Strength. Performance. Passion.

Teven Quarry
Water Management Plan

Holcim Australia
March 2022 Update

Tables

Figures

Appendix

1. Introduction

1.1 Background

Holcim (Australia) Pty Ltd (Holcim) own and operate the Teven Quarry located at Stokers Lane, Teven, New South Wales (NSW) in the Ballina Local Government Area (LGA). The quarry is approximately eight kilometres (kms) north-west of Ballina town centre (see **Figure 1**).

A State Significant Development (SSD) application (SSD 6422) for the quarry was approved by the NSW Minister for Planning and Environment on 15 July 2015. The approved extraction area, associated ancillary facilities and water management system are shown in **Figure 2**.

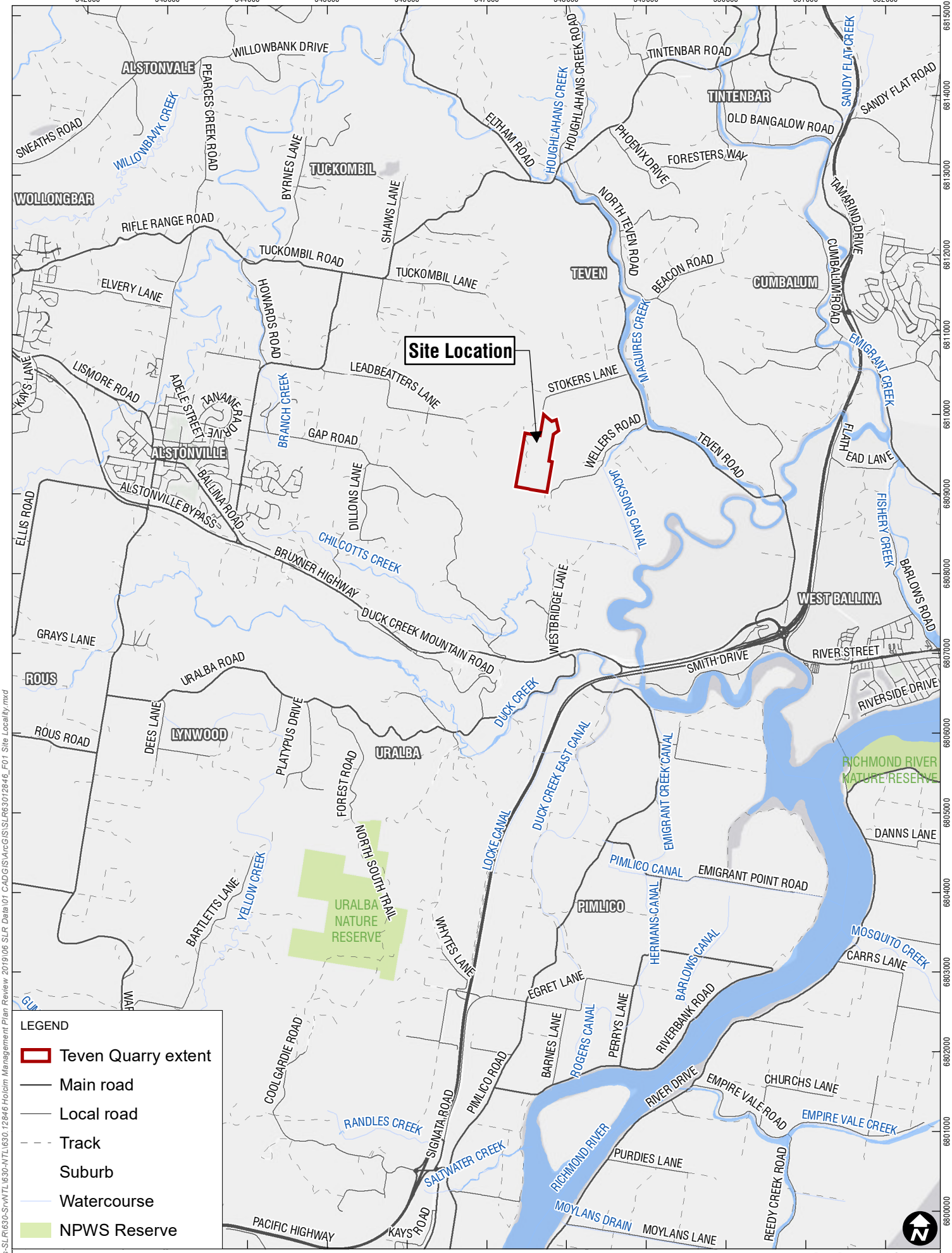
Holcim is required to prepare a Water Management Plan (WMP) for the quarry in consultation with the NSW Environment Protection Authority (EPA) and Water NSW and to the satisfaction of the Secretary of the Department of Planning, Industry and Environment (DPIE), formerly the Department of Planning and Environment (DP&E). An update on stakeholder consultation is provided in **Section 2.**

1.2 Project Description

A summary of the approved activities is provided in **Table 1**.

Table 1 Approved Activities

Project Component	Currently Approved (2015-2045)
Quarry Life	30 years from date of approval (15 July 2015), ie to 15 July 2045
Limits of production	500,000 tonnes per annum (tpa)
Quarry footprint	Shown on **Figure 2**
Overburden management	Shown on **Figure 2**
Hours of operation	**Blasting:** 10:00 am–3:00 pm Monday–Friday At no time on Sundays or public holidays **All other activities** 7:00 am–6:00 pm Monday–Friday 7:00 am–4:00 pm Saturday At no time on Sundays or public holidays **Extended hours for product loading and transport, stockpile management and maintenance** 7:00 am–10:00 pm Monday–Friday 7:00 am–4:00 pm Saturday At no time on Sundays or public holidays
Transport	Road transport at approved production level
Employment	11 full time equivalent positions
Infrastructure	Fixed primary, secondary and tertiary plants with the addition of a mobile crushing and screening plant, and a mobile pug mill
Site access	Off Stokers Lane
Concrete recycling for re-use	Recycling of up to 10,000 tpa of clean surplus concrete material on site using existing and proposed processing infrastructure for re-use as product.

