Independent Cement and Lime Pty Ltd

Preliminary Environmental Assessment – Cement Terminal, Mayfield North

October 2009

Umwelt
Environmental Consultants

Preliminary Environmental Assessment – Cement Terminal, Mayfield North

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Independent Cement and Lime Pty Ltd

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1.0 Introduction

1.1 Overview

Independent Cement and Lime Pty Ltd (ICL) proposes to establish a cement terminal on part of Lot 33 DP 1116571 which is within the BHP Closure Area and approved Multi-Purpose Terminal site at Mayfield North (refer to **Figure 1**). Newcastle Port Corporation (NPC) has signed contracts to purchase Lot 33 DP 1116571 from State Property Authority and is currently preparing a Concept Plan to accompany an application to the Minister for Planning for a range of activities across the BHP Closure Area and approved Multi-Purpose Terminal site at Mayfield. The aim of this Concept Plan is to identify a range of port related trades/uses that may be carried out on the site, and to rationalise all existing consents relating to the site into a single consent.

The Concept Plan includes five (5) precincts, each proposed to contain different trades/uses. ICL's proposed cement terminal is to be located within the 'Bulk and General Precinct'. This bulk and general precinct will be used by bulk businesses for handling and storage of materials including grain, briquettes, coke cargoes, boutique coal, cement, fertiliser, sand and other infrastructure.

The proposal by ICL is for the importation and storage of cement and will utilise the wharf facilities currently being constructed at No. 3 and 4 berths on the berthing plan hereafter referred to as Mayfield No. 4 Berth. This proposed use is consistent with the identified uses within the bulk and general precinct and the future directions of the Concept Plan that is being prepared by NPC.

The proposed cement terminal will have a throughput capacity of approximately 600,000 tonnes per annum of bulk dry cement and approximately 200,000 tonnes per annum of ground slag. The terminal will receive bulk cement and slag by ship and distribute bulk product via road tanker. The key infrastructure to be constructed as part of the terminal will include wharf unloading facilities located at the proposed Mayfield No. 4 Berth (former BHP Ore Berth Five), two 35,000 tonne storage silos with drive through truck loading facilities located beneath each silo and pipework to convey cement between the wharf and silos (refer to **Figure 2**). Ancillary infrastructure including a new access road, administration building and compressor building will also be constructed as part of the project.

1.2 Site History

The proposed cement terminal is located within the BHP Closure Area at Mayfield North (refer to **Figure 1**). The site was formerly part of the BHP Newcastle Steelworks Main Site. Prior to the development of the site for industrial use in 1866, the site consisted largely of swamp land, mangroves and scrub, with minor farming and dairying undertaken in the area (URS, 2000). Between 1866 and 1906 the site was developed for port use, construction and operation of a copper smelter. BHP commenced operation of a steelworks at the site in 1915, expanding operations through reclamation and filling of the site with steelworks wastes until iron and steelmaking operations ceased in September 1999 (URS, 2000).

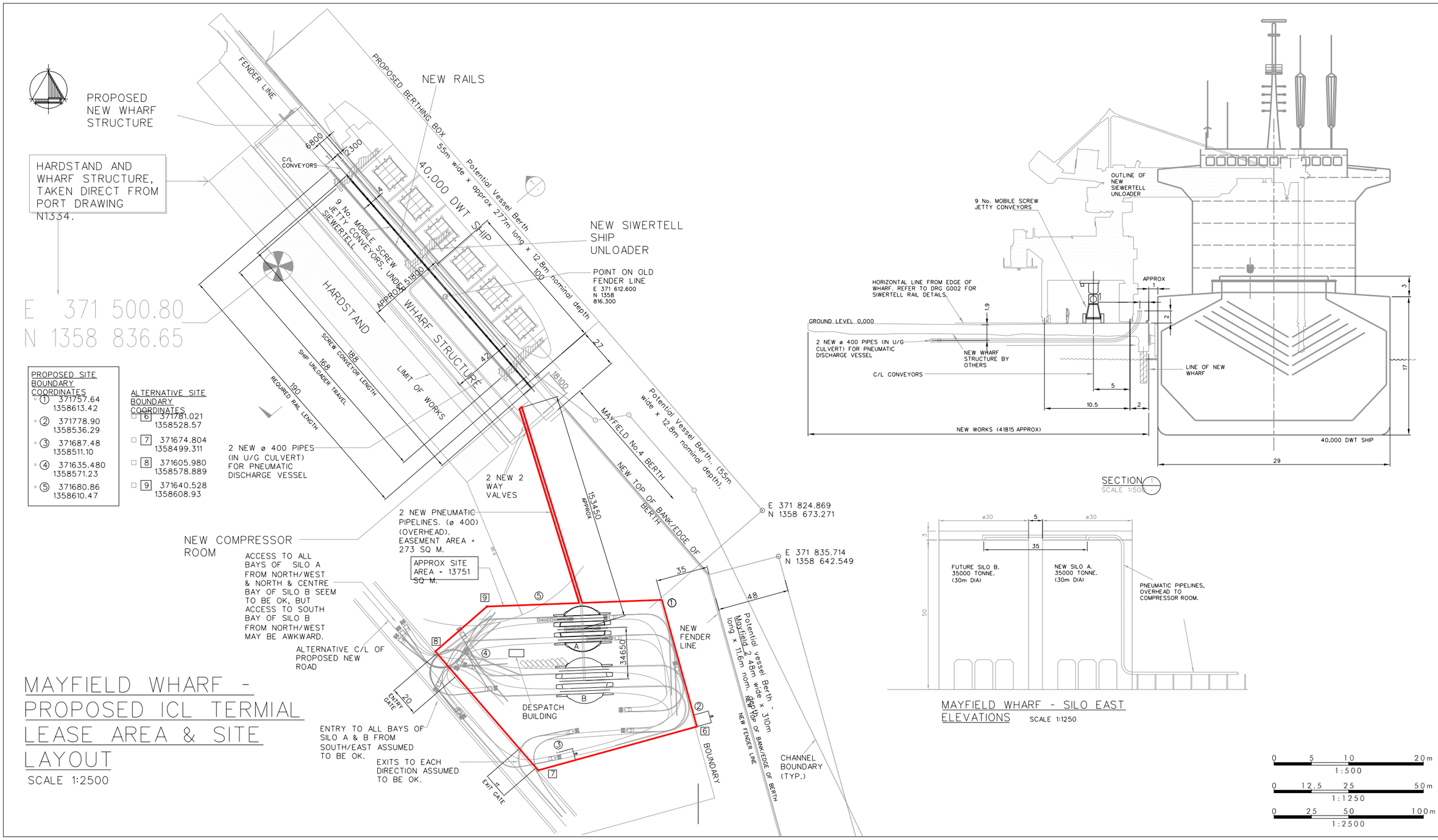
In April 2001, the Minister for Urban Affairs and Planning granted Development Consent for Remediation of the Closure Area and Development of a Multi-Purpose Terminal (DA 293-08-00). Approved works include remediation of the entire Closure Area, staged approval for construction and operation of a Multi-Purpose Terminal, incorporating a container terminal, general cargo handling facility and bulk handling terminal, associated rail, road and wharf infrastructure and dredging of the South Arm of the Hunter River.

Legend

Project Area

FIGURE 1

Locality Plan and Project Area



Legend

Project Area

FIGURE 2

Proposed Cement Terminal Layout

Source: Prostruc Pty Ltd

File Name (A3): R01_V1/2520_003.dgn

In July 2002, BHP transferred ownership of the Closure Area to the NSW Government and in 2003, the Regional Land Management Corporation (RLMC) was created by the State Government to manage remedial and redevelopment works for the Closure area. In July 2008, management of the site is proposed to be transferred to the Newcastle Port Corporation (NPC).

In September 2005, a Voluntary Remediation Agreement (VRA) was signed between the Department of Environment and Conservation (now Department of Environment and Climate Change (DECC)) and the RLMC (now Hunter Development Corporation). The VRA establishes the remediation strategy for the site. Remediation works have commenced within the most contaminated portion of the site (Area 1), with capping, drainage works and the installation of a subterranean barrier wall completed in June 2008. The remainder of the site (Area 2) will now be remediated progressively in conjunction with future development of the site.

Between 2002 and 2007, the majority of structures on the site were demolished for safety reasons or to allow for remediation works to proceed.

In the first half of 2007, NPC announced plans to invest $22 million on refurbishment of the former BHP Ore Berth Five wharf which is centrally located over what will become two future berths referred to as Mayfield No. 3 and 4 Berths and the provision of up to 8 hectares adjoining the wharf for port-related uses such as cargo handling, storage or an assembly area. The proposed cement terminal will utilise the refurbished former BHP Ore Berth Five wharf for unloading of bulk cement and ground slag.

In June 2008, NPC submitted a Section 96 application to modify DA 293-08-00 to allow for minor alterations and temporary relocation of the General Cargo Handling Facility, refurbishment of the BHP Ore Berth Five wharf and an interim change to site access. The modifications are intended as an interim Stage 1 development, to maximise use of existing site infrastructure and minimise capital expenditure in the early stages of development in order to stimulate development of the area. The proposed cement terminal will utilise the refurbished wharf and interim site access sought as part of this modification.

1.3 Purpose of the Document

This Preliminary Environmental Assessment (EA) has been prepared by Umwelt (Australia) Pty Limited (Umwelt), on behalf of ICL. It provides an overview of the project and the key environmental issues and will assist in the preparation of the Director-General's Requirements for the Environmental Assessment.

