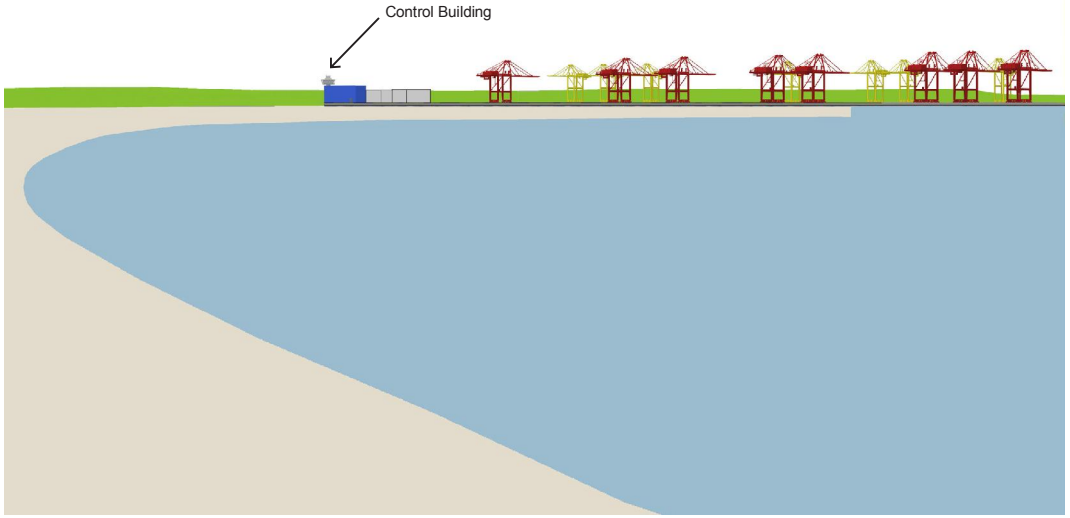
Photomontage



3D model camera view

VIEWPOINT LOCATION MAP

EXISTING CONDITIONS

TECHNICAL INFORMATION

For indicative purposes only:
Viewpoint Location: 333086.72 E 6241357.3 N
(GDA 1994 MGA Zone 56)
Approximate direction of view: 121°
Approximate distance to control building: 2660m

NOTE:
- Control building would be located behind new workshop building. Both the control building and new workshop would be visible from this location point.

LEGEND

P & O cranes

New workshop building

Patrick Stevedores cranes

Existing workshop & amenities buildings

rev	description	drawn	job manager	date
B	Issue for Information	AL	ST	07.02.13
A	Issue for approval	AL	ST	01.02.13

Patrick Stevedores Operations Pty Ltd
Port Botany Building and Infrastructure Improvements

Photomontage of location 02 - Mill Stream Lookout

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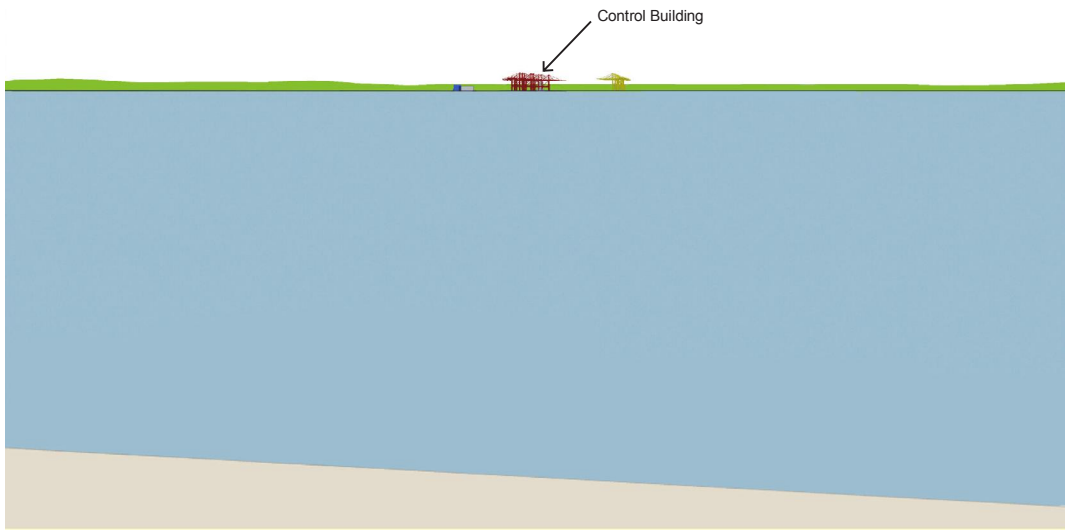
E melmail@ghd.com.au **W** www.ghd.com

sheet size	A3	job no.	212196105
date	26.02.13	rev no.	B
approved (PD)	GM		Figure 6-8

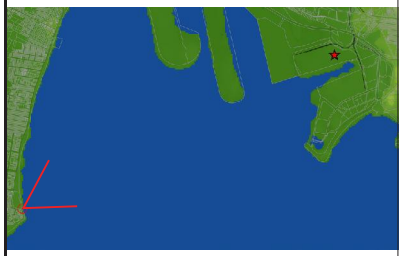
Plot Date: 07.02.13 Plotted by: Aline Lorenzon Cad File No: G:\21\2196105\CADD\Visualisation

Photomontage



3D model camera view

VIEWPOINT LOCATION MAP



EXISTING CONDITIONS

TECHNICAL INFORMATION

For indicative purposes only:
Viewpoint Location: 328988.16 E 6237128.16 N
(GDA 1994 MGA Zone 56)
Approximate direction of view: 65°
Approximate distance to control building: 7150m

NOTE:
- Control building would be located behind existing red cranes. It would not be visible from this location point.

LEGEND

P & O cranes

New workshop building

Patrick Stevedores cranes

Existing workshop & amenities buildings

rev	description	drawn	job manager	date
B	Issue for Information	AL	ST	07.02.13
A	Issue for approval	AL	ST	01.02.13

Patrick Stevedores Operations Pty Ltd
Port Botany Building and Infrastructure Improvements

Photomontage of location 03 - Dolls Point

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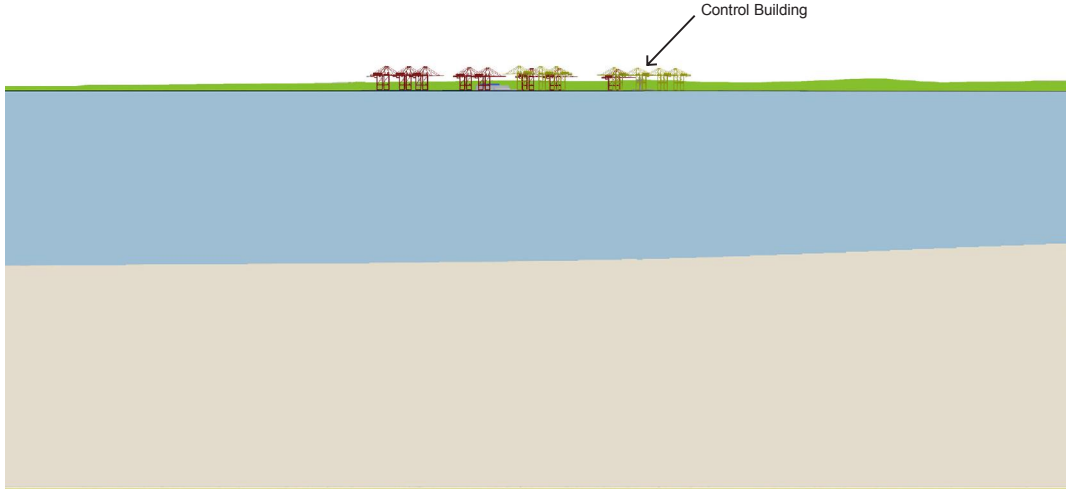
sheet size	A3	job no.	212196105
date	26.02.13	rev no.	B
approved (PD)	GM		

Figure 6-9

Plot Date: 07.02.13 Plotted by: Aline Lorenzon Cad File No: G:\21\2196105\CADD\Visualisation

Photomontage



3D model camera view

VIEWPOINT LOCATION MAP

EXISTING CONDITIONS

TECHNICAL INFORMATION

For indicative purposes only:
Viewpoint Location: 333067.74 E 6235566.47 N
(GDA 1994 MGA Zone 56)
Approximate direction of view: 24°
Approximate distance to control building: 5160m

NOTE:
- Control building would be located behind existing yellow cranes. It would not be visible from this location point.
- Existing workshop and amenities buildings are located behind the existing cranes and containers.
- New workshop building would be located behind the existing cranes, containers and existing workshop and amenities. It would not be visible from this location point.

LEGEND

P & O cranes

New workshop building

Patrick Stevedores cranes

Existing workshop & amenities buildings

rev	description	drawn	job manager	date
B	Issue for Information	AL	ST	07.02.13
A	Issue for approval	AL	ST	01.02.13

Patrick Stevedores Operations Pty Ltd
Port Botany Building and Infrastructure Improvements

Photomontage of location 04 - Silver Beach, Kurnell

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E melmail@ghd.com.au W www.ghd.com

sheet size	A3	job no.	212196105
date	26.02.13	rev no.	B
approved (PD)	GM		Figure 6-10

Plot Date: 07.02.13 Plotted by: Aline Lorenzon Cad File No: G:\21\2196105\CADD\Visualisation

6.5.4 Lighting impacts

Existing light poles within the terminal would be re-positioned and replaced with more energy efficient lighting. Light poles in the internal terminal areas would be either 20 metres or 35 metres high with up to 10 luminaires per light pole. Perimeter light poles would be approximately 10 metres high.

Lighting would provide only the minimum level of illumination necessary and would comply with:

- *AS/NZS 1680.5:2012 Interior and Workplace Lighting.*
- *AS/NZS 1158.3.1:2005 Lighting for Roads and Public Spaces – Pedestrian Area.*
- *AS 4282-1997 Control of Obtrusive Effects of Outdoor Lighting.*
- *CASA Manual of Standards Part 139 – Aerodromes*.

Lights would be switched on during the night or at times of poor visibility (i.e. fog or storms) via an on/off photo-electric sensor switch. In addition, as the automated straddle carriers do not require light in which to operate, lighting intensity would also be able to be reduced or increased at the site, as required.

Lighting would be designed so as not to effect the safe navigation of ships or aircraft. In addition, lighting would be designed to focus illumination on the terminal and prevent light spill over Penrhyn Estuary. All luminaires would be installed horizontally and would be pointed towards the terminal.

Overall, lighting intensity within the terminal would be reduced as a result of the proposal. Details of the proposed lighting arrangements are provided in Attachment C.

6.5.5 Protected airspace impacts

International and local standards define two sets of invisible surfaces above the ground around an airport. The airspace above these surfaces forms the airport's protected airspace. These two surfaces are the OLS and the PANS-OPS.

The OLS is generally the lowest surface and is designed to provide protection for aircraft flying into or out of the airport when the pilot is flying by sight. The PANS-OPS surface is generally above the OLS and is designed to safeguard an aircraft from collision with obstacles when the aircraft's flight may be guided solely by instruments (in poor weather conditions).

Due to the close proximity of Sydney Airport, a review of the OLS and PANS-OPS surface was undertaken.

The proposed administration and control building would have an elevation of approximately 42.5 metres relative to the AHD and the OLS has a derived elevation of approximately 50.0 metres AHD at the closest point to the proposed administration and control building. Therefore, the proposed administration and control building would be approximately 7.5 metres below the OLS and would have no impact on the OLS.

The existing cranes on the proposal site have a maximum elevation of 107.1 metres AHD in the boom up configuration. The existing cranes, while penetrating the OLS, are the controlling obstacles across the site for determining the PANS-OPS surface. The proposed elevation of the administration and control building (42.5 metres AHD) is some 64.6 metres below the existing maximum elevation of the existing cranes in the boom up configuration and, therefore, would have no impact on the existing PANS-OPS surface.

Construction cranes may need to operate at a height greater than the proposed buildings which may not be approved under the APA Regulations. Prior to construction, the heights of the

cranes would be assessed against the OLS/PANS-OPS surface to ensure no interference during construction.

6.5.6 Impacts to radar and radio frequencies

SPC operates a citywide network throughout Sydney using microwave links. Their office at Port Botany is situated adjacent to the site, close to the existing administration building. SPC operates two microwave dishes attached to a communications tower situated on top of their building, one aiming toward La Perouse, and the other aiming towards Newtown.

The microwave link path to Newtown would not be impinged by the new administration and control building. However, depending on the elevation of the link path, the connection may be affected during construction works if high machinery (such as cranes) passes through the beam. Prior to construction, an assessment would be conducted to determine whether the height of the construction equipment would interfere with the microwave link path.

6.5.7 Mitigation measures

Construction

The following mitigation measures would be implemented to minimise visual and landscape impacts during construction of the proposal:

- Ensure that the materials and colours of the administration and control building are selected to minimise contrast and reflectivity (e.g. neutral tones).
- Remove temporary hoardings, barriers, traffic management and signage when no longer required.
- Store materials and machinery neatly during construction works.
- Maintain roads providing access to the site and work areas free of dust and mud, as far as reasonably practicable.
- Develop a Construction Traffic Management and Dust Management Plan as part of the CEMP to control road usage and traffic speed to reduce the visual impact of vehicle movements and dust generation.
- The height of construction equipment would be assessed against the OLS/PANS-OPS and the elevation of the microwave link path to Newtown to ensure no potential interference during construction.

Operation

The proposed operations would be undertaken in accordance with the existing consent conditions in relation to landscaping and lighting. Landscaping would be undertaken in accordance with *Sydney Ports Corporation Port Botany Development Code 2012* and would consider:

- Minimising the potential for bird habitation and roosting.
- Ensuring non-bird attracting plant species are used.
- Minimising the attractiveness for foraging birds.
- Ensuring that selected trees would not capable of intruding into the OLS when mature.

6.5.8 Conclusion

The proposal would not have a noticeable negative visual impact on the surrounding area. The new administration and control building and the maintenance building and workshop would be

visible from a limited number of locations. Given the context of the surrounding industrial landscape, this impact would be minimal. The remaining visual receptors would either be at a reasonable distance from, or have good screens of vegetation / topography, in the direction of the view to the proposal site.

Mitigation measures would be implemented during both construction and operation to minimise visual and landscape impacts of the proposal.

There would be an overall reduction of lighting from current levels as a result of the measures proposed as part of the proposal. The proposal would have no impact on the OLS or PANS-OPS of Sydney Airport.

6.6 Hazards and risks

This section presents an assessment of the potential hazards and risks associated with the proposal. Mitigation measures have been identified to reduce potential hazards and risks, as required.

6.6.1 Methodology

A preliminary hazard analysis (PHA) was undertaken to provide an assessment of risks associated with the proposal in order to demonstrate that that the proposal satisfies relevant risk management requirements.

The assessment included a screening of dangerous goods in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* (SEPP 33) concentrating on the storage of specific dangerous goods classes that have the potential for significant offsite effects. The screening included the identification of classes and quantities of all dangerous goods to be used, stored or produced onsite with an indication of storage locations. Details of the methodology are described in the DP&I's *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* (DoP, 2011a).

The Multi-level Risk Assessment (DoP 2011d) approach was then used to identify other potential risks related to the proposal. This enabled the selection of the most appropriate level of risk analysis for the PHA.

