			
As necessary	On days of unfavourable conditions, a review of on site practices will be undertaken to identify actions that can mitigate dust generation.	Commendably, SIT meetings are regularly evaluating dust control measures, and implementing new measures. A new dust management procedure has been developed which specifies responsibilities at all levels of management in the plant. Additional control measures are in place – fixed sprinklers along haul roads, stockpiles and crusher plant. Reactive monitoring real time data is available to all personnel.	C	Observation; SIT minutes; Dust Management procedure.
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 generating excessive dust.	C	Observation; photographs
All times	When moving stock, load sizes will be managed to avoid spillages.	Drivers advised during induction to cover load and clean off excess material from rails/frame. No spillages observed.	C	Observation
All times	Speed limits will be defined and communicated to all machinery operators. Where necessary speed limits will be enforced by quarry management.	Speed limit specified in induction. Signs on site and in Traffic Management Plan. No obvious speeding vehicles observed during the audit.	C	Observation
As necessary	Paved/sealed roadways within the quarry will be maintained in a clean state to	Street sweeper observed in operation – sealed surfaces only (inside quarry and down Mt	C	Observation

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	minimise dust from vehicle movement.	Shamrock Rd to corner). Paved surfaces of external road appeared clear of mud.		
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. No non-compliances reported or observed. Tarpaulin checks indicate no non-conformances.	C	Observation; Quarterly Report to ERC (tarping checks)
All times	All road registered vehicles, other than passenger cars (GVM <4t), will pass through the wheel wash facility prior to leaving the quarry and entering public roadways.	Wheel wash was in operation.	C	Observation
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. Included in site inspection checklist.	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 reduction over 2020 (not necessarily all through minimised travel distance, but a factor).	C	Greenhouse Gas Emissions Calculator
All times	Vehicle movements will be restricted to defined areas.	Traffic management plan on office wall – copy attached in Appendix 2 - Photographs.	C	Traffic Management Plan (TMP)
All times	Speed limits will be defined, and where necessary enforced, for vehicles on the site.	30kph (stockpile area) and 40kph on haul roads. 30kph in defined areas.	C	Signs in place; TMP
As required	Dust emissions from stockpiles will be mitigated where required to ensure targets are met by:	Water truck used on stockpiles, fixed sprinklers installed. Some conveyors can be raised/lowered to	C	Observation.

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	<ul style="list-style-type: none"> <li>Wet suppression using sprinklers;</li> <li>Covered storage of fine material;</li> <li>Limiting the height and slope of the stockpiles;</li> <li>Limiting drop heights from conveyors; and</li> <li>Use of wind breaks.</li> </ul>	minimise drop heights. Dust is generated at the crushing plant, and when trucks are loaded from stockpiles, however suppression measures are working to reduce emissions.		
All times	Dust emissions from conveyors will be minimised by: <ul style="list-style-type: none"> <li>Minimising drop heights; and</li> <li>Appropriate design of hopper load systems to ensure a good fit with trucks, and use of appropriate enclosures for hoppers.</li> </ul>	Measures are in place. Dust is generated from conveyors, but is reduced through the use of fixed sprays.	C	Observation during inspection.
All times	Dust emissions during material handling will be minimised by: <ul style="list-style-type: none"> <li>Minimising drop heights;</li> <li>Regularly cleaning up any spillages; and</li> <li>Appropriate design of hopper load systems to ensure a good fit with trucks, and use of appropriate enclosures for hoppers.</li> </ul>	Dust Management procedure has been updated – increased sprays, new water cart, further improvements targeted in SIT meetings, e.g. additional sprays in aggregate yard.	C	Observations (photographs);
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.	C	MD, pers comm.; Dust Management procedure.

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All times	Monthly monitoring of dust deposition.	No exceedances, however <b>three months were not monitored.</b>	<b>mnc</b>	See above
Within 1 month of EMP approval	A weather monitoring station with display will be installed in the Pit Manager's office.	QM and other managers have phone app which shows station read-out – sighted. Past data is logged and available for retrieval.	C	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.	Wind speed and direction sighted on share site – real time.	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	
Within 3 months of EMP approval	A suitable “background” sampling location will be established to determine regional background dust deposition rates.	A7 Station (dust deposition).	C	
As required	Analysis and reporting of dust samples for compliance will be undertaken by an experienced entity independent of the operator.	ALS does analysis of deposition samples, and Blue Atmosphere (BA) does reporting (deposition and reactive).	C	BA summary reports for 2020 sighted; examples of ALS reports sighted.
All times	Community complaints will be monitored during works to assess the operations	Holcim advises no air related complaints have been received.	C	



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	against objectives and targets.			
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.	Humidity sensor now incorporated into weather monitor. Nom exceedances reported.	C	Blue Atmosphere monthly reports – Jan-Dec 2020
All times	One (1) hourly average PM <sub>10</sub> data will be provided to the Pit Manager's office from the 'reactive monitoring stations'.	No exceedances reported. Holcim personnel now have access to real time reactive monitoring data through a web share site. Procedure requires action when 80% level is exceeded.	C	
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 (from allpossibilities website).
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	One cessation, but not in response to exceeded target, but out of caution not to cause exceedance.	C	INX report

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	are such that targets are achieved.			
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 (where attributable to site).	C	
2.1.4	Monitoring Schedule	<p>Monitoring is conducted as per the schedule in Appendix 11. No site-attributable exceedances.</p> <p>The dataset indicates:</p> <ul style="list-style-type: none"> <li>all monitoring was affected by bushfire smoke during January and early February.</li> <li>No data for March was provided.</li> <li>No data was available for April due to equipment at three locations being damaged by storms.</li> <li>Further damage to equipment reported in June.</li> <li>Pony Club reactive sampler damaged during July, removed from site in November for parts replacement.</li> <li>No deposition data for July, August, September – no explanation in reports (Holcim advises partly due to contractor ill health, and also not being able to access some stations)</li> </ul> <p>In reviewing the data, there continue to be problems with equipment failure, and 3</p>	C	Blue Atmosphere – Reports Jan-Dec 2020



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	along the perimeter of the works area.			
	The base of the secondary crusher will be enclosed and access doors kept closed at all times.		C	Direct observation.
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.	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
As required	Regular preventative maintenance (PM) is performed on mobile equipment to reduce unnecessary vibrations and rattles.	Service Reports on sample of site vehicles sighted.	C	Service Reports (sample)
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. Calibration of SLM conducted before each round or measurements.	C	Noise Monitoring field notes and monitoring records, 2020 (sample sighted).
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	C	

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		further investigation. See section 15 below for evidence references.		
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 <a href="#">SHE Guideline 2.1-Communication Procedure2 Consultation</a> .	(Note correction to procedure reference opposite – <b>EMP should be amended accordingly</b> ). EMP compliance is a regular agenda item in the monthly SIT meetings.	C O	SIT meeting minutes sighted.
	Monitoring results will be kept in the office of the QM and be made available for inspection at reasonable notice during normal working hours.	Field data sheets are filed and available for sighting.	C	Data as per above.
Monthly	Monitoring data will be provided to ERC in accordance with the Environmental Reporting Procedure.	Noise monitoring data is reported to ERC on 3-monthly basis. Quarterly provision of these data is considered appropriate as ERC meets every quarter. <b>Review the Environmental Reporting Procedure attached at Appendix 2 of the EMP. In particular, the section “Quarterly Reports” is ambiguous as it refers to monthly reports and quarterly reports. Amend procedure to delete reference to monthly reports, unless there are compelling reasons to retain monthly reporting, in which case the procedure should be amended to clearly spell this out.</b>	C O	Quarterly Reports to ERC sighted.