Project planning, environmental impact assessment and consultation activities are ongoing. Information presented in this document is therefore preliminary and may change to reflect outcomes of the environmental assessment and project planning processes.

1.4 The Proponent

The proponent for the project is Independent Cement and Lime Pty Ltd (ICL). The company is a joint venture between Adelaide Brighton Ltd and the Barro Group Pty Ltd. ICL were established in 1987 and supply cementitious products to a wide variety of industries and major retail operators in the NSW and Victorian markets.

ICL currently operates an existing bulk cement receival, storage and dispatch facility at Port Melbourne.

2.0 Description of Proposed Development

2.1 Proposed Cement Terminal

2.1.1 Project Overview

ICL proposes to establish a bulk cement receival and despatch facility on a 1.37 hectare area of the BHP Closure Area site adjacent to the South Arm of the Hunter River at Mayfield North (refer to **Figure 2**). Wharf facilities are located on that part of the BHP Closure Area that has previously been approved for development of a Multi-Purpose Terminal.

The proposed terminal will receive bulk cement and ground slag via vessels unloaded from the Mayfield No. 4 Berth and distribute bulk product via road tankers. These unloading facilities may be subsequently relocated to a yet to be constructed Mayfield No. 2 Berth which will be subsequently applied for. The proposed terminal will have a bulk product throughput capacity of approximately 600,000 tonnes per year of bulk dry cement and approximately 200,000 tonnes per year of ground slag. It is anticipated that production will gradually increase to maximum capacity over a period of approximately 10 years. An indicative production schedule is provided in **Table 2.1**.

Table 2.1 – Anticipated Production Schedule

Year	Bulk Dry Cement Throughput (T)	Ground Slag Throughput (T)
Year 1	250,000	-
Year 2	300,000	-
Year 3	350,000	100,000
Year 4	400,000	130,000
Year 5	450,000	150,000
Year 10	600,000	200,000

The proposed cement terminal will include the following key components:

- a purpose built Siwertell unloader and enclosed screw conveyors for unloading of bulk vessels of up to 30,000 tonne capacity;
- pipework to convey product from the unloader or self discharging pneumatic vessels to two 35,000 tonne capacity inverted cone storage silos;
- an enclosed truck loading facility beneath each of the inverted cone storage silos to provide for bulk dispatch via sealed road tankers;
- a compressor building; and
- an office building.

2.1.2 Wharf-Side Facilities

The proposed cement terminal will receive bulk cement and ground slag via self-discharging or standard bulk vessels unloaded initially from the Mayfield No. 4 Berth. Unloading facilities may be relocated at a later date to Mayfield No. 2 Berth to allow for the development or expansion of Multi-Purpose Terminal facilities.

Unloading facilities proposed to be constructed at the Mayfield No. 4 Berth will include a Siwertell unloader system, enclosed conveyors, pipework and compressor room to pneumatically convey cement from the wharf to storage facilities at the terminal (refer to **Figure 2**).

For self-discharging ships, two 450 mm diameter pipes will be connected to the ship and compressors on board the ship will pump the cement at a flow rate up to 400 tonnes per hour (t/hr) per pipe. Communication links between the ship and the silos will ensure that dust collectors are active and fill status of the silos is constantly monitored, with an automatic fill cut-off when the silos are reaching capacity.

For standard bulk vessels, the Siwertell unloader will be used. The Siwertell is a continuous unloader based on screw technology designed specifically for unloading of dry bulk goods such as cement, grain, coal or fertilisers. The totally enclosed screw system ensures no spillage and minimal dust generation when the cement and ground slag is picked up in the ships hold. The Siwertell will have an unloading capacity of 800 tonnes per hour. Crane rails on the wharf deck will allow the entire unit to move between ship's holds. An inlet feeder is positioned below the cargo surface, with capability to dig in all directions and break up compacted material. The second and third stages of the unit transfer the product to an enclosed hopper from where the cement is conveyed pneumatically via pipes to the silos for storage. These are the same pneumatic pipes that will be used for conveying cement and ground slag from self-discharging vessels. A dust filter will be incorporated in the transfer hopper to filter air displaced by the incoming materials.

As the cement or ground slag level drops in the hold, and the Siwertell head is no longer below the cement or ground slag surface, a clean-up head will be attached. This head has a rotating/sweeping motion to remove the cement and ground slag from the bottom of the hold. Further stripping of the holds will be undertaken by manual cleaning techniques.

The plant control system will be integrated with the unloading operations to ensure that dust controls and dust collectors are active and operational at all times during unloading of vessels. A remote operator will typically be stationed on the vessel adjacent to the hold during unloading and will control the motion of the Siwertell within the hold to ensure efficient operation. Unloading operations will normally cease during rain events or when the wind speed exceeds 25 knots for a sustained period. Wind speed will be monitored by an anemometer which will raise an alarm if a 20 knot wind speed is exceeded.

The proposed Siwertell unloading system will be capable of unloading other bulk dry powder products if required in conjunction with the approved Multi-Purpose Terminal.

2.1.3 Terminal Facilities

The proposed cement terminal will be located on a 1.37 hectare parcel of land in the south-eastern corner of the BHP Closure Area (refer to **Figure 1**). Terminal facilities will consist of the following key elements (refer to **Figure 2**):

- two 35,000 tonne inverted cone storage silos approximately 30 metres in diameter and approximately 53 metres high;
- drive through truck loading facilities located at the base of each silo;
- a pneumatic conveyor system to move cement and ground slag between the wharf and silos;
- an administration office; and

- a new access road and parking facilities.

Cement and slag is conveyed from the wharf to the silos via a pneumatic conveyor system, consisting of two sealed 450 mm pipes (refer to **Figure 2**). It is anticipated that the supply pipeline will be installed above ground.

The proposed silos have an inverted cone at the centre of the silo base that allow for self-emptying of the silo. Level detection devices installed in each of the silos will ensure the silos are filled to a predetermined level and will not be overfilled. A series of reverse pulse dust collectors will filter the conveying air from the cement or ground slag to the atmosphere, with dust returned to the silo.

Truck loading facilities will be located directly beneath the inverted cone silos, within the silo enclosure. Trucks will be loaded via a sealed pipe transfer system which includes an inbuilt dust collection unit that returns dust to the tanker during loading. Automated load control will ensure that tankers are loaded in a controlled sequence which includes flow control valves for a trickle feed when nearing the target weight. The loading system requires the driver to be present throughout loading operations with the use of a push button prompt every 30 seconds for loading to continue. The loading system will be fitted with an emergency shut off to immediately discontinue loading in the event of an emergency.

Trucks will distribute the cement and slag to local, regional and State-wide destinations.

2.1.4 Traffic and Access

The proposed development will receive bulk materials by ship up to 30,000 tonne capacity and distribute cement and ground slag via road tanker with a 45 or 28 tonne capacity. The development will result in the following traffic generation:

- ship movements associated with importing bulk materials;
- truck movements associated with distribution of bulk materials; and
- light vehicle movements associated with employees, visitors, couriers etc.

The proposed development will be accessed from Industrial Drive, via the existing signalised Industrial Drive – Selwyn Street intersection. Subject to approval of a Section 96 modification application sought by NPC, and intersection modifications proposed under this application, interim access will continue from this intersection during the start up phase of development of the Closure Area.

Industrial Drive is a four to six lane arterial road and is a designated heavy vehicle route. Industrial Drive has linkages north, south and west via the Pacific Highway, New England Highway and F3 Freeway.

2.1.4.1 Ship Movements

It is anticipated that at full operation, there will be up to 24 shipments of cement per year and 8 shipments of ground slag delivered to the site, assuming an average shipment capacity of approximately 25,000 tonnes of cement or slag. The facility will be able to receive vessels with a capacity of up to 30,000 tonnes. Full operation is unlikely to be achieved for a number of years following commencement of operations (refer to **Table 2.2**).

Table 2.2 – Anticipated Shipments of Bulk Cement and Ground Slag

Year	Bulk Cement Shipments (per year)	Ground Slag Shipments (per year)	Total Shipments (per year)
Year 1	10	-	10
Year 2	12	-	12
Year 3	14	4	18
Year 4	16	5	21
Year 5	18	6	24
Year 10	24	8	32

As discussed in the Multi-Purpose Terminal Environmental Impact Statement, berths at the Multi-Purpose Terminal site will cater for up to four ships at any one time, including two for the container terminal, one for the general cargo handling facility and one for the bulk handling terminal. The arrival of ships at the site would be scheduled well in advance to ensure that ships can proceed directly to the unloading wharf upon arrival at the Port so as to prevent conflict with other ship movements.

2.1.4.2 Heavy Vehicle Traffic Movements

It is anticipated that at full operation, there will be an average of 71 bulk truck deliveries per day, comprising 53 bulk cement deliveries and 18 ground slag deliveries. This is based on operation over 24 hours, 350 days per year and assumes that one third of deliveries will be made by B-Doubles (45 tonne capacity) and two thirds by single truck (28 tonne capacity). This equates to a total of 142 heavy vehicle movements per day associated with the proposed development at full production capacity. Full production capacity is unlikely to be achieved for a number of years following commencement of operations (refer to **Table 2.3**)

Table 2.3 – Anticipated Truck Deliveries of Bulk Cement and Ground Slag per Day

Year	Bulk Cement Trucks (per day)		Ground Slag Trucks (per day)		Total Trucks (per day)	
	Trucks	Movements	Trucks	Movements	Trucks	Movements
Year 1	22	44	-	-	22	44
Year 2	27	54	-	-	27	54
Year 3	31	62	9	18	40	80
Year 4	36	72	12	24	48	94
Year 5	40	80	13	26	53	106
Year 10	53	106	18	36	71	142

The average daily traffic generation of 142 heavy vehicle movements is well within the predicted 578 daily heavy vehicle movements assessed and approved as part of the Multi-Purpose Terminal consent (2001) and is also within the 352 heavy vehicle movements per day that is currently approved. Therefore, it is considered likely that the local traffic network will be able to accommodate the projected traffic flows associated with the project.