The assessment was based on the following:

- *Patrick Terminals Port Botany Preliminary Hazard Analysis*, Revision 1 (Det Norske Veritas, 2002) undertaken as part of the *Patrick Port Botany Container Terminal Upgrade Environmental Impact Statement* (Parsons Brinkerhoff, 2002).
- *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* (DoP, 2011a).
- *Hazardous Industry Planning Advisory Paper No. 6: Guidelines for Hazard Analysis* (DoP, 2011b).
- *Hazardous Industry Planning Advisory Paper No. 4: Risk Criteria for Land Use Safety Planning* (DoP, 2011c).
- *Multi-Level Risk Assessment* (DoP 2011d).
- *Port Botany Terminal Operational Environmental Management Plan* (OEMP) (Patrick Stevedore Operations, 2012).
- Dangerous goods quantities and site hazardous materials registers provided by the proponent.

6.6.2 Existing environment

The terminal comprises various operational areas, structures and other facilities which are described in Section 2.1. Activities and/or areas potentially involving dangerous and/or hazardous goods within the site are listed below:

- Stacking of containerised hazardous materials in designated areas.
- Three 55,000 litre diesel fuel storage tanks and oil storage tank within the maintenance area (shown on Figure 2-1).
- Movement of containers carrying dangerous goods by straddle carriers, quay cranes, and/or reach stackers to/from trucks/trains and ships.
- Storage of fuels and oils and other hazardous substances including: maintenance and cleaning chemicals oils, paints, batteries etc.
- Refuelling of equipment within the maintenance area.

The proposal would result in the following:

- No changes to containerised hazardous materials stacking.
- No changes to fuels and oils and other hazardous substance storage or handling.
- The construction of a new fuel storage area with a storage capacity of approximately 210,000 litres to replace the existing fuel storage area. The location of the fuel storage area is shown in Figure 2-3. The existing three fuel storage tanks of 55,000 litres would be decommissioned and removed.

6.6.3 Risk management during construction

The terminal would remain operational during construction of the proposal. There would be no changes to the stacking location of containerised hazardous goods as these areas are not proposed for construction works. Construction areas would also be fenced off from operational areas, and separate access routes would be provided to the construction areas to avoid potential conflicts or inadvertent trespass. Furthermore, a construction health and safety management plan would be prepared and implemented prior to construction to identify potential hazards and associated controls during the construction period. By implementing these measures the potential of incidents occurring would be minimised.

Small quantities of fuels and oils and other hazardous substances, would be stored onsite for construction vehicles and equipment. Fuels and/or oil spills or leaks, if not managed appropriately, could enter surface and groundwater or contaminate soils. Spills or leaks of fuels/oils also have the potential to increase the risk of fire or explosion. All chemicals and fuels would be stored in secure, bunded areas within the construction compounds in accordance with the relevant Material Safety Data Sheets or regulatory guidelines.

Construction works have the potential to uncover underground services or disrupt other utilities. Correspondence with utility providers, buried service location and “dial before you dig” would be carried out prior to construction as described in Section 2.3.9 to reduce the likelihood of unexpected disruption to services.

6.6.4 Risk management during operation

Dangerous goods storage screening

A list of hazardous substances and dangerous goods (as defined by the *Australian Code for the Transport of Dangerous Goods by Road and Rail*) that would be stored and utilised on site during operation is provided in Table 6-20.

Table 6-20 Dangerous Goods Storage Screening

Area/ use	Chemical	Class	Packaging code	Quantity on site	Threshold
Water Treatment.	Sodium Hydroxide.	8	II	20 L	25 t
Water Treatment.	Sulphuric Acid.	8	III	20 L	50 t
Water Treatment.	Sodium hypochlorite.	8	III	40 L	50 t
Refrigeration.	Acetylene.	2.1		8 kg	500 kg
Refrigeration.	Compressed Oxygen.	2.2		8 kg	N/A
Refrigeration.	Refrigerants.	2.2		180 L	N/A
Cleaning Services.	Bleach.	8	III	50 L	50 t
Fuel Store.	Diesel Fuel.	C1		210,000 L (176.4 t)	20,000 t *
Maintenance.	Acetylene.	2.1		40 kg	500 kg
Maintenance.	Compressed Oxygen.	2.2		40 kg	N/A

*Note: *Fuel store is located approximately 100 metres from the site boundary*

No new chemicals are intended to be used during operation of the proposal in comparison to current practices. Therefore, it is not anticipated that the proposal would have a higher level of risk relative to current operations.

Other materials that may be stored onsite that do not contribute significantly to the dangerous goods screening threshold include:

- Lubricating oils (20 L containers).
- Engine oils (3,000 L storage).
- pH-adjustment (25 L containers).
- Detergent (25 L containers).
- Biocide (15 L containers).
- Flocculent (25 L containers).
- Small quantities of fuels and oils stored onsite for construction vehicles and equipment.

In accordance with SEPP 33, materials listed in Table 6-20 do not exceed the screening threshold for onsite storage of dangerous goods. The movement of the fuel (diesel) store further away from the site boundary would provide further offsite protection.

Transportation screening

The proposal would not increase the number of vehicles entering the surrounding road network and dangerous goods transportation would remain unchanged from the existing operations. Therefore the original PHA (Det Norske Veritas 2002) remains valid for the terminal, and route evaluation is not required.

The method of transporting containers within the site, however, would change from being transported by manual straddle carriers to automated straddle carriers.

Automated straddle carriers have been in operation at the Port of Brisbane since 2005. During the first year of operation, safety incidents reduced by 75 per cent and by a further 15 per cent in the second year. In addition, a review of the safety specifications of the automated straddle carrier compared to the manual straddle carrier has indicated that they are the same, if not safer. For example, navigation of the automated straddle carriers is based on radar. A fine positioning system based on sensors is used when approaching containers and an additional laser system is used for avoiding collisions. Development projects using the automated straddle carriers are expected to be at a lower risk when sensible roadmap planning has been applied (Cargotec, 2013).

Therefore, the change to automated straddle carriers is not likely to increase the frequency of a loss of containment of dangerous goods compared to the original PHA (Det Norske Veritas 2002).

Port Botany Land Use Safety Study

In 1996, the *Port Botany Land Use Safety Study Overview Report* was prepared by the then Department of Urban Affairs and Planning (DUAP 1996). The study identified and assessed the risks associated with the then current activities within the Port Botany region and concluded that the reported risks with present and forecast activities at Port Botany were within acceptable safety standards. The study provided a number of recommendations for future development within the area including the following:

1. Ensuring that there would be no net increase in the cumulative risk from future developments. Special consideration should be given to ensure that there is no net increase in risks due to interaction between various facilities.
2. Ensuring planning strategies and controls for surrounding areas would result in no net increase in the number of people exposed to risk as a result of port operations.
3. Implementing risk reduction and advanced best practice risk management at all sites in the port area.
4. Ensuring ongoing update and testing of emergency procedures and planning, adequate fire protection and prevention and coordinated emergency procedures in the area.
5. Strengthening community participation, liaison and communication and implementing community-right-to-know principles and concepts.

These recommendations were addressed in the PHA prepared for the Patrick Port Botany Container Terminal Project (Det Norske Veritas, 2002).The proposal is consistent with the findings of the PHA and therefore with the recommendations of the *Port Botany Land Use Safety Study*.

Level of risk assessment

Based on the preliminary risk identification, the proposal is not considered to be potentially hazardous as:

- The SEPP 33 threshold screening values for dangerous goods would not be exceeded by the proposal for all dangerous goods stored onsite.
- The transportation screening did not indicate a change in the movement of dangerous goods.
- The automated straddle carriers would not increase the likelihood of a dangerous goods release from a straddle carrier accident.

Therefore, further detailed analysis for the PHA is not required.

6.6.5 Mitigation measures

The proposal would be undertaken in accordance with the existing conditions of consent. The following mitigation measures would be implemented to ensure the ongoing safe operation of the terminal during construction and operation:

- A construction health and safety management plan would be prepared and implemented prior to construction works to identify potential hazards and associated controls. The implementation of these measures would adequately reduce the potential of incidents occurring during construction.
- The existing Emergency Plan and Safety Management System would be updated to incorporate the proposed modifications to the terminal prior to operation to ensure all activities are undertaken in the safest manner possible. This would include an appropriate permit to work system, training / competency requirements and operator licensing as required.
- The updated systems would ensure that hazards associated with the site are identified and appropriately managed so that all activities are undertaken in a safe manner.
- If any changes to the type or quantity of dangerous goods that transit through the site that do not currently exceed the threshold are anticipated, dangerous goods screening would need to be repeated to ensure that no thresholds are exceeded.
- Hazardous materials used on site would be managed in accordance with current existing standards and codes, primarily *Australian Standard 1940-2004: The storage and Handling of Flammable and Combustible Liquids* and the Dangerous Goods Code.
- All chemicals and fuels for operation and maintenance would be stored in secure, designated areas within the construction compounds and used in accordance with Material Safety Data Sheets, relevant legislation and guidelines. Appropriate safety equipment would also be available on site including fire extinguishers, spill kits etc.
- All dangerous goods would continue to be stacked and transported through the terminal in accordance with the *Australian Code for the Transport of Dangerous Goods, Sydney Ports Corporation Dangerous Goods Management Guidelines*, relevant standards and guidelines even if not a licensable quantity.
- All plant and equipment would be installed, maintained and operated in accordance with the manufacturer's recommendations, appropriate Australian standards, codes and guidelines.
- All new equipment and systems would be designed to be inherently safe.

6.6.6 Conclusion

The assessment concluded the proposal does not present an increased overall risk to the surrounding land uses and would comply with the *Port Botany Land Use Safety Study Overview Report* (DUAP 1996). SEPP 33 threshold screening values for dangerous goods would not be exceeded by the proposal for all dangerous goods stored onsite. Additionally, the transportation screening did not indicate a change in movement of dangerous goods and the automated straddle carriers would not increase the likelihood of a dangerous goods release from a straddle carrier accident. Furthermore, the use of automated straddle equipment has been proven to be safe and is presently used in Patrick's Brisbane terminal where a reduction in worker injuries has been recorded.

6.7 Air quality

This section presents a qualitative assessment of potential air quality impacts associated with the construction and operation of the proposal. Mitigation measures have been identified to reduce potential air quality impacts, as required.

6.7.1 Methodology

A qualitative assessment was conducted to assess air quality impacts resulting from the construction and operation of the proposal. This approach was considered appropriate following a review of the air quality impact assessment undertaken for the adjacent Port Botany Expansion Project (SKM, 2003). That project involved the reclamation of approximately 63 hectares of land and required major earthworks and other dust generating activities. The results of the air quality modelling undertaken for the project showed compliance with relevant air quality criteria. Since the proposal is of a much smaller scale and at a further distance from the nearest sensitive receivers in comparison to the Port Botany Expansion Project, air dispersion modelling was not considered necessary.

The approach to the air quality impact assessment included the following:

- Desktop review of the study area to gain an understanding of local site features and the location and nature of potential sensitive receivers.
- Review of ambient air quality and meteorological monitoring data to gain an understanding of existing background air quality and prevailing weather conditions.
- Review of potential air emissions during construction and operation of the proposal based on the proposed construction methodology and equipment and identification of potential sources of dust and other emissions.
- Assessment of potential air quality impacts on surrounding sensitive receivers based on available site information and other studies undertaken at Port Botany.
- Provision of mitigation measures for construction and operation of the proposal, where required.

Climate data (rainfall, temperature, humidity, wind speed and direction and atmospheric stability) for the area was obtained from the Bureau of Meteorology (BoM) Automatic Weather Station (AWS) located at Sydney Airport, located approximately 5 kilometres northwest of the site.

Ambient air quality information was obtained from the OEH Air Quality Data website for the nearest ambient air quality monitoring station located in Randwick, approximately 5.3 kilometres northeast of the site. Results from monitoring currently being undertaken as part of the Port Botany Expansion Project were also obtained from three dust monitoring events and locations.

6.7.2 Existing environment

Meteorology

Climate data for the area is provided below.

- **Rainfall**. The area averages approximately 1,085 millimetres of rainfall annually.
- **Temperature**. Monthly mean temperatures range from a minimum of 7.2 degrees Celsius (in winter) to 26.5 degrees Celsius (in summer).
- **Humidity**. Annual average 9.00 AM and 3.00 PM relative humidity values are 69 and 57 per cent, respectively.

- **Wind speed and wind direction**. The three dominant wind regimes include: northwesterly, northeasterly and southerly winds. Wind speeds are significantly higher in the northeasterly and southerly flows (predominantly 3.6 – 11.1 m/s) when compared to northwesterly conditions (at predominantly 0.5 – 3.6 m/s).
  - Spring, autumn and winter show distinctive northwest to westerly flows; with reduced frequency northeasterly and southerly winds in spring and autumn. In summer, the northwesterlies are reduced significantly in frequency and the frequency of the southerly and northeasterly components increases, the latter representing the sea breeze phenomenon.
  - Summer shows the highest mean wind speed (4.82 m/s) whereas the remaining seasons show a lower wind speed (3.11 to 3.99 m/s).
- **Atmospheric stability**. The dominant directions of poor dispersion for ground based sources are from the west and northwest. These directions reflect the nocturnal cold air drainage flows in the Sydney basin and are similar to the wind conditions whereby the westerly wind flows are the dominant wind flow regime during the winter months. Strong but unstable to neutral winds out of the northeast and south have the potential to create dust emissions (from erodible sources) and generate dust plumes with potential for offsite impacts.

  The dominant directions of poor dispersion for ground based sources display a seasonal variation. The dominant direction of poor dispersion flows during spring, autumn and winter is to the east and southeast (~10 to 15% occurrence), which is aligned with the predominantly westerly winds. A southerly and northeasterly wind direction component showing stable conditions is also evident for spring and autumn with a reduced frequency. These directions indicate poor dispersion towards the north and southwest.

Ambient air quality

Air quality within the area surrounding the site is influenced by both local and regional pollutant sources including motor vehicle and aircraft emissions, a variety of industrial emissions, smoke particles from inland fires, sea-salt and dust.

Monthly average PM_{10} concentration data was compared with the 24-hour PM_{10} criteria and the annual PM_{10} criteria stipulated by the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*, (DECCW 2005) (refer to Figure 6-11). No exceedances were recorded within either the 24-hour PM_{10} criterion or the annual PM_{10} criteria in 2012.

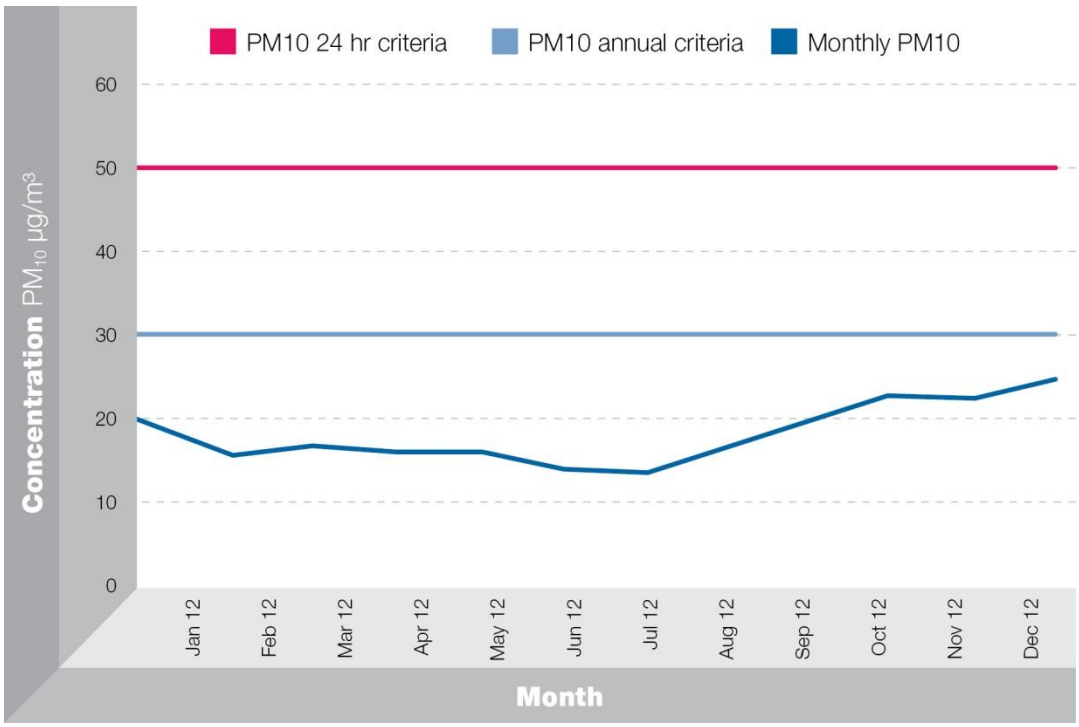

Figure 6-11 Monthly mean dust deposition rates (2012)

Previous air quality assessment

Dust dispersion modelling was conducted as part of the air quality impact assessment undertaken for the Port Botany Expansion Project (SKM, 2003). The study included a quantitative assessment of predicted emissions during the construction and operation of the project.