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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.	<p>No readings above the specified levels have been obtained that are attributable to quarry noise.</p> <p><b>We note that on page 9 of the Minister's Assessment Report attached at Appendix 12 of the EMP there is an incorrect reference to the noise limit descriptor. It should be <math>L_{Aeq}</math> but is specified as <math>L_{A90}</math>. A note to this affect should be attached for future versions of the EMP to avoid confusion. Also, the latest copy of the report (May 2008) should be attached.</b></p> <p><b>Given the changes to EPA noise control and monitoring requirements since the EMP was first prepared, and a new EP Act coming into force on 1 July 2021, a review of applicable noise limits and noise assessment methods is warranted. This should be done by an appropriately qualified environmental noise expert, and the EMP amended accordingly as required.</b></p> <p><b>To ensure consistency and reliability in data gathering, Holcim should develop and implement a noise monitoring procedure that is to be followed by all persons conducting</b></p>	<p>C</p> <p>O</p> <p>O</p> <p>O</p>	Noise Monitoring Results (2020)

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		<b>routine and periodic noise monitoring as specified in the monitoring schedule of the EMP.</b>		
<b>2.2.4</b>	<b>Monitoring Schedule</b>	Daily monitoring conducted as required during mound works (at N2 & N3); fortnightly for other locations. Noise meter and meter calibrator both calibrated.	<b>C</b>	Fortnightly and daily noise monitoring data sheets 2020; Calibration Certificates (Acu-Vib) dated 26/2/20.
<b>2.3</b>	<b>Blasting</b>			
<b>2.3.1</b>	<b>Objective</b> To ensure that vibration from blasting operations is controlled to comply with DPI environmental guideline limits for new operations. To ensure that blasting operations generally are conducted in a manner that minimises the risk of adverse environmental impact.	Objectives have been achieved.	<b>C</b>	
<b>2.3.2</b>	<b>Targets</b> 100% compliance with DPI environmental guideline limits for new operations – PPV 5mm/sec for 95% of blasts in 12 Month period. Peak Airblast of 115dB for 95% of blasts in 12 Month period.	Targets met. No exceedances.	<b>C</b>	Blasting monitoring data (sample) – 31 Aug, 2020 (#2022); 13 Nov (#2030), 2020; 10 Jan, 2020 (#1945).
<b>2.3.3</b>	<b>Management Measures</b>			

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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).	<b>Review and if necessary amend the Quarry Blasting procedure (Appendix 8) to reflect current practices.</b>	C O	Documentation for blasts (sample selected as specified above).
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 outside these times, notice must be given to all potentially impacted residents, to the satisfaction of the Responsible Authority.	Times as specified were complied with.	C	As above and below. Blast observed 9 <sup>th</sup> Feb.
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 <a href="#">Monitoring Schedule</a> ) namely the quarry office (V1), the north-east corner (V2), Toomuc Valley Road (V3) and Waterhouse property (V4) will continue to	One resident is notified prior to each blast.	C	Blasting records files (3) – sample of blast documents and records (blasting checklist, etc.).



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	be used to assess blast noise and vibration. 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. Ground and air vibration monitoring results were well within the specified limits for all three examples examined.	C	Summary of monitoring results sighted.
2.3.4	<b>Monitoring Schedule</b>	Vibration monitoring is conducted by the blasting contractor, Terrock. Vibration monitoring equipment is factory-calibrated annually, with certificates kept by Terrock and made available when requested.	C	Vibration Monitoring Reports for blasts (sample selected); Vibration monitoring summary data; calibration certificates for monitors.
2.4	<b>Surface Water, Drainage and Groundwater</b>			
2.4.1	<b>Objectives</b> To minimise any potential impact on receiving waters. To progress water management such that any discharge to surface waters is during periods of very high rainfall only. To ensure that water discharged from the Quarry does not affect the beneficial uses of the receiving waters. To assess any long term trends in groundwater levels.	Objectives achieved.	C	

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2.4.2	<p><b>Targets</b></p> <p>100% compliance with the requirements of the EPA Licence.</p> <p>100% conformance with groundwater level monitoring requirements</p>	<p>Annual medians are shown in APS - comply.</p> <p><b>Four (4) turbidity exceedances recorded. pH was also above 9 and likely to exceed SEPP (Waters).</b></p> <p>Mean daily flow calculated to be approx. 0.42ML (total divided by number of discharge days), about half the Licence limit.</p> <p><b>Note that EPA Licence specifies a mean daily flow limit, not median.</b></p>	<p><b>mnc</b></p> <p><b>O</b></p>	<p>EPA Licence 544; BNRs – June, July; APS 2019; Monitoring Data summary Tables.</p> <p>Groundwater level summary data (quarterly reports to ERC)</p>
2.4.3	<b>Management Measures</b>			
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. <b>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.</b> This WMS will enable the site to reduce discharge events &amp; any possible TDS breaches.</p>	<p>Quarry surface water is contained and pumped to tanks for watering rehabilitation areas, dust suppression, and provided to neighbour for re-use. Donazzan's Dam collects surface water from the quarry works area and also from run-off from surrounding farm land within the EPA Licence premises boundary.</p> <p><b>The surface water management schematic for the site needs to be reviewed/ revised to accurately indicate the current system of water movement (both pumped and gravitational flows) during the different seasonal and operational conditions applying at the site. It needs to include consideration of surface water draining to quarry works (and therefore potentially contaminated) and</b></p>	<p><b>C</b></p> <p><b>O</b></p>	<p>Observation – pump house inspected.</p>

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		<b>run-off from farmland and other vegetated areas.</b>		
During 2007/8	The following landscape works will be carried out: ○ Planting around the outside edge of Donazzan's Dam with reeds native to the area.	Confirmed at 2010 EMP audit. Beaching completed, and upgraded during previous audit period.	NA	
	○ Rock-line the spillway immediately downstream of Donazzan's Dam.			
	○ Regrade spillway embankments to encourage plant growth to a slope of 1V:5H or 1V:3H.			
During 2007/8	○ Plant native species within the spillway downstream from the outlet at Donazzan's Dam to the receiving waterway.			
During 2007/8	○ 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.	Confirmed at 2015 EMP audit.	NA	
All times	Discharge of water from the site will be managed and monitored (for both quality and discharge volume) in accordance with	Note that all surface water discharging from the premises must meet Licence conditions when sampled at the sampling point (i.e. V-	C	WMWI-03 Record Sheets – various sampled; monthly discharge volume data (measured

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	the EPA Licence.	<p>notch weir).</p> <p><b>Turbidity and pH exceedances in the monitored discharge (albeit few in number and relatively minor) must be investigated to determine their root cause (see recommendation 3).</b></p> <p><b>Turbidity meter was out of factory calibration, and standard solution calibration technique was not being followed. For further comment see Findings section of this audit report.</b></p>	<b>mnc</b>	at V-notch weir), Fisher & Fisher. Observation. Photographs.
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 June.	C	Invoice, MC Earthmoving, June, 2020.
	<p>Algae will be controlled by:</p> <ul style="list-style-type: none"> <li>maintaining flowing water across ponds and Donazzan's Dam,</li> <li>minimising nutrient input, eg. by maintaining a septic tank pump out frequency of at least once a year,</li> <li>maximising nutrient uptake, discharge or isolation from the water column,</li> <li>maximising dissolved oxygen levels by circulating water,</li> <li>ensuring water bodies receive</li> </ul>	<p>No algal growth was reported, other than a possible minor area of edge discoloration which washed away without spreading.</p> <p><b>Include algal bloom information from VicWwater website in WQ monitoring procedure.</b></p>	<p>NA</p> <p><b>O</b></p>	Inspection Check lists (sample sighted); observation - Photos

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	<p>sufficient water to provide regular and significant overflows,</p> <ul style="list-style-type: none"> <li>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,,</li> <li>managing the catchment areas directly upstream of Donazzan's Dam to reduce the amount of nutrients entering a water body, and</li> <li>reviewing ponds and dams to evaluate and act to avert potential stagnant areas.</li> </ul>			
As required	<p>In the event of algal bloom(s);</p> <ul style="list-style-type: none"> <li>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,</li> <li>a specialist will be engaged to assist with treatment and removal,</li> <li>records will be kept of all such occurrences to help determine likely</li> </ul>	As above, Holcim advises the Dam has not experienced an algal bloom during the year 2020.	NA	

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	<ul style="list-style-type: none"> <li>trends that could assist in future water body management,</li> <li>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).</li> </ul>			
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).	Plantings observed to be 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.	Works localised to area of operation.	C	Observation
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	Stockpiles observed to be self-seeding and generally within maximum height specification.	C	Direct observation

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	located to 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 is 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.	Drains observed to be in place.	C	Direct observation
As required	Channelling of water flow (rill formation) will be minimised and any channel flows stabilised.	Minor rill erosion near southern rim noted, which appeared to be stable/weathered.	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.	Erodible areas have been minimised. Extensive plantings have been established and maintained in rehabilitation areas.	C	Direct observation, photographs
As required	The dual triple interceptor system (trap – TIT) treating washwater from the plant and equipment wash down pad will be regularly maintained in effective working condition.	<p>Pumped out in Jan, Aug &amp; Sep, 2020 (Cleanaway). Both workshop and pug mill TITs.</p> <p><b>No EPA Waste Transport Certificate available for 6,500L interceptor waste removed in</b></p>	<p>C</p> <p><b>O</b></p>	Cleanaway Worksheet + WTC, 14/1/20, 18/8/20.