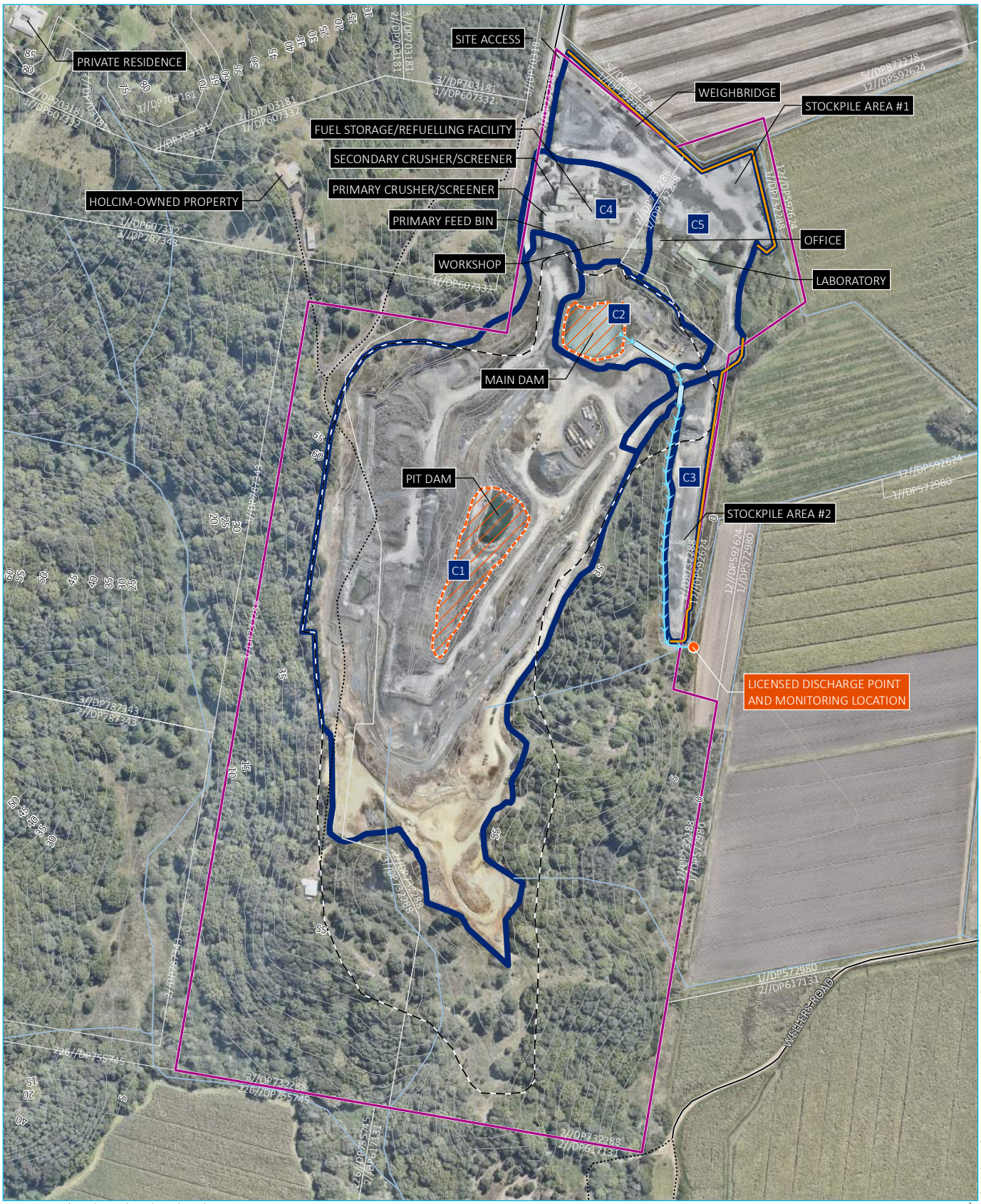


\\au.slr.local\Corporate\Projects-SLR\630-Srv\NTL\630.12846 Holcim Management Plan Review 2019\06 SLR Data\01 CAD\GIS\ArcGIS\SLR63012846_F01 Site Locality.mxd

SLR

Site Locality

Figure 1



Source: EMM (2018); DFSI (2017); GA (2015)

0 100 200 m

GDA 1994 MGA Zone 56

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KEY

- Teven Quarry extent
- Approved extraction extent
- Water monitoring point
- Bund
- Open channel
- Pipe
- Final dam location
- Local road
- Vehicular track
- Watercourse/drainage line
- Topographic contour (5 m)
- Cadastral boundary
- Current catchments

Water Management Overview

Teven Quarry
Water Management Review
Figure 2

EMM
creating opportunities

1.3 Purpose and Scope

The purpose of this WMP is to describe the water management strategies, procedures, controls and the monitoring programs that are to be implemented in accordance with the Teven Quarry Project Environmental Impact Statement (EIS) (Umwelt 2014) and the Development Consent (SSD 6422).

The relevant Development Consent (SSD 6422) conditions and Statement of Commitments are provided in **Sections 3.3 and 3.4**. This plan also outlines the control measures to be implemented as part of the continued operations at Teven Quarry to minimise the potential impacts to the local community from impacts on surface water or groundwater.

1.4 Objectives

The key objective of the WMP is to ensure that impacts on water quality during operations are minimised and within the scope permitted by the Development Consent (SSD 6422).

To achieve this objective, Holcim will undertake the following:

- Ensure feasible and reasonable controls and procedures are implemented during operational activities to maximise water use efficiency and avoid or minimise potential erosion and sedimentation;
- Ensure appropriate measures are implemented to address the relevant Development Consent (SSD 6422) conditions outlined in **Table 1**; and
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in **Section 3** of this WMP.

The following targets have been established for water management during the operational lifetime of Teven Quarry:

- Ensure full compliance with the relevant legislative requirements and Development Consent (SSD 6422);
- Meet Environment Protection Licence (EPL 3293) water quality discharge parameters for all planned discharges; and
- Ensure training on soil and water management is provided to all relevant personnel through site inductions.

2. Stakeholder Consultation

2.1 Pre 2020 Consultation

A letter was sent to both the DPI Water and EPA on 13 October 2015 requesting agency input during the development of the draft WMP and review of the final draft document.

Following the initial communication, the draft WMP was sent to both Water NSW (formerly DPI Water) and the EPA on 17 November 2015 as per Schedule 3, Condition 20 (a) of the Development Consent (SSD 6422). Holcim received feedback from DPI Water concerning the adequacy of the plan on 15 December 2015. Water NSW recommended that all discharged water should be treated prior to discharge to minimise the potential for contamination to the surrounding environment. Holcim has made commitment to managing water quality risks to the surrounding environment in **Section 7**. Water NSW was satisfied with this response.

A Pollution Reduction Program was completed with this dated January 2019. This document has been used for updates to the WMP and it titled *Teven Quarry – Review of Current Sediment Basin Management and Stormwater Management.*

2.2 2021-2022 Consultation

On the 26 May 2021 Holcim received a request from DPIE to consult with the relevant agencies including the EPA. A copy of the updated management plan was sent to the EPA on 27 May 2021. Holcim received feedback from the EPA on 28 May 2021 which considered the WMP to be satisfactory.

A letter was sent to Natural Resources Access Regulator's Lands & Water Division on 8 October 2021 requesting agency input during the development of the WMP document. Holcim sent a request for input to Natural Resources Access Regulator's Lands & Water Division on the 13 December 2021, on 2 February 2022 and again on 10 February 2022 but has received no review or comment from Natural Resources Access Regulator's Lands & Water Division concerning the adequacy of the plan and considers that Natural Resources Access Regulator's Lands & Water Division has had ample time to sufficiently review and comment on the draft document.

A copy of the 2022 updated management will be sent to DPIE for review and approval. Holcim will update this document and submit if comments are provided.

3. Regulatory Requirements

3.1 Legislation

Legislation relevant to soil and water management includes:

- *Protection of the Environment Operations Act 1997 (POEO Act);*
- *Water Management Act 2000 (WM Act);*
- *Fisheries Management Act 1994 (FM Act); and*
- *Water Act 1912 (Water Act).*

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Section 3 of the Environmental Management Strategy (EMS).

3.2 Guidelines and Standards

The main guidelines, specifications and policy documents relevant to this WMP include:

- *Managing Urban Stormwater: Soils and Construction, Volume 2C Unsealed Roads (DECCW 2008);*
- *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries (DECCW 2008);*
- *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids;*
- *NSW Department of Primary Industries, Office of Water, Guidelines for Controlled Activities;*
- *Department of Environment and Conservation, Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales (DEC, 2004a);*
- *Draft NSW MUSIC Modelling Guidelines (Sydney Metropolitan Catchment Management Authority, August 2010);*
- *Holcim Guideline 4.11 Water Management (Aggregates) (May, 2014); and*
- *Holcim Water Efficiency Policy (October, 2011).*

3.3 Development Consent Requirements

The Development Consent (SSD 6422) for the Teven Quarry Project was granted by the Minister for Planning on 15 July 2015. The requirement for this WMP arises from Schedule 3 Condition 20 of the Teven Quarry Development Consent (SSD 6422). The requirements from the Development Consent (SSD 6422) relating to water, and where these requirements are addressed within this WMP, are provided in **Table 2**.

Table 2 Development Consent conditions

Development Consent Conditions	Section Addressed
Schedule 3	Section 2
Schedule 3, Condition 20 The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Secretary. The plan must:	
a) be prepared by a suitably qualified and experienced person/s whose appointment has been approved by the Secretary.	
b) be prepared in consultation with the EPA and NOW;	
c) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary;	
d) include a:	Section 5

Development Consent Conditions	Section Addressed
i. Site Water Balance that includes details of:	
• sources and security of water supply;	
• water use and management on site;	
• any off-site water transfers;	
• reporting procedures; and	
• measures that would be implemented to minimise use of clean water use on	
ii. a Surface Water Management Plan, that includes:	Section 7 - 9
• baseline data on surface water flows and quality in water bodies that could potentially be affected by the development;	Section 4
• a detailed description of the surface water management system on site including the:	Section 7
- clean water diversion system; - erosion and sediment control; - dirty water management system; and - water storages; and	
• a program to monitor and report on:	Section 8 and 9
- any surface water discharges; - the effectiveness of the water management system; and - surface water flows and quality in local watercourses.	