Three intensive construction activity periods (Year 1, Year 2 and Year 3) were considered for the assessment. These scenarios were defined as being the most intensive three month work periods for each of the first three years of construction. The worst-case modelling from 2003 showed that the predicted levels in the three different scenarios were all below the relevant criteria for PM_{10}, total suspended particulates (TSP) and dust deposition.

The modelling undertaken by SKM in 2003 shows that Year 1 activities consisting of boat ramp construction, dredging and reclamation and rock embankment placement would not result in any exceedances of the PM_{10}, TSP and dust deposition criteria. Year 2 and Year 3 activities consisting of tug berth and boat ramp construction, dredging and reclamation, rock armouring and beach enhancement were predicted to result in PM_{10} concentrations less than or equal to the 24 hour criterion of 16 µg/m^3 (including a background of 34 µg/m^3), with only 2 additional exceedences of the 50 µg/m^3 compared to the background exceedences. There were no modelled exceedances for dust deposition.

Predicted levels from the air quality assessment for Port Botany Expansion Project are provided below in Table 6-21.

Table 6-21 Summary of key construction impacts (SKM 2003)

Key pollutant and averaging period	Scenario	NSW EPA criterion [1]	Average background concentration ($\mu g/m^3$)	Site criterion ($\mu g/m^3$)	Maximun concentration at a residential receiver ($\mu g/m^3$)
PM_{10} (24 hour) [2]	Year 1	50 $\mu g/m^3$	34 $\mu g/m^3$	16 $\mu g/m^3$	~2 $\mu g/m^3$
	Year 2	50 $\mu g/m^3$	34 $\mu g/m^3$	16 $\mu g/m^3$	~16 $\mu g/m^3$
	Year 3	50 $\mu g/m^3$	34 $\mu g/m^3$	16 $\mu g/m^3$	~16 $\mu g/m^3$
Deposited dust (annual)	Year 1	4 g/m^2/month	2 g/m^2/month	2 g/m^2/month	~0.3 g/m^2/month
	Year 2	4 g/m^2/month	2 g/m^2/month	2 g/m^2/month	~2 g/m^2/month
	Year 3	4 g/m^2/month	2 g/m^2/month	2 g/m^2/month	~2 g/m^2/month

Notes:

1 *The EPA criterion is provided as maximum cumulative concentration levels and is based on background air quality concentrations plus the site criterion.*

2. *The PM_{10} results predict the sixth highest PM_{10} (24 hour) concentrations in order to provide direct comparisons with the NEPM PM_{10} objective that allows five PM_{10} (24 hour) exceedences of the 50 $\mu g/m^3$ criterion per year.*

Dust monitoring is currently being undertaken as part of the Port Botany Expansion Project. The monitoring network consists of three dust deposition gauges which are shown on Figure 6-12. Results of three recent sampling events are presented in Table 6-22. The construction activities over the three monitoring periods included earthworks, drainage works, setting up site sheds and vehicle activity on haul roads.

Table 6-22 Deposited dust monitoring results, July to November 2012 (g/m^2/month)

Date	Deposited dust (insoluble solids) g/m^2/month			NSW EPA criterion g/m^2/month
	Site 1	Site 2	Site 3	
29 July to 26 September 2012	3.6	3.4	3.8	4
October 2012	1.9	0.3	1.3	4
November 2012*	-	-	-	4
December 2012	2.5	0.7	1.6	4

**Note that no monitoring results were available for the month of November.*

As shown in Table 6-22, deposited dust results over the three monitoring events were all within the assessment criteria levels at all three monitoring locations which indicate that the 2003 air quality modelling and predictions of worst case construction dust impacts were accurate.

Sensitive receivers

Land use surrounding the site consists of industrial, commercial, residential, and recreational land uses and educational facilities. Sensitive receivers which have the potential to be impacted by the proposed works are listed in Section 6.1.2 and are shown on Figure 6-12.

0 100 200 400 600 800

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND

- Dust monitoring sites for Port Botany Expansion
- Sensitive recievers
- Proposal site (Patrick Port Botany Container Terminal)
- The Knuckle (Patrick)
- SICTL

Patrick Stevedores Operations No 2
Section 75W Modification
- Port Botany Container Terminal Project
(DA-453-12-2002-i MOD 7)

Job Number 21-21961
Revision 1
Date 19 Mar 2013

Sensitive recievers and dust monitoring locations

Figure 6-12

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Data Source: NSW Department of Lands: Cadastre - Jan 2011; Geoscience Australia: 250k Data - Jan 2011. Imagery: Quickbird Extracted Feb 2013; Created by: sdwoodger

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

6.7.3 Construction impacts

Construction of the proposal may have short-term localised impacts on air quality as a result of the following:

- Dust generation resulting from:
  - Demolition of existing buildings and structures.
  - Excavations for new buildings and pavements.
  - Wheel generated dust from mobile plant and deliveries.
  - Handling and stockpiling of spoil.
  - Removal and transport of spoil from site.
  - Delivery of fill material to site.
  - Levelling and rehabilitation of fill and disturbed soil surfaces.
  - Wind erosion of exposed unstable soil surfaces and localised stockpiles.
- Exhaust emissions from the operation of construction vehicles, plant and equipment.

The potential for offsite exposure to dust emissions generated during construction works would depend on the meteorological conditions and the intensity, duration and frequency of construction works. The potential for amenity dust impacts caused by larger suspended dust particles would be greater during times of high wind speeds. Based on the meteorological conditions, wind speeds above 5 m/s are more likely to occur in the spring, summer and autumn months (refer to Section 6.7.2).

The highest potential for dust to be blown towards nearby receivers would be from the higher speed southerly or westerly winds, potentially carrying dust to sensitive receivers in Botany to the north and Matraville to the east. Higher wind speeds in spring, summer and autumn most often occur from the south or northwest, therefore, receivers in Botany would be most susceptible to dust impacts.

The Port Botany Expansion Project has been used to demonstrate the worst-case scenario of dust emissions during construction with a range of dust generating activities being undertaken as part of the project. The scale of construction works for the proposal (including the extent of earthworks, stockpiles and areas of exposed ground) is small in comparison to the Port Botany Expansion Project and overall dust emissions are expected to be significantly less. The proposal involves no bulk earthworks (only minor earthworks for the construction of the buildings and pavement works) and potential sources of dust are, therefore, limited to exposed surfaces and equipment operating on these surfaces. Given that the dust emissions for the Port Botany Expansion Project were predicted and confirmed (through monitoring) to be below the established air quality criteria, it is anticipated that the proposal would result in significantly lower dust emissions due to the scale and nature of the proposed construction works. Furthermore, the site is located at a further distance from the nearest sensitive receivers in comparison to the Port Botany Expansion Project and construction activities would be spread out throughout the site.

The contribution of the vehicle emission exhaust during construction is likely to be negligible given the intensity of operations compared to surrounding local and regional activity. Impacts to air quality during construction, due to the generation of dust and exhaust emissions, is considered to be minor. Additional dust suppression measures would be undertaken during dust generating construction activities when wind is blowing from the south.

6.7.4 Operational impacts

Air emission sources during operation of the proposal would include the use of fuels for operating trucks and other vehicles, equipment (straddles and cranes) as per the existing emission sources within the site. Emission types include nitrogen oxides (NO_x), sulphur dioxide (SO_2), particulate matter (PM_{10}) and carbon monoxide (CO).

The equipment used at the site during operation of the proposal would not differ significantly in comparison to the existing operations. The same number of cranes would operate at the site and the throughput would not change. An additional seven straddle carriers would operate at the terminal as part of the proposal. The contribution of exhaust emissions from these additional straddle carriers would not be significant. There would be less idling time associated with the introduction of the automated straddle carriers. The automated straddle carriers would be turned off when not in use rather than sitting idle as is the case presently. Furthermore, the reductions in the workforce onsite, due to automation of the straddle carriers, would result in fewer staff vehicle movements. Therefore, in general, the operational impacts on air quality are not predicted to significantly increase due to the proposal.

6.7.5 Mitigation measures

The SWMP would include dust mitigation measures for implementation during construction such as:

- Maintaining and operating construction equipment/vehicles in sound working order to minimise exhaust emissions.
- Limiting vehicular speeds to 20 kilometres per hour on areas of unconsolidated or unsealed surfaces.
- Implementing dust suppression measures such as watering of exposed surfaces and stockpiles to reduce the risk of nuisance dust, as required.
- Undertaking regular sweeping of access roads to minimise the transport of sediment around the site.
- Daily reviews of weather updates to give warning of predicted strong winds. This would assist with daily management of dust from unconsolidated soil surfaces and material stockpiles.
- Undertaking regular visible observations of dust moving offsite and checks of the dryness of exposed surfaces/stockpiles especially during dry and/or windy weather. Observations and mitigation approaches would be documented.
- Continued monitoring of the dust deposition network to assist in managing dust impacts throughout construction.

6.7.6 Conclusion

The results of the assessment suggest that construction-related dust from the proposal is unlikely to significantly impact the amenity of sensitive receivers provided appropriate management procedures are implemented. The development and implementation of the SWMP would minimise the potential dust impacts on nearby sensitive receivers. Furthermore, continued monitoring of the dust deposition network would assist in managing dust impacts throughout construction.

The operation of the terminal would not differ significantly in comparison to the existing operations. Environmental management measures and procedures would be developed and implemented as part of the OEMP, in accordance with the conditions of consent. No additional impacts on air quality are anticipated during operation.

6.8 Ecology

This section provides an overview of flora and fauna and their habitats within the site and assesses the presence of listed threatened flora and fauna species and ecological communities. Impacts on flora and fauna are assessed and. mitigation measures are provided to reduce impacts, where required.

6.8.1 Methodology

The ecology assessment included a desktop review of databases and a site visit to identify potential ecological constraints associated with the proposal.

The following database searches were undertaken to identify potential State and Commonwealth-listed threatened species and endangered ecological communities that may occur within a 10 kilometre radius search area of the site:

- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) Protected Matters Search Tool for Matters of National Environmental Significance (NES) listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within the locality (DSEWPaC 2012a, dated 29 September 2012).
- NSW OEH Wildlife Atlas database (licensed) for records of threatened species, populations and endangered ecological communities listed under the *NSW Threatened Species Conservation Act 1995* (TSC Act) that have been recorded within the locality.
- NSW Department of Primary Industries (DPI) online protected species viewer for records of threatened aquatic species and communities listed under the *NSW Fisheries Management Act 1994* (FM Act).

A site visit was conducted on 25th October, 2012 to assess habitat values within the site.

6.8.2 Existing environment

The site is a highly modified industrial site with no remnant vegetation and very limited potential for fauna habitat. The results of the desktop searches for threatened communities and species listed on the TSC, EPBC and FM Acts are provided below.

Threatened ecological communities

The protected matters search identified three threatened ecological communities (TECs) listed under the EPBC Act as potentially occurring in the region. The Atlas of NSW Wildlife database identified 24 TECs listed under the TSC Act that have been mapped in the region. No TECs are mapped within the site.

Threatened species

The protected matters search identified 13 threatened flora species listed under the EPBC Act as potentially occurring in region. The Atlas of NSW Wildlife database identified 14 threatened flora species listed under the TSC Act previously recorded in the region. Of these, one threatened flora species, *Acacia terminalis subsp. terminalis,* has previously been recorded within close proximity to the site.

The protected matters search identified 51 threatened fauna species (24 birds, two fish, four frogs, 11 mammals, six reptiles, and four sharks) listed under the EPBC Act as potentially occurring in the study area. The Atlas of NSW Wildlife database identified 60 threatened fauna species listed under the TSC Act as previously recorded in the region. No threatened fish species listed under the FM Act have been recorded in the region. However, mangrove and seagrass vegetation, which are protected under the FM Act, are known to occur within close

proximity to the site. According URS (2003), saltmarsh vegetation occurs within Penrhyn Estuary, directly north of the site.

There is no potential habitat for threatened flora or fauna species within the site.

Migratory species

The protected matters search identified 70 listed migratory species with potential to occur within the region. Habitat for shorebirds (migratory and non-migratory) is primarily confined to the southern shores of Botany Bay between Taren Point and Bonna Pont in Kurnell. Shorebirds that once used feeding habitat at Runway Beach, the Pilots Embayment, the entrance to the Mill Stream and Foreshore Beach, were displaced as a result of the construction of the Parallel Runway at Sydney Airport. After the construction of the Parallel Runway most of the shorebirds that returned to the northern portion of Botany Bay were concentrated in a much reduced area, restricted to Penrhyn Estuary (URS, 2003).

There is no potential habitat for migratory species within the site.

Other matters of national environmental significance

The protected matters search identified one wetland of international significance (Ramsar Wetland), the Towra Point Aquatic Reserve, within the vicinity of the site. The Towra Point Aquatic Reserve is situated on the southern shores of Botany Bay, approximately 2.5 kilometres south of the site. This reserve contains most of the seagrass, mangroves and saltmarshes within Botany Bay and contains refuge areas from fishing (URS, 2003).

No NES matters are known to occur within the site.

6.8.3 Construction impacts

No vegetation or potential fauna habitat would be impacted as a result of the proposal as all construction activities would be undertaken within the highly modified site. No threatened flora or fauna species or threatened ecological communities have been recorded at the site and none have potential to occur within the site due to the highly modified nature. Therefore, the proposal would not result in any direct impacts on threatened flora or fauna species or threatened ecological communities as none have been recorded or have potential to occur within the site.

Neither Towra Point Nature Reserve nor Penrhyn Estuary would be affected by construction or operation of the proposal as all works would be confined within the boundaries of the existing site.

Indirect impacts such as changes to air quality, noise, light and potential sedimentation are not likely to present any adverse impacts to flora or fauna as they would be adequately managed through the implementation of standard environmental management procedures as part of the CEMP and the existing conditions of consent. Subplans, such as the SWMP (discussed in Section 6.3), would be prepared to minimise potential erosion and sedimentation impacts and would include the installation of standard erosion and sediment controls in accordance with the guidelines outlined in the 'Blue Book' - *Managing Urban Stormwater Volume 1: soils and construction* (Landcom, 2004) during construction works to protect the adjacent marine environment from sedimentation impacts.

