



Holcim (Australia) Pty Ltd

Dunloe Sand Quarry

Environmental Management Strategy

September 2021

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1. Introduction

Holcim (Australia) Pty Ltd (Holcim) currently operates Dunloe Sand Quarry (the site), which is located at Pottsville/Mooball Road, approximately three kilometres (km) south of Pottsville (Figure 1-1). The site comprises the following lots:

- Lots 1 and 2 in DP 780199
- Lot 2 DP 785895
- Lot 1 DP 780200
- Lots 44, 81, 162, 182 and 183 DP 755721
- Lot 1 DP 208249

The quarry produces a very high quality, fine concrete sand as well as a variety of other sand products including plasterer sand, bunker sand and fill sand. The quarry layout comprises two main extraction ponds consisting of 25 hectares and 31.7 hectares respectively, as shown on Figure 1-1. The northern (Stage 1) extraction pond is currently operational.

Project Approval 06_0030 was sought and obtained in 2008 for the construction and operation of the Dunloe Sand Quarry at the site under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Part 3A of the EP&A Act has since been repealed, however Schedule 6A, Clause 3 of the EP&A Act provides for the continued use of Section 75W to modify a project approval granted under Part 3A of the Act (known as Transitional Part 3A Projects).

The Project Approval was accompanied by an Environmental Assessment (EA) (PLANIT Consulting, 2007). The Project Approval allowed for use of the site for the extraction of sand by means of both suction dredge (wet extraction) and dry extraction (initial overburden and brickeys loam extraction). Sand extraction at the site can be carried out until 1 January 2035, with a maximum extraction rate of 300,000 tonnes per annum.

In 2009, a modification to the existing Project Approval (06_0030 MOD 1) was approved by the Department of Planning, Industry and Environment (DPIE) (now Department of Planning, Industry and Environment) under section 75W of the EP&A Act. The modification sought to construct a machinery shed to house mobile plant equipment within the quarry boundary.

On 11 July 2017, an EA report was submitted to DPIE (GHD, 2017) to support a Section 75W application to modify Schedule 2, Condition 8 of Project Approval 06_0030 to increase maximum heavy vehicle movements at the site from 8 to 24 per hour. This was approved in November 2018 (06_0030 MOD 2) and the Development Consent (06/-0030) was updated accordingly.

The site also operates under an Environmental Protection Licence (EPL) 13077.

This Environmental Management Strategy (EMS) has been prepared to provide the framework for environmental management for regular site operations. The EMS identifies and documents the key environmental risks and mitigation measures outlined in the Development Consent and the EA's that must be implemented to ensure that the environmental objectives and legal obligations are met.

This EMS has been prepared with reference to the following documentation:

- Environmental Assessment, Lots 1 and 2 in DP780199 and Lot 1 in DP755721, Dunloe Park, (PLANIT Consulting, September 2007).

- Dunloe Sands Quarry – Modification to Project Approval 06_0030 Environmental Assessment (GHD, 2018).
- Development Consent No. 06_0030.
- EPL 13077.
- Local and state government agencies submissions.
- ISO14001:2015 – Environmental Management Systems.
- Department of Infrastructure, Planning and Natural Resources (DIPNR) (2004) Guidelines for the preparation of Environmental Management Plans.

1.1 EMS purpose

The EMS outlines the environmental management practices and procedures to be followed during the operation of the quarry. The primary purpose of this EMS is to document the environmental setting, quarry operations, environmental risks, environmental management, implementation, monitoring and reporting. This is to guide the quarry's environmental performance to meet its regulatory and policy requirements in a systematic manner and facilitate continual improvement.

1.2 EMS objectives

The key environmental performance objectives for this EMS are:

- Compliance with relevant environmental legislation and regulations.
- Compliance with the conditions of Development Consent 06/-0030 and EPL.
- Minimising pollution, waste generation, and environmental impacts.

Key environmental objectives and targets for the quarry are shown in Table 1-1, which also indicates where the key environmental objectives are addressed in the EMS.

Figure 1-1 Site location and layout

Table 1-1 EMS objectives & targets

Aspect	Objective	Target	Section
Soil and Water	To ensure that impacts on soil and water quality during operations are minimised and within the scope permitted by the development consent.	- Ensure full compliance with the relevant legislative requirements and CoA. - Meet Environment Protection Licence (EPL) water quality discharge parameters for all planned discharges. - Ensure training on soil and water management is provided to all relevant personnel through site inductions.	Appendix D
Landscape	- Provide vegetation buffers to the perimeter of the development - Rehabilitate cleared farmland - Protect and manage land outside the approved disturbance areas.	- Screen the development from surrounding properties. - Provide additional native habitat for flora and fauna through the creation of wildlife corridors. - Protection and management of areas outside the disturbance areas.	Appendix E
Noise	- Identify sensitive receivers and ensure appropriate environmental controls and procedures are implemented during operational activities. - Minimise potential adverse noise impacts to the environment and community. - Manage impacts if they occur through a systematic analysis of mitigation strategies. - Ensure appropriate measures are implemented to address the relevant CoA. - Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in the NMP.	- Ensure full compliance with the relevant legislative requirements and CoA. - No exceedance of the operational noise limits. - No justified complaints from adjacent residents in relation to noise generation. - No out of hours work.	Appendix F
Air Quality	- Ensure appropriate controls and procedures are implemented during the operation of the quarry to avoid or minimise dust generation, air quality impacts and potential adverse impacts to sensitive receivers. - Ensure appropriate measures are implemented to address the relevant CoA. - Ensure appropriate measures are implemented to comply with all relevant legislation and other	- Minimise and manage potential air quality/dust impacts from the development in accordance with relevant legislative requirements and CoA. - Control dust and exhaust emissions of plant and equipment from quarrying activities. - Achieve particulate matter and dust concentrations that meet the approved air quality criteria. - No visible offsite dust emissions as a result of site operations. - No justifiable complaints related to air quality attributable to site	Appendix G