3.4 EIS Statement of Commitments

The Statement of Commitments relevant to the WMP that are appended to the Development Consent (SSD 6422), and where they are addressed in this document, detailed in **Table 3**.

Table 3 Statement of Commitment Conditions

Commitment	Section Addressed
10. Holcim will continue to monitor water quality associated with water discharges at the Teven Quarry licensed discharge point in accordance with the requirements of its Environment Protection Licence.	Section 8
11. Holcim will review the risk of flooding to the stockpile and infrastructure areas and determine if additional flood protection measures are required.	Section 7
12. Holcim will review the existing water management measures for the stockpile and infrastructure areas as part of the implementation of the Project considering the requirements of the Blue Book (Managing Urban Stormwater: Volumes 1 and 2, Landcom 2004 and DECC 2008).	Section 7
13. if groundwater interception is suspected based on observation of sustained inflow, a hydrogeological investigation will be completed in consultation with the DPI Water and DPIE.	Section 4.2
14. Holcim will continue to report on site performance regarding water discharges in the annual review and EPL annual returns.	Section 9

3.5 Water Licensing

Holcim does not hold a water licence to take groundwater or surface water.

3.6 Environment Protection Licence

Holcim discharges water from the quarry to the cane-field drain to the east of the quarry extent in accordance with the Environment Protection Licence (EPL) No. 3293. The licence contains no volume limit. The water quality limits and required monitoring frequency are presented in **Section 8.** EPL conditions are presented in **Table 4.**

Table 4 EPL Conditions

<table>
<tr><th>EPL Conditions</th><th>Section Addressed</th></tr>
<tr><td>P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land
<table><tr><th>EPA Identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>1</td><td>Wet weather discharge
Water quality monitoring</td><td>Wet weather discharge
Water quality monitoring</td><td>Discharge occurs via overflow or pumping from the Main Dam, via an underground pipe to the site settling drain. The settling drain (concrete drain, 220m in length) runs along the eastern edge of the site before discharging at the point detailed in Figure</td></tr></table></td><td>Section 8.2</td></tr>
<tr><td>L 1 Pollution of waters

L 1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L 1.2 Rainfall runoff from all disturbed areas of the premises arising from up to 82.5mm (up to five day event duration) must, prior to discharge from the premises, be captured and treated to the standard set out in condition L2 below.</td><td>Section 8.3</td></tr>
<tr><td>L2 Concentration limits

L2 .1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.

L2.4 Water and/or Land Concentration Limits</td><td>Section 8.3</td></tr>
</table>

EPL Conditions	Section Addressed
POINT 1 	Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
---	---	---	---	---	---
Oil and Grease	Visible				nil
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				50 | L2.5 The concentration limits in the above table do not apply to any discharge from the sediment ponds solely arising from rainfall exceeding 82.5 mm in total falling over any consecutive five day period. L2.6 If the licensee uses turbidity (NTU) in place of TSS to determine compliance with Condition L2.4, the licensee must develop a statistical correlation which identifies the relationship between NTU and TSS for water quality in the sediment basin/s in order to determine the NTU equivalent of 50 mg/L TSS before its use. L2. 7 The licensee must provide the EPA with a copy of the statistical correlation assessment methodology and results before using NTU in place of TSS. L2.8 The licensee must develop and implement a method to enable the ongoing verification of the relationship between NTU and TSS. L2.9 The licensee must provide the EPA with any amendments the licensee makes to the statistical correlation as a result of the ongoing verification required by Condition L2.8 before using the revised statistical correlation.	
O1 Processes and management O4.1 The licensee must maximise the diversion of run-on waters from lands upslope and around the site whilst land disturbance activities are being undertaken. O4.2 The licensee must maximise the diversion of stormwater runoff containing suspended solids to sediment basins installed on the premises. O4.3 Where sediment basins are necessary, all sediment basins and associated drainage must be installed and commissioned prior to the commencement of any clearing or grubbing works within the catchment area of the sediment basin that may cause sediment to leave the site. O4.4 The licensee must ensure the design storage capacity of the sediment basins installed on the premises is reinstated within 5 days of the cessation of a rainfall event that causes runoff to occur on or from the premises. O4.5 The licensee must ensure that sampling point(s) for water discharged from the sediment basin(s) are provided and maintained in an appropriate condition to permit: a) the clear identification of each sediment basin and discharge point; b) the collection of representative samples of the water discharged from the sediment basin(s); and c) access to the sampling point(s) at all times by an authorised officer of the EPA. O4.6 The licensee must endeavour to maximise the reuse of captured stormwater on the premises.	Section 7.1.1 and 7.2 Section 7.2 Section 7.2 Section 7.2

<table>
<tr><th>EPL Conditions</th><th>Section Addressed</th></tr>
<tr><td>O4.7 Each sedimentation basin must have a marker (the "sedimentation basin marker") that identifies the upper level of the sediment storage zone.

O4.8 Whenever the level of liquid and other material in any sedimentation basin exceeds the level indicated by the sedimentation basin marker, the licensee must take all practical measures as soon as possible to reduce the level of liquid and other material in the sedimentation basin.</td><td>Section 7.1.3</td></tr>
<tr><td>M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
M1 .2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1 .3 The following records must be kept in respect of any samples required to be collected for the purposes of
this licence:
a) the date(s) on which the sample was taken ;
b) the time(s) at which the sample was collected ;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.</td><td>Section 9.2</td></tr>
<tr><td>M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Water and/ or Land Monitoring Requirements
POINT 1
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Oil and Grease</td><td>milligrams per litre</td><td>Special Frequency 1</td><td>Visual Inspection</td></tr><tr><td>pH</td><td>pH</td><td>Special Frequency 1</td><td>No method specified</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td>Special Frequency 1</td><td>Grab sample</td></tr></table>
M2.3 Special Frequency 1 means sampling any discharge, whether controlled or otherwise, which has not occured from rainfall exceeding 82.5mm over any consecutive 5 day period.</td><td>Section 8.3</td></tr>
<tr><td>M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.</td><td>Section 8.1</td></tr>
<tr><td>R2 Notification of environmental harm

2.1 Notifications must be made by telephoning the Environment Line service on 131 555.</td><td></td></tr>
</table>

EPL Conditions	Section Addressed
R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred. Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.	
R3 Written report R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that: a) where this licence applies to premises, an event has occurred at the premises; or b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event. R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request. R3.3 The request may require a report which includes any or all of the following information: a) the cause, time and duration of the event; b) the type, volume and concentration of every pollutant discharged as a result of the event; c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and g) any other relevant matters. R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.	Section 9.1
U1 Report- Review the current sediment basin management and stormwater management U 1 .1 The licensee is to review the current sediment basin management and stormwater management of the premise to ensure that: 1. All disturbed areas on the quarry including run-off from access roads flows to a settlement basin. 2. The quarry has capacity to capture the five-day rain event. 3. Monitoring occurs for all discharge less than the five-day rain event of 82.5 mm. A report is to be submitted to the EPA by the 3 September 2018 detailing the review the current sediment basin management and stormwater management.	Section 4.1

3.7 Pollution Reduction Program Actions

The Pollution Reduction Program included a number of proposed actions, with an update on these provided.

Table 5 Pollution Reduction Program (PRP) – Proposed Actions

Recommendation from PRP	Comment/Section Covered by Management Plan
General Recommendations	
Review/audit of all existing bunding of various forms/construction around Catchment C5 should be undertaken to confirm that containment measures are continuous and effective at preventing offsite discharge. If necessary, improvement or enhancement of existing controls should then be undertaken. It is noted that bunding is considered to form an effective sediment control for this area, and with no prior evidence or history of uncontrolled discharge from the Site (including from recent rainfall in 2018 that was well in excess of the five-day rainfall event) a formal sediment basin is not considered necessary to manage the risk of discharge in this location.	Review undertaken.
At the time of inspection in October 2018 low flows in the Main Drainage Channel were observed to be conveyed within the voids in the rock rip rap lining and left the Site beneath the concrete block that forms the intended discharge weir. This created a situation where it was not possible to obtain consistency in sampling location. On this basis a preliminary recommendation was made that concrete lining of the channel at its downstream end was undertaken to effectively lift the invert of the channel up and match into the top of the concrete block weir, so that the full range of flow rates would be conveyed over the weir. These works were undertaken in early December 2018 [Photo 19 from the PRP] and appear effective in producing a consistent sampling point at the LDP and in restricting seepage behind the block weir. No further improvements are considered necessary at this location.	Work completed.
Several improvements to water monitoring procedures and record keeping are recommended for capture in an updated version of the WMP (refer Section 7 of the PRP), including: - to ensure discharge sampling occurs at a consistent location at the LDP at all times; and - improvement of record keeping to capture additional details (eg. timing of sampling when undertaken, affirmation of oil/grease observations).	Noted. Compliance relating to monitoring requirements has improved since the 2019 PRP.
Recommended WMP Updates	
Update to reflect the recommended improvements noted in Section 6, as appropriate.	Noted.