2.1.4.3 Light Vehicle Traffic Movements

A total of approximately 15 staff will be employed at the site split over two shifts, resulting in approximately 30 employee light vehicle movements per day. An additional four light vehicle movements can be attributed to visitors, representing a total of 34 light vehicle movements per day. It is anticipated that up to 20 of these light vehicle movements could occur during a worst case peak hour, at shift change time.

The predicted light vehicle movements generated from the proposed development are well within the predicted 544 daily light vehicle movements assessed and approved as part of the Multi-Purpose Terminal consent.

Approximately 12 car parking spaces will be provided within the terminal site.

2.1.5 Workforce and Hours of Operation

The proposed development will employ approximately 15 staff over two shifts. It is expected that the maximum number of staff during any one shift will be 10 employees. This includes administration staff, unloading operators, maintenance staff, various sub-contractor maintenance staff and various sub-contractor transport operators.

The cement terminal will operate 24 hours a day, 365 days a year.

2.1.6 Site Remediation and Construction

The proposed development is located within the BHP Closure Area. Previous investigations have identified that surface fill material and groundwater within the Closure Area are contaminated and may pose a significant risk of harm to human health and the environment without remediation. The Closure Area has been divided into two areas based on the level of contamination present, Area 1 being the most contaminated portion of the site and Area 2 being contaminated to a lesser extent. The proposed cement terminal is located within Area 2.

Remediation of the BHP Closure Area was approved by the Minister for Urban Affairs and Planning in 2001 as part of the consent for the Multi-Purpose Terminal (DA 293-08-00). In September 2005, a Voluntary Remediation Agreement (VRA) was established between the RLMC (now the Hunter Development Corporation) and DECC confirming a remediation strategy for the site. This remediation strategy reflects the remedial action plan approved as part of DA 293-08-00. The VRA requires the installation and maintenance of site capping across the Closure Area, recontouring and installation of site drainage infrastructure, and installation of a subterranean barrier wall to control groundwater movement within a portion of the Closure Area. Capping material for the Closure Area is required to consist of either hardstand (concrete or asphalt) or a minimum 500 mm thick engineered low permeability cap of coal washery reject.

In March 2008, a Contaminated Site Management Plan was prepared in accordance with DA 293-08-00 to provide a common framework for development of the site This plan sets out requirements in respect of the design, delivery, completion, verification, use and maintenance of all works carried out on site. The proposed cement terminal will be required to comply with the requirements of the Contaminated Site Management Plan in all aspects of design, construction and ongoing site maintenance.

Remediation of the site has commenced with installation of the subterranean barrier wall around Area 1 completed in June 2008. Capping and recontouring of the remainder of the site (Area 2) will be carried out progressively as the site is redeveloped in accordance with

DA 293-08-00 and the Contaminated Site Management Plan (Hunter Development Corporation, 2008).

Prior to the commencement of construction of the proposed cement terminal, capping and recontouring of the cement terminal site will be undertaken in accordance with DA 293-08-00 and the Contaminated Site Management Plan (Hunter Development Corporation, 2008). The proposed capping will consist of concrete hardstand and will be carried out in accordance with an approved Construction EMP to be prepared for the development as required by DA 293-08-00. Remediation works will be certified by a Site Auditor via a Site Audit Statement at the completion of remediation works to confirm that the site is suitable for the proposed use.

2.2 Alternatives and Justification

2.2.1 Project Alternatives

ICL has assessed a number of alternative sites for the proposed cement terminal, including:

- Port Kembla;
- two sites at Glebe Island, Sydney Harbour;
- White Bay, Sydney Harbour; and
- Carrington, Newcastle Harbour.

Port Kembla was considered inappropriate given its distance from the key target markets in the Sydney metropolitan and Hunter regions, resulting in increased transport costs. Port Kembla also has long term maintenance and infrastructure disadvantages.

Two sites at Glebe Island were considered for the proposed facility, however the sites were found to be inappropriate due to insufficient area for the required infrastructure and potential wharf congestion issues.

A site at White Bay was found to provide a suitable site area for the facility, with close convey distances and suitable berthing facilities. Investigations at the White Bay site progressed through a full Environmental Assessment process, however it was ultimately found to be unsuitable due to potential noise impacts on nearby sensitive receivers.

Having exhausted potential sites within Sydney, ICL commenced investigations in and around Newcastle Harbour. A potential site at Carrington was identified and pre-feasibility studies were commenced. The site was found to be unsuitable due to potential noise impacts on nearby sensitive receivers and potential site instability issues associated with former underground mining in the area.

ICL then identified, in consultation with NPC, the BHP Closure Area site at Mayfield North as a potential site for the facility. The site provides sufficient area for the required infrastructure, appropriate berthing, short convey distances for product and ready access to the arterial road network. The site is located adjacent to the Hunter River, a significant distance from sensitive receivers and is bordered by existing and proposed heavy industrial land uses. This site was therefore selected as the preferred site for the project.

The alternative of not proceeding with the project has also been considered, however this option is not considered appropriate as it is expected that the environmental and social

impacts of the project can be effectively managed and minimised through appropriate site selection and environmental controls.

2.2.2 Project Justification

The BHP Closure Area is a key strategic site for the development of port and port-related industry. As demonstrated by the approval of the Multi-Purpose Terminal within the Closure Area, the site is considered suitable for industrial activities such as bulk handling, container terminal, general cargo handling and associated port related industry.

The proposed cement terminal site is considered consistent with the uses approved by the Multi-Purpose Terminal consent and is particularly suited to the development for the following reasons:

- the location of the site within and immediately adjacent to land designated and approved for similar port related industry;
- access to wharf facilities and sufficient port-side land available for development;
- ready access to the arterial road network;
- significant distance from sensitive receivers; and
- the opportunity to redevelop a brown-field site rather than development of a Greenfield site.

Given the suitability of the site for the proposed use, the potential environmental and social impacts of the proposed cement terminal are likely to be minimal. It is anticipated that the proposed development can be achieved without significantly impacting on the environment or local community.

The project will result in significant industry benefit through increase in competition and provision of a reliable supply of cement to the NSW market. As demonstrated in Victoria, the introduction of an independent supplier has allowed for significant growth of independent operators to the point where ICL now supplies approximately 42% of the Victorian cement market. This growth has allowed for creation of new businesses, increased jobs and investment and improved service to the broader construction industry.

The proposal will also provide a number of economic benefits with a capital investment in the region of $45M and through the direct employment of approximately 15 people, with many more indirect jobs created through distribution of cement and slag throughout the state and flow-on effects to the concrete and construction industries.

The project will also provide additional impetus for the expedited remediation of part of the Area 2 contaminated site. The remediation works will make the site suitable for industrial use and will assist in minimising potential environmental harm associated with the site in its current form. This represents an efficient reuse of industrial land with potential environmental benefits.

In addition to the environmental and social advantages provided by the site, the project will have a number of economic benefits which justify its development.

The project will allow for diversification of import/export opportunities within Newcastle Harbour, improving the viability of the harbour as a working port while minimising impacts on the local environment.

3.0 Planning Considerations and Consultation

3.1 Planning Considerations

The project requires approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as it is a class of development listed in Schedule 1 of the State Environmental Planning Policy (SEPP) (Major Projects) 2005. The listing in Schedule 1 of the SEPP that applies to this project is:

> **22 Port and wharf facilities**
>
> Development for the purpose of shipping berths or terminals or wharf-side facilities (and related infrastructure) that has a capital investment value of more than $30 million.

On 24 July 2009, an amendment to the State Environmental Planning Policy (Major Development) 2005 known as the Three Ports Amendment was gazetted, listing the Port of Newcastle as a State Significant Site within Schedule 3. Consequently the zoning of the subject land moved from the Newcastle Local Environmental Plan 2003 to the SEPP. Pursuant to the provisions of the SEPP the subject site is zoned SP1 Special Activities (Port Uses) in which port facilities are permissible with development consent. Therefore the Minister may grant development consent to this proposal.

In addition to approval under Part 3A of the EP&A Act, the project may also require approvals under a number of additional Acts or assessment under State planning policies. The additional Acts and policies potentially relevant to this project are listed in **Table 3.1** with an indication of any approvals likely to be required.

Table 3.1 – Other Potentially Relevant Acts and State Planning Policies

Planning Provision	Comments	Relevant Licences/ Approvals/Assessments
Commonwealth Legislation		
Environment Protection and Biodiversity Conservation (EPBC) *Act 1999*	The proposal is located approximately 2 kilometres to the south of the Kooragang Nature Reserve, a RAMSAR wetland, and a number of migratory and threatened species listed by the EPBC Act are known to occur in the area. The proposal is located entirely within an area previously disturbed by industrial activities and does not directly impact on the RAMSAR wetland. Off-site impacts (noise and dust) are also not expected to significantly contribute to existing ambient levels. On this basis, it is anticipated that the proposal will not have a significant impact on the wetland or listed species, and therefore will not need to be assessed as 'controlled action' under the EPBC Act.	