6.8.4 Operational impacts

Operation of the proposal would generally be consistent with the current terminal operations, with the exception of the operation of automated straddle carriers. Impacts such as minor changes to air quality, noise and lighting would not present any adverse impacts to terrestrial or aquatic flora or fauna in the vicinity of the site. Surface water drainage would not alter as a result of the proposal, and the proposal would not result in additional impacts to the marine

environment. As discussed in Section 6.3, the proposal is likely to result in an improvement to the quality of stormwater runoff from the site, and therefore the quality of water entering the Botany Bay.

6.8.5 Mitigation measures

Potential indirect impacts to biodiversity during construction and operation would be adequately managed through the implementation of the CEMP and OEMP in accordance with the existing conditions of consent.

6.8.6 Conclusion

The site is highly modified within no potential for flora or fauna habitat, threatened species or ecological communities within the site. Therefore, the proposal would not result in any direct impacts on flora or fauna species or threatened ecological communities during construction or operation as all works would be undertaken within the boundaries of the existing terminal. Mitigation measures developed and implemented as part of the CEMP and OEMP would minimise any potential indirect impacts or flora and fauna species.

6.9 Heritage

This section provides an overview of listed indigenous and non-indigenous heritage items within the vicinity of the site and considers the potential impacts on heritage items including the potential for uncovering unlisted heritage items. Mitigation measures are provided to reduce impacts, where required.

6.9.1 Methodology

The assessment included a desktop review of statutory and non-statutory heritage registers to determine whether any listed indigenous or non-indigenous heritage sites are listed within the boundaries (or within close proximity) of the site.

Indigenous heritage

A search of the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 29 October 2012 to determine whether there are any indigenous sites within 200 metres of the site.

Non-indigenous heritage

A desktop search of the following statutory and non-statutory heritage registers and schedules was conducted for the suburb of Banksmeadow on the 29 October 2012 to identify the occurrence of non-indigenous heritage items within the locality:

- National Heritage List (Australian Heritage Council).
- Commonwealth Heritage List (Australian Heritage Council).
- Register of the National Estate.
- The State Heritage Inventory (NSW OEH).
- Section 170 State agency heritage registers.
- *Botany Local Environmental Plan 1995.*

6.9.2 Existing environment

Indigenous heritage

The AHIMS search indicated that no indigenous sites have been previously recorded at, or within 200 metres of the site. The closest recorded indigenous site is a rock engraving at Bumborah Point, Botany Bay located approximately 1 kilometre southeast of the site. The indigenous site was first recorded in 1897 and includes engravings of two whales, one of which is superimposed with several fish and two anthropomorphic figures (URS, 2003).

Non-indigenous heritage

A list of the non-indigenous heritage database search results is provided in Table 6-23. As shown in Table 6-23, the closest recorded non-indigenous heritage item to the site is the *Port Botany Old Government Wharf Remains* which is listed on the SPC Section 170 Heritage and Conservation Register. The wharf is located approximately 400 metres northwest of the site in Penrhyn Estuary.

Table 6-23 Non-indigenous heritage records within the suburb of Banksmeadow

Item	Location	Heritage listing
Botany Bay Hotel.	1803 Botany Road, Banksmeadow.	*Botany Local Environmental Plan 1995.*
Botany Marshalling Yards.	Beauchamp Street, Banksmeadow.	*Botany Local Environmental Plan 1995.*
Main Administration Building.	Beauchamp Street, Banksmeadow.	*Botany Local Environmental Plan 1995.*
Pier Hotel.	Botany Road, Banksmeadow.	*Botany Local Environmental Plan 1995.*
Port Botany Old Government Wharf Remains.	Port Botany, unincorporated waterway.	SPC Section 170 Heritage and Conservation register.
Sandstone Kerb From Golf Course, Botany Road, Banksmeadow.	Botany Road, Banksmeadow.	Roads and Maritime Services Section 170 NSW State agency heritage register.
Sir Joseph Banks Hotel (c.1840), Former.	23 Anniversary Street, Banksmeadow.	*Botany Local Environmental Plan 1995.*
Botany Bay.	Foreshore Road.	National Heritage List.

6.9.3 Construction impacts

No indigenous or non-indigenous sites or relics are recorded as occurring within the site. The nearest AHIMS item is located more than 1 kilometre from the site, and the nearest non-indigenous item (remains of the *Port Botany Old Government Wharf)* is located approximately 400 metres from the site. The proposal would not impact any of these items as all works would be undertaken within the boundaries of the site.

As discussed in Chapter 2, the terminal was designed and constructed on reclaimed land and has undergone extensive disturbance as a result of the installation of underground services and port infrastructure. Given the results of the database searches and the factors outlined above,

the potential for previously unrecorded indigenous or non-indigenous sites or relics to be found on the site is considered to be very low.

6.9.4 Operational impacts

The proposal would not impact upon any heritage items during operation.

6.9.5 Mitigation measures

As no listed heritage items would be impacted by the proposal, no additional mitigation measures have been provided. In the unlikely event, that items of potential Indigenous or non-indigenous heritage significance are identified during construction, all works would cease immediately in the vicinity of the item and the Heritage Council and/or National Parks and Wildlife Services departments of the Office of Environment and Heritage would be contacted for further advice.

6.9.6 Conclusion

No indigenous or non-indigenous heritage items have been listed within the site. Listed heritage items located within proximity to the site would not be impacted by the construction or operation of the proposal and the potential to uncover relics or previously unlisted heritage items is highly unlikely due to the highly modified nature of the site.

6.10 Waste

This section describes the types of wastes that may be generated during construction and operation of the proposal and the waste management procedures that would be implemented.

6.10.1 Methodology

The assessment involved:

- Reviewing the construction methodology to determine the likely sources of waste generated by the proposal.
- Identifying management measures for wastes that may be generated during construction and operation of the proposal.
- Identifying mitigation measures to minimise the potential impacts of waste generation.

6.10.2 Construction waste

The proposal would generate waste during demolition and construction activities. Waste types are likely to include:

- Demolition waste such as redundant building materials, asphalt waste, bricks, concrete, paper, plastics, glass, metal and timber.
- Construction materials such as excess building materials, concrete, timber, masonry, bricks, plasterboards, metal and packaging materials.
- Roadbase and spoil.
- Domestic waste such as glass, aluminium cans, paper and cardboard and food waste.
- Sewage.

Hazardous and/or contaminated wastes may also be encountered during demolition works and would require specific management to ensure compliance with environmental and safety legislation.

The majority of waste generated during construction of the proposal would result from demolition activities. The estimated quantity of demolition waste would be approximately 390 tonnes.

Waste produced during demolition and construction would be managed in accordance with the waste management hierarchy, within which waste avoidance is a priority, followed by reduce, reuse and recycling/reprocessing, with disposal as a last resort.

6.10.3 Operational waste

The types and volumes of waste generated during operation are not likely to change as a result of the proposal. Domestic waste may be reduced due to the expected reduction in the number of site workers and improved waste collection areas would be installed at the site.

6.10.4 Construction waste management and disposal

A Construction Waste Management Plan (WMP) would be developed and implemented for the construction phase in accordance with the requirements of the *Waste Avoidance and Resource Recovery Act 2001*, the *Protection of the Environment Operations Act 1997*, and the OEH *Waste Classification Guidelines 2009* (DECCW, 2009). The plan would be incorporated into the CEMP for the proposal.

All personnel would be advised of the waste management and disposal procedures described in the Construction WMP prior to commencing work.

Demolition waste

Demolition activities would be undertaken in accordance with the *Australian Standard 2601-2001 for the Demolition of Structures.* Demolition works would be undertaken in a manner to maximise the recycling and reuse of materials. Materials that cannot be reused or recycled would be classified in accordance with the DECCW *Waste Classification Guidelines* (DECCW, 2009) prior to disposal at an OEH licensed disposal facility.

Should any hazardous or special waste be suspected, appropriate precautions would be taken, and the wastes would be removed and disposed in accordance with the appropriate regulations and best practice for the removal of these materials. Any hazardous materials would be removed by appropriately qualified, licensed and experienced personnel.

Construction materials

Construction waste which requires disposal would be minimised by accurately calculating materials brought to the site and limiting materials packaging. Despite implementing these management measures, there would still be some waste materials requiring disposal.

Excess construction materials which are suitable for reuse would be returned to the supplier or stored for future use. Construction wastes which are not suitable for reuse, but are able to be recycled would be temporarily stored onsite in dedicated and secure skips prior to recycling. Construction wastes which cannot be recycled would be stored in separate skips. These skips would be collected by a licensed waste contractor on a regular basis and transported for disposal to a licensed landfill or recycling facility, as appropriate.

Roadbase and spoil

Various construction works including excavations for building foundations, pavement works and installation of services would result in road base waste and spoil. Where possible, road base would be reused on-site or removed for offsite disposal.

As discussed in Section 6.4, due to the sites history and industrial nature, there is a potential for encountering localised contamination during excavation activities. Soils would be analysed prior to construction for a range of potential contaminants including the potential for acid sulfate soils to determine the need for any specific management measures and waste disposal requirements. Suitable spoil would be reused on site for backfilling, landscaping and other uses. If spoil is unable to be reused onsite, opportunities for offsite reuse would be investigated.

In the event that roadbase and/or spoil are not suitable for reuse (due to contamination), spoil would be classified in accordance with the DECCW *Waste Classification Guidelines* (DECCW, 2009) prior to disposal at an EPA licensed disposal facility.

Domestic waste

Recycling facilities would be provided at the construction site compounds to maximise recycling of waste materials such as plastic and glass bottles/containers, aluminium cans and paper/cardboard. Separate bins would be provided for food waste. All domestic waste would be collected on a regular basis and transported offsite for disposal to an EPA licensed landfill or recycling facility, as appropriate.

Sewage

Portable toilet facilities would be used during the construction period. These facilities would be emptied on a regular basis and sewage would be disposed of offsite in accordance with Council and OEH requirements.

6.10.5 Operational waste management and disposal

The Operational WMP would be updated in accordance with the requirements of the *Waste Avoidance and Resource Recovery Act 2001*, the *Protection of the Environment Operations Act 1997*, the DECCW *Waste Classification Guidelines 2009* (DECCW, 2009). The plan would be incorporated into the OEMP for the proposal.

6.10.6 Conclusion

Waste management arrangements would be put in place during the construction and operation of the proposal to maximise the avoidance, reduction, reuse, and recycling of waste materials. This would be achieved through the implementation of separate WMPs for the construction and operational phases of the proposal. The WMPs would be developed and implemented in accordance with the requirements of relevant waste management legislation and policies and incorporated into the CEMP and OEMP for the site.

6.11 Social amenity

This section discusses the potential amenity impacts that may arise during the construction and operation of the proposal. Mitigation measures are provided to address any potential adverse impacts on the community, where possible and where not already specified within other sections of this environmental assessment.

6.11.1 Methodology

The methodology for assessing impacts to social amenity included a review of the potential environmental impacts documented in other sections of this chapter and a re-interpretation of these impacts from a community-focused perspective.

6.11.2 Existing environment

The major land uses in the vicinity of the site include industrial developments (predominantly in the east and northeast); special purpose land uses (including Port Botany and Sydney Airport); the Caltex Oil Refinery (located on the southern side of Botany Bay); residential areas (located in the suburbs of Botany, Banksmeadow, Matraville, Hillsdale, La Perouse, and Phillip Bay); commercial uses (mainly along the western shores of Botany Bay); nature reserves on the southwestern side of Botany Bay (Towra Point Nature Reserve); and recreational uses (such as fishing, swimming, boating, walking, golf, cycling, and bird watching).

Sensitive receivers within proximity of the site are shown in Figure 6-1. The nearest sensitive receiver is the Botany Golf Course which is situated approximately 350 metres north of the site, residential sensitive receivers are located more than 700 metres from the site.

6.11.3 Construction impacts

Based on the construction works associated with the Port Botany Expansion Project and ongoing operation of the port, the key issues of concern for the community include traffic and safety, lighting, air quality, noise disturbance (particularly at night) and other issues such as visibility of the port and the risks of incidents occurring.

The results of the environmental assessment have concluded that the proposal would not result in significant adverse impacts or deterioration in environmental quality (refer to Section 6.1 through Section 6.10 and Attachments D through F). This is largely due to the scale of the proposal and the nature of the proposed works. Ongoing air and noise modelling would continue to be undertaken and be made publically available on SPC's and Patrick's websites. Monthly progress updates would also be made available on the Patricks community page (www.patrick.com.au/SydneyAutoStrad). This would provide a transparent mechanism for interested members of the community to view the environmental monitoring results and any criteria exceedances, should they occur. Patrick would also establish a toll free number to be maintained for the duration of construction for inquiries and SPC's emergency response and complaints number (02 9296 4000) would be used to receive any community complaints.

Given the number of construction sites at Port Botany and the inter-related nature of the developments, there is a need for active co-operation between the various construction parties to ensure that any complaints received are followed through with the relevant responsible party. Patrick would continue to be an active member of the Port Botany Expansion Community Consultative Committee (CCC) and the Neighboured Liaison Group (NLG) and would support SPC in reducing environmental incidents and nuisance from their ongoing construction activities. Furthermore, Patrick would provide webpage progress updates on the progress of key construction activities and environmental monitoring results to maintain regular feedback on the level of environmental performance being achieved at the site.

Through the implementation of mitigation measures proposed in this environmental assessment and the existing conditions of consent, impacts on social amenity and the environment would be successfully managed.

6.11.4 Operational impacts

Following construction, the existing terminal activities would be resumed. The proposal would not have a noticeable negative visual impact on the surrounding area during operation. The new administration and control building and the maintenance building and workshop would be visible from a limited number of locations. Given the context of the surrounding industrial landscape, this impact would be minimal.

The proposal is expected to result in improvements to social amenity during operation. Improvements include reduced noise emissions as a result of automation (refer to Section 6.1), reduced light vehicle movements entering and exiting the site (refer to Section 6.2) and reduced lighting (refer to Section 6.5).

6.11.5 Mitigation measures

With the implementation of mitigation measures provided in this environmental assessment and the existing conditions of consent, potential impacts on the community during construction works would be appropriately mitigated.

6.11.6 Conclusion

Amenity impacts would be temporary and limited to the construction stage of the proposal. With the implementation of mitigation measures provided in this environmental assessment and the existing conditions of consent, amenity impacts are not anticipated to be significant.

6.12 Cumulative impacts

This section describes the cumulative impacts and benefits likely to arise from the combination of the construction and operation of the proposal with other projects being carried out in the area.

When considered in isolation, the environmental benefits and impacts of an individual project (such as increased traffic, construction noise etc.) may not be large, however, when combined with the impacts of other developments, the resultant cumulative impacts may be greater due to the increased extent, magnitude or duration of impact. This section focuses on identifying cumulative effects at the local level where these impacts could potentially be significant.

6.12.1 Methodology

The cumulative assessment included a search of the major projects register maintained by DP&I and discussions with Botany Bay City Council and Randwick City Council to provide an understanding of projects approved or seeking approval within the vicinity of the proposal.

Local projects for which detailed information was readily available and with the potential to result in significant cumulative impacts were subject to further assessment.

6.12.2 Potential cumulative impacts

Based on the major projects register search maintained by DP&I and discussions with Botany Bay City Council and Randwick City Council, the following projects were identified occur within the vicinity of the proposal:

- Port Botany Expansion Project, Port Botany.
- Vopak Bulk Liquids Berth 2, Port Botany.
- Caltex Diesel Refuelling Facility, Port Botany.
- Huntsman Ethylene Oxide Plant Upgrade, Botany Industrial Park, Botany.
- Southland Remediation and Development Project, Orica, Banksmeadow.

A brief description of each project and potential cumulative impacts is provided below.