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		<b>September. Need to obtain or regularly check the EPA Portal.</b>		
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"> <li>Seasonal rainfall changes;</li> <li>Extension of the quarry;</li> <li>Revegetation to parts of the plateau surface; and</li> <li>Progressive rehabilitation of quarry.</li> </ul>	Detailed report indicates that overall, groundwater is rising and falling with seasonal rainfall conditions. The report notes – “No trend or influence due to the filling in of the pit is yet apparent in the gauging data.” <b>Holcim should implement the recommendations of the AECOM Groundwater and Spring Review letter report of 27/1/21.</b>	C          <b>O</b>	AECOM letter report, 27 Jan 2021.
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.	The report states: “Based on the available data, the water quality and spring flow observations suggest that recent activities (post 2001) at the quarry have had not impacted on the current surrounding beneficial uses of groundwater. No additional groundwater bore users registered for consumptive uses were identified within 2 km of the quarry since the last approved development of the quarry in 2005 and associated assessment beneficial uses assessment.”	C	As above.
<b>Fig 4&amp;5</b>	<b>Water Management System</b>			
<b>2.4.4</b>	<b>Monitoring Schedule</b> As per Appendix 11 (as amended by new EPA	As noted above, minor turbidity and pH exceedances have not been reported to EPA.		WMWI-03 Record Sheets – various sampled; Fisher and



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	Licence conditions)	These were reported to ERC but were explained as run-off from farm land and not quarry water discharge. The monitoring records appear to indicate that quarry water was being discharged at the time of monitoring. Irrespective of this, any exceedance in a discharge from the sampling point is a Licence breach. For further comment see Findings section of this audit report.		Fisher – monthly discharge flow reports. Weekly Inspection Records. (V-notch, Donazzan's Dam, Pit dams)
<b>2.5</b>	<b>Slope Stability</b>			
<b>2.5.1</b>	<b>Objective</b> To ensure slopes both outside and within the Quarry are as stable as possible to minimise the risk of landslide.	Achieved.		No slips/landslides reported.
<b>2.5.2</b>	<b>Target</b> No avoidable landslips.	Met.	C	
<b>2.5.3</b>	<b>Management Measures</b>			
As specified in the s.173 Agreement	Planting of deep-rooted trees in landslide areas (i.e. as revealed within EES report Slope Stability, Figure 6, 2001 Aerial Photography Interpretation 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 EMP audit	NA	

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	Surface drainage will be established in the vicinity of the identified landslip prone areas to minimise infiltration of rainfall run-off.	Established in 2010 EMP 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.	<p>AECOM revisited and inspected landslip areas in Jan, 2021, and reviewed landslip inspection outcomes from the 2020 report. The report makes a number of recommendations for remedial works to mitigate the minor movements and other land stability issues observed.</p> <p>Holcim advises that some recommendations are impractical to be carried out.</p> <p><b>The recommendations should be entered into INX and actioned within appropriate timeframes. Where recommendations are</b></p>	<p>C</p> <p><b>O</b></p>	AECOM, Mt. Shamrock Quarry - Toomuc Valley Slope Inspection, report dated 20 January 2021

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		<b>impractical due to the steepness and inaccessibility of some sites, alternative strategies should be considered in consultation with AECOM.</b>		
	Regular visual monitoring of the slopes in Toomuc Valley on land owned by Holcim will be conducted.		C	Monthly inspection checklists sighted.
	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	(see LRMP section below)	C	

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	reviewed with the Department of Primary Industries in accordance with the Work Plan Landscape and 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.	Inspections indicate slopes are stable.	C	Monthly Slope Stability Checklists (sample)
2.5.4	<b>Monitoring Schedule</b>	Inspections are being done monthly.	C	As indicated above
<b>2.6</b>	<b>GHG Emissions</b>			
2.6.1	<b>Objective</b> To minimise greenhouse gas (GHG) emissions resulting from quarry works and operations.	Achieved.	C	
2.6.2	<b>Targets</b> Implement the recommendations of the Energy Action Plan, as updated from time to time.	Site has calculated that, when renewable energy component is excluded from calculation, an overall reduction of 1.5% ghg emissions was achieved.	mnc	GHG calculation spreadsheet (2020).

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	Achieve current annual targets, namely, overall reduction target of 3% in CO <sub>2</sub> -e (t) for combined fuel, electricity and explosives usage.	<b>Holcim to now consider using offsets to achieve the 3% target, which will be included in revised EMP.</b>		
<b>2.6.3</b>	<b>Management Measures</b>			
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.	No progress reported on energy audit actions. No new measures initiated besides achieving overall 1.5% reduction from 2019.	C	
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 in Sydney, and therefore considered outside the scope of this audit.	NA	
Within 12 months of EMP approval	Review and further evaluation of all transportation within the quarry against current industry fuel efficiency benchmarks;	Confirmed at 2011 EMP 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 EMP audits.	NA	Plant operator training certificates.
<b>2.6.4</b>	<b>Monitoring</b> Overall reduction target of 3% in CO <sub>2</sub> -e (t) for combined fuel, electricity and explosives	Not met for 2020.		GHG Calculator (spreadsheet), 2020

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	usage.			
<b>2.7</b>	<b>Traffic Management</b>			
<b>2.7.1</b>	<b>Objective</b> To minimise the impact of quarry traffic on the local amenity.	Objective is being achieved to the extent practicable. Early truck arrivals (before 7am) were unavoidable, and dealt with appropriately.	C	
<b>2.7.2</b>	<b>Target</b> Compliance with (or completion of) all actions specified in the s.2.7.3 of this EMP.	Complies – target met.	C	
<b>2.7.3</b>	<b>Management Measures</b>			
By 29 <sup>th</sup> 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 EMP 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).	Wheel wash in operation.	C	Observation
	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. Periodic inspection of tarpaulins being in place.	C	As above; Inspection Report (QM – monthly).
All times	Early morning truck movements are to be scheduled to avoid queuing outside the	No trucks are accepted onto site before 7am – signage (hours of operation) is in place at	C	Induction records (sample sighted), induction booklet.