Aspect	Objective	Target	Section
	requirements as described in the AQMP.	operations.	
Traffic	Ensure appropriate controls and procedures are implemented in order to minimise the impacts to the environment and local community from traffic associated with the operation of Dunloe Sand Quarry.	- Ensure full compliance with the relevant legislative requirements and CoA - No justified complaints related to site traffic - No road damage from quarry vehicle movements beyond normal wear and tear	Appendix H
Heritage	Ensure appropriate controls and procedures are implemented in order to avoid damage or disturbance of heritage items.	- Ensure full compliance with the relevant legislative requirements and CoA - No damage to heritage items - All site staff and contractors trained on unexpected finds protocol	Appendix I
Waste	Ensure appropriate controls and procedures are implemented in order to minimise the impacts to the local environment and community from waste.	- Ensure full compliance with the relevant legislative requirements and CoA. - Waste generation minimised through the hierarchy of waste management priorities. - All waste is managed in accordance with the Waste Classification Guidelines (EPA, 2014)	Appendix J

2. Project description

2.1 Key site information

Feature	Details
Approved extraction rate	300,000 tonnes / annum
Estimated available resource	6,000,000 m ³
Estimated operating period	26 years – until 1 January 2035
Extraction depth	12 m below natural ground level
Site area	629.7 hectares
Quarry area	56.7 hectares
LGA	Tweed Local Government Area

2.2 Project overview

Holcim operate Dunloe Sands Quarry at Lot 1 DP208249; Lot 182 DP755721; Lot 183 DP755721; Lot 44 DP755721; Lot 81 DP755721; Lot 162 DP755721; Lot 2 DP 780199; Lot 1 DP780199; Lot 1 DP780200; Lot 2 DP785895, Pottsville/Mooball Road, Pottsville.

The quarry produces a very high quality, fine concrete sand as well as a variety of other sand products including plasterer sand, bunker sand and fill sand. The quarry is approved to yield approximately 230,000 cubic metres or 300,000 tonnes of sand per annum, with an anticipated lifespan of 26 years.

2.3 Site characteristics

The quarry layout comprises two extraction ponds consisting of 25 hectares and 31.7 hectares respectively. Stage 1 is currently operations and is located approximately 1.1 km north of the southern boundary, whilst Stage 2 will be located in the south east corner approximately 100 m from the southern boundary. Both areas are located adjacent to the eastern boundary, with Mooball Creek at distances ranging from 300 m to 500 m.

Access to the site is primarily provided from Pottsville Mooball Road. The access within the property has been sealed. A dedicated ingress and egress facility is provided on Pottsville Mooball Road.

Bunding will be provided (in part) to both extraction ponds and operational areas to a maximum height of 300 mm or 2.0 m AHD so as to limit flood impacts.

A site office and wash plant will be located within each extraction area.

A vegetated visual buffer is located around both extraction ponds. The buffer zone is complimented with re-vegetated landscaped areas along the eastern boundary of all lots to Mooball Creek (15 ha).

2.3.1 Resource description

Concrete Sand

The Dunloe Quarry sand, after washing, is suitable as a concrete sand additive, which is the major use of the sand. Low extraction costs make the sand competitive in the Northern New South Wales and South East Queensland markets.

Loam

An investigation into loam resources on the site was carried out in mid-2007 (Coffey Geosciences, 2007), with approximately 90,000 tonnes of suitable loam identified..

Fill Material

Material excavated from Dunloe Sand Quarry is also used as “low grade” fill material

Plastering and Rendering Sand

The sand extracted from the Dunloe Sand Quarry, when washed, is suitable for lower grade plastering and rendering sand.

Other Uses

Other “specialist” products which fit closely to the grading of the Dunloe Quarry sands include:

- Golf course sands.
- Grout sands.
- Fine filter sands.

2.4 Extraction methodology

Sand is extracted by means of both suction dredge (wet extraction) and dry extraction (initial overburden and brickies loam extraction).

Extraction is approved to be undertaken in two (2) stages. The northern extraction area (Stage 1) is currently operational, with Stage 2 being the southern extraction area approved for future extraction.

Top soil is stripped back through dry excavation and sold in ‘sub stages’ to ensure erosion and dust generation is kept to a minimum. Some overburden is utilised on site (e.g. in the preparation of rehabilitation areas), however, much of this soil is suitable for use as builders or brickies loam.

An initial ‘sub stage’ of wet dredged excavation is then undertaken, which is banded from the large body of the extraction area. This initial area of excavation is utilised as a fines return pond. Once the lifespan of extraction Stage 1 has expired, a similar process will occur for extraction Stage 2. Plans of the approved stages of the Dunloe Sand Quarry are provided in Appendix B.

2.5 Processing

Processing is undertaken to separate wanted sand resource and fines through hydraulic separation within an onsite wash plant. Saleable materials from this process are stockpiled and sold to the market.

Unwanted and acidic waste fines are strategically reburied (re-interred) within the fines return pond at a level below the water table to prevent oxidation of the contained pyrite.

No chemical processing is undertaken, although additives to maintain pH levels will from time to time be used.

2.6 Haulage routes and procedures

The quarry is accessed from Pottsville Mooball Road at the northern extent of the property by way of a sealed access road. The inward and outward route utilise the same access. The access point was chosen primarily so as to limit acoustic impacts upon existing residents on the western side of Pottsville Mooball Road (namely Lots 3, 4 & 5 in DP 801404 and Lot 6 & 7 in DP 856111) and also to take advantage of suitable sight distances.

2.7 Plant and equipment

Plant and equipment that are necessary for the operation of the quarry include:

- Dredge
- 30 tonne excavator
- Sand Separator
- Screening Plant
- Front End Loader x 2
- 25 Tonne Dump Truck
- On-site facilities – Staff amenities, office facilities and access roads

2.8 Hours of operation, workforce and truck movements

Hours, periods and times of operation are as outlined in Table 2-1 and are as prescribed by the Development Consent. Operating times and the volume of material within the resource will see the requirement for up to 18 full time employees plus additional contract maintenance personnel as may be required. Operations will be conducted Monday to Saturday. No operations are to be undertaken on Sunday or public holidays.

Table 2-1 Operation times, periods and truck movements

Yearly Operation	Days Per Week	Hours Per Week	Daily Operating Times	Truck Movements Per Hour
52 weeks a year (with the exception of public holidays and other potential company shutdown periods)	5.5	55	Mon – Fri: 7:00 am to 5:00 pm Sat: 7:00 am to 12:00 pm No operations are to occur on Sundays or public holidays (unless it is maintenance that is inaudible to neighbouring residents)	24 Not to exceed more than 24 heavy vehicle movements (in and out) per hour

2.9 Site facilities

The property on which the Dunloe Sand Quarry is located is also currently used for agricultural purposes (grazing of livestock) and is partially leased for sugar cane cultivation.