Recommendation from PRP	Comment/Section Covered by Management Plan
Sections and figures of the WMP that refer to water monitoring locations should be updated to retain just the single monitoring point at the LDP.	Now three figures in this Management Plan.
Section 5.4 of the WMP infers that monthly water balance monitoring and six-monthly site water balance model updates will be undertaken, which is understood to be not occurring nor required to effectively manage water use and discharge from the Site. It is recommended that this section is revised to reduce the frequency of monitoring to reflect current practice, and to remove model balance updates unless a significant change to water management is required.	The current monitoring program is outlined in **Section 8**. Water balance model reviews frequency reduced to as required. See **Section 5** of this WMP.

3.9 2019 Independent Environmental Audit – Updates

An Independent Environmental Audit (IEA) was completed for Teven Quarry by GHD, with the report dated April 2020. There were several recommendations from that report relevant to this management plan. A copy of the required updates is provided in **Table 6** below.

Table 6 Independent Environmental Audit – Required Updates

Recommendation from Auditor	Comment/Section Covered by Management Plan
The Water Management Plan includes a water balance, management system and monitoring program, however, it does not include: • Evidence the author was approved by the Secretary; • Approved within 6 months; • Detailed baseline data; and • Erosion and sediment controls. Although it appears the Water Management Plan was not submitted to the Secretary within 6 months of the consent this is considered to be outside the audit period. In relation to erosion and sediment controls, the basin management is discussed but there are no other erosion and sediment controls mentioned. Controls on site and the Annual Review indicate the water management and monitoring is implemented and effective. Update the Water Management Plan to include all the information required by Condition 20, Schedule 3. • Detailed baseline data • Erosion and sediment controls	Section 2 and 3.3 outline evidence of author approval Section 4 outlines existing environment and baseline Erosion and Sediment Controls are outlined in Section 7.2 and Figure 2
Update the management plans required under the consent to include a contingency plan to manage unpredicted impacts.	See Section 10
Review the strategies, plans and programs following the annual review, incident report, audit report or modification and maintain evidence of the reviews.	Section 11
Notify the Secretary and any other relevant agencies of any incident, within 7 days of the date of the incident, in accordance with Condition 7, Schedule 5.	Section 9

4. Existing Environment and Baseline Monitoring

4.1 Surface Water

The quarry pit and infrastructure area are within the catchments of Emigrant Creek and Maguires Creek (a sub-catchment of Emigrant Creek). Emigrant Creek is a tributary of the Richmond River which flows easterly toward the coast through Ballina (**Figure 2**).

The Emigrant Creek catchment area is approximately 15,300 hectares (ha). The estimated quarry footprint in the catchment area is 16 ha. The Maguires Creek catchment area is approximately 6,000 ha. The estimated quarry footprint in this catchment area is 8 ha.

Holcim monitor water quality at the Main Dam discharge point (**Figure 3**) in accordance with the monitoring frequencies stipulated in the EPL 3293 (see **Table 8**). Discharge monitoring data indicates that the quarry has historically met EPL 3293 criteria for water released from the Main Dam to the cane field drain at the Licensed Discharge Point.

As part of the PRP, Holcim implemented a second monitoring location at the upstream end of Main Drainage Channel from 2017 – 2019. The additional internal monitoring Point supplemented the existing Licensed Discharge Point (LDP) to assess whether the adjacent Stockpile Area 2 was potentially contributing to any increased turbidity in runoff conveyed within the channel.

Water quality for the LDP is outlined within the Annual Reviews. **Table 7** below summaries the 2019 data.

Table 7 Summary of Water Quality Data at Teven Quarry - 2019

Licensed Discharge Point (off-site release location)		
TSS (mg/L)	**pH**	**Oil and Grease (mg/L)**
5	7.2	Nil
1	6.6	Nil
22	7.7	Nil

Long term pH results from 2017, 2018 and 2019 at the LDP show that water samples taken at the Teven Quarry have remained within the relevant EPL 3293 criteria. There is little variation between results in 2019 and previous monitoring years with an average pH of 7.2 in 2019. Based on monitoring results meeting EPL criteria, EMM recommended that Holcim cease monitoring at the at the additional internal monitoring location and continue to monitor water quality only at the LDP per EPL requirements (see **Figure 2**) (EMM, 2019).

Table 8 2017 to 2019 pH Trends at Licensed Discharge Point

Year	**pH Average**	**pH Maximum**	**pH Minimum**
2017	7.5	7.8	6.9
2018	7.5	8.4	6.6
2019	7.2	7.7	6.6

4.2 Groundwater

Teven Quarry is located on a Tertiary Basalt formation, adjacent to a low-lying alluvial floodplain consisting of Quaternary sediments that are associated with the Richmond River. There are two identified aquifers within the vicinity of the quarry:

- A fractured rock aquifer of low hydraulic conductivity, associated with the basalt formation; and
- A shallow unconfined aquifer within the alluvial sediments to the east of the quarry, associated with the alluvial floodplain.

It was determined during the preparation of the EIS (Umwelt 2014) that the quarry did not intercept groundwater at the approved extraction depth of 4 metres above Australian Height Datum (m AHD). Groundwater levels in the basalt range between 0 and 3 m AHD and groundwater levels within the adjacent alluvium approximately 0 m AHD (Umwelt 2014).

No groundwater dependent ecosystems (GDE) were identified within the immediate area of Teven Quarry. The nearest GDE located on the floodplain wetlands and supported by the shallow alluvial aquifer (Umwelt 2014).

The water quality of discharge from the pit is not predicted to adversely impact the surrounding environment. If changes to water quality are measured and are attributed to groundwater inflows, a hydrogeological investigation will be completed in consultation with Water NSW and DPIE to determine if imparts are occurring and any required management measures.

5. Site Water Balance

5.1 Teven Quarry Water Balance Model

A water balance model for the Teven Quarry site was developed as part of the Teven Quarry EIS (Umwelt 2014) and based on historical data. Average monthly precipitation data from the Bureau of Meteorology (BoM) Meerschaumvale station (station 058135) from 1968 to 2013 were used alongside average monthly evaporation data from the BoM Alstonville station (station I058131) from 1963 to 2011. These stations were selected as they are the most representative locations for conditions at Teven Quarry from surrounding areas for precipitation and evaporation. These data sets were used to calculate runoff rates. Because Teven Quarry does not intersect the groundwater table, no groundwater inflows were included in the water balance.

The Teven Quarry Water Balance for the approved quarry operations is summarised in **Table 9 and Table 10**. The water balance indicates that water demands for the approved annual production limits can be met by capturing runoff from disturbed areas within the quarry water management system and that the site has a water surplus.

As discussed in **Section 3.7** it is recommended from the PRP that water balance updates are not required unless a significant change to water management occurs at the site. It should be noted that this management plan revision (March 2022) only captures a minor update to the water balance to reflect dust suppression and processing demand volumes. A major overhaul of the water balance would only be required if a significant change to water management occurred.

Table 9 Summary of the Teven Quarry Water Balance Model

Activity	**Water (ML/year)**
Inflows	
Rainfall/runoff	84.7
Groundwater	0.0
Total inflow	**84.7**
Demands/losses	
Evaporation	17.8
Dust suppression	1.2 (January – November 2020)
Processing demand	3.7 (January – November 2020)
Total demands/losses	**22.7**
Water balance	**62.0**

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Table 10 Teven Quarry – Estimated Volume and Frequency of Discharge at the Licensed Discharge Point (2014 EIS)

Parameter	LDP
Water balance	
10th percentile (ML/year)	15.9
50th percentile (ML/year)	42.5
90th percentile (ML/year)	84.1
Frequency	
10th percentile (days/year)	22 days (6%)
50th percentile (days/year)	42 days (12%)
90th percentile (days/year)	71 days (19%)

5.2 Water sources and dam volumes

Water sources at the quarry site include rainfall and capture of rainfall and runoff from upslope catchment areas. As the quarry does not intersect the groundwater table, groundwater is not a water source.