Port Botany Expansion Project, Port Botany

The Port Botany Expansion Project includes the reclamation and development of approximately 63 hectares of land to construct additional container handling facilities at Port Botany. The project comprises the SICTL terminal, Knuckle and Ramp D works which are adjacent to the

Patrick terminal. Dredging and reclamation works were completed in 2011 and the following construction works are currently underway:

- **Development of the SICTL terminal** (also referred to as Terminal 3): Development of approximately 30 hectares of the expanded area northwest of the site by SICTL as a container terminal. Works currently underway include pavement works, construction of buildings and structures, and installations of cranes and equipment. Development of the SICTL terminal is due for completion in mid-2013.
- **Development of the Knuckle**: Development of approximately 18 hectares of reclaimed land to the west of the existing terminal. Construction works include bulk earthworks, pavement works, and the installation of utilities. Construction commenced in early 2013 and is due for completion in early 2014.
- **Construction of Ramp D**: The construction of a new access ramp to the site from the Penrhyn Road roundabout. The new ramp will provide adequate room (via the construction of a "fillet") for trucks to make a left turn onto the ramp from Penrhyn Road without needing to circle the roundabout. Construction of the ramp is due to commence in May 2013 and is due for completion in early 2014. The footprint of the new ramp is shown on the proposal plans in Attachment C.

Subject to obtaining planning approval, it is anticipated that construction of the proposal would commence in the second quarter of 2013 and would be completed within approximately 16 months. Based on this, construction may overlap with the final stages of construction works at the Knuckle and Ramp D. The worst cumulative impacts are expected to occur during the period where construction of the proposal, Knuckle and Ramp D are undertaken concurrently.

Construction noise and vibration

The noise assessment undertaken for the proposal included an assessment of cumulative noise impacts from the Ramp D and Knuckle projects. The assessment concluded that cumulative noise emissions from the proposal with the adjacent construction works at Ramp D and Knuckle would comply with the existing EPL operational noise limits and the ICNG construction noise management levels at all residential and sensitive receivers (refer to Attachment D). Cumulative traffic noise levels are predicted to comply with the noise criteria at sensitive receivers along the construction traffic routes. Construction works would not be sufficient to generate vibration impacts at any sensitive receiver outside of the proposal site as all sensitive receivers are well over 100 metres from the site. Therefore, construction vibration impacts are not expected to be significant.

Traffic

Traffic surveys undertaken in December 2012 for the traffic assessment included the Knuckle construction vehicles as construction had already commenced and these volumes were therefore included in background traffic volumes. Based on the traffic assessment, the proposal with the Knuckle construction would not have significant traffic impacts. Construction of Ramp D is expected to generate up to 15 vehicles per hour during construction, which is considered to be comparatively minor. With the implementation of appropriate traffic management controls as part of the CTMP, potential cumulative traffic impacts would be reduced.

Cumulative operational traffic impacts were investigated as part of the Port Botany Expansion Project EIS (2003). As approved, operational truck traffic from the new development would use a new road bridge to the west of the Penrhyn Road/ Botany Road/ Foreshore Road intersection. More recent discussions with SPC and Patrick, however, have resolved that container transport to and from the Knuckle development would be via the existing Patrick terminal and Penrhyn Road.

Figure 6-13 shows the existing terminal truck entries over a peak period of activity at the terminal (4 December 2012). The theoretical gate entry limit is also shown. As can be seen from the data, the current gate entry limit is reached only once during the 24-hour period shown while the average number of entries across the day is some 25 per cent lower than the gate limit. The data shown in Figure 6-13 represents a worst case scenario. At times of less activity at the terminal there would be further additional gate capacity available.

Rather than investing in additional infrastructure and technology to increase the theoretical gate limit during the peak hours, additional operational truck traffic arising from the Knuckle would instead be spread across the day during periods of available capacity to manage the additional truck traffic. This would also reduce impacts on the road network and key intersections.

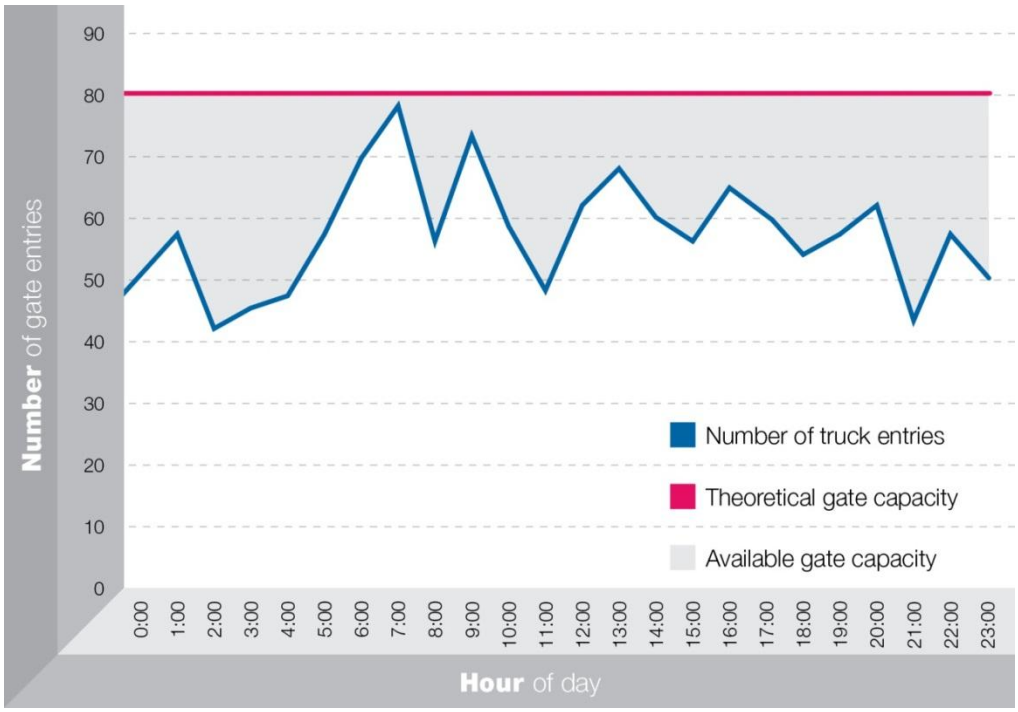

Figure 6-13 Existing truck entries during peak activity at terminal (4 December 2012)

SPC have implemented a range of capital work and traffic management regimes to better manage the expected growth in heavy vehicles from the port in response to increasing demand. These improvements include:

- Grade separation of the Penrhyn Road/Botany Road/Foreshore Road roundabout.
- Footbridge over Foreshore Road connected to Sir Joseph Banks Park.
- Right turn and road access bridge to SICTL terminal from Foreshore Road.
- Truck marshalling area on Foreshore Road.

Additionally, new proposals for the Governments WestConnex development and specifically, the proposed Sydney Airport Access Link may also stimulate changes to travelling patterns for the commercial and industrial area north of the airport and Foreshore Road as well as Port Botany.

Construction dust

Cumulative dust impacts may potentially occur as a result of the simultaneous earthworks and construction traffic vehicles travelling on unsealed construction access roads. The major earthworks components of the Port Botany Expansion Project are already complete and the

relative scale of earthworks for the proposal is small. With the implementation of dust suppression controls as part of the SWMP, it is anticipated that the cumulative dust impacts would comply with the assessment criteria. Dust monitoring would continue to be undertaken as part of the Port Botany Expansion Project throughout construction to ensure that dust emissions are within these permissible limits.

Vopak Bulk Liquids Berth 2, Port Botany

The Vopak Bulk Liquids Berth 2 Project comprises the construction of a steel piled pier berth adjacent to the existing bulk liquids berth; associated infrastructure such as marine loading arms, fire fighting equipment, onshore support facilities and pipelines from existing user sites to the new berth. The Bulk Liquid Berth Project is located approximately 800 metres southwest of the site in Port Botany. The berth is scheduled for completion in the second half of 2013 and would not coincide with the construction of the proposal.

Caltex Diesel Refuelling Facility, Port Botany

A development application for the construction of a diesel refuelling facility at the Caltex site has been submitted to Randwick Council. Cumulative impacts associated with construction noise, traffic and air quality may occur. However, given the small scale of the proposed works, cumulative impacts are likely to be minimal.

Huntsman Ethylene Oxide Plant Upgrade, Botany Industrial Park

The Huntsman Ethylene Oxide Plant Upgrade Project includes an upgrade to the ethylene oxide plant at Botany Industrial Park located approximately 1.3 kilometres northeast of the site. Construction works are scheduled for completion in mid-2013 and would not coincide with the construction of the proposal.

Southland Remediation and Development Project, Orica, Banksmeadow

Southlands is an approximately 20 hectare site owned by Orica. It is situated directly south-west of the Botany Industrial Park, and approximately 1 kilometre northeast of the terminal. Stage 1 of the Southlands site includes development for high quality industrial and warehouse purposes. The Southland Remediation and Development Project Stage 1 works are currently underway and are scheduled for completion in July 2013. The project would not coincide with the construction of the proposal, therefore no cumulative impacts are anticipated.

6.12.3 Conclusion

With the implementation of mitigation measures provided in this environmental assessment, and conditions of consent, the construction of the proposal in association with other projects within the vicinity of the site would result in minimal adverse cumulative.

7. Environmental management

This chapter provides a framework for the required environmental management plans that would be prepared and implemented for the proposal. This chapter also lists measures that would be implemented to manage potential impacts during construction and operation of the proposal.

7.1 Overview

The environmental assessment has indicated that the proposal would result in minor environmental impacts, primarily during construction. These impacts would generally be consistent with the original development consent and, as such, would be mitigated by implementing the existing conditions of consent (none of which would require modification). These conditions require a range of management plans, protocols and procedures to manage environmental impacts from the proposal. Additional safeguard measures would also be implemented to further minimise the impacts from the proposal.

The CEMP and OEMP that would be prepared and implemented for the proposal are discussed in Section 7.2. Safeguard measures to minimise the impacts of the proposal are listed in Section 7.3.

7.2 Environmental management plans

A CEMP and OEMP would be prepared and implemented for the proposal. The OEMP would incorporate the additional Knuckle area. The plans would include:

- Patrick's environmental policy, objectives and performance targets for construction and operation.
- All required statutory and other obligations, including consents, licenses, approvals and voluntary agreements.
- Management policies, procedures and review processes to assess the implementation of environmental management practices and the environmental performance of the proposal against the objective and targets.
- Requirements and guidelines for management in accordance with:
  - Conditions of consent for the proposal.
  - Mitigation measures specified by this environmental assessment.
  - Relevant construction management guidelines.
- Requirements in relation to incorporating environmental protection measures and instructions in all relevant standard operating procedures and emergency response procedures.
- Specific procedures, including monitoring, as defined by this environmental assessment and the conditions of consent for the proposal.
- Roles and responsibilities of all personnel and contractors to be employed on site.
- Procedures for complaints handling and ongoing communication with the community.
- Monitoring and auditing program.
- Environmental sub-plans specified in this environmental assessment.
- Incident response procedure.

- Contingency plan for utility disruptions.

7.3 Summary of mitigation measures that would be implemented for the proposal

Table 7-1 summarises the mitigation measures identified in this environmental assessment to minimise impacts and safeguard the environment.

Table 7-1 Mitigation measures

Desired outcome	Mitigation measures	Implementation phase: Pre-construction (P), construction (C), operation (O)
Noise and Vibration		
Minimise noise emissions during construction and operation.	Manage construction noise through the preparation and implementation of a Construction Noise Management Plan as part of the CEMP.	C
	Manage operational noise through the preparation and implementation of an Operational Noise Management Plan as part of the OEMP. Compliance noise monitoring would continue to be undertaken as per the conditions of consent.	O
Traffic and access		
Minimise traffic impacts.	Develop and implement a CTMP as part of the CEMP in accordance with *Sydney Ports Corporation Traffic Management Plan Guidelines 2007.*	C
Minimise traffic impacts.	During times of rail closures, ensure containers transported from container storage yards in the vicinity of the terminal are transported during off-peak periods.	C
Minimise traffic impacts.	Update OEMP to replace the existing OEMP and include an Operational Traffic Management Plan in accordance with *Sydney Ports Corporation Traffic Management Plan Guidelines 2007.*	O
Surface water and drainage		
Minimise impacts on water quality.	Develop and implement a SWMP as part of the CEMP in accordance with the existing conditions of consent. The SWMP would include the following mitigation measures: • Installation of standard erosion and sediment controls in accordance with the guidelines outlined in the 'Blue Book' - *Managing Urban Stormwater Volume 1: soils and construction* (Landcom, 2004). • Establish erosion and sediment control measures prior to construction and undertake regular inspections particularly following rainfall events, to ensure their ongoing functionality. • Where possible, minimise construction works during and following wet weather to control the spread of sediment. • Implement controls at site exit points to minimise the tracking of sediment onto roads.	C

Desired outcome	Mitigation measures	Implementation phase: Pre-construction (P), construction (C), operation (O)
	• Divert clean water around the construction areas. • Where possible, locate any wash down areas away from stormwater drains. • Where possible, locate any stockpiles away from stormwater drains. • Regular inspections of machinery and equipment to identify any leaks. • Locate storage of fuels, oils and other chemicals and refuelling areas in designated areas with adequate spill prevention and protection and away from stormwater inlets. • Contain wastewater generated from construction processes and dispose of through appropriate means. • Undertake a water quality monitoring program at all discharge points before, during and after construction works to monitor stormwater quality against the water quality objectives and criteria. • Where possible, re-use treated stormwater for construction processes such as dust suppression.	
Minimise impacts on water quality during operation.	• All existing and new stormwater infrastructure would include pollutant traps to provide overall site protection. • Prepare and implement the following as part of the OEMP to further reduce impacts to water quality from site operations: o Develop and implement a regular terminal surface cleaning program to remove contaminant accumulations which may contribute to stormwater contamination. o Develop and implement a regular inspection and maintenance program for all stormwater pollution control equipment including the stormwater treatment plant, container area and the pollutant traps within the stormwater pits. o Develop and implement incident response procedures for operation of the site. This should include specific management procedures for the automated areas. • Implement the recommendations outlined in the *Stormwater Risk Assessment Report* (GHD, 2013).	O
Soils and groundwater		
Manage potential contamination.	Undertake a contamination assessment in the proposed excavation footprints prior to the commencement of construction.	P
	Assess imported fill prior to the commencement of construction. If a risk of contamination is perceived, screening level testing would be undertaken on the material to determine existing contaminant levels prior to the fill material being transported and used on site.	P

Desired outcome	Mitigation measures	Implementation phase: Pre-construction (P), construction (C), operation (O)
	Ensure that groundwater encountered during excavation is pumped into a contained area, tested and appropriately treated prior to appropriate disposal, if necessary.	C
	CEMP to outline procedures for: • Appropriately assessing, remediating and/or managing all soil and groundwater to be disturbed during construction. • Identifying and appropriately managing any unexpected contamination finds if encountered during construction.	C
Manage acid sulphate soils.	Include a contingency plan for any acid sulfate soils identified during the detailed design or construction phase in the CEMP.	P, C
Design and visual amenity		
Minimise impacts to visual amenity.	Ensure that the materials and colours of the administration and control building are selected to minimise contrast and reflectivity (e.g. neutral tones).	C
	Remove temporary hoardings, barriers, traffic management and signage when no longer required.	C
	Store materials and machinery neatly during construction works.	C
	Maintain roads providing access to the site and work areas free of dust and mud, as far as reasonably practicable.	C
	Develop a Construction Traffic Management and Dust Management Plan as part of the CEMP to control road usage and traffic speed to reduce the visual impact of vehicle movements and dust generation.	C
	The height of construction equipment would be assessed against the OLS/PANS-OP surface and the elevation of the microwave link path to Newtown to ensure no potential interference during construction.	P
Ensure landscaping does not attract birds and that trees do not penetrate the OLS.	Ensure landscaping is undertaken in accordance with the *Sydney Ports Corporation Port Botany Development Code 2012*. Ensure that landscaping: • Minimises the potential for bird habitation and roosting. • Ensures non-bird attracting plant species are used. • Minimises the attractiveness for foraging birds. • Ensures that selected trees would not intrude into the OLS when mature.	O
Hazards and Risks		
Reduce hazards and risks to people and the environment.	Prepare and implement a construction health and safety management plan prior to construction works to identify potential hazards and associated controls.	P