Table 3.1 – Other Potentially Relevant Acts and State Planning Policies (cont)

Planning Provision	Comments	Relevant Licences/ Approvals/Assessments
NSW Legislation – State Environmental Planning Policies		
State Environmental Planning Policy 33	*SEPP 33* requires the consent authority to consider whether an industrial proposal is a potentially hazardous industry or a potentially offensive industry. Cement is not classified as a dangerous good in accordance with the Australian Dangerous Goods Code, therefore it is unlikely that the proposed development will be a potentially hazardous industry. The proposed development will require an Environment Protection Licence, therefore it could be a potentially offensive industry.	A Preliminary Hazard Analysis will be undertaken to confirm that the project is not a potentially hazardous or offensive industry.
State Environmental Planning Policy 55	*SEPP 55* requires the consent authority to consider potential contamination issues prior to consenting to the development of any land. Detailed contamination assessments have been completed within the project area and remediation of the site was approved as part of DA 293-08-00. The site is also the subject of a Voluntary Remediation Agreement requiring remediation of the project area to occur synergistically with site redevelopment.	Contamination investigations have been completed on the site and a Voluntary Remediation Agreement established. A Contaminated Site Management Plan has been prepared in accordance with DA 293-08-00 and submitted for approval to Department of Planning (DoP). Appropriate validation and a Site Audit Statement will be obtained following completion of remediation works on the site to confirm the site is suitable for the proposed use.
State Environmental Planning Policy 71	*SEPP 71* sets out matters for consideration for a consent authority and development controls for developments located within the coastal zone. The proposed development is located within the coastal zone.	The project will address the matters for consideration listed in Clause 8 of the SEPP, and the development controls set out in Part 4.
State Environmental Planning Policy (Major Projects) 2005	As discussed above, this project is of a class of development listed in the SEPP. The project therefore requires approval under Part 3A of the EP&A Act and the Minister for Planning will be the consent authority.	Assessment under Part 3A of the EP&A Act.

Table 3.1 – Other Potentially Relevant Acts and State Planning Policies (cont)

Planning Provision	Comments	Relevant Licences/ Approvals/Assessments
State Environmental Planning Policy (Infrastructure) 2007	The SEPP establishes permissibility for activities associated with some port, wharf or boating facilities. Development for the purposes of port or wharf facilities carried out by or on behalf of a Port Corporation may be carried out on any land without consent. Clause 104 of the SEPP requires that the Roads and Traffic Authority (RTA) is notified of and given the opportunity to make representations in respect of developments listed in Schedule 3 of the SEPP. Schedule 3 includes transport terminals, bulk stores, container depots or liquid fuel depots greater than 8000 square metres in area.	Redevelopment and upgrading of the wharves will be carried out by or on behalf of NPC independently of this project. As transport terminals and bulk stores are listed in Schedule 3, the RTA will be consulted regarding the project.
NSW Legislation – Acts		
Environmentally Hazardous Chemicals Act 1985	DECC is granted power under the *Environmentally Hazardous Chemicals Act 1985* to assess and control chemicals and declare substances to be chemical wastes. A licence is required for any storage, transport or use of prescribed chemicals.	A licence will be required under this Act if any prescribed chemicals are proposed to be stored or used as part of the project. Further details will be provided in the Environmental Assessment report.
Protection of the Environment Operations (POEO) *Act 1997*	The POEO Act is administered by DECC and requires licences for environmental protection including waste, air, water and noise pollution control for activities listed in Schedule 1 of the Act, including: • Cement works that have an intended combined handling capacity exceeding 150 tonnes per day or 30,000 tonnes per year in bulk of cement, fly ash, powdered lime, or any other similar dry cement products. • Shipping facilities (bulk) for loading or unloading, in bulk, agricultural crop products, rock, ores, minerals or chemicals into or from vessels, being wharves or associated facilities with an intended capacity exceeding 500 tonnes per day or 50,000 tonnes per year.	The proposed development will undertake activities listed in Schedule 1 of the Act, therefore an Environment Protection Licence will be required.

Table 3.1 – Other Potentially Relevant Acts and State Planning Policies (cont)

Planning Provision	Comments	Relevant Licences/ Approvals/Assessments
Roads Act 1993	The *Roads Act* 1993 is administered by the Roads and Traffic Authority (RTA), local council or the Department of Lands; the RTA has jurisdiction over major roads, the local council over minor roads, and the Department of Lands over road reserves. Consent under Section 138 of the *Roads Act* is required in order to undertake works within a road reserve.	The roads within the project area are privately owned and no road works beyond the project area are anticipated. As such no approvals under the Roads Act will be required. If however, works are required to upgrade services within Selwyn Street or Industrial Drive, an approval will be sought from the RTA under Section 138 of the Act.

Under Part 3A of the EP&A Act, the authorisations listed in **Table 3.2** which may have otherwise been relevant, will not be required if the project is approved.

Table 3.2 - Approvals Legislation Which Does Not Apply

Act	Approval
Coastal Protection Act 1979	Concurrence of the Minister for development within the coastal zone.
Fisheries Management Act 1994	Permit for works or structures within a waterway.
Heritage Act 1977	Disturbance to an item listed on State Heritage Register or Interim Heritage Order; Excavation permit.
National Parks & Wildlife Act 1974	Preliminary research permit; consent to destroy relics.
Threatened Species Conservation Act 1995	Licence to harm or pick threatened species, populations or ecological communities or habitat.
Water Management Act 2000	Water use approval, water management work approval or activity approval.

3.2 Authority Consultation

The authority consultation process for the project has commenced with an initial briefing meeting held with Department of Planning (DoP) on 27 March 2008 to confirm the approval path for the project. Consultation meetings have also been held with NPC regarding the project and use of wharf facilities at the Multi-Purpose Terminal site.

The next phase of the consultation process is the lodgement of a Project Application and this Preliminary Environmental Assessment with DoP. Following lodgement of these documents, DoP will distribute the Preliminary Environmental Assessment to all relevant agencies seeking their comments and requirements for consideration during the preparation of the Environmental Assessment for the project.

In addition to DoP, the key agencies for this project will be:

- Newcastle City Council;

- NPC;
- NSW Maritime Authority;
- DECC;
- Department of Water and Energy;
- Roads and Traffic Authority; and
- Hunter Development Corporation and State Property Authority.

It is envisaged that there will be ongoing consultation with these authorities and other relevant organisations as required throughout the environmental assessment process.

3.3 Community Consultation

A community consultation strategy will be developed for the project and will include consultation with the following key community and industry stakeholders:

- Newcastle Voice;
- Carrington Residents Action Group;
- Mayfield Community Consultative Committee;
- Environmental Protection and Pollution Advisory Committee (EPAPAC); and
- Port Waratah Coal Services who operate immediately to the south of the project area and opposite the site on the northern bank of the South Arm of the Hunter River.

Consultation with the above stakeholders, as well as any others identified during preparation of the consultation strategy, will be ongoing throughout the environmental assessment process, ensuring clear identification of issues, feedback on the findings of the environmental assessment and identification of appropriate community and environment management measures to be incorporated in the project.

4.0 Preliminary Environmental Assessment

4.1 Environment and Community Context

The project area is located in Mayfield North adjacent to the South Arm of the Hunter River, approximately 3 kilometres north of Newcastle. The project area is located within the BHP Closure Area which originally formed part of the BHP Steelworks Main Site. The Steelworks operated on the site between 1915 and 1999. Following closure of the steelworks in 1999, structures within the Closure Area were demolished and consent was granted for remediation of the entire Closure Area and for development of a Multi-Purpose Terminal within part of the Closure Area (DA 293-08-00). The project area is located in the south-eastern corner of Closure Area and the project will utilise wharfs and berths to be constructed under the Multi-Purpose Terminal consent (DA 293-08-00).

Prior to industrial development of the site, the Closure Area originally comprised river channels and low-lying swamp which were reclaimed to enable construction of the Steelworks. The existing landform was established by placement of slag, ash, coal tailings and general building refuse (URS, 2000). The topography of the Closure Area is relatively flat with a gentle slope in a north-easterly direction towards the South Arm of the Hunter River. The elevation of the site ranges from 1.5 metres ADH to 5.5 metres AHD. The highest point is a natural rise in the south-west of the site, adjacent to Industrial Drive. The Closure Area is bounded by the South Arm of the Hunter River to the north-east and east, Selwyn Street to the south, Industrial Drive to the west and OneSteel operations to the north-west.

As shown on **Figure 1**, the Closure Area is surrounded by heavy industrial land uses. The current OneSteel operations are located immediately to the north-west of the Closure Area and Port Waratah Coal Services Carrington Terminal is located immediately to the south. The Kooragang Island industrial area, including the Kooragang Coal Loader, is located to the north of the Closure Area on the northern bank of the South Arm of the Hunter River.

The nearest residential areas to the project area are located at Carrington, approximately 1 kilometre to the south, Tighes Hill, approximately 1.3 kilometres to the south-east, and Mayfield, approximately 1.5 kilometres to the east.

4.1.1 Land Ownership and Land Use

The proposed cement terminal site is part of the BHP Closure Area which is currently owned by the State Property Authority (a statutory authority established by the NSW State Government).