The site currently contains the following:

- Existing dwelling houses.
- Maintained and intact boundary and paddock fencing.
- Agricultural drainage lines running predominantly east west.
- Small live stock water dams.
- Internal access tracks for farm machinery movement.

- Large agricultural sheds (these sheds will be utilised for the purpose of storage and ancillary maintenance of machinery and plant equipment associated with the quarry).
- Extraction and processing areas.
- A site office and wash plant adjacent to the current Stage 1 extraction area.

The approved site layout is shown in Appendix B.

2.10 Utilities

2.10.1 Water

Water associated with the quarry will be harvested on site. An on-site tank containing storage capacity of 10,000 L is located adjacent to the amenities building.

2.10.2 Sewage

Sewage generated by the quarry is minimal, associated with staff located on the site. The staff amenities and office building are accompanied by an on-site effluent disposal system.

2.10.3 Electricity

Electricity is supplied from the existing supply from Warwick Park Road, via aboveground mains.

2.10.4 Fuel

Diesel is stored on site in a self bunded storage tank and bowser.

3. Legislative framework

3.1 Conditions of consent

The Development Consent conditions relating to the EMS are outlined in Schedule 5 of the Development Consent and comprise the following:

1. The Proponent must prepare an Environmental Management Strategy for the project to the satisfaction of the Secretary. This strategy must:

- (a) be submitted to the Secretary prior to starting quarrying operations on the site;*
- (b) be prepared in consultation with the relevant agencies;*
- (c) provide the strategic context for environmental management of the project;*
- (d) identify the statutory requirements that apply to the project;*
- (e) describe in general how the environmental performance of the project would be monitored and managed;*
- (f) describe the procedures that would be implemented to:*
 - keep the local community and relevant agencies informed about the construction, operation and environmental performance of the project;*
 - receive, handle, respond to, and record complaints;*
 - resolve any disputes that may arise during the life of the project;*
 - respond to any non-compliance;*
 - manage cumulative impacts; and*
 - respond to emergencies;*
- (g) describe the role, responsibility, authority, and accountability of the key personnel involved in the environmental management of the project; and*
- (h) include:*
 - reference to any strategies, plans and programs approved under the conditions of this approval; and*
 - a clear plan depicting all the monitoring to be carried out under the conditions of this approval.*

The Proponent must implement the strategy as approved by the Secretary.

Other conditions, relevant to the EMS, are outlined and addressed in the relevant management plans included in this EMS.

3.2 Legislation

Commonwealth and NSW legislation that is relevant to the environmental management and operation of the quarry are detailed in Table 3-1. The legislation summary will be reviewed in accordance with the review schedule in Section 9 to ensure legal obligations related to environmental management of the site are current.

Table 3-1 Legislation summary

Legislation	Relevance	Requirements
<i>Environmental</i>	The EPBC Act identifies Matters of	A Flora and Fauna

Legislation	Relevance	Requirements
<i>Protection & Biodiversity Conservation Act 1999</i>	National Environmental Significance (MNES), which if site operations have the potential to impact upon requires approval from the Federal Environment Minister.	Assessment was completed in the initial EA (PLANIT, 2007), which concluded that the proposed development will not have a significant impact on MNES and approval from the Commonwealth Minister for Environment under the EPBC Act was not considered required.
<i>Environmental Planning & Assessment Act 1979</i>	All development in NSW is assessed in accordance with the provisions of the EP&A Act.	Site operations are subject to the conditions of Development Consent 06_0030. Requirements of the EP&A Act were considered in the EA .
<i>Statement Environmental Planning Policies (SEPP)</i>	SEPPs are planning instruments developed for specific planning issues in NSW.	Requirements of relevant SEPPs were considered during the EA.
<i>Protection of the Environment Operations Act 1997</i>	The POEO Act regulates pollution and waste management in NSW through issuing Environmental Protection Licenses (EPL) for scheduled activities.	Dunloe quarry has an approved extraction rate of 300,000 tonnes / year. Extractive industries which exceed 30,000 tonnes / year are defined as scheduled activities and require an EPL. Site operations are subject to the conditions of EPL 13077.
<i>National Parks & Wildlife Act 1974</i>	The NPW Act provides the protection of Aboriginal objects and places.	No permits are required under this Act; however, in accordance with this Act, all employees and contractors at the quarry will be made aware of their obligations for reporting and not interfering with any sites, artefacts or values of Aboriginal heritage significance that may be identified during the course of operations.

Legislation	Relevance	Requirements
<i>Roads Act 1993</i>	The Roads Act sets out requirements for approval to carry out certain works undertaken within the vicinity of a road.	Under this Act, any works to a public road requires the consent of the Tweed Shire Council. Condition 33 of Schedule 3 of the Development Consent requires that a sealed haulage road be constructed including its intersection with Pottsville-Mooball Road. An approval for this connection has been granted by the TSC under Section 138 of the Act. Condition 35A of Schedule 3 of the Development Consent requires the implementation of road safety treatments as approved under Mod 2. An approval for these works has been granted by the TSC under Section 138 of the Act.
<i>Water Act 1912</i>	The Water Act controls the extraction and use of water and carrying out activities near water sources, where a water sharing plan is not in place.	All groundwater bores installed at the site are licensed by the Department of Water and Energy (DWE). All extraction bores operate in accordance with the approved license conditions.
<i>Water Management Act 2000</i>	The Water Management Act allocates water for the environmental as well as licence holders, providing opportunities to trade water.	The Environmental Assessment (Planit Consulting, 2007) considered the Water Act in the assessment of groundwater and surface water. Since then, the Water Management Act has come into force and has seen the Water Act be progressively phased out. Once the entirety of the Water Management Act becomes operational, the Water Act will be repealed. The 2007 groundwater modelling found that quality and levels will not be affected by the operation. The 2007 flood modelling confirmed no significant impact to existing drainage regimes within the catchment.
<i>Tweed Local Environmental Plan 2014</i>	Tweed LEP 2014 defines the zoning for the site which prescribes land use objectives	Requirements of the Tweed LEP 2014 were considered in the EA. With regard to the layout of

Legislation	Relevance	Requirements
		the quarry it has been demonstrated that the proposed extraction ponds are located wholly on land zoned as RU2 under Tweed LEP 2014. Within the RU2 zone 'extractive industries' are permissible pursuant to Development Consent.