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	boundary of the site.	entrance. Reported some minor problems with queuing before 7, which were appropriately dealt with.		
	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 Shamrock Road.	Signs in place.	C	Observation (photos)
2.7.4	<b>Monitoring</b> Housekeeping checks (monthly)	Random checks of tarpaulin compliance as part of checklist.	C	Gatehouse operator – visual checks; ERC Quarterly report (visual checks data)
2.8	<b>Net Gain Management Plan</b>			
2.8.1	<b>Objective</b> 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	
2.8.2	<b>Target</b> 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 maintenance has continued.	C	
2.8.3	<b>Management Measures</b>			

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Within 3 month of EMP approval	A contractor 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.	Confirmed at 2011 EMP audit. Naturelinks engaged to manage works program.	NA	
Within 2 months of OSM appointment	The offset site (as identified in Figure 2 of the NGOMP) will be fenced in order to clearly delineate the site's extent.	Confirmed in earlier EMP audit.	NA	
	An appropriate sign will be erected to inform residents/visitors of the site's ecological characteristics, purpose and value.	Not sighted at this audit	NA	
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.	Confirmed at previous EMP audits. Net Gain areas are now well established and regularly maintained (not inspected during this audit).	NA	Aerial photographs, previous audit inspections.
6 months	The offset site will be prepared over a minimum six (6) month period through: (a) monthly sprays of existing (introduced)	Confirmed at earlier EMP audit.	NA	



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	<p>vegetation to deplete the weed soil seed bank;</p> <p>(b) cut and paint and/or drill and fill weedy shrubs such as Hawthorn, Briar Rose and Blackberry;</p> <p>(c) installation of a shallow layer of mulch (less than 5 cm deep) to prevent soil loss but not inhibit the germination of weeds.</p>			
As appropriate to year 10	<p>Appropriate species will be planted/recruited within the offset site.</p> <p>Planting / recruitment densities will comply with the minimum revegetation standards provided by DSE (DSE, 2006).</p>	Confirmed at previous EMP audits – Biosis report (2018) indicated densities were met and exceeded.	NA	
10 years from EMP approval	<p>Plantings will be maintained over a 10 year period, taking all necessary measures to ensure:</p> <p>(a) survival and growth of the plants, and</p> <p>(b) good appearance or presentation of the plantings.</p>	Confirmed at previous EMP audits.	NA	
As required	Plantings that do not survive will be replaced.	No replacements noted in Naturelinks report – plantings doing well.	C	Mt Shamrock Rehabilitation report, 2021 (Naturelinks)
As required	Supplementary watering of plantings will be carried out as required and permitted by prevailing water restrictions.	Reportedly this is done, however 2020 was a relatively ‘wet’ year.	C	As above
Monthly during June-	Weed (including identified woody weed) control works will be conducted on a	Weed growth has been stronger than usual over 2020 due to higher rainfall. Weed	C	Mt Shamrock Rehabilitation report, 2021 (Naturelinks)

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December	monthly basis during the primary weed season (June to December inclusive) and at other times as required.	reduction spraying and brushcutting reported on a monthly basis.		
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.	Completed at 2019 EMP audit.	NA	Biosis, June 2018
	Audit/monitoring of the offset site will be conducted by a qualified ecologist.	Qualifications of Biosis/Naturelinks' ecologists have been verified in previous audits.	NA	
As appropriate	Any additional management actions identified by the audit will be implemented through the INX system as an audit and inspection event type.	Holcim advises no additional management actions arising from Biosis (2018) report, only recommendation to continue on-going maintenance measures.	NA	
Within 1 month of report receipt.	All audit reports will be forwarded to the ERC for its information.	Verified as completed at 2019 EMP audit.	NA	
<b>2.8.4</b>	<p><b>Monitoring</b></p> <p>OMP Audit (Years 1,2,5,7,10)</p> <p>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>	<p>No sign of rabbit impacts reported by Naturelinks. Deer were observed on site in June 2020, and damage noted as a result.</p> <p><b>In discussion with Naturelinks, determine whether humane and appropriate deer control measures need to be implemented to avoid significant damage to vegetation in the offset areas.</b></p>	<p>C</p> <p><b>O</b></p>	Mt Shamrock Rehabilitation report, 2021 (Naturelinks)
<b>2.9</b>	<b>Cultural Heritage</b>			

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<b>2.9.1</b>	<b>Objective</b> Preserve, by relocation, all items of cultural heritage identified in accordance with Wurundjeri ‘Consent to Disturb’ (“Consent”) conditions.	All works now completed.		
<b>2.9.2</b>	<b>Targets</b> 100% compliance with Consent conditions.	Met.		
<b>2.9.3</b>	<b>Management Measures</b>			
During works	A copy of the Consent (Appendix 14) must be on-site and available for inspection during works associated with this permit.	Verified at 2013 EMP audit.	NA	
Prior to stripping	Prior to any soil stripping taking place on the site: <ul style="list-style-type: none"> <li>○ all Indigenous stakeholders will be notified; and</li> <li>○ any hay will be baled to allow Indigenous stakeholders to survey the cleared land.</li> <li>○ ensure that the conditions as specified in the Consent to Disturb dated 17<sup>th</sup> May, 2007, and 4<sup>th</sup> September, 2007, are complied with.</li> </ul>	Completed.	NA	
As applicable during works	Upon the discovery of suspected human remains all works must cease. The Wurundjeri Tribe Land Compensation and	No unexpected discoveries occurred.	NA	

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	Cultural Heritage Council Inc. interim Chief Executive Officer, Aboriginal Affairs Victoria, the Victoria Police and the State Coroner's Office must be notified immediately.			
	<b>Controlled Archaeological Excavation - AAV 7921-680 – Shamrock AS1</b> 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 <sup>th</sup> September, 2007 Consent Amendment.	Verified at audit EMP 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	
Complied	<b>Sieving of Site Deposits - AAV 7921-679 –</b>	Completed.	NA	

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with during excavation	<p><b>Shamrock IA3, AAV 7921-678 – Shamrock IA2, AAV 7921-681 – Shamrock AS2 and AAV 7921-697 – Shamrock IA4, AAV 7921-651</b></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>			
	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		NA	

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	during sieving will be carried out by a qualified archaeologist and will involve representatives from the Wurundjeri Council.			
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	<b>Monitoring Ground Disturbance within Extraction limit</b> 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 EMP audit	NA	
	The scrapes will continue until sterile deposits are reached.			

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	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 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		NA	

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	this EMP.			
<b>2.10</b>	<b>Fire Management</b>			
<b>2.10.1</b>	<b>Objective</b> To ensure that the risk of fire is minimised.	Objective has been achieved.	C	
<b>2.10.2</b>	<b>Target</b> No fires	Met – none reported.	C	
<b>2.10.3</b>	<b>Management Measures</b>			
Within 3 months of EMP approval	Establish off-site fire prevention measures to be followed during periods of high fire risk.	BMP, developed as part of Emergency Procedures flipchart, has been revised and reviewed by local CFA.	C	Bushfire Management Plan (BMP), revised, 2020; email from CFA approving revised Plan (15/10/20).
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.	<p>A range of prevention works undertaken -</p> <ul style="list-style-type: none"> <li>• Evacuation drills (only one recorded – night shift covered being done later this month - February)</li> <li>• Extinguisher checks</li> <li>• Site inspection and fuel removal</li> <li>• Smoke alarms/detectors</li> <li>• BMP checklist completed prior to fire season.</li> </ul> <p><b>Update BMP to include the other preparations being done such as removing combustible materials etc.</b></p> <p><b>Ensure that all Holcim personnel are covered by the annual evacuation drill.</b></p>	<p>C</p> <p><b>O</b></p> <p><b>O</b></p>	Evac checklist – 17/12/20; smoke alarm checks (1/6/20, 14/12/20); Bushfire Readiness Inspection Lists – Nov & Dec 2020; INX – Bushfire preparation checklist completed.
All times	Access for all emergency vehicles will be	Access is provided.	C	Observation



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	provided and maintained at all times through the site.			
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.		<b>C</b>	Four CFA permits for hot works etc. during TFB; NFS Attendance Record 6/11/20 (Fire Exts)
<b>2.10.4</b>	<b>Monitoring</b> (see EMP)	Evac drills (one done, one pending) – actions arising being implemented. Smoke alarms tested June and December. Fire suppression systems in mobile plant checked.	<b>C</b>	Drill records as above
<b>2.11</b>	<b>Water Conservation</b>			
<b>2.11.1</b>	<b>Objective</b> To conserve potable water supplies.	Objective achieved.	<b>C</b>	
<b>2.11.2</b>	<b>Target</b> Implement measures to reduce the use of mains water supply.	Holcim advises that there is no mains water supply at the site.	<b>NA</b>	
<b>2.11.3</b>	<b>Management Measures</b>			
	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).	<b>C</b>	
<b>2.12</b>	<b>Waste Management</b>			
<b>2.12.1</b>	<b>Objective</b> Minimise waste quantities, comply with legislative requirements and progress	Overall, the objective is being achieved.	<b>C</b>	