In December 2007, the Budget Committee of Cabinet (BCC) endorsed the principle that to facilitate the growth of the port, Newcastle Port Corporation should own and/or manage port related land within the port of Newcastle. In this regard, BCC approved the transfer of ownership of several parcels of land at the port to implement this policy (Department of Premier and Cabinet, 2007). The lands approved for transfer to Newcastle Port Corporation include:

- The Direct Port Industry Precinct of the Intertrade Industrial Park (ITIP).
- Any part of the Intermodal Port Support Zone at the ITIP not included in a short listed Revised Proposal in the current ITIP evaluation process.
- All the remaining part of the Intermodal Port Support Zone in the Intertrade Industrial Park following completion of any lease negotiations by Hunter Development Corporation.

The land the subject of this application is within the Direct Port Industry Precinct of the ITIP and as such will be within the lands to be transferred to Newcastle Port Corporation under the terms of the BCC resolution.

The Closure Area site is registered as Lot 33 in DP 1116571.

The proposed cement terminal site is currently vacant with all structures associated with previous industrial use demolished.

4.2 Preliminary Environmental Risk Analysis

To assist in identifying the key environmental and community issues that require further assessment, a preliminary environmental risk analysis has been completed for the project and is included in **Appendix 1**. The risk analysis was completed using the risk assessment process described in *AS/NZS 4360:2004 Risk Management*. The risk matrix, consequence table and likelihood table used for the assessment is included in **Appendix 1**.

Consistent with AS/NZS 4360, environmental risks have been categorised as low, medium, high or extreme. As shown in **Appendix 1**, the majority of activities are rated as low or medium level risks, with one high risk and no extreme risks. It is expected that with the completion of further studies and assessment as outlined in **Section 4.3**, this high risk will be reduced to medium level risk, due to better definition of potential impacts and effective implementation of management and mitigation measures. The scope of further assessment required for these issues as part of the Environmental Assessment report is discussed in further detail in **Section 4.3**. Where appropriate, the proposed controls contained in the preliminary environmental risk analysis will be included in the draft Statement of Commitments in the Environmental Assessment report. No further assessment is considered necessary for some potential environmental issues as indicated in **Appendix 1**.

4.3 Key Environment and Community Issues

The key environment and community issues for the project have been determined through the preliminary environmental risk analysis discussed in **Section 4.2**. These issues are discussed further in the following sections, including a description of the proposed assessment methodology. The assessment of these issues will form the impact assessment section of the Environmental Assessment report prepared for the project.

4.3.1 Noise

Noise has been identified as a key issue for the project, however it is anticipated that the location of the project area, a significant distance from sensitive receivers, will minimise the potential for the project to have a significant impact.

The nearest sensitive receivers to the project area are located in Carrington, approximately one kilometre to the south of the site. Sensitive receivers in this location are currently affected by industrial noise up to 24 hours a day from existing industrial operations such as Port Waratah Coal Services Carrington Terminal, therefore background noise levels in this area are likely to be generally higher than for other residential areas. Other potentially affected sensitive receivers include residential areas of Tighes Hill, located approximately 1.3 kilometres to the south-west, and Mayfield, located approximately 1.5 kilometres to the west.

Potential sources of noise during operation of the facility include:

Ship Unloading

- the Siwertell Unloader and associated plant (e.g. enclosed screw conveyor, compressor and hopper); and

- ship engines/auxiliary power unit, noise associated with hooking up pipes, and noise from compressors on the self-discharging vessels.

Cement and Slag Terminal Operation

- compressors;
- reverse pulse dust collectors and silo vent valves on the storage silos;
- cement and slag tanker loading facility; and
- cement and slag tankers.

A detailed noise impact assessment will be completed for the construction and operational phases of the project in accordance with the NSW Industrial Noise Policy. The assessment will include:

- identification of the nearest potentially affected residential receivers and the noise-sensitive localities;
- designing and conducting a background noise monitoring program to quantify the existing background and ambient noise levels at a number of selected locations. The monitoring program may also include operator-attended noise surveys if required;
- assessment of the existing noise environment;
- determining the construction noise criteria and project specific noise levels that are relevant to the project;
- prediction of noise emissions for the construction and operational phases of the project and calculation of the noise levels at the nearest potentially affected residential receivers and noise-sensitive localities, using a computer generated noise model;
- comparison of the predicted noise levels with the construction noise criteria and project specific noise levels and assessment of impacts in accordance with the Environmental Noise Control Manual for the construction activities and the NSW Industrial Noise Policy for the operational activities; and
- consideration of feasible and reasonable noise mitigation strategies where criteria are exceeded and any recommendations relating to noise monitoring and management.

Additionally, cumulative noise impact of the proposal and other relevant nearby industrial operations will be assessed.

An assessment of road traffic noise impacts is not proposed as the traffic generated from the project is unlikely to have a measurable impact on road traffic noise on Industrial Drive and will be within the traffic levels that have already been assessed for the Multi-Purpose Terminal. The Annual Average Daily Traffic count for Industrial Drive, west of Woodstock Street is 30,334 (RTA, 2002). Assuming 10% of these movements are heavy vehicles, the addition of 142 heavy vehicle movements associated with the project is unlikely to have a measurable impact on road traffic noise.

4.3.2 Air Quality

During the construction phase, the project is not expected to significantly contribute to existing background dust concentrations, as dust generating activities are expected to be minor (i.e. earthworks) and potential dust emissions can be readily managed via routine dust suppression techniques.

During the operational phase of the project, a number of potential particulate matter fugitive and point sources have been identified, including:

- ship unloading;
- vehicle traffic;
- Siwertell hopper dust collector (used during ship unloading); and
- storage silo dust collectors.

Loading of road tankers is not considered an emission source because of the enclosed loading system which returns dust to the tanker during loading.

A detailed air quality impact assessment will be completed for the project in accordance with DECC guidelines for Approved Methods for the Modelling and Assessment of Air Pollutants in NSW. The assessment will include:

- an assessment of existing air quality in the project area through a review of existing air quality monitoring data available for the area;
- the development of an emissions inventory for the operational phase of the project;
- the assessment of impact on nearest residential receivers using a dispersion model and relevant meteorological data to predict dust deposition rates, concentrations of PM_{10} (24hr and annual average) and concentrations of TSP (annual average);
- comparison of predicted values with current NSW DECC goals; and
- recommendations relating to the management and minimisation of dust.

The air quality impact assessment will include an assessment of cumulative impacts.

4.3.3 Contamination

The proposed development is located within the BHP Closure Area. Previous investigations have identified that surface fill material and groundwater within the Closure Area are contaminated and may pose a significant risk of harm to human health and the environment without remediation.

Based on the results of previous site investigations, the potential contaminants of concern identified within the fill and groundwater of the Closure Area include:

- inorganic contaminants (associated with slags and ashes) such as metals; and
- organic contaminants (associated with coal tars and petroleum products), in particular PAHs, Total Petroleum Hydrocarbons, and to a lesser extent, phenols and BTEX (URS, 2000).

The Closure Area has been divided into two areas according to the degree of contamination and associated environmental hazard, Area 1 being the more contaminated portion of the site.

The proposed cement terminal will be constructed within Area 2, the less contaminated portion of the site. Area 2 is separated from Area 1 by a subterranean barrier wall that is designed to stop groundwater migrating into Area 1, thereby reducing the volume of contaminated groundwater flowing from Area 1 into the Hunter River.

4.3.3.1 Site Remediation

In April 2001, the Minster for Urban Affairs and Planning granted Development Consent for Remediation of the Closure Area and Development of a Multi-Purpose Terminal (DA 293-08-00). Approved works include remediation of the entire Closure Area, staged approval for construction and operation of a Multi-Purpose Terminal, incorporating a container terminal, general cargo handling facility and bulk handling facility, associated rail, road and wharf infrastructure and dredging of the South Arm of the Hunter River. Development consent conditions relevant to remediation of the proposed cement terminal site are as follows:

- Conditions 5.17 and 5.18 require the area of the proposed cement terminal to be capped with hardstand or incorporate a seal bearing layer consisting of a material at least 500 mm thick and have a permeability less than K = $10^{-9}ms^{-1}$ or $10^{-7}ms^{-1}$ (depending on the location) and be constructed and maintained to permit free drainage and avoid surface water ponding;

- Condition 5.19 requires a qualified Geo-technical Engineer to provide certification of the permeability of the seal bearing layer installed on the site; and

- Condition 5.20 requires development of a capping maintenance plan for the Closure Area which includes:

    a) procedures for ensuring that the integrity of the cap is maintained during any construction or any other activities on the Closure Area; and

    b) procedures for ensuring that disturbance of any part of the cap during construction or any other activities on the site, is rectified to maintain the integrity of the capping system and meet the requirements of Conditions 5.17 and 5.18.

In September 2005, a VRA was established between DECC and the RLMC, the organisation responsible for managing the site on behalf of the NSW State Government. Responsibility for managing the site has recently been transferred to NPC, and as such, the NPC is responsible for implementing the remediation strategy for the site in accordance with the VRA.

The remediation criteria established for the Closure Area site were based on a risk based approach. The remediation objective adopted for the site aims for surface soils (the top 0.5 metres) to comply with the following site specific criteria:

- the absence of free tar within the top 0.5 metres;

- total PAH concentration less than 400 mg/kg in the top 0.5 metres; and

- the concentration of benzo(a)pyrene and equivalents less than 15 mg/kg in the top 0.5 metres (URS, 2000).