The volumes of the dams onsite were reviewed as part of the Pollution Reduction Program (EMM January 2019). The Main Dam and the Pit Dam are operated as sediment basins and control the bulk of the disturbed quarry catchment area comprising Catchments C1, C2 and C4. Both dams are understood to have been excavated in hard rock. For more information on catchments refer to Section 4.2 of the PRP.

The previous WMP provided a comparison of available dam storage against the 'Guideline Volume' calculated using the methods detailed in *Managing Urban Stormwater: Soils and Construction, Volume 2E – Mines and Quarries (DECC 2008)*. This comparison has been updated for this 2020 review and is presented in **Table 11**, which shows that current dam volumes are well in excess of the Guideline Volumes.

Table 11 Water Management Dam Volumes (As per PRP 2019)

Dam	Settling Volume (m^3)	Sediment Zone (m^3)	Guideline Volume (m^3)	Current Dam Volume (m^3)
Main Dam	2,796	1,398	4,194	5,125
Pit Dam	7,541	3,771	11,312	37,753
Pit Dam[1] (at maximum limit)	9,962	4,981	14,943	NA[2]

Notes:

1. Anticipated volumes when the quarry reaches the maximum extraction extent.

2. Dam volume will depend on quarry dimensions which vary with time.

5.3 Water Demands and Losses

Water is required for on-site processing and dust suppression refer to **Table 9**. There is also water loss through evaporation from dams and pits, and discharge from the licensed discharge point. When the Main Dam levels are low it is re-filled via pumping from the pit. The Main Dam water levels are regulated, and excess water is discharged offsite to avoid flooding of the adjacent quarry floor and access track. The Pollution Reduction Program (EMM January 2019) stated "there is no clear need for improvement of any aspect of current operational water management".

6. Environmental Aspects and Impacts

6.1 Development Activities

Key aspects of the development that could result in adverse impacts to soil and water include:

- Vegetation clearing and overburden stripping;
- Sediment release from disturbed areas that have not been suitably stabilised;
- Dust generation during earthworks that could settle in water bodies;
- Chemical or fuel spills that could pollute receiving water bodies. This includes fuel or oil leakage from plant / equipment, accidental spills or the release of chemicals due to damage to chemical storage areas;
- Construction materials or general waste generation that could enter water bodies;
- An increase in surface runoff due to an increase in cleared surfaces;
- Tannin leachate from mulched vegetation stockpiles;
- Vegetation removal that could result in sediment release to adjoining minor ephemeral tributaries of Talawahl creek;
- Poor quarry and water management design;
- Bulk earthworks;
- Drainage works;
- Material stockpiles;
- Water use / extraction; and
- Noxious weed treatment including herbicide spraying.

6.1.1 Land Contamination

Potential to encounter or disturb areas of contamination are low, with historical land uses prior to the commencement of quarrying operations being forested bushland surrounded by agriculture. Holcim is unaware of any potential contaminating activities that have been undertaken within the proposed new ground disturbance area.

An EPA Contaminated Land Record search was undertaken in April 2015 and no sites were recorded within the Greater Taree Local Government Area (LGA).

Six separate site surveys of the future disturbance areas were undertaken during the EA process and no visual evidence of contamination or potentially contaminating activities were observed. In the event that previously unidentified contaminated land is located during construction activities or future quarrying, relevant statutory requirements would be complied with. As such no further assessment of contaminated land or land remediation is required.

7. Water Management

7.1 Water Management System

A strategic approach to water management is captured within three focus areas; supply, storage and water conservation. The principal objectives of the water management strategy at the Teven Quarry are:

- Minimising clean water runoff that needs to be captured from undisturbed areas;
- Ensuring that all surface waters discharged from the quarry meets the water quality criteria in the EPL; and
- Providing an adequate and reliable water supply for operations.

7.1.1 Clean Water Runoff

Where achievable, runoff from undisturbed areas of the operations will be diverted around disturbed areas using diversion drains (see **Figure 2**). The diversion drains will drain to the cane fields down gradient and prevent the mixing of undisturbed water with quarry operational activities.

7.1.2 Operational Water Runoff

Runoff within the quarry pit is managed in the primary siltation storage (Pit Dam), from which surplus water is pumped to the main silt retention storage (Main Dam) toward the northern end of the quarry (**Figure 2**). Excess water that is not required for operational purposes is discharged in accordance with the EPL release limits.

A schematic of the Teven Quarry Water Management System is provided in **Figure 3**.

7.1.3 Water Storages

Pit Dam

The Pit Dam is a sump storage at the base of the quarry pit that changes in size and location as quarrying progresses. As the pit extends from its current size to the approved final pit extent, the storage volume of the Pit Dam will increase with the current storage capacity of 37.7ML according to the PRP (January 2019) with this to increase as quarrying progresses.

Main Dam

The Main Dam receives operational water from the Pit Dam and has a storage volume of 5.1ML according to the Pollution Reduction Program (EMM January 2019). Water from the Main Dam is used for dust suppression and processing activities. Any surplus water that is otherwise not used in quarry operations will be discharged via the 450 millimetre (mm) pipe to the canefield drain to the east of the site. Sediment accumulation in the Main Dam is monitored against a red marker block, with desilting undertaken as required.

Infrastructure Area-Wedge Pits

Holcim operates two wedge pits to the north of the infrastructure area. The wedge pits receive operational runoff from the wet processing plant and any excess water within the surrounding area. Water within the wedge-pits is reused in the wet processing plant operation. Any excess water in these storages is pumped to the Main Dam. Wedge pits are desilted typically multiple times per day, with removed sediment blended back into suitable product.

7.1.4 Potable Water and Waste Water

All potable water for the Teven Quarry will continue to be sourced from off-site supplies and delivered to site by tankers.

Wastewater from the amenities, workshop and laboratory will continue to be treated and disposed via the septic tank with absorption trenches and pump-out.

7.1.5 Inspection and Maintenance

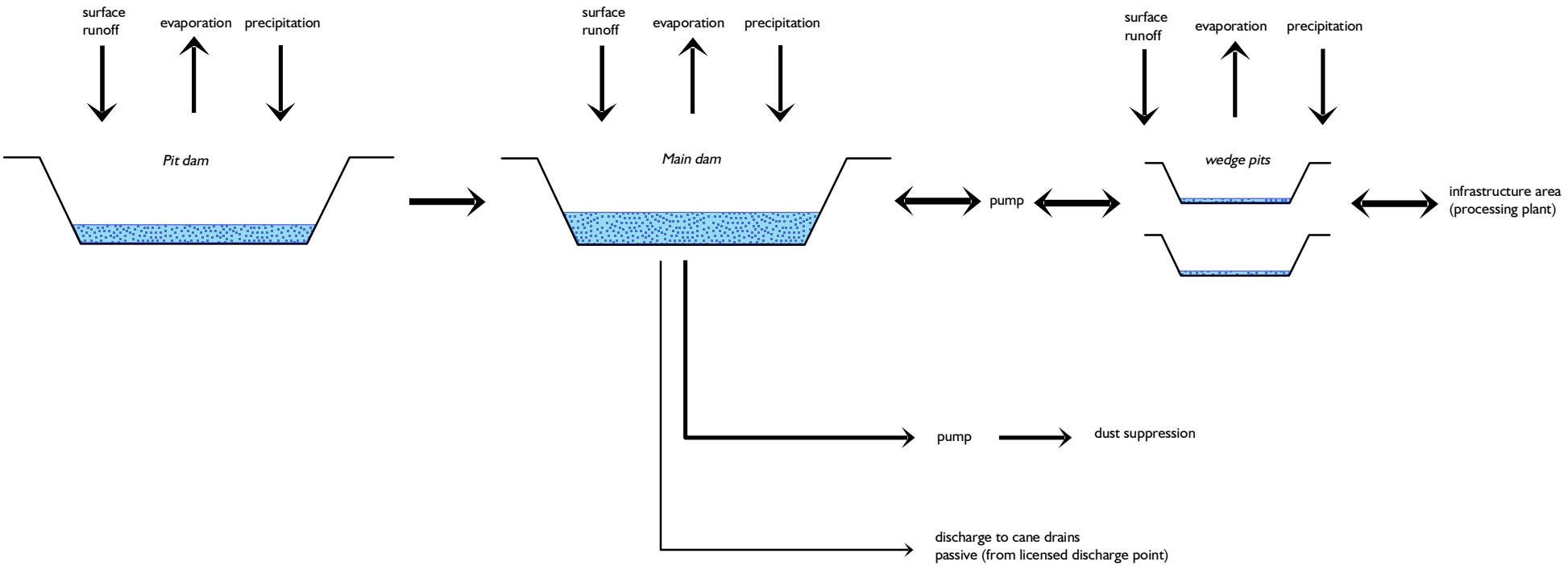
All surface water dams will be visually inspected on a regular basis by the Teven Quarry Manager.