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	towards the recycling and re-use of all wastes.			
<b>2.12.2</b>	<b>Target</b> Maintain the generation of waste to landfill at 0.6t/month.	Slight increase above target (+50kg/month) – considered to have effectively met the target.	C	Waste Summary Spreadsheet, 2020
<b>2.12.3</b>	<b>Management Measures</b>			
<b>Timing</b>	<b>Action</b>			
June 2008	Characterise all waste streams and develop measures to: <ul style="list-style-type: none"> <li>○ minimise site waste generation;</li> <li>○ segregate waste groups; and</li> <li>○ direct landfilled wastes to recycle/re-use wherever possible</li> </ul>	Measures are in place and largely being implemented. Some examples of waste co-mingling observed – <b>need to keep educating staff.</b>	C  O	direct observation, photographs
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.	Holcim plans to engage JJ Richards & Cleanaway to help determine if improvements can be made to waste management and disposal facilities and services. <b>Progress the development of further waste reduction measures by engaging waste contractors to assist the process.</b>	C  O	
As required	Silt removed from the settling ponds and silt traps will be incorporated into product stockpiles or overburden materials for use in progressive reclamation.	Holcim advises that this is the case when done – identified in monthly site inspections.	C	Cleanaway worksheet (interceptor pit pump out) – Jan 2021 + Waste Transport Cert (summary).
As required	All prescribed industrial waste (PIW) such as waste oil is to be stored, and transported	Asbestos cement sheet removed by certified removalist in October.	C	Asbestos Removal Clearance Certificate, 28/10/20 + WTC



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	0% non-conformance applies)			
<b>2.13.3</b>	<b>Management Measures</b>			
<b>Timing</b>	<b>Action</b>			
Monthly	Housekeeping checks will include the following environmental issues: <ul style="list-style-type: none"> <li>Chemical and fuel bunding;</li> <li>Bund content and drainage point valve in off position;</li> <li>Spill clean-up and spill kit equipment contents;</li> <li>Waste container labelling;</li> <li>Tarping practices;</li> <li>Road and vehicle cleanliness;</li> <li>Unusual noises;</li> <li>Visual dust presence of significance; and</li> <li>Segregation of Inert type wastes from solid and from industrial wastes.</li> </ul>	Small number of items identified for action, not all were non-conformances.	C	Environmental Hazard Inspections – 2020; photographs
Monthly/ annually	PM system checklists are available to capture: <ul style="list-style-type: none"> <li>Fixed System Dust Suppression</li> <li>Watering truck and sweeper vehicles</li> <li>Water spays and lines</li> <li>Spill Kits</li> </ul> Dust extraction units will be serviced annually.	Three dust extractors – serviced 4 times in 2020. <b>Contractor notes indicate poor seal between pug mill bin and hopper which has not been attended to over several services.</b> Water sprays – inspection conducted monthly. Faulty items regularly picked up and maintenance scheduled and completed. Spill kits checked and restocked – July. Not sure whether all spill kits have been checked.	C O	Wamgroup – Silo venting and Dust extraction service records (Feb, Jun, Sep, Dec 2020); Absorb – Spill kit service report July, 2020; PM inspection reports (water sprays - sample); PM repairs, closed out (sample); Water Truck maintenance

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		<p><b>Site should have a map with locations of each kit, kept up to date. Map to be provided to Absorb (service contractor) prior to their quarterly check and restock, to ensure all kits are checked.</b></p> <p>New water truck on site. Sweeper truck is contractor operated.</p>	<b>O</b>	records, 2020 (new vehicle); PM schedules for water truck into 2021.
<b>2.14</b>	<b>Storage &amp; Handling</b>			
<b>2.14.1</b>	<p><b>Objective</b></p> <p>To minimise chemical and fuel run-off and land contamination due to spillage/ release/ stormwater flushing.</p>	Objective achieved.		
<b>2.14.2</b>	<p><b>Target</b></p> <p>No visible oils/fuels in stormwater discharging from discharge point.</p> <p>No significant soil contamination.</p>	Targets met.	<b>C</b>	Observation; Water quality monitoring data sheets (sample).
<b>2.14.3</b>	<b>Management Measures</b>			
All times	Signage will be maintained around bunded fuel tanks describing the filling procedure to be followed.		<b>C</b>	Observation
All times	All fuels and chemicals in containers over 100 litres will be bunded when stored or in use.	<p>Measure met at maintenance depot and contractor's area in quarry.</p> <p><b>Roundup drum in container in quarry needs to be bunded.</b></p>	<p><b>C</b></p> <p><b>O</b></p>	Observation
As required	Captured rainwater within fuel/oil storage bunds will be released through triple	No captured rainwater evident in areas inspected.	<b>NA</b>	Observation

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	interceptor prior to release to the stormwater system.			
As required	Areas of significantly hydrocarbon-contaminated soil will be excavated and remediated in accordance with the Hydrocarbon Land-farming Procedure.	None reported or observed.	NA	Observation
<b>2.14.4</b>	<b>Explosives Use &amp; Storage</b> 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 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.	Confirmed during 2011 EMP audit. Explosives bunker has now been demolished and removed (Jan, 2017).	NA	
<b>2.15</b>	<b>Donazzan's Dam Integrity</b>			
<b>2.15.1</b>	<b>Objective</b> To maintain the structural integrity of Donazzan's Dam.	5 yearly expert inspection conducted.	C	
<b>2.15.2</b>	<b>Target</b> No leakages, spills or other containment failures associated with the Dam.	None reported. Target met.	C	
<b>2.15.3</b>	<b>Management Measures</b>			
5 yearly	Engage specialist geotechnical consultant to review dam structural integrity.	Inspection found “embankment is in generally good condition and maintenance works have	C	AECOM, Donazzan's Dam-Pakenham Quarry

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	Next review to be conducted in 2020.	<p>been carried out.” The report made six (6) recommendations.</p> <p><b>Implement the recommendations of the Donazzan's Dam 5-yearly inspection report through the site's INX system, assigning appropriate completion targets.</b></p> <p>The two piezometers at the toe of the Dam are regularly monitored for moisture, as recommended in a previous Dam integrity inspection report.</p> <p><b>Amend the Environmental Monitoring Schedule of the EMP (Appendix 11) to include piezometer monitoring in s.10 – Dam Integrity.</b></p>	<p><b>O</b></p> <p><b>O</b></p>	Intermediate Inspection Report, 8/1/21;
<b>SECTION C – REHABILITATION: PROVISION, STATUS &amp; PLAN UPDATE</b>				
<b>1</b>	<b>Rehabilitation and Vegetation</b>			
<b>1.1</b>	<p><b>Objectives</b></p> <p>The main objectives for the landscape and rehabilitation of the quarry operations area are to:</p> <ul style="list-style-type: none"> <li>create an ecological community with a predominance of indigenous species to provide a contribution to net gain objectives and habitat hectares.</li> <li>minimise the visual impact of the proposed extension from surrounding</li> </ul>	<p>Objectives are considered to have been met. Drought conditions prior to 2020 were in part responsible for die back of screening trees along the western rim of the quarry. Efforts have been made to address this, and wetter conditions in 2020 have helped the revegetation effort.</p>		Photographs

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	<p>viewpoints</p> <ul style="list-style-type: none"> <li>• stabilise soil.</li> <li>• create an environment that will provide habitat for local and migratory fauna.</li> <li>• create a safe and functional landscape.</li> <li>• reinforce the local landscape character through the use of indigenous EVC units of the Pakenham area</li> <li>• address drainage issues.</li> <li>• ensure that existing vegetation is maintained where practicable,</li> <li>• 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,</li> <li>• ensure that vehicles entering or leaving the site do not spread weed seeds to or from the site.</li> </ul>			
1.2	<p><b>Targets</b></p> <p>Successful establishment and maintenance of landscape screening and rehabilitation in accordance with the Work Plan attachment <i>Landscape and Rehabilitation Report, ERM</i> (January 2005) and the <i>Landscape &amp;</i></p>	<p>Targets have been met – quarry rehabilitation planting is progressing as planned. Irrigation systems are assisting the process.</p>	C	<p>Observation - Photographs; Mt Shamrock Rehabilitation report, 2021 (Naturelinks)</p>