Remediation of the Closure Area is based principally on containment (through capping and groundwater controls) rather than on treatment. The proposed remediation strategy involves four key elements:

1. Sealing the site surface area with an inert capping layer, preventing the infiltration of surface water and providing a physical barrier between contaminated soils and site users. The required capping consists of either hardstand (concrete or asphalt) or a minimum 500 mm thick engineered low permeability cap of coal washery reject;

2. Installation of a subterranean up-gradient barrier wall to minimise groundwater flows into Area 1, the most contaminated section of the site;

3. Improved drainage infrastructure, which will contribute to both the reduction of surface water infiltration and the management of possible contaminated surface water run-off from the site. Reduction of rainwater infiltration is a key aspect of the remediation strategy, as it reduces the off-site flow of contaminated groundwater; and

4. Contouring of the entire site to complement the improved drainage infrastructure and further reduce surface water infiltration.

The VRA commits Hunter Development Corporation to a staged remediation process. Stage 1 targeted Area 1 with capping, drainage works and the installation of a subterranean barrier wall completed in June 2008. This will be followed by remediation of the remainder of the site (Area 2), which will be carried out progressively by Hunter Development Corporation in conjunction with site redevelopment.

In March 2008, a Contaminated Site Management Plan was prepared in accordance with Condition 5.20 of DA 293-08-00. The plan establishes procedures for ensuring that remediation and construction activities are undertaken in such a way so as to ensure the integrity of the remediation strategy. The plan establishes certification and reporting procedures for all works on site, including requirements for certification of remediation works by a Geotechnical Engineer, Environmental Scientist and Site Auditor prior to occupation of the site.

Construction of the proposed cement terminal will include installation of site capping in accordance with the VRA, Contaminated Site Management Plan and DA 293-08-00. The method of proposed capping for the cement terminal site is concrete hardstand.

4.3.3.2 Construction and Ongoing Management

The conditions of development consent for remediation of the Closure Area require that four levels of environmental management plans are prepared for the site:

- a Contaminated Site Management Plan;

- a Site Preparation Environmental Management Plan;

- project-specific Construction Environmental Management Plans; and

- project-specific Operational Environmental Management Plans.

Hunter Development Corporation has prepared an overarching Contaminated Site Management Plan for the site in accordance with Condition 4.1 and 5.20 of DA 293-08-00. The plan provides a common framework to be applied across the whole of the site for the design, implementation, completion, use and maintenance of all remediation and construction works carried out within the Closure Area. The plan establishes certification and

reporting procedures to ensure that the integrity of the remediation strategy is maintained into the future, including ongoing involvement of the appointed Site Auditor in the design, construction and maintenance of remediation and construction works on site.

RLMC has prepared an overarching Site Preparation EMP for the site, referred to as the Closure Area Site Preparation EMP. This EMP has been approved by DoP. The Closure Area Site Preparation EMP outlines requirements for environmental reporting, monitoring, controls and work methods. All site preparation and remediation works must comply with the requirements of this EMP.

In accordance with the Contaminated Site Management Plan and Site Preparation EMP, individual contractors proposing project-specific remediation, site preparation or construction works on the site, are required to prepare, and seek approval for, a project-specific Construction EMP. The Construction EMP will provide procedures that specifically deal with on site remedial activities and control measures. A Construction EMP will be required for the proposed cement terminal and will be prepared for the approval of the appointed Site Auditor and DoP prior to the commencement of site preparation and construction. An Operational EMP will also be prepared for the proposed cement terminal for the approval of the appointed Site Auditor and DoP to manage ongoing operations of the terminal.

The Contaminated Site Management Plan also requires the preparation of a Works Management Plan to assess the risks associated with proposed remediation or construction works, to establish protocols for safe conduct of the works and protocols for managing and validating excavated materials encountered during works. A Works Management Plan will be prepared for the proposed cement terminal.

Following completion of remediation works on the proposed cement terminal site, the appointed Site Auditor will be engaged to provide a site audit statement for the remediation works, in accordance with commitments made under the VRA and Contaminated Site Management Plan.

4.3.4 Traffic

The proposed cement terminal is predicted to generate the following traffic movements:

- approximately 32 shipments per year associated with the importation of bulk cement and ground slag at full production capacity;

- approximately 142 heavy vehicle movements associated with distribution of bulk cement and slag via road at full production capacity; and

- approximately 34 light vehicle movements associated with employees, visitors, couriers etc.

As discussed in **Section 2.1.4**, the predicted traffic generation from the project is well within the traffic movements assessed and approved as part of the Multi-Purpose Terminal consent. The predicted traffic generation of the project has also been assessed as part of the modification to the Multi-Purpose Terminal consent in 2008. Heavy vehicle movements associated with the Multi-Purpose Terminal were predicted to be in the order of 578 per day, while light vehicle movements were predicted to be in the order of 544 per day. The proposed cement terminal will utilise only a small proportion of the predicted traffic generation from the Multi-Purpose Terminal site. Therefore, it is considered likely that the local traffic network will be able to accommodate the projected traffic flows associated with the project.

The proposed development will be accessed from Industrial Drive, initially via the existing signalised Industrial Drive – Selwyn Street intersection. Interim access will continue from this intersection during the start up phase of development of the Closure Area.

The need for a traffic impact assessment to be completed as part of the Environmental Assessment will be assessed. Any assessment, if required will be undertaken in accordance with the RTA's Guide to Traffic Generating Development and Road Design Guide.

4.3.5 Visual Amenity

The proposed cement terminal involves the construction of wharf side unloading infrastructure and two 35,000 tonne storage silos approximately 53 metres in height adjacent to the South Arm of the Hunter River. While the site is located within an existing heavy industrial area a significant distance from sensitive viewing locations such as residences or public roads, these elements of the project require further visual assessment due to their scale and location.

A visual assessment will be completed for the project and will include a discussion of the general scenic amenity of the area and identify potential viewing locations of project infrastructure. The assessment will be undertaken using a digital terrain model of the local area to build a three dimensional model of the project and identify potential viewing locations. The visual assessment will present a series of photo montages which show the proposed development from key viewing locations. Where appropriate, the assessment will also include measures to mitigate the visual impacts associated with the project.

4.3.6 Water Quality Management

The proposed development is located adjacent to the South Arm of the Hunter River. The EA will detail the stormwater management approach for the site and the stormwater management system, i.e. control measures proposed for the site, for both the construction and operational phases of the project. Controls proposed during the operation of the project include:

- delineation of clean and dirty water areas using bunding and/or gradients;
- ensuring all cement storage is undercover and all cement transfer is undertaken in sealed pipelines;
- the use of oil/grit separators to treat dirty water prior to its release off site;
- implementation of housekeeping and management measures to minimise the risk of pollutant discharges from the site; and
- water quality monitoring will be undertaken as part of the Site Water Management Plan that has been developed for the site.

The EA will also provide detail of control measures proposed to prevent spills, leaks or discharges during the unloading, transfer and storage process.

4.4 Other Environment and Community Issues

4.4.1 Heritage

The proposed development is located within the BHP Closure Area with the underlying landform being manmade. As a result the site has no potential to contain sites of Aboriginal archaeological significance.

There are however, a number of items of local historic heritage significance located within the BHP Closure Area, associated with previous industrial use of the site. Detailed heritage studies undertaken as part of the Multi-Purpose Terminal consent identified numerous sites of local industrial heritage significance within the Closure Area. Many of these sites were proposed to be impacted as part of development of the Multi-Purpose Terminal and remediation of the Closure Area, and consent was granted to demolish these potentially impacted sites. Many of these sites have now been demolished due to safety reasons or as a result of site remediation works.

The following items of industrial heritage listed by the Newcastle Local Environment Plan 2003 have been identified within the vicinity of the proposed cement terminal site:

- original timber wharves; and
- AC Saltwater Pump House.

These items have been approved for demolition as part of the Multi-Purpose Terminal consent, and the AC pump house has been recorded as demolished. No evidence of the original timber wharves remains, thought to be due partly to the attack of the *teredo* worm and partly due to the need for continuing repair, replacement and upgrading of the wharf facilities throughout their useful life (Umwelt, 2005). Any potential impact on the original timber wharves associated with upgrade of the wharves by NPC, does not require development consent in accordance with Clause 68 of the SEPP (Infrastructure) 2007 and will be assessed separately by NPC as part of their proposed upgrade works.

It is therefore considered unlikely that the proposed development will impact on items of historic heritage significance. Works will however be conducted in accordance with the Closure Area Archaeology Management Plan prepared for the site under DA 293-08-00.

The Environmental Assessment will include a review of existing information relevant to the site and the implications for potential development under the current legislative requirements, identification of potential impacts on items of industrial heritage and, if relevant, recommendations for managing potential impacts on items of local heritage significance, consistent with the requirements of DA 293-08-00.

4.4.2 Hazard and Risk

Cement is not listed as a hazardous material under the Dangerous Goods Code and is not considered to be an oxidising agent, therefore it is unlikely that the proposed development will be a hazardous industry. The proposed development will require an Environment Protection Licence, therefore it could be a potentially offensive industry.

A Preliminary Hazard Analysis will be undertaken to confirm that the project is not a potentially hazardous or offensive industry in accordance with SEPP 33.

4.4.3 Ecology

The proposed development is located within the BHP Closure Area which has been heavily disturbed and modified by industrial development, land reclamation and long term filling with Steelworks wastes. The likelihood of impacting native flora and fauna is low.

The Environmental Assessment will include a review of existing information relevant to the site and the implications for potential development under the current legislative requirements, identification of potential impacts on flora and fauna and, if relevant, recommendations for managing potential direct and indirect impacts on flora and fauna.