Equipment used in the measurement of water quantities and quality such as data loggers, online instrumentation and hand-held analytical meters will be tested and calibrated in accordance with the manufacturers specifications. Calibration certificates and records will be kept for a minimum of 5 years or until equipment is no longer utilised, in accordance with Holcims retention policy.

The walls of all water dams will be inspected every two years for their structural integrity to ensure maintenance requirements are appropriately identified.

7.1.6 Flooding Risk Review

In accordance with Condition 11 and 12 in the Statement of Commitments, a review of flood risk to the stockpile and infrastructure areas was completed. Two wedge pits were installed to ensure that water is appropriately managed within this area. The wedge pits recycle process water in the wet processing plant, ensuring Holcim complies with their water conservation commitments. The pits also manage flooding risks in this area by pumping excess water back into the Main Dam.



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Source: EMM (2015)

EMM

Summary of water management system

Teven Quarry

Water Management Plan

Figure 3

7.2 Erosion and Sediment Control

Erosion and sediment controls will continue to be implemented to ensure potential impacts on nearby watercourses and the surrounding environment are prevented. Standard erosion and sediment control techniques in *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom 2004 and DECC 2008) will continue to be utilised in accordance with the Blue Book requirements.

Table 12 Key Erosion and Sediment Controls

Activity	Control measure	Reference Document	When/Where Required	Responsibility
ESC1	The general measures that will continue to be implemented at the quarry in accordance with the Blue Book (Landcom 2004 and DECC 2008) include: Installation of erosion and sediment control measures as the first step in the process for land disturbance.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC2	Minimising all disturbed area and stabilisation by progressive rehabilitation/stabilisation as soon as practicable.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC3	Identifying and delineating areas required to be disturbed and ensuring that disturbance is limited to those areas.	Previous WMP/Blue Book requirement	Prior to disturbance	Quarry Manager
ESC4	Clearing as little vegetation as required, leaving mulch on cleared areas as long as possible and minimising machinery disturbance outside of these areas.	Previous WMP/Blue Book requirement	Quarry design and prior to disturbance	Quarry Manager
ESC5	Maintenance of diversion drains upslope of areas to be disturbed to direct clean water runoff away from disturbed areas, where practical. The diversion drains will be designed to ensure effective segregation of sediment-laden runoff and allow clean surface water to return to natural watercourses.	Previous WMP/Blue Book requirement	Quarry design and prior to disturbance	Quarry Manager
ESC6	Maintenance of catch drains to capture runoff from disturbed area and direct runoff into sediment dams.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager

Activity	Control measure	Reference Document	When/Where Required	Responsibility
ESC7	Maintenance of other erosion and sediment control measures such as sediment fences and sediment dams within the catchment area.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC8	Maintenance of drainage controls such as table drains at roadsides and on hardstand areas.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC9	Maintenance of sediment dams and addition of flocculation to dams, where required, to aid the settlement of entrained sediment.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC10	Placement of geotextile liners and rock check dams in drains as required to reduce water velocities and prevent scouring.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC11	Regular maintenance of all controls and inspection of all works weekly and after storm events to ensure erosion and sediment controls are performing adequately (design storage capacity is re-instated within 5 days of cessation of a rainfall event).	Previous WMP/Blue Book requirement	During construction and operations Inspections as required.	Quarry Manager
ESC12	Locating topsoil stockpiles away from high traffic areas and watercourses.	Previous WMP/Blue Book requirement	During construction and operations. All stockpiles.	Quarry Manager
ESC13	Installing appropriate sediment controls upslope of stockpiles to divert water around and downslope of the stockpiles to prevent soil loss.	Previous WMP/Blue Book requirement	During construction and operations. All stockpiles.	Quarry Manager
ESC14	Keeping overburden/soil stockpiles less than three metres high and setting out in windrows to maximise surface exposure and biological activity.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager

Activity	Control measure	Reference Document	When/Where Required	Responsibility
ESC15	Diverting clean water runoff from upslope areas around the quarry.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC16	Vegetating stockpiles if required for longer than three months.	Previous WMP/Blue Book requirement	During construction and operations. All stockpiles.	Quarry Manager
ESC17	Reusing dirty water on-site for dust suppression and processing with surplus water discharged off site via the licensed discharge point.	Previous WMP/Blue Book requirement	During construction and operations	Quarry Manager
ESC18	Immediate repairing or redesigning of erosion and sediment controls that are not performing adequately, as identified by field inspections (see Section 3.2.5).	Previous WMP/Blue Book requirement	During construction and operations Where there is an erosion and sediment control issue.	Quarry Manager

8. Water Quality Monitoring

8.1 Monitoring Standards

Surface water monitoring at Teven Quarry will be undertaken in accordance with the relevant Australian Standards, legislation and EPA approved methods for sampling, including:

- *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004);*
- *AS/NZS 5667.1:1998 Water Quality – Sampling – Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples; and*
- *AS/NZS 5667.10:1998 Water Quality – Sampling – Guidance on Sampling of Waste Waters.*

8.2 Surface Water Monitoring Location for Discharge Point

Holcim EPL (No. 3293), requires the following monitoring point (LDP) referred to in **Table 13** as identified in the licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point. Please refer to **Figure 2** showing the sites discharge point.

Table 13 Surface Water Monitoring Point as per EPL 3293

EPA Identification Number	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Wet weather discharge Water quality monitoring	Wet weather discharge Water quality monitoring	Discharge occurs via overflow or pumping from the Main Dam, via an underground pipe to the site settling drain. The settling drain (concrete drain, 220m in length) runs along the eastern edge of the site before discharging at the point detailed in **Figure 2**.

8.3 Surface Water Monitoring Criteria for Discharge Points

Holcim will monitor surface water discharged from the quarry site via the Licensed Discharge Point (LDP) for the analytes listed in **Table 14** and **15**, as per conditions in EPL No. 3293. This captures discharge overflow from the main dam at Teven.

Table 14 Water Monitoring Requirements as per EPL 3293 for Discharged Water (Condition L2.4 of the EPL)

Parameter	Units of Measure	100th percentile limit
Oil and grease	Visible	nil
pH	pH	6.5-8.5
Total suspended solids	Milligrams per litre	50 mg/L

Table 15 Water Monitoring Frequency Requirements for LDP (As per Condition M2.2 of the EPL)

Parameter	Units of Measure	Frequency	Sampling method
Oil and grease	milligrams per litre	Special Frequency 1	Visual Inspection

pH	-	Special Frequency 1	No method specified
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

Special Frequency 1 means sampling any discharge, whether controlled or otherwise, which has not occurred from rainfall exceeding 82.5mm over any consecutive 5 day period.

8.4 Surface Water Monitoring Summary 2019 Onwards

Section 6 of the PRP recommended ensuring discharge sampling occurs at a consistent location at the LDP at all times. This is now being completed. The PRP noted an improvement is required with record keeping to capture additional details (eg. timing of sampling when undertaken, affirmation of oil/grease observations). This is currently being completed.