Desired outcome	Mitigation measures	Implementation phase: Pre-construction (P), construction (C), operation (O)
	Ensure that all chemicals and fuels for operation and maintenance are stored in secure, designated areas within the construction compounds and used in accordance with Material Safety Data Sheets, relevant legislation and guidelines.	C
	If any changes to the type or quantity of dangerous goods that transit the site, undertake dangerous goods screening to ensure that thresholds are not exceeded.	C, O
	Manage hazardous materials onsite in accordance with current existing standards and codes.	C, O
	Ensure appropriate safety equipment is available onsite including fire extinguishers, spill kits etc.	C, O
	Update the existing Emergency Plan and Safety Management System to incorporate the proposed modifications to the terminal prior to operation to ensure all activities are undertaken in the safest manner possible. This would include an appropriate permit to work system, training / competency requirements and operator licensing, as required.	O
	Ensure that all dangerous goods continue to be stacked and transported through the terminal in accordance with the *Australian Code for the Transport of Dangerous Goods*, *Sydney Ports Corporation Dangerous Goods Management Guidelines* and other relevant standards and guidelines.	O
	Ensure that all plant and equipment is installed, maintained and operated in accordance with the manufacturer's recommendations, appropriate Australian standards, codes and guidelines.	O
Air Quality		
Control dust emissions.	Prepare a SWMP as part of the CEMP in accordance with the existing conditions of consent. Include dust mitigation measures such as: • Maintain and operate construction equipment/vehicles in sound working order to minimise exhaust emissions. • Limit vehicular speeds to 20 kilometres per hour on areas of unconsolidated or unsealed surfaces. • Implement dust suppression measures such as watering of exposed surfaces and stockpiles to reduce the risk of nuisance dust, as required. • Undertake regular sweeping of access roads to minimise the transport of sediment around the site. • Conduct daily reviews of weather updates to give warning of predicted strong winds. This would assist with daily management of dust from unconsolidated soil surfaces and material stockpiles. • Undertake regular visible observations of dust moving offsite and checks of the dryness of exposed surfaces/stockpiles	C

Desired outcome	Mitigation measures	Implementation phase: Pre-construction (P), construction (C), operation (O)
	especially during dry and/or windy weather. • Continue monitoring of the dust deposition network to assist in managing dust impacts throughout construction.	
Ecology		
Minimise indirect impacts to biodiversity.	Implement the CEMP and OEMP in accordance with the existing conditions of consent.	C, O
Heritage		
Preserve cultural heritage.	Ensure that in the event items of potential indigenous or non-indigenous heritage significance are identified, all works are ceased immediately in the vicinity of the item and the Heritage Council and/or National Parks and Wildlife Services department of the Office of Environment and Heritage are contacted for further advice.	C
Waste		
Establish management plan for waste during construction and operation.	Develop and implement a WMP as part of the CEMP. Include waste management measures such as: • Advise personnel of the waste management and disposal procedures described in the WMP prior to commencing work. • Undertake demolition works in a manner to maximise the recycling and reuse of materials. • Ensure that excess construction materials suitable for reuse are returned to the supplier or stored for future use. Construction wastes not suitable for reuse, but are able to be recycled should be temporarily stored onsite in dedicated and secure skips prior to recycling. • If hazardous or special waste are suspected, ensure appropriate precautions are taken, and the wastes are removed and disposed in accordance with the appropriate regulations and best practice for the removal of these materials. Any hazardous materials should be removed by appropriately qualified, licensed and experienced personnel. • In the event that roadbase and/or spoil are not unsuitable for reuse (due to contamination), ensure that spoil is classified in accordance with the DECCW Waste Classification Guidelines (DECCW 2009) prior to disposal at an EPA licensed disposal facility.	C
	Update and implement the WMP contained within the OEMP in accordance with the requirements of the *Waste Avoidance and Resource Recovery Act 2001*, the *Protection of the Environment Operations Act 1997* and the *DECCW Waste Classification Guidelines 2009* (DECCW, 2009).	O

8. Justification and conclusion

This chapter provides the justification for the proposal. It provides a summary of the benefits of the proposal and the consequences of not proceeding. The environmental impacts are summarised and the principles of ecologically sustainable development are considered.

8.1 Justification for undertaking the proposal

8.1.1 Proposal benefits

In summary, the proposal is considered to be justified because it:

- Responds to a recognised need and is consistent with state infrastructure strategies.
- Provides a number of worker safety, environmental and community and economic benefits.
- Is consistent with the principles of ecologically sustainable development.
- Contributes to the increased efficiency of port infrastructure and is consistent with the objectives of other capital works being conducted by SPC.

Proceeding with the proposal would result in the following significant benefits:

- **Improved safety performance at the terminal.** Straddle driving is a significant cause of injuries at the terminal. The introduction of automated straddle carriers would significantly improve safety at the terminal by physically separating staff from the straddle carriers. There would be no manually operated straddle carriers operating underneath the quay cranes or in and around the container stacking areas. Removal of manual straddle carriers would significantly decrease the risk to staff at the terminal. This has been demonstrated by previous implementation of the technology at the Brisbane AutoStrad™ Terminal.
- **A better place to work.** There would be a new, architecturally designed administration and control building which would house permanent, higher quality first aid rooms, training facilities and amenities for workers.
- **Improved environmental performance.** The proposal would result in improved environmental conditions at the terminal including:
  - Noise. There would be less operational noise because the straddle carriers would be automated and would not require reversing alarms. There would also be less noise associated with shifting gears. Additionally, there is reduced idle time as the automated straddle carriers shut down when not in use.
  - Air. There would be less idling time associated with the introduction of the automated straddle carriers. The automated straddle carriers would be turned off when not in use rather than sitting idle as is the case presently.
  - Water quality. Stormwater quality at the site would be improved with the installation of an undercover (all-weather) maintenance building and workshop, the construction of a new fuel storage area with appropriate bunding, improved stormwater infrastructure and upgrades to the dangerous goods containment area.
  - Energy efficiency and savings. All buildings would be designed to achieve a Green Star Rating of 4.0. Power factor correction would be applied to the electrical power systems at the site to increase energy efficiency and to reduce electricity costs. In addition, existing lighting within the site would be replaced with more energy efficient

lighting. Since the automated straddle carriers do not need light in which to operate, lighting intensity would also be able to be reduced or increased at the site, as required. This would result in a reduction in energy usage. Yard lighting would also have power factor correction.

- **Operating cost reductions and improved competitiveness.** The introduction of the automated straddle carriers would reduce the operating costs of the terminal, significantly improving the competitive position. Automation would result in a cost savings of around $50 million per annum.

Consequently, if the proposal does not proceed, the above benefits would not be realised.

8.1.2 Environmental impacts

If the proposal were to proceed, then the following adverse environmental impacts would also be sustained:

- **Increased noise levels during construction**. The increase in noise levels would be temporary and are predicted to comply with the recommended noise management levels at all residential and sensitive receivers.
- **Increased traffic during construction**. The increase in traffic would be temporary and is predicted not to adversely affect intersection performance or road safety in the vicinity of the site.
- **Visibility of some building elements**. The administration and control building and maintenance building and workshop would be visible from a limited number of locations. Given the context of the surrounding industrial landscape, this impact would be minimal. All buildings and structures would be constructed in accordance with the *Sydney Ports Corporation Port Botany Development Code 2012* and the *Sydney Ports Corporation Green Port Guidelines 2006.*
- **Dust nuisance during construction**. Dust impacts would be temporary and are predicted to be below the established air quality criteria at all residential and sensitive receivers.

The environmental performance of the works would be managed through the implementation of the specified mitigation measures incorporated within construction and operational environmental management plans. This would also help to ensure compliance with relevant legislation and any conditions of approval.

8.1.3 Considerations of ecologically sustainable development

The EP&A Act adopts the definition of ecologically sustainable development contained in the *Protection of the Environment Administration Act 1991*. Clause 7(4) of Schedule 2 of the EP&A Regulations lists the principles of ecologically sustainable development as:

- Precautionary principle.
- Inter-generational equity.
- Conservation of biological diversity and ecological integrity.
- Improved valuation, pricing and incentive mechanisms.

An assessment of the proposal against these above principles is provided below.

Precautionary principle

A range of environmental investigations have been undertaken as part of the environmental assessment to ensure that potential impacts are understood with a high degree of certainty.

Where a higher degree of risk was identified, this included detailed specialist studies. The assessment of the potential impacts of the proposal is considered to be consistent with the precautionary principle. The assessments undertaken are consistent with accepted scientific and methodologies, and have taken into account relevant statutory and agency requirements.

The proposal has evolved to avoid impacts, where possible, and to reflect the findings of the studies undertaken. A number of safeguards have been proposed to minimise potential impacts. These safeguards would be implemented during construction and operation of the proposal.

Principle of inter-generational equity

Inter-generational equity requires that the proposal be managed so that the environment is maintained or enhanced and future generations are not disadvantaged by long term impacts of the development. The most significant aspect of this concept is that future generations should not inherit a degraded environment.

Construction and operation of the proposal has the potential to result in some minor environmental and social disturbance (refer to Chapter 6). However, environmental mitigation measures would be implemented to ensure that the environment is not unnecessarily degraded and in some cases would be enhanced by the proposal.

The proposal would ensure the operation of the terminal remains viable and competitive. The long-term social and economic benefits of the proposal would ensure that the health, diversity and productivity of the local and regional environment is maintained for future generations.

Conservation of biological diversity and ecological integrity

The site is highly modified within no potential for flora, fauna or habitat. Therefore, the proposal would not have any impact on flora or fauna (including threatened species and ecological communities) during construction or operation as all works would be undertaken within the boundaries of the existing terminal.

Improved valuation and pricing of environmental resources

The assessment has identified the potential environmental and other consequences of the proposal and identified mitigation measures to manage adverse impacts, where appropriate. If approved, the construction and operation of the proposal would be undertaken in accordance with relevant legislation, the conditions of approval and the construction and operation environmental management plans. These requirements would result in an economic cost to the proponent. The implementation of mitigation measures would increase the capital cost of the proposal. This indicates that environmental resources have been given appropriate valuation in the development of the proposal.

8.2 Conclusion

Patrick proposes to conduct a range of demolition and construction activities within its existing container terminal located on the northern side of Brotherson Dock in Port Botany, NSW. The demolition and construction activities require approval from the NSW Minister for Planning and Infrastructure in the form of a Section 75W Modification to the *Patrick Stevedores Port Botany Container Terminal Project* (DA-453-12-2002-i) under the EP&A Act. This environmental assessment has been prepared to accompany the application for approval to modify the existing development consent. The environmental assessment has been prepared in accordance with the requirements of the Director-General of the DP&I (refer to Chapter 4).

The proposed building and infrastructure improvements, including the replacement of temporary buildings with permanent buildings, modernisation of the terminal facilities and upgrade of equipment with current technologies are required to ensure the operation of the terminal

remains viable and competitive. The proposal would significantly improve the safety performance and environmental performance at the terminal. The proposal would also result in a reduction in the operating costs of the terminal.

Environmental investigations were undertaken to assess the potential environmental impacts from the construction and operation of the proposal in accordance with relevant environmental legislation, and relevant guidelines and procedures established by regulatory agencies. Based on the findings of the environmental investigations, the proposal would result in some minor adverse impacts on the environment and community. These impacts would be mitigated by implementing the existing conditions of consent and the various mitigation measures outlined in this environmental assessment. The environmental performance of the proposal would be managed through the implementation of the construction and operational environmental management plans and monitoring programs. This would also help to ensure compliance with relevant legislation and any conditions of approval.

It is considered that the proposal is justified on the basis of its environmental acceptability and is in accordance with the five principles of sustainability.

Based on this environmental assessment, it is considered that the long term operational benefits of the proposal would outweigh the minor, short term impacts of the proposal.

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Attachments

Attachment A - Consultation letters

NSW GOVERNMENT | Planning & Infrastructure

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Our ref: 12/08493-1

Mr Richard Pollock
Assistant Project Director
Patrick Terminals and Logistics
Level 2, 4B Lord Street
BOTANY NSW 2019

Dear Mr Pollock

Patrick Stevedores Operations No. 2 – Proposed Modification to Existing Container Terminal, Botany Local Government Area (DA-453-12-2002-i MOD 7)

I refer to your letter dated 11 December 2012 and supporting document titled *Patrick Stevedores Operations No. 2: Patrick Stevedores Port Botany Container Terminal Project – Section 75W Modification Application (December 2012)* outlining a proposal to conduct a range of demolition and construction works within the existing container terminal site adjacent to Brotherson Dock, Port Botany.

The Department has reviewed the information provided and confirms that the proposed modification can be progressed under section 75W of the *Environmental Planning and Assessment Act 1970* (EP&A Act). Pursuant to section 75W(3) of the EP&A Act, the Director General requires that the modification application address the matters set out in the attached Director General's requirements (DGRs). The DGRs have been based on the Department's understanding of the proposal and a review of the supporting information.

Your contact officer for this proposal, Ingrid Ilias, can be contacted on the contact details outlined above. Please mark all correspondence regarding the proposal to the attention of the contact officer.