4.4.4 Greenhouse Gas

Operation of the proposed cement terminal will indirectly result in the emission of greenhouse gases through use of electricity to power infrastructure and directly contribute to emissions through combustion of diesel fuel to transport cement.

The establishment of a regional distribution point for bulk users of cement in the surrounding region will potentially reduce transport related greenhouse gas emissions.

A greenhouse gas emission assessment will be completed as part of the Environmental Assessment, including identification of appropriate mitigation measures to minimise greenhouse gas emissions from the operation.

4.4.5 Cumulative Impacts

Potential cumulative impacts will be assessed and detailed in the Environmental Assessment and considered as part of relevant specialist studies to be completed for the Environmental Assessment. This will ensure that the potential impacts on the surrounding area are fully considered. The Environmental Assessment will also identify any special monitoring needs that may be required to identify impacts from the proposal, as distinct from the existing and potential future developments in the area.

5.0 Project Schedule

A Project Application will be lodged in the last quarter of 2009, along with this Preliminary Environmental Assessment and a request for DoP to issue the Environmental Assessment Requirements for the project.

Based on current project timing, ICL intends to lodge the draft Environmental Assessment in early 2010, with determination of the project sought by mid 2010.

6.0 References

Department of Environment and Conservation, 14 September 2005. Agreement Not to Issues Order during Compliance with a Voluntary Proposal.

Hunter Development Corporation, March 2008. Contaminated Site Management Plan.

Minister for Urban Affairs and Planning, 2001. Environmental Planning and Assessment Act 1979 Integrated State Significant Development Determination of Development Application Pursuant to Section 76A(9) & 80(4), File No. S99/00601, DA 293-08-00. Consolidated instrument including modifications approved:
(a) under section 96(1) on 29 June 2001;
(b) under section 96(1) on 13 August 2001;
(c) under section 96(1A) on 15 February 2002;
(d) under section 96(1A) on 16 September 2003;
(e) under section 96(1A) on 15 September 2005; and
(f) under section 96(1A) on 21 August 2007.

NSW Roads and Traffic Authority, 2002. Traffic Volume Data for Hunter Region 2001.

Regional Land Management Corporation, 2006. Closure Area Site Preparation Environmental Management Plan.

Regional Land Management Corporation, 2005. Voluntary Remediation Proposal Under Contaminated Land Management Act 1997.

Umwelt (Australia) Pty Limited 2005. Assessment of the Historical Archaeology and Research Design: Newcastle Steelworks Closure Area.

URS, 2000. Development of a Multi Purpose Terminal and Remediation of the Closure Area, BHP Newcastle Steelworks, Environmental Impact Statement.

APPENDIX 1

Preliminary Environmental Risk Assessment

Appendix 1 - Preliminary Environmental Risk Assessment

Table 1 - Qualitative Measures of Environmental Consequence

Severity Level	Natural Environment	Legal/Government	Heritage	Community/Reputation/Media
(1) Insignificant	Limited damage to minimal area of low significance.	Low-level legal issue. On the spot fine. Technical non-compliance prosecution unlikely. Ongoing scrutiny/attention from regulator.	Low-level repairable damage to commonplace structures.	Low level social impacts. Public concern restricted to local complaints. Could not cause injury or disease to people.
(2) Minor	Minor effects on biological or physical environment. Minor short-medium term damage to small area of limited significance.	Minor legal issues, non-compliances and breaches of regulation. Minor prosecution or litigation possible. Significant hardship from regulator.	Minor damage to items of low cultural or heritage significance. Mostly repairable. Minor infringement of cultural heritage values.	Minor medium-term social impacts on local population. Could cause first aid injury to people. Minor, adverse local public or media attention and complaints.
(3) Moderate	Moderate effects on biological or physical environment (air, water) but not affecting ecosystem function. Moderate short-medium term widespread impacts (e.g. significant spills).	Serious breach of regulation with investigation or report to authority with prosecution or moderate fine possible. Significant difficulties in gaining approvals.	Substantial damage to items of moderate cultural or heritage significance. Infringement of cultural heritage/ scared locations.	Ongoing social issues. Could cause injury to people, which requires medical treatment. Attention from regional media and/or heightened concern by local community. Criticism by NGOs. Environmental credentials moderately affected.
(4) Major	Serious environmental effects with some impairment of ecosystem function. Relatively widespread medium-long term impacts.	Major breach of regulation with potential major fine and/or investigation and prosecution by authority. Major litigation. Project approval seriously affected.	Major permanent damage to items of high cultural or heritage significance. Significant infringement and disregard of cultural heritage values.	On-going serious social issues. Could cause serious injury or disease to people. Significant adverse national media/public or NGO attention. Environment/management credentials significantly tarnished.

Table 1 - Qualitative Measures of Environmental Consequence (cont)

Severity Level	Natural Environment	Legal/Government	Heritage	Community/Reputation/Media
(5) Catastrophic	Very serious environmental effects with impairment of ecosystem function. Long term, widespread effects on significant environment (e.g. national park).	Investigation by authority with significant prosecution and fines. Very serious litigation, including class actions. License to operate threatened.	Total destruction of items of high cultural or heritage significance. Highly offensive infringement of cultural heritage.	Very serious widespread social impacts with potential to significantly affect the well being of the local community. Could kill or permanently disable people. Serious public or media outcry (international coverage). Damaging NGO campaign. Reputation severely tarnished. Share price may be affected.

Table 2 - Qualitative Measure of Likelihood

Level	Descriptor	Description	Guideline
A	Almost Certain	Consequence is expected to occur in most circumstances.	Occurs more than once per month.
B	Likely	Consequence will probably occur in most circumstances.	Occurs once every 1 month – 1 year.
C	Occasionally	Consequence should occur at some time.	Occurs once every 1 year – 10 years.
D	Unlikely	Consequence could occur at some time.	Occurs once every 10 years – 100 years.
E	Rare	Consequence may only occur in exceptional circumstances.	Occurs less than once every 100 years.

Source: AS/NZS 4360:2004 Risk Management

Table 3 - Qualitative Risk Matrix

	Maximum Reasonable Consequence				
Likelihood of the Consequence	(1) Insignificant	(2) Minor	(3) Moderate	(4) Major	(5) Catastrophic
(A) Almost certain	High	High	Extreme	Extreme	Extreme
(B) Likely	Moderate	High	High	Extreme	Extreme
(C) Occasionally	Low	Moderate	High	Extreme	Extreme
(D) Unlikely	Low	Low	Moderate	High	Extreme
(E) Rare	Low	Low	Moderate	High	High