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	<p><i>Rehabilitation Management Plan, 2007, (LRMP) to the satisfaction of the DPI and the Responsible Authority.</i></p> <p>Maintenance of existing vegetation where practicable.</p>			
<b>1.4</b>	<b>Management Measures</b>			
<b>1.4.1</b>	<p><b>General</b></p> <p>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. The LRMP covers all planting and rehabilitation within the quarry operational and non-operational areas. 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"> <li>• Vehicle Management - Inspection of Vehicles, Clean down of Machinery, Vehicles and Equipment, Use of public roads and pathways, Provision of public safety</li> <li>• Topsoil Scraping and Stockpiling</li> <li>• Weed and Vermin Control, and Herbicide Use</li> <li>• Existing Vegetation Management, including: <ul style="list-style-type: none"> <li>○ Seed Collection</li> <li>○ Topsoil spreading</li> <li>○ Hydro-seeding</li> <li>○ Setting out works</li> <li>○ Fencing and Signage</li> <li>○ Supervision</li> <li>○ Cleaning Up</li> <li>○ Erosion control</li> <li>○ Maintenance during plant establishment period of 52 weeks</li> </ul> </li> <li>• Soil Testing</li> </ul>			

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	Reference should be made to the LRMP for all such issues arising as part of the on-going maintenance of landscaped and rehabilitated areas. The following sections refer to the LRMP, attached to the EMP at Appendix 6. For further details on each section referenced on the left hand side, please refer to the LRMP.			
<b>LRMP s.2.1</b>	<p><b>A Rehabilitation (“Rehab”) Manager</b> is to be appointed with responsibility for the following:</p> <ul style="list-style-type: none"> <li>Ensuring any contractors and staff are aware of the LRMP and its requirements;</li> <li>Carrying out any monitoring, testing and corrective actions;</li> <li>Reporting and reviews as specified in this LRMP;</li> <li>Land management practices undertaken;</li> <li>Rehabilitation works completed;</li> <li>Complaints received and properly recorded and actioned;</li> <li>Non-conformances and corrective actions; and</li> <li>Results of site inspections.</li> </ul> <p>The Rehab Manager may change as the project progresses through the detailed design, quarrying/planting stages, to the on-going management phases, during rehabilitation.</p>	Rehab Manager is Matt Dodd, Quarry Manager, Holcim. Works are conducted by Holcim Personnel (JE) and Naturelinks (contractor).	C	LRMP, June 2014, Rev 3 (appended to EMP)
<b>LRMP s.2.2</b>	The Rehab Manager will submit <b>land management reports</b> (as part of the	Rehab contractor submits monthly reports to Rehab Manager covering work scope and	C	Holcim 3 monthly report to ERC; Shamrock Rehabilitation report,

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	Quarterly Report) to the Quarry Manager on a 3 monthly basis during the quarrying phase. Land management reports should be prepared every two years from the commencement of rehabilitation.	inspection checks. Rehab Manager reports to ERC quarterly on progress. Rehab contractor has submitted a report covering 2020 year progress. A range of issues covered. The altered reporting frequency will be addressed in the revised LRMP.		2021 (Naturelinks); Daily Works Checklists (Naturelinks), submitted to Holcim monthly.
<b>LRMP s.2.3</b>	Any <b>complaints</b> received from the public regarding land management issues associated with the conservation and rehabilitation components of the quarry's activities will be entered and retained in the INX electronic incident database. The INX electronic database will be kept throughout the quarrying, planting and rehabilitation and ongoing land management phases.	No complaints received.	C	
<b>LRMP s.2.4</b>	<b>Non-conformances</b> may be identified through the process of monitoring, the complaints register, site inspections and site audits or through the LRMP review process. It is the responsibility of the Rehab Manager to ensure that these non-conformances and required corrective actions are documented and corrective actions implemented within a reasonable time frame.	Kangaroos eating new trees. Entered into INX which has led to significant replanting campaign using taller tree guards.  <b>LRMP needs to clearly state what a non-conformance is in relation to each of the nominated activities opposite. It should be when something has gone wrong, outside of what is normal on-going maintenance, as well</b>	C  O	Vegetation Monitoring sheets (monthly); Mt Shamrock Rehabilitation report, 2021 (Naturelinks)

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		<b>as those matters identified through audit/inspection.</b>		
<b>LRMP s.2.5</b>	Where <b>testing of soils for contaminants</b> is indicated, sampling will be done by trained personnel and analysis conducted by an analytical laboratory that is NATA accredited for each analysis. Results will be evaluated against the requirements of State Environment Protection Policy (Prevention and Management of Contamination of Land) and any associated standards referenced in the SEPP (as applicable).	Not applicable, no contaminant testing of soils is conducted.	NA	
<b>LRMP s.2.6</b>	It will be necessary to <b>review and revise the LRMP</b> to ensure that it contains up to date and relevant land management practices during the course of the rehabilitation. The Quarry Manager and nominated management personnel will review the LRMP prior to commencement of each stage of the rehabilitation operations, and biannually (6-monthly) thereafter following the LRMP reports outlined above. All reviews will be documented, records maintained and both record of reviews and minutes of review meeting(s) will be retained. A summary of the outcomes of	The LRMP is currently under review and will be released for stakeholder comment in a matter of weeks.	C	

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	each review will be communicated to all relevant staff. A copy of the draft reviewed EMP will be submitted to the Environmental Reference Committee for its comments before finalisation.			
<b>LRMP s.4.1</b>	<p><b>Vehicle Management.</b> Vehicles working exclusively within the extractive limit area, do not have to be inspected or washed down. Machinery, vehicles and equipment in the following recommendations refers to equipment used during:</p> <ul style="list-style-type: none"> <li>Rehabilitation works / clearing / farm operations.</li> <li>Vehicles involved in land management. (Patrolling tracks, tractors and farm equipment).</li> </ul>			
<b>s.4.1.1</b>	<p><b>Vehicle Inspection.</b></p> <ul style="list-style-type: none"> <li>Inspection of machinery and vehicles coming from infested or unknown areas</li> <li>Determine inspection requirements for vehicles, machinery and equipment moving between jobs, districts</li> <li>Request that all contract vehicles and machinery are inspected prior to arrival on site</li> <li>Develop inspection procedures and locations to suit industry and environmental requirements</li> <li>Establish and maintain a checklist for vehicles, machinery and equipment inspected.</li> </ul>	Naturelinks inspects and clean vehicles where weeding has occurred.	C	Naturelinks HSE Daily Inspection Checklists (sample sighted)
<b>s.4.1.2</b>	<b>Clean Down of Machinery, Vehicles and</b>	As above	C	

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	<p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>Determine appropriate cleaning practices for vehicles, machinery and equipment moving between jobs, districts</li> <li>Clean down machinery, vehicles and equipment from contaminated or unknown areas in accordance with established practices above, prior to arrival on site</li> <li>Clean down all machinery before departing site, at an on-site clean down facility</li> <li>Clean down facilities away from water courses, in an area that can be monitored for future germination are available at the site workshop.</li> <li>Avoid moving machinery in wet conditions where clay removal is difficult</li> <li>Develop work practices which avoid contamination of vehicles and machinery and prevent the spread or introduction of additional weed seeds. Ensure contractors conform to these practices</li> <li>Develop remedial action plans for controlling isolated weed outbreaks that</li> </ul>			