Yours sincerely

Felicity Greenway 19/12/12

Felicity Greenway
A/ Director
as the Director General's nominee

Director General's Requirements

Patrick Stevedores Operations No. 2 – Patricks Container Terminal
Proposed Modification for a Range of Demolition and Construction Works

Section 75W(3) of the *Environmental Planning and Assessment Act 1979*

Application Number	DA-453-12-2002-i MOD 7
Proposed Modification	Demolition and construction of various components within the existing container terminal site adjacent to Brotherson Dock, Port Botany. This includes the demolition of infrastructure and buildings, pavement works, construction of a control building, administration building, AQIS, Optical Character Recognition Building and workshop and maintenance buildings, construction of related infrastructure such as light towers and radar poles, pits and conduits, boundary fencing, waiting shelters, weighbridges and landscaping. The existing manually operated straddle carriers are also proposed to be replaced with automatic straddle carriers.
Location	Lots 1-6, 8-14 and 16-19 DP 452236, Lots 1 and 2 DP 1009870, Lots 1, 2, 3 and 4 DP 1126332, Brotherson Dock, Port Botany
Applicant	Patrick Stevedores Operations No. 2
Date of Issue	19 December 2012
General Requirements	The Environmental Assessment (EA) must include the matters listed below: 1. An **executive summary**. 2. A **detailed description** of the original development, as approved, and the proposed changes to that approval, including figures that illustrate the footprint of the approved development and the proposed changes to the approved development. The EA should include: • key components of the proposal including proposed demolition and construction activities; • the modified site layout; • infrastructure/service requirements; and • staging and timing of construction and operational activities. 3. Identification of the **conditions that are required to be modified** by the application. 4. **Justification** for the proposed modification, including the strategic need and objectives for the modification. Justification for the proposed modification should take into consideration consistency with the aims and objectives of relevant State policies and plans (*e.g. NSW 2021, the State Infrastructure Strategy 2012-2032, and draft NSW Freight and Port Strategy)* and project objectives. 5. An **assessment of the key issues**, with the following aspects addressed for each key issue (where relevant): • description of the existing environment; • assessment of the potential impacts of the modification for both construction and operation stages, in accordance with relevant policies and guidelines. Direct, indirect and cumulative impacts must be considered (including regard to other existing and proposed developments and activities on the site and in the locality); • identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment and/or in developing management/mitigation measures; • documentation on whether any additional activities will require licensing and how licensing will be applied under relevant legislation; • description of the measures to be implemented to avoid, minimise, manage, mitigate, offset and/or monitor new impacts, or increased levels of impact from the modification; and • any residual impacts. 6. **Certification** by the author of the EA that the information contained in the document is neither false nor misleading.
Key Issues	The EA must address the following specific matters: • **General Construction Impacts –** an assessment of the potential impacts associated with the construction of the modification application where the nature and potential

	impact of construction activities associated with the modification application differ to those assessed for the approved development. • **Noise Impacts** – an assessment of the construction and operational noise impacts of the development on adjoining land uses and sensitive receivers. The EA shall detail how the site will continue to meet its existing operational noise limits during the construction and operational phases. The EA shall consider the *Interim Construction Noise Guidelines* (DECC, 2009) and the *NSW Industrial Noise Policy* (EPA, 2000). . • **Traffic and Transport Impacts** – an assessment of the potential for traffic disruption, increase in traffic movements and interaction with existing port operations during construction, including impacts to the overall road transport logistics for Port Botany and the interaction with the construction phase of the adjoining development of Terminal 3. The EA shall consider the Guide to Traffic Generating Development (RTA, 2002). In particular, the following must be considered: → vehicular access/egress and routes; → daily peak traffic movements generated and changes to type/level of traffic; and → cumulative impacts on the surrounding road network. • **Soil and Water** – an assessment of the potential soil, groundwater and surface water impacts, including impacts on Botany Bay and Penrhyn Estuary. The following must be considered: → water supply including options for reuse of process water; → proposed erosion and sedimentation controls (during construction) and the proposed stormwater management system (for operation); and → an assessment of contaminated groundwater and soils and proposed mitigation and management measures, consistent with *State Environmental Planning Policy No. 55 – Remediation of Land.* • **Design and Visual Amenity Impacts** – a visual impact assessment of the proposed development on surrounding sensitive visual receivers. The assessment should consider: → viewsheds and identify potentially affected receivers; → design elements of each component with a focus on highly visible elements; → potential lighting impacts on affected receivers; → landscaping and sustainability elements and measures; and → flight path and obstacle surface limits. • **Hazards and Risks** – an assessment of the changes to the existing hazards and risk scenario due to the relocation and construction of new facilities and the temporary storage/use of additional hazardous materials. The assessment should demonstrate that the proposed changes do not increase the overall risk of the facility. • **Air Quality Impacts** – a dust emissions impact assessment for the construction phase.
Environmental Risk Analysis	Notwithstanding the above requirements, the EA must include an environmental risk analysis to identify potential environmental impacts associated with the development (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EA.
Consultation Requirements	An appropriate and justified level of consultation must be undertaken with the following parties during the preparation of the EA: • Environment Protection Authority; • Office of Environment and Heritage; • Council of the City of Botany Bay; • Randwick City Council; • Sydney Ports Corporation; • Department of Primary Industries (Fisheries and Office of Water); • Roads and Maritime Services; • NSW Fire and Rescue; • Sydney Airport Corporation; • Civil Aviation Safety Authority and • the local community. The EA must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, an explanation should be provided.

NSW GOVERNMENT
Heritage Council of New South Wales

3 Marist Place
Parramatta NSW 2150

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Telephone: 61 2 9873 8500
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heritage@heritage.nsw.gov.au
www.heritage.nsw.gov.au

Contact: Tracy Appel
Phone: 02 9873 8559
Fax: 02 9873 8599
Email: Tracy.Appel@heritage.nsw.gov.au
File: 13/04432
Your ref: 21/21961

Ms Rima Exikanas
Environmental Scientist
GHD Pty Ltd
Level 15
133 Castlereagh Street

Dear Ms Exikanas

Re: **Proposed Modification to Existing Container Terminal, Botany Local Government Area (DA-453-12-2002-i MOD 7)**

Thank you for your email received by the Heritage Branch on the 28 February 2013 seeking input to the Director-General's requirements (DGRs) for the preparation of an Environmental Impact Statement (EIS) for the project. Generally, in relation to Heritage, it is advised that the EIS should address the following issues:

- The heritage significance of the site and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas, places of Aboriginal, historic or archaeological significance and items of moveable heritage. It should also include a consideration of wider heritage impacts in the area surrounding the site;

  The applicant or the applicant's representative should consult lists maintained by the Office of Environment & Heritage, the National Trust of Australia (NSW), the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* and the local council in order to identify any identified items of heritage significance in the area affected by the proposal. Please be aware, however, that these lists are constantly evolving and that items with potential heritage significance may not yet be listed. This is particularly relevant to items of industrial heritage;

- Non-Aboriginal heritage items within the area affected by the proposal should be identified. This should include any buildings, works, relics, moveable objects, landscaping, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of identified items should be undertaken by a qualified practitioner/consultant with historic sites experience, and experience dealing with industrial heritage. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual and the Heritage Office publication 'Statements of Heritage Impact.' Please note that the Heritage Branch's website can provide lists of suitable consultants;

- The proposal should have regard to any impacts on places, items or relics of significance to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures. For guidelines regarding the assessment of Aboriginal sites, please contact the Office of Environment & Heritage;

- Where possible refer to archaeological zoning plans or archaeological management plans held by Local Councils.

If you have any further enquiries regarding your request for input into the Director-General's requirements, please contact Tracy Appel using the details provided on this letter.

Yours sincerely

07/03/2013

Vincent Sicari
Manager – Conservation Team
Heritage Branch
Office of Environment and Heritage
NSW Department of Premier and Cabinet

AS DELEGATE OF THE NSW HERITAGE COUNCIL

NSW EPA

Your reference: 21/21961186416
Our reference: DOC13/3432
Contact: Dana Alderson 9995 6851

Ms Sophy Townsend
Senior Environmental Scientist
GHD Pty Ltd
Level 15, 133 Castlereagh Street
SYDNEY NSW 2001

Dear Ms Townsend

Section 75W Modification – Port Botany Container Terminal Project DA-453-12-2002-I MOD 7

I refer to your letter regarding the proposal to undertake demolition and construction activities at the Patrick Stevedores Port Botany Container Terminal received by the Environment Protection Authority (EPA) on 1 February 2012.

The EPA has reviewed the information provided, and the document entitled *Patrick Stevedores Operations No. 2 Patrick Stevedores Port Botany Container Terminal Project Section 75W Modification Application* (modification report) prepared by GHD Pty Ltd and dated December 2012.

The EPA recommends that consideration of noise, air and water quality impacts, as well as details of changes to water management and treatment and Environment Protection Licence 6962, be incorporated into the Environmental Impact Statement (EIS) for the proposal. Details of the EPA's requirements can be found at Attachment 1.

If you have any questions or concerns in relation to this matter please contact Dana Alderson on 9995 6851.

Yours sincerely

14/2/13

GREG SHEEHY
Manager Sydney Industry
Environment Protection Authority

cc: Ingrid Ilias, NSW Department of Planning and Infrastructure

PO Box 668 Parramatta NSW 2124
Level 7, 79 George Street Parramatta NSW 2150
Tel: (02) 9995 5000 Fax: (02) 9995 6900
ABN 43 692 285 758
www..environment.nsw.gov.au

Attachment 1

Noise Impact Assessment

The EIS must include a Noise Impact Assessment which considers construction and operational noise impacts of the proposal, and must include the following:

General

1. Construction noise associated with the proposed development should be assessed using the *Interim Construction Noise Guideline (*EPA, 2009).
   http://www.environment.nsw.gov.au/noise/constructnoise.htm

2. Vibration from all activities (including construction and operation) to be undertaken on the premises should be assessed using the guidelines contained in the *Assessing Vibration: a technical guideline* (EPA, 2006). http://www.environment.nsw.gov.au/noise/vibrationguide.htm

3. If blasting is required for any reasons during the construction or operational stage of the proposed development, blast impacts should be demonstrated to be capable of complying with the guidelines contained in *Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration* (ANZEC, 1990). http://www.environment.nsw.gov.au/noise/blasting.htm

Operational

4. Operational noise from all activities to be undertaken on the premises should be assessed using the guidelines contained in the *NSW Industrial Noise Policy* (EPA, 2000) and *Industrial Noise Policy Application Notes.* http://www.environment.nsw.gov.au/noise/industrial.htm

Roads

5. Noise on public roads from increased road traffic generated by land use developments should be assessed using the guidelines contained in the *NSW Road Noise Policy* (EPA, 2011). http://www.environment.nsw.gov.au/noise/traffic.htm

6. Noise from new or upgraded public roads should be assessed using the *NSW Road Noise Policy* (EPA, 2011). http://www.environment.nsw.gov.au/noise/traffic.htm

Air Quality

The EIS should include an air quality impact assessment (AQIA). The AQIA should:

1. Assess the risk associated with potential discharges of fugitive and point source emissions for all stages of the proposal. Assessment of risk relates to environmental harm, risk to human heath and amenity.

2. Justify the level of assessment undertaken on the basis of risk factors, including but not limited to:
   a. proposal location;
   b. characteristics of the receiving environment; and
   c. type and quantity of pollutants emitted.

3. Describe the receiving environment in detail. The proposal must be contextualised within the receiving environment (local, regional and inter-regional as appropriate). The description must include but need not be limited to:

a. meteorology and climate;
b. topography;
c. surrounding land-use; receptors; and
d. ambient air quality.

4. Include a detailed description of the proposal. All processes that could result in air emissions must be identified and described. Sufficient detail to accurately communicate the characteristics and quantity of all emissions must be provided.

5. Account for cumulative impacts associated with existing emission sources as well as any currently approved developments linked to the receiving environment.

6. Include air dispersion modelling where there is a risk of adverse air quality impacts, or where there is sufficient uncertainty to warrant a rigorous numerical impact assessment. Air dispersion modelling must be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (2005) http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf.

7. Demonstrate the proposal's ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations (POEO) Act (1997)* and the *POEO (Clean Air) Regulation (2010)*.

8. Detail emission control techniques/practices that will be employed by the proposal.

Water

1. Describe the proposal including position of any intakes and discharges, volumes, water quality and frequency of all water discharges.

2. Demonstrate that all practical options to avoid discharge have been implemented and environmental impact minimised where discharge is necessary.

3. Where relevant include a water balance for the development including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Background Conditions

4. Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal.

Issues relating to the description of the receiving waters could also include, for example:

- water chemistry
- a description of receiving water processes, circulation and mixing characteristics and hydrodynamic regimes
- lake or estuary flushing characteristics
- sensitive ecosystems or species conservation values
- specific human uses (e.g. fishing, proximity to recreation areas)
- a description of any impacts from existing industry or activities on water quality
- a description of the condition of the local catchment e.g. erosion, soils, vegetation cover, etc.
- an outline of baseline groundwater information, including, for example, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater

- by surrounding users and by the environment
- historic river flow data

5. State the Water Quality Objectives for the receiving waters relevant to the proposal. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (http://www.environment.nsw.gov.au/ieo/index.htm). Where groundwater may be impacted the assessment should identify appropriate groundwater environmental values.

6. State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC (2000) Guidelines for Fresh and Marine Water Quality (http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality).

7. State any locally specific objectives, criteria or targets which have been endorsed by the NSW Government.

Impact Assessment

8. Describe the nature and degree of impact that any proposed discharges will have on the receiving environment. This could include the consideration of impacts on, for example:
   - water circulation, current patterns, water chemistry and other appropriate characteristics such as clarity, temperature, nutrient and toxicants
   - changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, and groundwater)
   - disturbance of acid sulphate soils and potential acid sulfate soils
   - stream bank stability and impacts on macro invertebrates

   Modelling, monitoring, or both, may need to be undertaken to assess the potential impact of discharges on the receiving environment. Modelling could include, for example:
   - a range of scenarios that encompass any variations in discharge quality and quantity as well as the relevant range of environmental conditions of the receiving waters. The scenarios could describe a set of worst-case conditions and typical conditions to ensure that both acute and chronic impacts are assessed
   - assumptions used in the modelling, including identification and discussion of the limitations and assumptions to ensure full consideration of all factors, including uncertainty in predictions.

9. Assess impacts against the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:
   - protect the Water Quality Objectives for receiving waters where they are currently being achieved; and
   - contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved.

10. Where a discharge is proposed that includes a mixing zone, the proposal should demonstrate how wastewater discharged to waterways will ensure the ANZECC (2000) water quality criteria for relevant chemical and non-chemical parameters are met at the edge of the initial mixing zone of the discharge, and that any impacts in the initial mixing zone are demonstrated to be reversible.

11. Assess impacts on groundwater and groundwater dependent ecosystems.

12. Describe how stormwater will be managed both during and after construction.

Monitoring

13. Describe how predicted impacts will be monitored and assessed over time. Proponents should develop a water quality and aquatic ecosystem monitoring program to monitor the responses for each component or process that affects the Water Quality Objectives that includes, for example:
    - adequate data for evaluating compliance with water quality standards and/or Water Quality Objectives
    - measurement of pollutants identified or expected to be present in any discharge

    Water quality monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutant in NSW* (2004) (http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf).

Stormwater Risk Assessment

14. The modification report notes that the proposal involves changes to stormwater management and treatment to improve the quality of water discharged during operation of the terminal.

    Since the preparation of the modification report in December 2012, Environment Protection Licence 6962 for Patrick Stevedores Port Botany Container Terminal (the Licence) has been varied to include a Pollution Reduction Program (PRP). The PRP requires Patrick Stevedores to undertake a Stormwater Risk Assessment to identify risks to stormwater or local marine receiving environments posed by operation of the premises, and provide recommendations for addressing the risks. As the proposal involves improvements to the stormwater management system, the EIS should address the requirements of this PRP.

    The PRP states:

U1 Stormwater Risk Assessment

U1.1 The objectives of this PRP are to identify any potential risks to stormwater or local marine receiving environments posed by operation of the premises, and provide recommendations for addressing any such identified risks.

U1.2 By no later than 1 April 2013 the licensee must submit a Stormwater Risk Assessment Report to the Manager Sydney Industry, EPA, PO Box 668, Parramatta, NSW 2124.

U1.3 The report referred to in Condition U1.2 must be prepared by a person suitably-qualified to undertake risk-based assessments of stormwater management processes.

U1.4 The report referred to in Condition U1.2 must be undertaken and presented using an internationally-recognised formal risk assessment methodology.

U1.5 The report referred to in Condition U1.2 must include:

a) Identification of all potential environmental risks to stormwater and local marine receiving environments posed by operation of the premises;

b) Development of criteria to determine the acceptability of the risks identified by Condition U1.5a);

c) An assessment of the risks identified by Condition U1.5a) against the criteria developed at Condition U1.5b), with particular emphasis on existing stormwater management techniques and equipment employed at the premises;

d) Recommendations on how to ensure that all risks identified in Condition U1.5c) as posing a significant or potentially significant risk to the environment are addressed so that they do not pose a significant or potentially significant risk to the environment; and

e) A cost/benefit analysis for each of the recommendations identified by Condition U1.5d).

A copy of the Licence may be downloaded from: http://www.environment.nsw.gov.au/prpoeoapp/.