3.3 Operational approvals

Approvals, licences or permits required by the legislation listed in Table 3-1 are detailed in Table 3-2 and a copy of the approvals and licences are available on site.

Table 3-2 Approval summary

Approval	Regulator	Issue date
Environmental Protection Licence (EPL No. 13077)	Environment Protection Authority (EPA)	10 June
Section 138 approval	Tweed Shire Council (Council)	-
Bore license	DPI – Office of Water	16 September 2004

3.4 Environmental policy

A copy of Holcim (Australia) Pty Ltd Environmental Policy is included in Appendix A.

3.5 Environmental risk assessment

The environmental risks have been assessed by examining all site activities associated with quarry operations to determine their potential impacts on the environment. The risk rating is determined by considering the likelihood and consequence of an activity impacting upon the selected environmental aspect, using the matrix shown in Table 3-3. The risk assessment assists in identifying those activities and aspects that require environmental management. Those with medium or high risk ratings are considered to require management, while those with low to low/medium risk ratings may not.

Table 3-3 Risk matrix

Likelihood	Consequence		
	Low	Medium	High
Will occur	M	H	H
Likely to occur	L/M	M	H
Unlikely to occur	L	L/M	M
Will not occur	L	L	L/M

The results of this broad risk assessment are shown in Table 3-4.

Table 3-4 Risk assessment

Aspect	Clearing & Grubbing	Excavation/dredging	Washing	Material Transport	Rehabilitation
Surface Water	M	H	H	L	M
Groundwater	L	H	H	L	M
Contamination	L/M	L/M	L/M	L	L
Ecology	M	L/M	L/M	L/M	L
Noise & Vibration	M	M	M	H	L
Air	M	L/M	L	M	L
Land Use & Transport	L	M	L	M	L
Heritage	M	L	L	L	L
Waste	M	M	M	L	L

4. Implementation

This EMS is the overarching management plan for a suite of environmental management documents to be implemented during the operation of the quarry. It provides a structured and systematic approach to environmental management. Figure 4-1 illustrates the structure of the environmental management framework for the quarry.

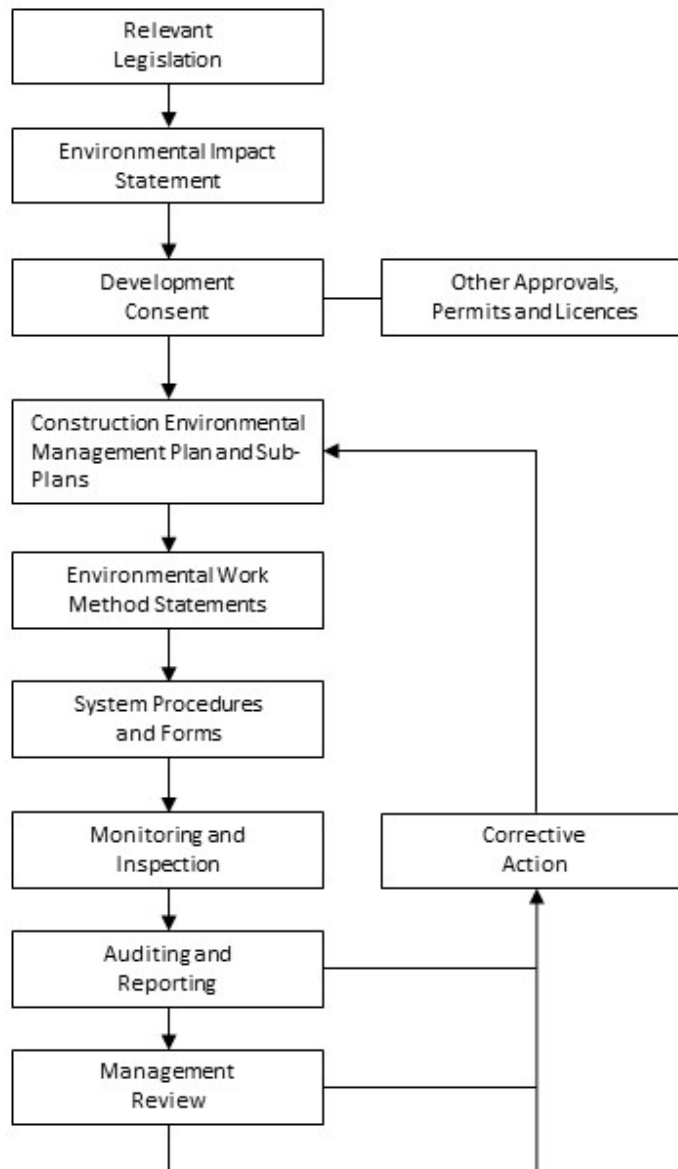


Figure 4-1 Key EMS Elements

4.1 Environmental management system documentation

The key environmental management system documents and their interrelationships are described in the following subsections.

4.1.1 Environmental Management System

This EMS provides the system to manage and control the environmental aspects of the quarry. It identifies all requirements applicable to activities described in Section 2. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled. The strategies defined in this EMS have been developed with consideration of the Development Consent requirements, and environmental management mitigation measures presented in the EIS and other relevant permits, licences and approvals. This EMS establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the quarry on the environment.

4.1.2 Environmental Management Sub-plans

A number of environmental management Sub-Plans support the EMS. These documents have been prepared to identify requirements and processes applicable to specific impacts or aspects of the activities described in Section 3. Environmental strategies may also be developed as required throughout the Project. These will also guide environmental management of potential impacts on site. A list of Policies, Sub-Plans and strategies for the quarry, are provided in Table 4-1.

Table 4-1 Environmental Management Sub-Plans

Document Title	Document Location
Soil and Water Management Plan	Appendix D
Landscape Management Plan	Appendix E
Noise Management Plan	Appendix F
Air Quality Management Plan	Appendix G
Traffic Management Plan	Appendix H
Aboriginal Cultural Heritage Management Plan	Appendix I
Waste Management Plan	Appendix J

4.2 Organisation chart

The management structure for implementation of this EMS is illustrated in Figure 4-2.