9. Reporting and Compliance Management

9.1 Evaluation of Monitoring

If the monitoring results are found to be outside the sites EPL 3293 water quality criteria the Quarry Manager will initiate the following protocol:

Table 16 Reporting and Exceedances

Aspect	Summary
Initial Notification	As soon as practical after becoming aware of the breach of results due to quarry activities, the Quarry Manager will notify the Holcim Environment Manager and enter the incident into INX. The Quarry Manager will notify the Secretary of the DPIE and the EPA of the incident as soon practicable.
Reporting	A report will be prepared and submitted by the Quarry Manager to the DPIE and EPA within 7 days of becoming aware of the incident, this report will include: • Cause of the non-compliance. • Environmental Harm caused due to the non-compliance. • Actions undertaken to rectify the non-compliance and ensure.
Subsequent Review	Following the reporting of subsequent review, should it be concluded that the Quarry is the source of elevated pollutant levels, the continuous improvement process outlined in the EMS is to be implemented and corrective actions identified.

9.2 External Reporting – Annual Review

A summary of discharge water quality monitoring results, indicating the following information will be provided in the Teven Quarry Annual Review, in accordance with Schedule 5 Condition 4 of the Development Consent (SSD 6422).

In addition, in accordance with *Protection of the Environment Legislation Amendment Act 2011* (Amendment Act) and Schedule 5 Condition 13 of the Development Consent (SSD 6422), Holcim will also publish water quality monitoring results on the Holcim (Australia) website http://www.holcim.com.au).

The effectiveness of the water management controls utilised at Teven Quarry will be reported to DPIE within the Annual Review by the reporting of monitoring data. The Annual Review will also identify whether any additional water management controls are required to be implemented at Teven Quarry.

Any investigations related to exceedances will be detailed in the Annual Review and EPL Annual Returns.

All monitoring results and calibration records will be kept for at least four years, in accordance with statutory requirements.

9.3 Community Complaints and Independent Review

Complaints relating to water management from the Teven Quarry are to be managed in accordance with the requirements of the Teven Quarry EMS. A summary of complaints will be published on the Teven Quarry website and provided in the Annual Review.

9.4 Training

All employees and contractors working on site will undergo a site induction and training, which will cover issues relating to water management, including:

- The existence and requirements of this Plan;
- Water management/erosion and sediment control measures;
- Incident management; and
- Complaints reporting.

Further details regarding staff induction and training are outlined in the EMS.

10. Adaptive Management/Contingency Response

In accordance with Schedule 5 Condition 3 of the Development Consent (SSD 6422), Holcim will assess and manage water quality related risks to ensure compliance with the water quality criteria.

Where non-compliance has occurred, Holcim will (to the satisfaction of the Secretary of DPIE):

- Take all reasonable and feasible measures to ensure the exceedances cease and does not reoccur;
- Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the DPIE describing those options and any preferred remediation measures or other course of action; and
- Implement remediation measures as directed by the Secretary.

Table 17 Trigger Action Response Plan – Erosion and Sediment Control / Water Management

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Erosion	Trigger	No evidence of erosion.	Minor gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.	Significant gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.
	Response	Continue WMP implementation.	A suitably trained person to inspect the site. Review of erosion and sediment structures. Remediate as appropriate.	A suitably trained person to inspect the site. Review of erosion and sediment structures. Remediate as soon as practical.
Water management structures	Trigger	Water management structures have been designed, constructed and managed in accordance with the Blue Book and the ESCPs.	Inspections indicate that water management structures illustrate minor issues with erosion and sediment control.	Inspections indicate a failure of the water management structures.
	Response	Continue WMP implementation.	A suitably trained person to inspect the site. Review of water management structures. Remediate as appropriate.	A suitably trained person to inspect the site. Remediate as soon as practical. Review of engineering design and revise ESCPs. Update WMP.
Uncontrolled Discharges (EPL 3293 Criteria)	Trigger	No uncontrolled discharge	Uncontrolled or controlled discharge water quality results within EPL 3293 criteria.	Uncontrolled or controlled discharge outside the EPL 3293 criteria limits.
	Response	Continue WMP implementation.	Continue to monitor water quality during discharges as per this plan. Provide details in the Annual Review.	Reporting as per **Section 9** of this Plan. Possible implementation of additional mitigation measures such as water treatment. This could include water treatment, pumping water to different dams. Continue to monitor water quality during discharges.

11. Review and Improvement

11.1 Review

Ongoing monitoring and review on the performance and implementation of this WMP will be undertaken in accordance with the Teven Quarry EMS.

In accordance with Schedule 5 Condition 5, Holcim will review, and if necessary revise, the strategies, plans, and programs required under the Development Consent (SSD 6422) to the satisfaction of the Secretary, within three months of the submission of an:

- Annual review under Condition 4;
- Incident report under Condition 7;
- Audit report under Condition 9; and
- Any modifications to this consent.

In terms of Schedule 5 Condition 5 sub clause a), the requirement to review and update management plans will be assessed during the preparation of each Annual Review. The Annual Review will state which management plans require updating and which management plans do not require updating. Details on the requirements to prepare Annual Reviews are outlined in the Environmental Management Strategy.

11.2 Complaints Management and Dispute Resolution

Complaints management and dispute resolution will be managed as per the Teven Quarry EMS.

12. Roles and Responsibilities

Relevant roles and responsibilities associated with this WMP are presented in **Table 18**.

Table 18 Roles and Responsibilities

Role	Accountabilities for this Document
Holcim General Manager and Operations Manager	• Approve appropriate resources for the effective implementation of this plan.
Teven Quarry Manager	• Provide sufficient resources for the implementation of this plan; • Coordinate the implementation of water management controls and strategies in accordance with this plan; • Notify and investigate incident as required by legislation and internal standards and guidelines • Coordinate the review of this plan in accordance with the requirements of the Development Consent (SSD 6422) and Environmental Protection License (3293); and • Coordinate the water monitoring requirements of this plan, and evaluate and report monitoring results as required.;
Holcim Environmental Manager	• Coordinate water related incident investigations reporting as required by legislation and internal standards and guidelines; and • Assist with the review of this plan.
All employees and contractors	• Comply with all requirements of this plan; • Report all potential incidents to the Quarry Manager immediately; and • Seek approval from the Quarry Manager prior to making changes to Infrastructure/processes which may result in changes to the water management system.

13. References

Department of Environment and Conservation (2004), Approved Methods for the Sampling and Analysis of Water Pollutants in NSW.

EMM Consulting 2019. Pollution Reduction Program – Teven Quarry – Review of Current Sediment Basin Management and Stormwater Management.

GHD April 2020. Teven Quarry Project Independent Environmental Compliance Audit.

Landcom 2004 and DECC 2008. Managing Urban Stormwater: Soils and Construction Volume 1 and Volumes 2A, 2C, 2D and 2E (the Blue Book).

Standards Australia, AS/NZS 5667.1:1998 Water Quality – Sampling – Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples.

Standards Australia, AS/NZS 5667.10:1998 Water Quality – Sampling – Guidance on Sampling of Waste Waters.

Umwelt (Australia) Pty Limited 2014. Teven Quarry Project Environmental Impact Statement, Report prepared for Holcim (Australia) Pty Limited.

14. Change Information

Table 19 Change Information

Version	Date	Change Summary
1	May 2016	2016 document
2	February 2021	Review of the template for all Teven management plans; • General structure updates; • Section 2- Consultation; • Section 3 – Statutory requirements – separate section; • Section 4 – update to baseline information; • Section 5 – update to site water balance based on PRP • Section 6 – Addition of potential impacts section; • Section 7 – inclusion of responsibilities and timing for controls; • Section 10 – addition of TARP; • Section 14– inclusion of change information; and • Updates to figures.
3	March 2022	• Update to the consultation section and Appendix A.

Appendix A

Consultation

Department of Planning Industry and Environment

From: **Colin Phillips** <Colin.Phillips@planning.nsw.gov.au>
Date: Tue, 6 Oct 2020 at 15:53
Subject: Teven Quarry Water Management Plan
To: evan.smith@holcim.com <evan.smith@holcim.com>
Cc: Mark Davis <Mark.p.Davis@planning.nsw.gov.au>, Melissa Anderson <Melissa.Anderson@planning.nsw.gov.au>

Good Afternoon Evan,

Thanks for taking to the time this afternoon to discuss Teven Quarry. Here is the 2016 version of the Teven Quarry Water Management Plan and the version recently submitted in 2020.