Source: AS/NZS 4360:2004 Risk Management

Table 4 – Cement Terminal Preliminary Environmental Risk Analysis

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
General Construction activities	Ground Disturbance	Disturbance to sites of archaeological significance.	The BHP Closure Area has been heavily disturbed and modified by previous industrial development, land reclamation and long term filling with Steelworks wastes. The likelihood of finding archaeological deposits is unlikely.	2	E	L	No further detailed assessment required.
		Disturbance to sites of historic significance.	Detailed heritage assessments have been completed for the BHP Closure Area identifying a number of items of local heritage significance. These sites have been previously approved for demolition and removed as part of the Multi-Purpose Terminal consent.	2	D	L	The EA will document existing information relevant to the site and identify any potential impacts and management of relevant items of local heritage significance, consistent with the requirements of DA 293-08-00.
		Loss of native flora and fauna.	The BHP Closure Area has been heavily disturbed and modified by the industrial development, land reclamation and long term filling with Steelworks wastes. The likelihood of impacting native flora and fauna is low.	1	E	L	No further detailed assessment required.
		Sedimentation of local waterways.	• Appropriate erosion and sediment controls will be designed and constructed for all construction areas in accordance with Soils and Construction (Landcom, 2004). • Works will be undertaken in accordance with a Construction EMP to be prepared for the project, including a Soil and Water Management Plan. • Minimise ground disturbance period – disturbed ground to be sealed ASAP. • Excavated material to be removed from the site at the end of each day and/or placed in dedicated stockpile area to be established or placed in Closure Area containment cell if contaminated above site criteria.	2	D	L	Due to effective mitigation of this potential impact, further assessment is not required.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
General Construction activities (cont)		Disturbance of contaminated land.	• Site known to be contaminated and approved remediation strategy in place. • Works to be undertaken in accordance with a Contaminated Site Management Plan and Construction EMP to be prepared and approved by DoP prior to commencing excavation. • Excavated material to be tested prior to disposal and placed in Closure Area containment cell or disposed of in accordance with DECC guidelines if contaminated above site criteria in accordance with Materials Management Plan prepared for the site. • Site capping to be installed in accordance with the approved remediation strategy. • Geotechnical Certification of site capping to be provided to validate cap integrity. • A contractor's Cap Integrity Maintenance Plan will be prepared to ensure the integrity of the capping layer is maintained into the future. • Site Auditor to issue a site audit statement verifying the area has been remediated in accordance with the approved remediation strategy and that procedures to maintain cap integrity are appropriate.	2	B	H	The EA will document details of site contamination and the approved remediation strategy. A Construction EMP will be submitted for approval prior to commencing excavation.
	Generation of noise	Noise levels in excess of DECC goals.	The major noise sources associated with the construction of the proposal are mobile plant and equipment including piling, crane and earthmoving equipment.	2	C	M	Detailed noise assessment will be completed.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
General Construction activities (cont)	Generation of dust	Dust levels in excess of relevant guidelines.	• The level of dust generated from the earthwork activities is expected to be minimal. • Wet suppression will be used to minimise dust emissions during adverse weather conditions and/or during activities likely to generate excessive dust emissions/plumes. • The project is therefore unlikely to significantly change current dust level in the region, i.e. minimal cumulative air quality impacts.	2	D	L	No further detailed assessment required.
	Generation of traffic	Adverse impact on traffic flow/reduced intersection performance.	• The project will generate a small number of heavy vehicle movements per day during the construction phase. • The site provides direct access to the arterial road network via an existing signalised intersection which has significant spare capacity since the closure of BHP.	1	D	L	No further detailed assessment required.
	Construction waste	Littering of the site.	• Work methods will ensure all construction waste is collected and taken away for recycling or disposal in accordance with the Materials Management Plan prepared for the site. • Waste bins will be provided on site for the disposal of rubbish.	1	D	L	No further detailed assessment required.
	Work over water	Spill or loss of equipment/material in water.	• Spill kits and emergency response procedures maintained on site. • Develop work method statement. • Appropriately trained and competent operators.	2	D	L	Control measures to be documented in EA.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Ship ballast water	Discharge of ship ballast water	Impacts on local marine environment.	• Not applicable. Ships will arrive at the port laden and will be taking on ballast and not discharging ballast.	2	E	L	Not applicable. No further assessment required.
Ship Unloading	Dust generation	Degradation of air quality.	• Self discharging vessels unload through sealed pipe network. • Siwertell unloading system used to unload standard vessels is totally enclosed with a dust collector located on the storage hopper. • Siwertell unloading arm inlet feeders are located below the cement surface during unloading. • Once cement levels drop in the hold such that the inlet feeder is not located below the cement surface. • Dust collection system will be interlocked into the plant control system so that unloading operations cannot occur without operation of the dust collection system. • Unloading operations will cease during high wind conditions.	2	C	M	A detailed air quality impact assessment will be completed.
	Noise generation	Degradation of noise amenity for sensitive receivers.	• Facility located within the BHP Closure Area • Surrounded by industrial developments e.g. Port Waratah Coal Services Carrington Terminal and OneSteel. • The nearest residential area (Carrington) located greater than one kilometre to the south of the site.	2	C	M	A detailed noise assessment will be completed.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Ship Unloading (cont)	Spill of product during unloading activities	Spills to land/water.	• Proposed unloading systems are totally enclosed so as to prevent spills during unloading. • A remote operator will be stationed on the vessel adjacent to the hold during unloading to oversee operations. • Spill kits maintained on site. • Wharf area sealed allowing ready clean up.	2	D	L	Control measures to be documented in the Environmental Assessment.
	Spill of hydraulic oil from plant	Spill to land/water	• Regular maintenance and inspection. • Spill kits maintained on site. • Wharf area sealed allowing ready clean up.	2	D	L	Control measures to be documented in the Environmental Assessment.
Pipe transfer from wharf to silos	Dust generation	Degradation of air quality.	• Cement transfer occurs within a sealed pipe network. • Self discharging ships connect direct with two 450mm pipes which pneumatically convey cement directly to storage silos. • Standard vessels are unloaded using the Siwertell Unloader system that transports cement from the vessel via enclosed screw conveyors to an enclosed hopper which feed two 450mm pipes. These closed pipes pneumatically convey cement directly to storage silos. • Dust collectors are fitted to the Siwertell hopper and storage silos.	2	D	L	Control measures to be documented in the Environmental Assessment and a detailed air quality impact assessment will be completed.
	Noise generation	Degradation of noise amenity for sensitive receivers.	• Facility located within the BHP Closure Area • Surrounded by industrial developments e.g. Port Waratah Coal Services Carrington Terminal and OneSteel. • The nearest residential area (Carrington) located greater than one kilometre to the south of the site.	2	C	M	A detailed noise assessment will be completed.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Pipe transfer from wharf to silos (cont)	Pipe integrity compromised (mechanical damage, incorrect use, vandalism)	Discharge to air/ land/water	• Pipeline installed aboveground for easy visual inspection. • Alignment avoids interaction with vehicles. • Install physical protection methods where required, e.g. bollards, armco guard rail. • Utilise high visibility colours and signage on pipeline. • Pipeline empty when not in use. • Anti-corrosive coatings applied to pipes. • Regular maintenance and visual inspection of pipeline. • Work methods and training provided to staff. • Pressure testing of pipeline. • Pressure monitoring during discharge. • Emergency stop buttons located at staffing points. • Spill kits maintained on site.	2	D	L	Control measures to be documented in the Environmental Assessment.
Silo Storage Facility	Dust generation	Degradation of air quality.	• Cement transferred directly to storage silos via sealed pipe network. • Reverse pulse dust collectors will filter the conveying air from the discharging cement to the atmosphere, with cement dust returned to the silo.	2	C	M	A detailed air quality impact assessment will be completed.
	Noise generation	Degradation of noise amenity for sensitive receivers.	• Facility located within the BHP Closure Area • Surrounded by industrial developments e.g. Port Waratah Coal Services Carrington Terminal and OneSteel. • The nearest residential area (Carrington) located greater than one kilometre to the south of the site.	2	C	M	A detailed noise assessment will be completed.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Silo Storage Facility (cont)	Visual Impact	Construction of additional infrastructure on waterfront land including two 50 m tall silos.	• Facility located within an existing industrial setting. • Landscaping and visual appearance to be considered in the Environmental Assessment.	2	C	M	A detailed visual assessment will be completed.
	Stormwater management	Release of contaminated stormwater from the facility.	• All cement storage and loading operations are located undercover and transfers to and from ships is in sealed pipelines. • Clean water/dirty water areas defined by bunds/gradients. • Stormwater from potentially dirty areas will be treated prior to discharge. • Implementing housekeeping and management measures to minimise the risk of pollutant discharge from the site.	2	D	L	Control measures to be documented in the Environmental Assessment.
	Hazard and Operability	Risks associated with the storage of dangerous goods. Spills, leaks, explosion.	Cement is not listed as a hazardous material under the Dangerous Goods Code and is not considered to be an oxidising agent, therefore the product and product storage s not considered to be hazardous.	2	E	L	Preliminary risk screening will be completed in accordance with SEPP 33 and recorded in the EA.
	Overfilling of silos	Degradation of air quality.	Load cells installed in each of the silos, together with level detection devices will ensure the silos are filled to a predetermined level and will not be overfilled	3	D	M	Control measures to be documented in the Environmental Assessment.
Truck loading and distribution	Dust generation	Degradation of air quality.	Trucks will be loaded via a sealed pipe transfer system which includes an inbuilt dust collection unit which returns dust to the tanker during loading.	2	D	L	A detailed air quality impact assessment will be completed.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Truck loading and distribution (cont)	Noise generation	Degradation of noise amenity for sensitive receivers.	• Facility located within the BHP Closure Area • Surrounded by industrial developments e.g. Port Waratah Coal Services Carrington Terminal and OneSteel. • The nearest residential area (Carrington) located greater than one kilometre to the south of the site.	2	C	M	A detailed noise assessment will be completed.
	Stormwater Management	Release of contaminated stormwater from the facility.	• All cement storage and loading operations are located undercover and transfers to and from ships is in sealed pipelines. • Clean water/dirty water areas defined by bunds/gradients. • Stormwater from potentially dirty areas will be treated prior to discharge. • Implementing housekeeping and management measures to minimise the risk of pollutant discharge from the site.	2	D	L	Control measures to be documented in the Environmental Assessment.
	Traffic generation	Adverse impact on traffic flow/reduced intersection performance.	• The project will generate approximately 110 heavy vehicle movements per day at peak operation. • The site provides direct access to the arterial road network via an existing signalised intersection. • The predicted traffic generation of the project is well within the levels assessed and approved as part of the multi-purpose terminal site.	2	C	M	A traffic assessment will be completed.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Truck loading and distribution (cont)	Overfilling of truck	Degradation of air quality.	• Automated load control will ensure that tankers are loaded in a controlled sequence which includes flow control valves for a trickle feed when nearing the target weight. • The loading system requires the driver to be present throughout loading operations with the use of a push button prompt every 30 seconds for loading to continue. • The loading system will be fitted with an emergency shut off to immediately discontinue unloading in the event of an emergency.	2	D	L	Control measures to be documented in the Environmental Assessment.
	Spill of product during truck loading	Degradation of air quality.	• Trucks will be loaded via a sealed pipe transfer system • Automated load control will ensure that tankers are loaded in a controlled sequence which includes flow control valves for a trickle feed when nearing the target weight. • The loading system requires the driver to be present throughout loading operations with the use of a push button prompt every 30 seconds for loading to continue. • The loading system will be fitted with an emergency shut off to immediately discontinue unloading in the event of an emergency.	2	D	L	Control measures to be documented in the Environmental Assessment.

Activity	Aspect	Potential Impact	Status and Proposed Control	Risk Assessment			Further Assessment Requirements
				C[1]	L[1]	R[1]	
Truck loading and distribution (cont)	Energy use	Emission of greenhouse gases.	• Operation of the terminal and distribution of cement will require use of electricity and diesel. • The facility provides a local distribution point for bulk users of cement in the surrounding region. A local distribution point will potentially reduce transport related greenhouse gas emissions.	2	D	L	A greenhouse gas assessment will be completed and management measures documented in the Environmental Assessment.

Notes:

1. C = Consequence, L = Likelihood, R = Risk.