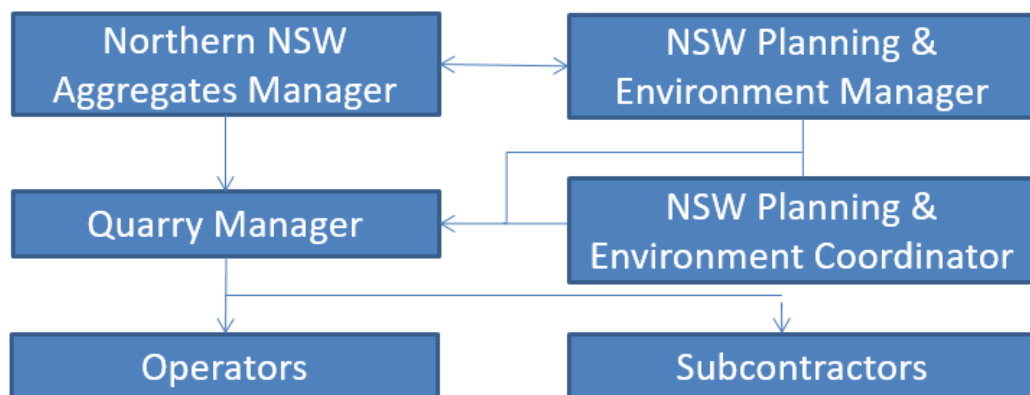


Figure 4-2 Environmental management structure

4.3 Roles and responsibilities

Key site personnel and environmental management responsibilities are outlined in Table 4-2.

Table 4-2 Roles and responsibilities

Role	Responsibilities
Northern NSW Aggregates Manager	Provide adequate recourses (personnel, financial and technological) to ensure effective development, implementation and maintenance of this EMS.
Quarry Manager	The environmental responsibilities of the Quarry Manager include: • Overall responsibility for the management of environmental aspects of the development. • Ensure all works comply with relevant regulatory and statutory requirements. • Endorse and support the Holcim environmental policy. • Plan operational works in a manner that avoids or minimises impacts to the environment. • Ensure the requirements of this EMS are fully implemented. • Ensure personnel manage activities in accordance with statutory and approval requirements. • Ensure that all relevant personnel receive appropriate induction training, including details of the environmental and community requirements. • Ensure that complaints are investigated to ensure effective resolution. • Ensure environmental management procedures and protection measures are implemented. • Report any activity that has resulted, or has the potential to result in an environmental incident, immediately. • Oversee site environmental monitoring, inspections and internal audits. • Undertake site inspections, carry out monitoring activities and complete site inspections checklists. • Liaise with government authorities as required. • Stop work immediately where there is an actual or potential risk of harm to the environment.
Operators	Site workers and operators are responsible for implementing environmental control measures associated with their daily work. This includes: • Minimising their impact on the environment while undertaking works. • Implementing and maintaining environmental controls. • Reporting to the Quarry Manager when an incident occurs and taking measures to respond to the incident. • Completing any reporting and monitoring requirements for their specific role.
NSW Planning & Environment Manager	The environmental responsibilities of the Planning & Environment Manager include: • Assist in development, monitoring and updating of the EMS and associated plans. • Report to General Manager on the performance and implementation of the EMS. • Ensure management reviews of the EMS are undertaken annually, documented and actions implemented. • Identify where environmental measures are not meeting the set targets and where improvement can be achieved. • Ensure environmental protocols are in place and managed. • Assist in achieving environmental compliance. • Obtain and update all environmental licences, approvals and permits

Role	Responsibilities
	as required. • Manage environmental document control, reporting and training. • Prepare and/or distribute environment awareness notes. • Review and approve Erosion & Sediment Control Plans. • Develop induction, toolbox talks and other training programs regarding environmental requirements for all relevant site personnel. • Notify relevant authorities in the event of an environmental incident and manage close-out of these. • Stop activities where there is actual or potential risk of harm to the environment or to prevent an environmental non-conformance and advise the General Manager and Quarry Manager. • Assist the Quarry Manager to resolve environment-related complaints.
NSW Planning & Environment Coordinator	The environmental responsibilities of the Planning & Environmental Co-ordinator include: • Assist in preparing the EMS (including any future revisions). • Develop Erosion & Sediment Control Plans in consultation with the Quarry Supervisor and other relevant site personnel, as required. • Ensure monitoring records are appropriately maintained, reviewed and any non-compliance issues addressed. • Record and provide written reports of non-conformances with the EMS or corrective actions required to the Planning & Environment Manager. This may include the need to implement additional measures or revise existing measures. • Assist in identifying environmental risks. • Advise the Planning & Environment Manager and Quarry Manager of the need to stop work if there is the potential for an unacceptable impact on the environment. • Advise the Quarry Manager or site staff to take reasonable steps to avoid or minimise impacts. • Advise site staff on issues concerning development environmental matters. • Assist in developing training programs regarding environmental requirements and deliver the environmental component of toolbox talks.

4.3.1 Subcontractors

As a minimum, subcontractors and their employees will comply in full with the requirements of this EMS as it applies to site environmental management and controls. Subcontractors personnel are considered equivalent to site personnel in all aspects of environmental management and control and their responsibilities in this respect are the same as site personnel.

5. Environmental training and awareness

All members of the quarry workforce will receive general environmental training regarding the implementation of environmental management strategies in accordance with the requirements of this EMS and supporting documentation. Environment and community training will include, but may not be limited to, the following:

- Environmental induction training
- Toolbox talks
- Other specific training as required (e.g. environment spill control and management)

To ensure effective implementation of the environmental management obligations, the Quarry Manager is responsible for ensuring that all site personnel are aware of the requirements of this EMS and supporting documentation.

5.1 Induction

Site environmental management requirements are communicated in the site induction to all staff, subcontractors and visitors. The induction includes the following information:

- Environmental legal context including due diligence and duty of care
- Site environmental objectives and targets
- Site environmental setting and sensitive environmental aspects
- Environmental incident response and management procedure
- Overview of environmental control measures – dust and air quality, noise management, water quality, vegetation protection, and waste management

Other environmental issues are communicated to site staff through toolbox talks and other meetings.