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	occur within the work project area.			
<b>s.4.1.3</b>	<p><b>Use of Public Roads and Pathways</b></p> <p>Where public roads and pathways are used, the Rehab Manager shall ensure they are maintained free of earth, rock or other materials that may fall from plant and equipment. All such material dropped onto public roads and pathways shall be properly removed and cleared.</p>	Roads were observed to be free of debris.	C	Observation
<b>s.4.1.4</b>	<p><b>Public Safety.</b></p> <p>The Rehab Manager shall ensure adequate provision is made for the safety of the public by providing suitable temporary barriers, fencing, ramps, warning signs, lighting and any other protective devices at all locations of potential risk.</p> <p>All necessary measures shall be taken to protect the health of persons on or within the vicinity of the site from conditions that are or may be dangerous to health, including the noxious effect of dust, fumes, or other hazards.</p>	Viewing platform erected in quarry. Quarry observed to be relatively dust-free and orderly. Traffic plan is in place, speed signs up.	C	
<b>LRMP s.4.2</b>	<p><b>Topsoil Scraping and Stockpiling</b></p> <p>Existing site topsoil that is to be re-used on site shall be stockpiled within the works boundary, in an area that will not be subject</p>	Topsoil storage not specifically observed in this audit. Holcim advises no new stockpiling of topsoil has occurred.	NA	

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	<p>to traffic or other compaction. The stockpile is not to be located on areas of native vegetation to be retained, or within the drip-line of existing trees.</p> <p>Consideration should be given to bulkage factor, settling and some natural spreading of the topsoil into adjacent areas. The stockpile will be limited to &lt;2m high.</p>			
<b>LRMP s.4.3</b>	<p><b>Weed and Vermin Control</b></p> <p>A weed control program will be implemented focussing on noxious weeds utilising a combination knock-down and pre-emergent herbicide . Noxious weed eradication in the area to be planted will be an ongoing requirement.</p> <p>During the plant establishment and maintenance phase, weeds will be kept clear of individual plants through the use of a mulch ring and spot spraying. The mulch shall be located within a diameter of 1m of tree seedlings. (further details in LRMP)</p>	<p>Weed spraying is done by Naturelinks and Holcim. Locations are recorded. Nominated weeds are targeted.</p> <p>Weed growth has been prolific over 2020, particularly noticeable in screening vegetation area along western rim of quarry – <b>further weed controls measures need to be considered.</b></p> <p>See also reference to deer sighting in net gain offset area.</p>	<p>C</p> <p>O</p>	<p>Weed control records (Holcim Weekly Environmental Worksheets); Naturelinks HSE Daily Inspection Checklists (sample sighted)</p>



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	Records will be kept to monitor the location, type and extent of all weed infestation. Used as a reference, these records can be used over time to establish the most appropriate and effective means of control for this site.			
s.4.3.1	<p><b>Herbicide Use</b></p> <p>Any areas to be planted, which have been colonised by noxious weed species, should be herbicide treated with a non-residual knock-down herbicide at a minimum of twice prior to planting.</p> <p>Spraying of herbicides is not recommended near drainage lines. It is recommended that cut and paint methods be used on woody weeds in these areas.</p> <p>NOTE: The application of herbicides must be undertaken by a contractor or trained quarry personnel with a valid licence, Agricultural Chemical Users Permit (ACUP) as required, and in accordance with the manufacturer's recommendations for concentration of herbicide and frequency of application.</p>	<p>A range of herbicides are used. Two are noted by Agriculture Victoria as being residual herbicides.</p> <p><b>Review contractor herbicide suite to ensure most appropriate herbicides are being used. This might entail the use of some that have residual properties – amend the EMP wording to suit if necessary.</b></p>	<p>C</p> <p>O</p>	Kamba, Garlon SDS; Ag Vic Brochure “Avoiding crop damage from residual herbicides”, May, 2017.
LRMP s.4.4	<p><b>Existing Vegetation Management</b></p> <p>Aside from control of weed species as listed above, maintenance should include:</p> <ul style="list-style-type: none"> <li>Monitoring health of retained and</li> </ul>	As above for comment on herbicides used.	C	Mt Shamrock Rehabilitation report, 2021 (Naturelinks)

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	<p>planted vegetation and checking for pests and diseases,</p> <ul style="list-style-type: none"> <li>• Treatment of disease or other infestation in vegetation, as necessary and as approved in consultation with DSE, and</li> <li>• Control of pest animal species.</li> </ul> <p>(see LRMP for further specific details of management measures)</p>			
<b>LRMP s.4.5</b>	<p><b>Seed Collection</b></p> <p>Seed collection from on-site indigenous vegetation is to be undertaken by a qualified specialist in indigenous revegetation. Collected seed will be supplemented by seed collected off-site. Supplementary seed must be sourced locally, and be collected in accordance the necessary permits. (see LRMP for further specific details regarding seed collection.)</p>	Holcim advises that additional plant species of local provenance are to be included in the revised LRMP for planting in rehabilitation areas. Seed collection will be conducted by Naturelinks' personnel.	C	Mt Shamrock Rehabilitation report, 2021 (Naturelinks)
<b>LRMP s.4.6</b>	<p><b>Topsoil Spreading</b></p> <p>Existing site topsoil, sourced from onsite stockpiles established prior to excavation, will spread over the quarry floor to a minimum depth of 200mm to provide a growing medium for indigenous vegetation and exotic grasses. Timing is to be determined to maximise the viability and</p>	Not relevant at this stage (applies after works ceases)	NA	

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	germination of the indigenous seed collected and minimise weed invasion.			
<b>LRMP s.4.7</b>	<p><b>Hydro- Seeding</b></p> <p>Hydro-seeding or other soil stabilisation/seeding/ mulching methods should be undertaken by a qualified specialist in indigenous revegetation, in consultation with Landscape Contractors.</p> <p>Timing is to be coordinated with the spreading of topsoil, to maximise the viability and germination of the indigenous seed collected and minimise weed invasion.</p>	Holcim advises this was not done during 2020. This may be an included practice in the revised LRMP.	NA	
<b>LRMP s.4.8</b>	<p><b>Setting Out Works</b></p> <p>Holcim shall be responsible for accurately setting out the works prior to breaking any soil and for checking the works in progress.</p>	Works are checked regularly whilst in progress.	C	Monthly reports (Naturelinks)
<b>LRMP s.4.9</b>	<p><b>Fencing and Signage</b></p> <p>A cyclone mesh fence is to be located at the perimeter of the proposed Works Authority Boundary. Signage is to be compliant with industry standards.</p>	<p>Fencing and signage in place.</p> <p><b>Consider updating signs on boundary fence so they reference Holcim rather than Readymix, to avoid confusion.</b></p>	<p>C</p> <p>O</p>	Observation
<b>LRMP s.4.10</b>	<p><b>Supervision</b></p> <p>The Rehab Manager or nominated quarry staff shall be present at the site of works at all times. Nominated representatives shall</p>	Holcim advises that its works personnel are in daily contact with Quarry Manager, and observe contractor works. Naturelinks has a nominated contact person for site works.	C	

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	<p>have had experience in executing work equal in nature and magnitude to the work described in this Plan.</p> <p>Contractors shall designate in writing to the Quarry Manager the name of their approved representative who shall have authority to direct work and to whom site instructions will be given by the Quarry Manager of his nominee.</p> <p>Contractors shall also designate how they will have authority over any subcontractors, and who will issue instructions to any subcontractors.</p> <p>Contractors shall keep one full set of drawings and specifications on site at all times to be available for inspection by the Rehab Manager or his/her nominee, or Inspectors from authorities with jurisdiction over the works. The drawings shall be adequately protected to sustain the documents in a clear and readable form for the duration of the works.</p>	Drawings have been provided to Naturelinks.		
<b>LRMP s.4.11</b>	<p><b>Cleaning Up</b></p> <p>All equipment and debris will be removed from the site at the completion each stage of planting. The site shall be left tidy. During</p>	No evidence of debris from planting works remaining on site.	C	Observation

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	the implementation of planting piles of rubbish shall be removed leaving the site in a tidy condition at the end of each working day.			
<b>LRMP s.4.12</b>	<b>Erosion Control</b> Areas susceptible to erosion will be treated with approved erosion control techniques. The specific technique will be dependent on site conditions but may include hydro-mulching, erosion control matting or other approved techniques.	No signs of significant erosion observed. Minor evidence of this observed along southern boundary internal face.	C	Observation
<b>LRMP s.4.13</b>	<b>Maintenance during Plant Establishment Period - 52 weeks</b> Maintenance during the Plant Establishment Period should include the care of the landscaped areas by accepted horticultural practices, as well as rectifying any defects that become apparent in the works.	Established during previous audit.	NA	
<b>LRMP s.5</b>	<b>Ongoing &amp; Post-Operations Maintenance</b> Holcim shall continue to monitor and maintain the site; however, plant replacement will not be undertaken solely for visual screening reasons. The landscape will operate as a “natural” system and is expected to be self-sustaining, and similar to surrounding forest environments.			
	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):	No change from previous audit. Maintenance currently occurring by Holcim personnel and through Naturelinks (as described above) during operational phase of quarry.	C	Vegetation Monitoring Monthly reports (sample sighted); Naturelinks documentation (various, as cited above).