If you look at section 4 and section 5.2.1 as examples you will see that new material has been introduced that has originated from Jandra Quarry.

This is beyond the scope of a Departmental Request for Further information that will come through the Planning Portal for the other 6 management plans for Teven Quarry. This extraneous material does not seem to originate from the 2016 version of the Water MP.

I trust that all the Water MP can be reviewed by Holcim to remove incorrect references (Jandra and/or Lynwood) and then allow the Department to review the corrected Water MP.

If you have any questions, please contact me.

I will have a look in the system to see if I can find the Dunloe Sands management plans.

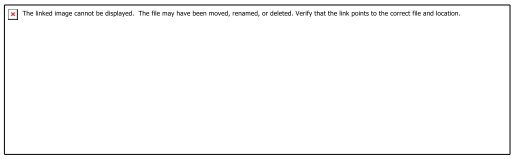
Regards

Colin Phillips
Team Leader

Energy and Resource Assessments

4 Parramatta Square I 12 Darcy Street I Locked Bag 5022 I Parramatta NSW 2124

T 02 9274 6483 E: colin.phillips@planning.nsw.gov.au



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DPIE - Preliminary Comments	Holcim Response
• Section 4 Table 6, update maximum pH data error. • Review discharge points in Section 4 tables. • Water balance needs updating. • Remove Section 5.2.1 • Show wedge pits on Figure 2? • Spelling potable water not portable water. • Formerly rather than formally • Check EPL references/numbers are correct. • Table 18 - Update site name. • Confirmation from secretary consultation isn't required, show an attempt of consultation (including a follow up).	• Addressed, correct data brought in from the 2019 Annual Review. • Explanation around discharge monitoring. • Minor update of water balance based on dust suppression and processing demand volumes. Addition of wording around water balance updates and link to PRP recommendations (Table 4). • Removed. • Holcim believe this is not required as the wedge pits are included on Figure 3. • Addressed. • Addressed. • Addressed. • Addressed. • To be discussed with DPIE following formal review of this plan.

Natural Resources Access Regulator's Lands & Water Division

---------- Forwarded message ---------
From: **Evan Smith** <evan.smith@holcim.com>
Date: Thu, 10 Feb 2022 at 07:22
Subject: Re: Major Projects – Proponent Request for Advice - Teven Quarry - Teven Water Management Plan (SSD-6422-PA-9) (Ballina Shire) trk:00430000334
To: <landuse.enquiries@dpi.nsw.gov.au>
Cc: NRAR Service Desk Mailbox <nrar.servicedesk@dpie.nsw.gov.au>, Emily Pemberton <emily.pemberton@dpie.nsw.gov.au>, Samuel McDonald <smcdonald@
Mailbox <majorprojectssupport@planning.nsw.gov.au>

Hi Ilse,

Any update on this? We can not progress the finalization of this document untill you note that you have been consulted.

Are you able to send this through by the end of this week please?

Thanks Evan

On Wed, 2 Feb 2022, 6:55 am Evan Smith, <evan.smith@holcim.com> wrote:

> Hi Ilse,
>
> Just touching base with you regarding this. Are you able to provide me with an email as soon as possible noting that you have been consulted regarding this document please?
>
> This plan is outstanding and can not be processed further until this is provided.
>
> Let me know if you have any questions or concerns.
>
> Regards Evan
>
> On Mon, 13 Dec 2021, 2:20 pm Evan Smith, <evan.smith@holcim.com> wrote:
>
> > Hi Ilse,
> >
> > Just following up regarding this. Is there any update on this? This plan is outstanding.
> >
> > Regards,
> >
> > Evan Smith | RPEQ CPEng
> >
> > National Sustainability Lead | QLD Environment Manager
> > Holcim (Australia) Pty Ltd
> > 18 Little Cribb St, Milton, Queensland, Australia, 4064
> > Mobile 0429 790 950
> > evan.smith@holcim.com, www.holcim.com.au

On Fri, 8 Oct 2021 at 14:55, Evan Smith <evan.smith@holcim.com> wrote:

> Hi NRAR and DPIE Water,
>
> I hope you are well.
>
> Please find attached an updated water management plan for Holcim's Teven Quarry
>
> Are you able to provide me with an email as soon as possible noting that you have been consulted regarding this document please?
>
> FYI. Please find attached a copy of consultation with EPA. EPA has noted no concern.
>
> Regards,
>
> Evan Smith | RPEQ CPEng
>
> National Sustainability Lead | QLD Environment Manager
> Holcim (Australia) Pty Ltd
> 18 Little Cribb St, Milton, Queensland, Australia, 4064
> Mobile 0429 790 950
> evan.smith@holcim.com, www.holcim.com.au

Environmental Protection Authority

9/24/21, 12:54 PM Holcim - Production Mail - RE: Teven Quarry - Teven Water Management Plan - EF13/3085

Evan Smith <evan.smith@lafargeholcim.com>

RE: Teven Quarry - Teven Water Management Plan - EF13/3085

Peter Lynch <Peter.Lynch@epa.nsw.gov.au> 28 May 2021 at 11:31
To: Evan Smith <evan.smith@lafargeholcim.com>
Cc: Shilpa Shashi <shilpa.shashi@lafargeholcim.com>, Samuel McDonald <smcdonald@slrconsulting.com>, Scott Hunter <Scott.Hunter@epa.nsw.gov.au>, Benjamin Lewin <Benjamin.Lewin@epa.nsw.gov.au>

Hi Evan,

Thanks for the revised updated Teven Water Management Plan

The EPA has not identified any issues with the plan.

Regards

Peter Lynch

Acting Senior Operations Officer

Regulatory Operations

NSW Environment Protection Authority

D 02 66402502 | **M** 0438 208 131

9/24/21, 12:54 PM Holcim - Production Mail - RE: Teven Quarry - Teven Water Management Plan - EF13/3085

To: Peter Lynch <Peter.Lynch@epa.nsw.gov.au>
Cc: Shilpa Shashi <shilpa.shashi@lafargeholcim.com>; Samuel McDonald <smcdonald@slrconsulting.com>
Subject: Fwd: Teven Quarry - Teven Water Management Plan - More Information Required

Hi Peter,

Hope you are well.

We are updating the Water Management Plan for Holcim's Teven Quarry as part reviewing and updating all site documents.

DPIE notes that they require Holcim to consult with the EPA in the preparation of this.

Are you in a position to be able to review the attachment revised draft management plan and let me know if you have any comments or questions?

Regards,

Evan Smith | RPEQ CPEng

Environment Manager and Sustainability Lead
Holcim (Australia) Pty Ltd

18 Little Cribb St, Milton, Queensland, Australia, 4064
Mobile 0429 790 950

evan.smith@holcim.com, www.holcim.com.au

From: **no-reply@majorprojects.planning.nsw.gov.au** <no-reply@majorprojects.planning.nsw.gov.au>
Date: Wed, 26 May 2021 at 17:25
Subject: Teven Quarry - Teven Water Management Plan - More Information Required
To: <evan.smith@lafargeholcim.com>
Cc: <shilpa.shashi@lafargeholcim.com>, <emily.pemberton@dpie.nsw.gov.au>

Dear Evan ,

I refer to the Teven Water Management Plan you have submitted for the Teven Quarry .

The Department is requesting you provide additional information before accepting the document.

Planner's Comments for additional information request: Dear Evan,

Please can you check that the Teven Water Management Plan has been submitted under the correct or intended Schedule and condition per the consent. Condition 3 of Schedule 5 is referenced.

Condition 20 (b) of Schedule 3 requires consultation on the water management plan, however consultation evidence does not appear to have been included. Please update section 2 - Stakeholder Consultation and relevant appendices of the submitted plan.

Kind regards

Please access your profile for more details of this request and to resubmit your document.

If you have any enquiries, please contact Emily Pemberton on 8275 1783 /at emily.pemberton@dpie.nsw.gov.au.

To sign in to your account click here or visit the Major Projects Website.

Please do not reply to this email.

Kind regards

The Department of Planning, Industry and Environment

NSW GOVERNMENT | Planning, Industry & Environment


Holcim