5.2 Toolbox talks

Toolbox talks will be one method of raising awareness and educating personnel regarding issues related to environment and community. Relevant environmental issues include (but will not be limited to):

- Noise mitigation
- Erosion and sedimentation control
- Hours of work
- Traffic
- Incident response
- Housekeeping
- Aboriginal and non-Aboriginal heritage
- Vegetation clearing controls and protection
- Dust and odour control

5.3 Targeted environmental training

Targeted environmental training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management, or those undertaking an activity with a high risk of environmental impact. Topics covered include those detailed above, or others deemed necessary in the lead up to a particular scope of work. For example:

- Acid sulfate soil treatment
- Revegetation
- Incident response

5.4 Training records

Training records are maintained in a site training register which includes:

- Details of the person being trained (name, role, company)
- Training date
- Type of training

6. Incidents and emergencies

Incidents and near misses may occur with potential or actual environmental harm. Incidents include:

- Exceedance of the limits/performance criteria in the approval
- Spills or leaks of hazardous substances (oils, fuels, chemicals)
- Clearing or excavation outside the approved boundary
- Exceeding the number of trucks approved per day
- Exceeding the approved extraction limit

The site's Pollution Incident Response Management Plan (PIRMP) is a regulatory requirement which includes the emergency response procedures to be implemented. The PIRMP is provided in Appendix K.

6.1 Emergency contacts

Details for organisations that may be contacted to respond to an environmental emergency are provided below in Table 6-1. These details are available to all site personnel on site signage and induction material.

Table 6-1 Emergency contact details

Agency	Contact
Police / Fire / Ambulance	000
Hospital	Murwillumbah District Hospital Ewing Street, Murwillumbah 02 6672 1822
NSW Health	02 6588 2750 1300 555 555
NSW WorkCover	131 050
EPA	131 555
Tweed Shire Council	02 6670 2400 1300 292 872
WIRES Wildlife Rescue	1300 094 737

6.2 Incident investigation

All incidents are documented, investigations conducted and action plans established in order that the incident does not occur again. Where lessons are learnt from the investigation or current procedures are identified as being ineffective, the EMS will be revised to include the improved procedures or requirement.

An incident investigation includes the following basic elements:

- The cause, time and duration of the event
- Contact details for all personnel involved in the incident and subsequent response
- Action taken in relation to the event with respect to contamination, notification, and residual effects
- Details of any measure taken or proposed to be taken to prevent a recurrence of such an event

All personnel are required to report all incidents, as it is regarded as a valuable method of addressing shortcomings in procedures, training or equipment, and is an opportunity for improvement.

6.3 Notification

The Quarry Manager will immediately (within 24 hours) notify DPIE and any other relevant agency of any incident that causes or may cause material harm to the environment. Within 6 days of notifying DPIE and relevant agencies, a detailed written report is to be submitted to the DPIE and any other relevant agency that:

- a. Describes the date, time, and nature of the exceedance/incident
- b. Identifies the cause (or likely cause) of the exceedance/incident
- c. Describes what action has been taken to date
- d. Describes the proposed measures to address the exceedance/incident

The Quarry Manager will immediately (within 24 hours) notify the EPA of pollution incidents on or around the site which have occurred in the course of activities in the following circumstances:

- If the actual or potential harm to the health or safety of human beings or ecosystems is not trivial
- If actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds \$10,000

Written details of the notification are to be submitted to the EPA within 7 days of the date on which the incident occurred.

7. Communication

7.1 Internal communication

Clear lines of communication throughout all levels and functions (e.g. management, staff and sub-contractors), is key to minimising environmental impacts and achieving continual improvements in environmental performance. Weekly meetings or toolbox talks will be scheduled with the staff. The purpose of these meetings will be to communicate ongoing environmental performance, to advise on any upcoming sensitive environmental matters for future work areas and to receive feedback from on-site personnel.

7.2 Direct community consultation

Holcim will be proactive in regard to informing the local community and particularly the surrounding properties of the performance of the operations and any significant proposed changes to the operations of the quarry for its operational duration. Immediately surrounding local residents will be informed of the commencement dates of operations and extraction activities relating to either the Stage 1 or 2 extraction areas.

7.3 Agency communication

The Quarry Manager will be the main point of contact with regulatory agencies regarding environment and community issues. The Quarry Manager will be responsible for reporting on the ongoing environmental performance of the project to regulatory agencies such as EPA, DRE, DPIE and Council.

Holcim shall maintain a communication directory of all relevant officers and contacts within each relevant Government agency in order that an activity or event on-site that warrants direct notification will be undertaken. These activities include but are not limited to:

- Any major contamination event
- Unearthing any archaeological artefacts or remains
- Any significant failure in the environmental performance of the operations that may be indicated during standard monitoring procedures

7.4 Community Consultative Committee

In accordance with Condition 9 of Schedule 5 of the Development Consent, a Community Consultative Committee (CCC) was established prior to quarrying operations beginning on-site.

The purpose of the CCC is to provide a forum for open discussion between representatives of the company, the community, the Council and other stakeholders on issues directly relating to the operation of the quarry, environmental performance and community relations, and to keep the community informed on these matters.

The CCC shall be comprised of the following members:

- An independent chairperson
- Two members of the local community and / or stakeholders
- One representative of the Tweed Shire Council
- Two representatives of Holcim
- The Landholder

The chairperson is appointed by the Secretary of the DPIE. The chairperson will report annually to the Secretary on the operation of the committee. The local community and other stakeholder representatives are appointed by the Secretary following advertisement in the local media. Company and Council representatives are appointed by Holcim and the Council respectively.

The CCC:

- Convenes once every six months (extraordinary meetings may be convened if necessary at the company's discretion)
- Reviews and provides advice on the environmental performance of the development, including any environmental monitoring results, audit reports, compliance reports and complaints

Holcim at its own expense:

- Provides two (2) official representatives of Holcim to attend all CCC meetings
- Provides the CCC with regular information on the environmental performance and management of the development including but not limited to:
 - The project approval and environment protection licence
 - The quarry operations plan and any other management plans
 - Results of environmental monitoring
 - Annual Environmental Management Reports (AEMR's)
 - Audit reports
 - Reports on community concerns or complaints and Holcim's responses
 - Any other information that may be specified by the Secretary
- Provides meeting facilities for the CCC
- Arranges site inspections for the CCC, if necessary
- Within 28 days of the committee's meeting, forwards to each committee member:
 - A copy of the minutes
 - The company's response to any questions or advice by the committee
 - Any information requested at the meeting by the chairperson
- Makes these minutes available to the public via its webpage
- Responds to any advice or recommendations the CCC may have in relation to the environmental management or performance of the development

7.5 Complaints

A complaints registry line has been established by Holcim prior to operations beginning on-site so that the public have a point of contact to express any complaints in regard to the operations of the quarry. A legible record must be kept of all complaints made to the operator or any employees or agent of Holcim.