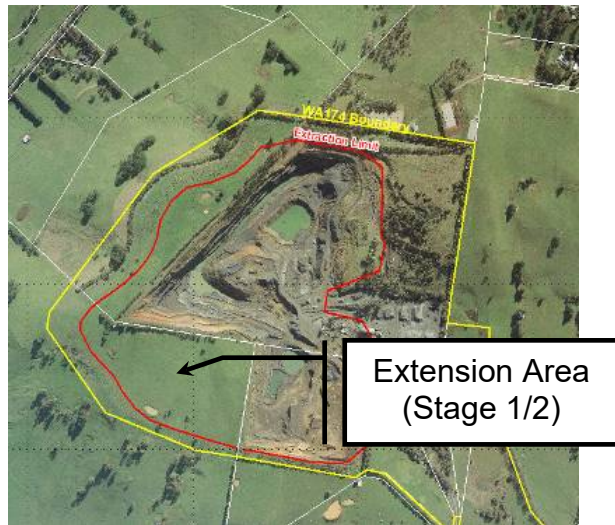
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	<ul style="list-style-type: none"> <li>• Maintenance of the surface of site access tracks.</li> <li>• Maintenance of all fences and signs.</li> <li>• Pruning branches overhanging and imposing on access tracks.</li> <li>• Monitoring and control of weeds as necessary, ensuring weed controllers have attended a DSE ‘Farm Chemical User Course’ or equivalent and have appropriate approvals.</li> <li>• Monitoring health of retained and planted vegetation and checking for pests and diseases.</li> <li>• Monitoring stability of berms and berm walls.</li> <li>• Replant terrestrial planted areas that have failed and provide significant gaps on the horizon line.</li> <li>• Regrading necessitated by erosion and washouts.</li> <li>• Rehabilitation of quarry water management system.</li> <li>• Treatment of disease or other infestation in vegetation as necessary and as approved in consultation with DSE.</li> <li>• Control of pest animal species.</li> </ul>			

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<b>EMP s.1.4.2</b>	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.)	Not applicable at this time, quarrying activities are continuing.	NA	

# **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.**



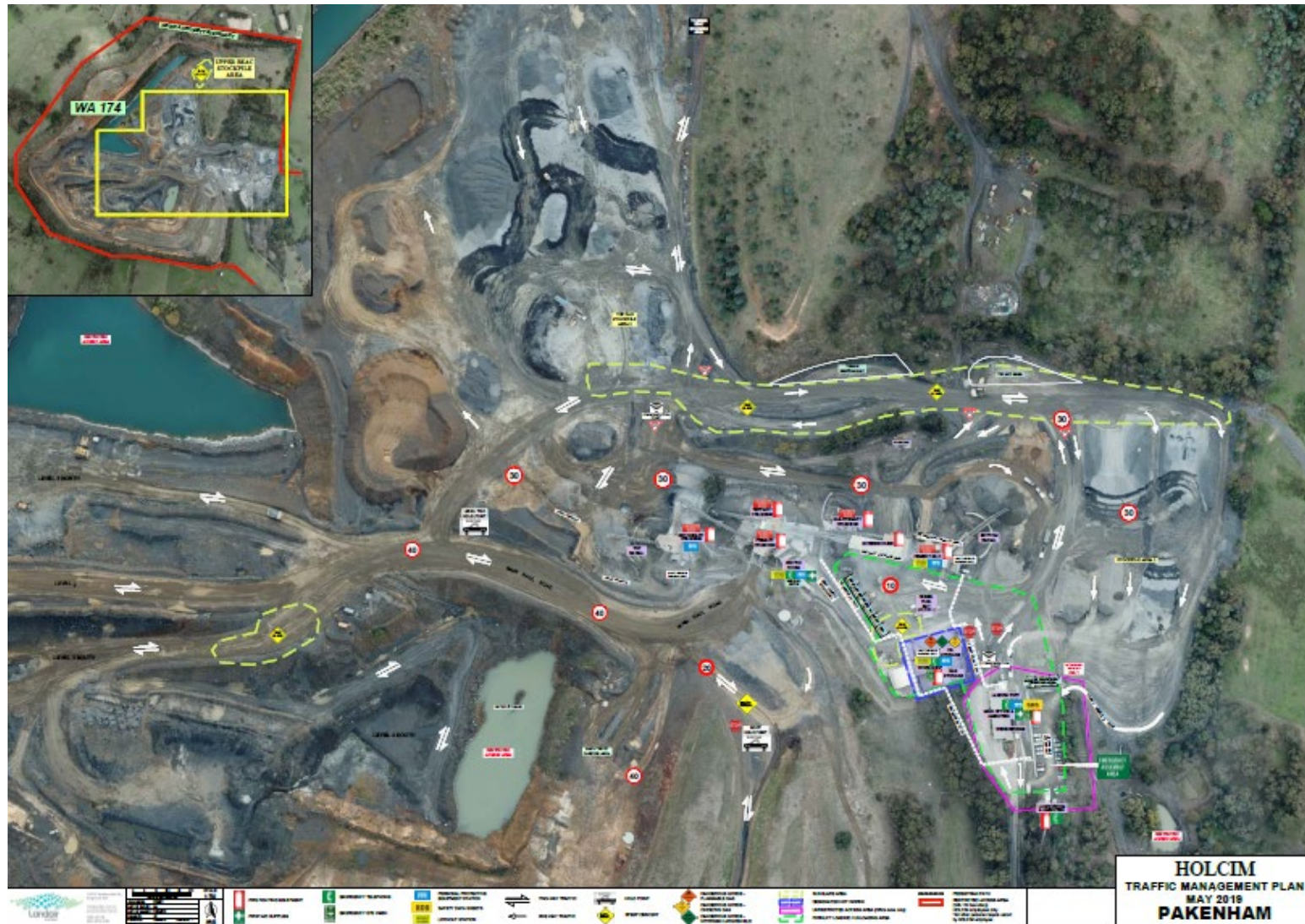


Photograph 8: February, 2019.



Photograph 9: October, 2019





Photograph 10: Traffic Management Plan, 2019





**Photograph 11: December, 2020.**





**Photograph 12: Rehabilitation works south eastern part of quarry.**



**Photograph 13: At observation point looking west.**





**Photograph 14: Looking north from observation point.**



**Photograph 15: Eastern rehabilitation area.**





**Photograph 16: Eastern rehabilitation area, looking NE.**



**Photograph 17: All chemicals should be contained within bunded areas, or on a bunding pallet.**





**Photograph 18: Evidence of die back still apparent, although some trees have revived.**



**Photograph 19: Weed control is an on-going challenge.**





**Photograph 20: As per previous photograph.**



**Photograph 21: Used oil filters are being stored in prescribed waste bin inside their cardboard boxes. The cardboard should be segregated and recycled separately.**





**Photograph 22: Clear signage on bin sides and lids is needed to encourage correct segregation.**



**Photograph 23: Co-mingling of waste streams can add costs to collection and disposal services.**