Any complaint received shall be forwarded to the Quarry Manager who will investigate the complaint. All complaints received will be recorded in the complaints register by the Quarry Manager or a staff member delegated this responsibility by the Quarry Manager. The register shall include:

- The date and time of the complaint
- The method by which the complaint was made
- Any personal details of the complainant that were provided by the complainant or, if no such details were provided, a note to that effect
- The action taken by the quarry manager in relation to the complaint
- Any follow up contact with the complainant and any follow-up actions undertaken
- If no actions were taken, documentation of the reasons why no action(s) were taken

All complaints received will be recorded in the ongoing environmental reviews undertaken by Holcim and therefore presented in the respective AEMR. The complaints register will also be made available to auditors during the independent environmental audits of the quarry. The record of complaint must be kept for a minimum of five (5) years to ensure that they are available to the independent environmental audit that is prescribed above, to be held every five (5) years.

7.6 Dispute resolution

In the event that a dispute arises between Holcim and another party in relation to the operation of the quarry or requirements applicable under Development Consent DA06_0030, Holcim shall refer the matter to the Secretary of the DPIE, whose determination of the dispute shall be final and binding on all parties.

All dispute resolution activities will be appropriately recorded.

8. Inspections, monitoring and auditing

8.1 Environmental inspections and monitoring

Environmental inspections and monitoring will be undertaken to validate the impacts predicted for the Project, to measure the effectiveness of environmental controls and implementation of this EMS, and to address approval requirements. Physical environmental monitoring procedures are detailed in the relevant EMS sub-plans, with a summary of the monitoring requirements detailed in the Environmental Monitoring Program in Appendix L.

The Quarry Manager will be advised of any non-conformances from monitoring and details will be documented. Where a non-conformance is detected or monitoring results are outside of the expected range and are directly attributable to the Project (i.e. are influenced by factors under the direct control of the Project e.g. noise from equipment), the process described in Section 8.3 will be implemented. Steps in the process will typically include:

- An analysis of the results in more detail to identify possible causes for the non-conformance
- A site inspection
- Notifying relevant personnel of the issue
- Identifying and agreeing on actions to resolve or mitigate the non-conformance
- Implementing actions to rectify or mitigate the non-conformance

The timing for any improvement will be agreed between the relevant parties (i.e., Quarry Manager, resident, authorities) based on the level of risk (e.g. a significant risk will require immediate action).

8.1.1 Cumulative impacts

The environmental assessment completed in support of the operation (Planit Consulting, 2007), upon which the Project Approval was granted, committed to managing cumulative impacts through:

- the retention and regeneration of extensive, previously disturbed areas;
- the assurance of no impacts upon adjacent sensitive areas;
- the maintenance of existing groundwater quality; and
- the adoption of management measures relating to air quality, acoustic management and traffic efficiency.

These commitments are incorporated into the operation's management plans which have been approved by DPIE. These commitments are verified by the ongoing monitoring requirements for the operation, undertaken in accordance with the Environmental Monitoring Program (Appendix L). This monitoring also ensures compliance with the conditions of the Project Approval, EPL and approved management plans.

Environmental auditing, as outlined in Section 8.2, assesses the environmental performance of the operation and its effects on the surrounding environment. Where auditing identifies a decrease in environmental performance of the operation or the potential for cumulative impacts to be experienced, measures or actions to improve the environmental performance will be recommended and implemented.

8.2 Environmental auditing

Site auditing is the best way to measure environmental performance, review operating effectiveness of environmental protection measures and the best way to achieve satisfactory environmental outcomes through continual improvement.

8.2.1 Internal audit

Internal auditing will be undertaken by the Quarry Manager (or delegate), generally within the first six months of operation and then on a twelve monthly basis. The frequency of the internal audit could be relaxed, if no issues are identified in the first few audits. The purpose of such auditing will be to verify compliance with:

- This EMS and Sub-Plans
- Approval requirements
- Any relevant legal and other requirements (e.g. EPL, permits, regulations, contract documentation)

8.2.2 External audit

In accordance with the Development Consent, an independent environmental audit will be carried out within two (2) years of the start of quarrying operations on-site, and every five (5) years thereafter. Holcim will nominate the proposed auditor for the initial audit within 18 months of the granting of consent. The Secretary of the DPIE will approve the appointment of the proposed audit team in accordance with Condition 6(a) of Schedule 5 of the Development Consent prior to the commissioning of the audit.

This procedure will occur for all subsequent environmental audits in accordance with this condition. Each audit shall include the following basic elements in accordance with ISO 19011:2018:

- (i) Entry Meeting – The outline of the audit objectives will be discussed with the company management team.
- (ii) Document Review – All quarry documentation relating to monitoring, procedures, licences, consents and other environmental documentation is assessed against compliance criteria, i.e. conditions of the Development Consent, Environmental Protection Licence and mitigation commitments presented within the EA.
- (iii) Site Inspection – Observations of site performance against consent and licence conditions, and, where appropriate, environmental management best practice principles will be made.
- (iv) Exit Meeting – The principal observations are reviewed.

In accordance with Condition 6 of Schedule 5 of the Development Consent, the audit must:

- a) be conducted by a suitably qualified, experienced, and independent person(s) who appointment has been approved by the Secretary.
- b) Include consultation with the relevant agencies.
- c) Assess the environmental performance of the project, and its effects on the surrounding environment.
- d) Assess whether the project is complying with the relevant standards, performance measures and statutory requirements.
- e) Review the adequacy of any strategy/plan/program required under the Development Consent.
- f) Recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under the Development Consent.
- g) Be conducted and reported to the satisfaction of the Secretary.

In accordance with Condition 7 of Schedule 5 of the Development Consent Holcim shall submit a copy of the audit report to the Secretary and relevant agencies within three months of the completion of the audit. A response to any of the recommendations in the audit report shall also be submitted.

Within one (1) month of the completion of an independent environmental audit (in accordance with Condition 10 of Schedule 5 of the Development Consent), Holcim will provide a copy of the report to Council and the abovementioned relevant agencies. Holcim will also ensure that a copy of the report is made publicly available on-site or online.

8.3 Non-conformances, corrective and preventative actions

Should non-compliance be identified with regard to the conditions of the Development Consent or the EPL, the following strategy will be implemented to rectify the issue and notify the relevant authorities.

- In the case of monitored pollution or discharge criteria, any non-compliance will be confirmed. The Quarry Manager would be required to seek additional testing to confirm the non-complying results and should the results prove a non-compliance the Manager shall immediately develop and then implement an appropriate mitigation strategy. This strategy will be developed utilising the skills of an independent qualified professional where necessary.
- The DPIE and the EPA will be notified where a potential environmental harm event is caused. Such events are also reported in the AEMR, detailing any non-compliance and the mitigation measures undertaken, including the latest monitoring results to depict that the mitigation being undertaken are remediating the issue.
- As per the conditions of the EPL, in the event of a non-compliance incident causing or threatening material harm to the environment, i.e. pollution incidents, the EPA and/or DPI Water is to be notified immediately. Written details of the notification are to be provided to EPA and/or DPI Water within 7 days from the date on which the incident occurred.
- In the case of non-compliance with Administrative (Schedule 2) or Environmental Management, Monitoring, Auditing and Reporting (Schedule 5) conditions, the Quarry Manager will be immediately informed. The DPIE will be notified of any non-compliance identified in an Independent Audit or AEMR with corrective actions developed through consultation with the DPIE.

8.4 Reporting and records

Environmental reporting requirements for site operations are primarily derived from the Development Consent and applicable licenses or permits. For all reporting required, the Quarry Manager is responsible for managing the preparation and submission of the report.

Table 8-1 Environmental reporting

Type	Frequency	Recipient
Annual Return	Annually	EPA
Annual Review	Annually	Agencies listed in Section 8.4.1
Environmental monitoring results on the website	Quarterly	Public
Notification of pollution incident where material harm to the environment is caused or threatened	Within 24 hours of an incident	EPA, DPIE and other relevant agencies
Full written report of a pollution incident with potential or actual offsite impacts	Within 6 days of notifying the incident	EPA, DPIE and other relevant agencies

The content of the Annual Return is as specified in the EPL.

Reporting requirements in relation to incidents are outlined in Section 6.

8.4.1 Annual Environmental Management Report

In accordance with Condition 5 of Schedule 5 of the Development Consent, an annual environmental management report (AEMR) must be prepared and submitted to the Secretary and relevant agencies within twelve months of the date of the approval and annually thereafter. The report will provide an update of the overall performance of the management of the quarry and the planned operations for the ensuing year. The report is to be provided to the following relevant agencies (or their relevant successor) for review:

- DPIE
- EPA
- DPI Water
- RMS
- Tweed Shire Council
- Department of Primary Industries (DPI) – Mineral Resources Division
- The representatives on the CCC

The report must:

- Identify the standards and performance measures that apply to the project
- Describe the work carried out in the last 12 months
- Describe the works that will be carried out in the next 12 months
- Include a summary of the complaints received during the past year, and compare this to the complaints received in previous years
- Include a summary of the monitoring results for the project during the past year
- Include an analysis of these monitoring results against the relevant:
 - Impact assessment criteria/limits
 - Monitoring results from previous years
 - Predictions in the documents listed in Condition 2 of Schedule 2 of the Development Consent
- Identify any trends in the monitoring results over the life of the project
- Identify any non-compliance during the previous year
- Describe what actions were, or are being, taken to ensure compliance

Within one (1) month of the completion of an AEMR (in accordance with Condition 10 of Schedule 5 of the Development Consent), Holcim will provide a copy of the report to the Council and the abovementioned agencies. Holcim will also ensure that a copy of the report is made publicly available on-site and on the company website.

8.4.2 Records

Environmental records are maintained that demonstrate compliance with the EMS in a dedicated filing system / digital location. Records to maintain include:

- This EMS and associated sub-plans
- All licenses and permits detailed in Section 3.3
- Induction and training register
- Environmental inspection and monitoring reports / results

- Incident reports and register
- Complaints register
- Waste transfer receipts and waste movement register
- All regulatory correspondence

All records required by the EMS are:

- Maintained in a legible form
- Kept for at least 4 years
- Produced to any authorised officer of the DPIE or EPA upon request

9. Review and improvement

9.1 EMS Review

The Quarry Manager will review the EMS and its implementation within 3 months of

- An incident report
- An Annual Review
- An audit report
- Any modifications to the approval

The purpose of the review is to ensure that the system is meeting the requirements of the standards, policies and objectives. The reviews will also allow Holcim to update the EMS in light of updated practices implemented at the quarry that may have arisen from current or newly adopted legislation, guidelines and technologies over the life span of the quarry.

Between the scheduled reviews, a register of issues will be maintained to ensure that any issue raised by internal and external personnel associated with the quarry is recorded.

The review will consider (where available or applicable):

- Changes to the operation
- Site personnel comments
- Agency comments
- Audit findings
- Environmental monitoring records
- Complaints
- Details of corrective and preventative actions taken
- Environmental non-conformances, environmental inspection notices, inspection reports, and non-conformance reports
- Incident reports
- Changes in organisation structures and responsibilities
- The extent of compliance with objectives and targets
- The effect of changes in standards and legislation
- Co-ordination of environmental management of sub-contractors

DPI&E must notified in writing of any such review being undertaken. Where the review leads to revisions, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary.

9.2 EMS Updates

The outcomes of the above reviews may include amendments to this EMS and supporting documentation, updates to the Project aspects and impacts register, re-evaluation of the Project objectives and targets, or reallocation of Project resources. If any amendments are considered necessary, these need to be approved by DPI&E.

Any amendments made to Project systems or processes will be communicated to relevant personnel as required following completion of the review.

Appendices

Appendix A – Environmental Policy

Appendix B – Site Plans

Appendix C – Agency correspondence

Appendix D – Soil and Water Management Plan

Appendix E – Landscape Management Plan

Appendix F – Noise Management Plan

Appendix G – Air Quality Management Plan

Appendix H – Traffic Management Plan

Appendix I – Aboriginal Cultural Heritage Management Plan

Appendix J – Waste Management Plan

Appendix K – Pollution Incident Response Management Plan

Appendix L – Environmental Monitoring Program

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11/[https://projects.ghd.com/oc/Newcastle3/holcimdunloesandquar/Delivery/Documents/2220056_RPT_Dunloe Environmental Management Strategy.docx](https://projects.ghd.com/oc/Newcastle3/holcimdunloesandquar/Delivery/Documents/2220056_RPT_Dunloe%20Environmental%20Management%20Strategy.docx)

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Revision	Author	Reviewer		Approved for Issue		
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3	B Luffman	S Lawer		S Lawer		25/06/2021
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