Changes to Environment Protection Licence

The proposal will require changes to be made to the Licence to incorporate Scheduled Development Works provisions for the construction stage of the project. In addition, it is anticipated that changes to the Licence may be required to reflect additional or amended stormwater discharge points, changes to quality of water to be discharged, and variation to noise limits due to the introduction of new equipment and processes. As such, the EIS will need to detail proposed construction hours, construction and operational noise criteria, and identify the need for changes to water discharge and discharge points on site. Please note that an application to vary the Licence will be required to be submitted to the EPA prior to the commencement of construction works.

Sophy Townsend

From: Ian Tait <Ian.Tait@rms.nsw.gov.au>
Sent: Wednesday, 13 February 2013 2:24 PM
To: Sophy Townsend
Subject: FW: TRIM: Invitation to Comment - Section 75W Modification - Port Botany Container Terminal Project
Attachments: 006 Port Botany Container Terminal Project - RMS.pdf

Dear Ms Townsend,

RMS has reviewed the attached information. Provided all works are within SPC lands there are no major matters to be raised in this instance. Any unforseen permanent occupation of RMS adjoining wetland by reason of upgrading works would need to be covered via the Maritime Facilities Deed.

Will any of the construction or demolition materials be transported via water?

Regards,
Ian

Ian Tait

Assessments Officer
Property Planning and Infrastructure Division
Transport Roads & Maritime Services NSW

Serving our Boating Community - Safe Waterways and Support for the Maritime Community
T: 02 9563 8812| F: 02 9563 8866
Locked Bag 5100 | Camperdown NSW 1450
www.maritime.nsw.gov.au

From: Rima Exikanas [mailto:Rima.Exikanas@ghd.com]
Sent: Friday, 1 February 2013 1:53 PM
To: Ian Tait
Subject: TRIM: Invitation to Comment - Section 75W Modification – Port Botany Container Terminal Project

Dear Mr Tait,

Patrick Stevedore Operations No. 2 (Patrick) is proposing to modernise its Port Botany Container Terminal operations on the northern side of Brotherson Dock in Port Botany by undertaking a range of demolition and construction activities.

GHD is currently preparing an the environmental impact assessment for the proposal and is seeking your comments and/or feedback. It would be appreciated if you could advise any issues that you feel should be addressed in the environmental assessment by no later than Friday
22nd February 2013 to Sophy.townsend@ghd.com.

Kind Regards

Rima Exikanas
Environmental Scientist

GHD

T: +61 2 9239 7685 | F: +61 2 9239 7199 | V: 217685 | E: rima.exikanas@ghd.com
Level 15 133 Castlereagh St Sydney NSW 2000 Australia | http://www.ghd.com/
Water | Energy & Resources | Environment | Property & Buildings | Transportation

Rima Exikanas

From: Betts Judith <Bettsj@botanybay.nsw.gov.au>
Sent: Thursday, 28 February 2013 12:09 PM
To: Rima Exikanas
Subject: Section75W Modification - Port Botany Container Terminal

Hi Rima

Thankyou for the opportunity to provide comment on the preparation of documentation for the Section 75W Modification – Port Botany Container Terminal Project.

I am satisfied that the required measures have been addressed in the Director General Requirements (DGRs) as provided. As such I do not need any information or matters addressed in addition to these requirements.

Regards

Judith Betts
Environmental Scientist
City of Botany Bay Council
Telephone: 9366 3705
Email: bettsj@botanybay.nsw.gov.au

Sustainable Botany Bay. Its our future - It makes sense.

Sophy Townsend

From: Bronwyn Englaro <Bronwyn.Englaro@randwick.nsw.gov.au>
Sent: Friday, 22 February 2013 3:36 PM
To: Sophy Townsend
Subject: Section 75W Modification - Port Botany Container Terminal Project at Patricks No. 2

Categories: Red Category

Good Afternoon,

Reference is made to the request by GHD (email from Rima Exikanas on 1/2/13) for comments in relation to the modernisation of Patrick Stevedore Operations No. 2.

From reviewing the proposal Council would suggest that in preparation of the environmental impact assessment, that GHD take following into consideration:

Adequate and suitable environmental protection measures are provided to ensure no environmental pollution results from the proposed works and ongoing use/ operation of the site and taking into consideration cumulative impacts arising from other construction works currently occurring at Terminal 3.

Specifically, with regards to:

1. Prevention of water borne pollution being managed by provision of suitably designed and located environmental protection measures such as; oil water separators, covered and bunded areas; location of washing areas, fuelling areas and other activities likely to cause water pollution are adequately designed and located.
2. Prevention/mitigation of noise disturbance to the surrounding environment. It should be noted that noise nuisance complaints from the Port related operations are received by Council from residents located in Matraville (Harold and Australia Ave), Chifley and Little Bay locations, particularly in streets located on elevated topographies and between 10PM till 7AM. An acoustic assessment of the current operation would assist with assisting identifying measures required for improving the environmental performance of the site. The following activities have been identified as potentially requiring acoustic attenuation: loading and unloading of containers; dropping of containers and alarm sounds from the reversing vehicles.
3. Vehicle movements and stacking/parking of vehicles during construction and impact on local road network.
4. Monitoring of dust levels during demolition and construction works due to recent sensitivities experienced by residents in vicinity of the Port at the end of 2012 .
5. Impact on the local community from the works and measures to minimise/mitigate these i.e. consultation/ communication plan so the community know what is to happen, when it is to happen and for how long; especially in relation to other adjacent construction works.
6. Acid Sulphate Soils Assessment and if relevant associated management plan.
7. Impact on migratory birds with specific regard to the Little Terns given Little Tern incident at Terminal 3 in January this year.

I hope this is of assistance; if you require further details on any of the above please don't hesitate to contact me directly.

Kind Regards

Bronwyn Englaro
Senior Sustainability Officer
Randwick City Council
9399 0796
bronwyn.englaro@randwick.nsw.gov.au
www.randwick.nsw.gov.au

Randwick City Council
a sense of community

"Please come and visit us at www.randwick.nsw.gov.au "

Sophy Townsend

From: Peter Engelen <pengelen@sydneyports.com.au>
Sent: Thursday, 7 February 2013 11:35 AM
To: Sophy Townsend
Cc: Rima Exikanas
Subject: RE: Invitation to Comment - Section 75W Modification - Port Botany Container Terminal Project

Dear Sophy,

Sydney Ports has reviewed the Patrick Stevedores s75W Modification Invitation to Comment and have no further comments.
Please be informed / reminded that Sydney Ports previously provided 'PAM meeting minutes' to Patrick that record the requirements to be addressed in the EIA. These still apply.
Kindly confirm that Sydney Ports will be provided the draft EIA for review prior to its lodgement with the Department of Planning and Infrastructure.

Best regards

Peter Engelen
Senior Manager, Development

Sydney Ports Corporation
Level 4, 20 Windmill Street | Walsh Bay NSW 2000 Australia
PO Box 25, Millers Point | NSW 2000 Australia

E: pengelen@sydneyports.com.au
T: +61 2 9296 4938 | **F:** +61 2 9296 4766 | **M:** 0419 222 259
www.sydneyports.com.au

SYDNEY PORTS

From: Rima Exikanas [mailto:Rima.Exikanas@ghd.com]
Sent: Friday, 1 February 2013 1:40 PM
To: Peter Engelen
Subject: Invitation to Comment - Section 75W Modification – Port Botany Container Terminal Project

Dear Mr Engelen,

Patrick Stevedore Operations No. 2 (Patrick) is proposing to modernise its Port Botany Container Terminal operations on the northern side of Brotherson Dock in Port Botany by undertaking a range of demolition and construction activities.

GHD is currently preparing an the environmental impact assessment for the proposal and is seeking your comments and/or feedback. It would be appreciated if you could advise any issues that you feel should be addressed in the environmental assessment by no later than Friday
22nd February 2013 to Sophy.townsend@ghd.com.

Kind Regards

Rima Exikanas
Environmental Scientist

GHD
T: +61 2 9239 7685 | F: +61 2 9239 7199 | V: 217685 | E: rima.exikanas@ghd.com
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Water | Energy & Resources | Environment | Property & Buildings | Transportation

Sophy Townsend

From:	carla.ganassin@dpi.nsw.gov.au
Sent:	Wednesday, 6 February 2013 12:26 PM
To:	Sophy Townsend
Cc:	Rima Exikanas
Subject:	Fw: Invitation to Comment - Section 75W Modification ? Port Botany Container Terminal Project
Attachments:	007 Port Botany Container Terminal Project - DPI Fisheries.pdf

Dear Sophy,

Re: Patrick Stevedores Operations No.2 - Section 75W Modification - Port Botany Container Terminal Project (DA-453-12-2002-i MOD 7)

Thank you for requesting comments and feedback from Fisheries NSW on the proposal stated above.

Fisheries NSW has reviewed the attached information and wishes to state that the Department has no major issues or concerns in relation to the above mentioned application.

That said, it is important that adequate erosion and sediment control measures are employed during construction and that the proposed water treatment measures seek to improve any water quality related impacts to the adjacent waters of Botany Bay.

Regards,
Carla Ganassin | Conservation Manager
NSW Department of Primary Industries | Fisheries NSW | Aquatic Habitat Protection Unit
Suite 1, Terrace Level, Crown Tower, 200 Crown Street, Wollongong NSW 2500
SEND MAIL TO: Locked Bag 1 | Nelson Bay NSW 2315
T: 02 4254 5527 | F: 02 4225 9056 | E: carla.ganassin@dpi.nsw.gov.au
W: www.dpi.nsw.gov.au

----- Forwarded by Carla Ganassin/DII/NSW on 06/02/2013 10:51 AM -----

From: Rima Exikanas <Rima.Exikanas@ghd.com>
To: "carla.ganassin@dpi.nsw.gov.au" <carla.ganassin@dpi.nsw.gov.au>
Date: 01/02/2013 01:53 PM
Subject: Invitation to Comment - Section 75W Modification – Port Botany Container Terminal Project

---

Dear Ms Ganassin,

Patrick Stevedore Operations No. 2 (Patrick) is proposing to modernise its Port Botany Container Terminal operations on the northern side of Brotherson Dock in Port Botany by undertaking a range of demolition and construction activities.

GHD is currently preparing an the environmental impact assessment for the proposal and is seeking your comments and/or feedback. It would be appreciated if you could advise any issues that you feel should be addressed in the environmental assessment by no later than Friday
22nd February 2013 to Sophy.townsend@ghd.com.

Kind Regards

Rima Exikanas
Environmental Scientist

GHD
T: +61 2 9239 7685 | F: +61 2 9239 7199 | V: 217685 | E: rima.exikanas@ghd.com

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Water | Energy & Resources | Environment | Property & Buildings | Transportation

Sophy Townsend

From: Gina Potter <Gina.Potter@water.nsw.gov.au>
Sent: Monday, 11 February 2013 2:36 PM
To: Sophy Townsend
Subject: RE: Invitation to Comment - Section 75W Modification – Port Botany Container Terminal Project

Any works within 40m still fall under the Water Management Act 2000 and should still address the objects and principles of same.

The only issue I would identify with the proposed works would be that sediment and erosion control measures are undertaken accordingly.

Regards,

Gina Potter

Licensing Officer
Water Management Division
Licensing South
NSW Office of Water
Lvl 11, 10 Valentine Ave, Parramatta 2150
Ph. (02) 8838 7566
Fx. (02) 8838 7556

>>> On 11/02/2013 at 12:36 pm, in message <D78173BD68B9E541B1DFB72B8D4051D8274576C6@GLB-EXMBX-002.ghdnet.internal>, Sophy Townsend <Sophy.Townsend@ghd.com> wrote:

> Ms. Potter -
>
> That's great, thanks! Does the Office of Water have any other issues or concerns that they would like addressed in the environmental assessment?
>
> Thanks,
> Sophy.
>
> From: Gina Potter [mailto:Gina.Potter@water.nsw.gov.au]
> Sent: Monday, 11 February 2013 12:29 PM
> To: Sophy Townsend
> Subject: RE: Invitation to Comment - Section 75W Modification – Port Botany Container Terminal Project
>
> Hi Sophy,
>
> Sydney Ports, as a State Government owned corporation, is exempt from the need to obtain a Controlled Activity Approval under the Water Management Act 2000.
>
> Regards,
>
> Gina Potter
>
> Licensing Officer
> Water Management Division
> Licensing South
> NSW Office of Water

Lvl 11, 10 Valentine Ave, Parramatta 2150
Ph. (02) 8838 7566
Fx. (02) 8838 7556

>>> On 11/02/2013 at 12:24 pm, in message <D78173BD68B9E541B1DFB72B8D4051D8274576A7@GLB-EXMBX-002.ghdnet.internal>, Sophy Townsend <Sophy.Townsend@ghd.com> wrote:

Dear Ms. Potter –

The land is owned by Sydney Ports Corporation and is currently leased by Patrick.

The proposal requires approval as a modification to an existing development consent from the NSW Minister for Planning and Infrastructure and an environmental impact assessment completed in accordance with Section 75W of the *NSW Environmental Planning and Assessment Act 1979.* The consent authority is therefore the NSW Department of Planning and Infrastructure (DP&I). We received Director General Requirements from the DP&I on 19 December, 2012.

I hope that helps!

Cheers,
Sophy.

From: Gina Potter [mailto:Gina.Potter@water.nsw.gov.au]
Sent: Monday, 11 February 2013 11:58 AM
To: Rima Exikanas; Sophy Townsend
Subject: Re: Invitation to Comment - Section 75W Modification – Port Botany Container Terminal Project

Could you please tell me
1. Who owns this land and
2. Who the consent authority is

Regards,

Gina Potter

Licensing Officer
Water Management Division
Licensing South
NSW Office of Water
Lvl 11, 10 Valentine Ave, Parramatta 2150
Ph. (02) 8838 7566
Fx. (02) 8838 7556

>>> On 1/02/2013 at 1:41 pm, in message <B1C96BE2074A0D46AD639935F346C4A527FB48C4@GLB-EXMBX-002.ghdnet.internal>, Rima Exikanas <Rima.Exikanas@ghd.com> wrote:

Dear Ms Potter,

Patrick Stevedore Operations No. 2 (Patrick) is proposing to modernise its Port Botany Container Terminal operations on the northern side of Brotherson Dock in Port Botany by undertaking a range of demolition and construction activities.

GHD is currently preparing an the environmental impact assessment for the proposal and is seeking your comments and/or feedback. It would be appreciated if you could advise any issues that you feel should be addressed in the environmental assessment by no later than Friday
22nd February 2013 to Sophy.townsend@ghd.com.

Kind Regards

Rima Exikanas
Environmental Scientist

GHD
T: +61 2 9239 7685 | F: +61 2 9239 7199 | V: 217685 | E: rima.exikanas@ghd.com
Level 15 133 Castlereagh St Sydney NSW 2000 Australia | http://www.ghd.com/
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Rima Exikanas

From:	Bleasdale, Peter <peter.bleasdale@syd.com.au>
Sent:	Wednesday, 27 February 2013 5:44 PM
To:	Rima Exikanas
Subject:	RE: Invitation to Comment - Section 75W Modification - Port Botany Container Terminal Project
Attachments:	Lighting in the Vicinity of Aerodromes.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hi Rima,

Here are my comments/feedback:

Airports (Protection of Airspace) Regulations

- As long as the proposed development remains below Sydney Airport's Obstacle Limitation Surface (OLS), in terms of Airspace Protection, Sydney Airport will have no issues.
- If any part of the proposed development penetrates the OLS, a full assessment would need to be carried out.
- Construction cranes may be required to operate at a height significantly higher than that of the proposed development and consequently, may not be approved under the Airports (Protection of Airspace) Regulations. Sydney Airport advises that approval to operate construction equipment (ie cranes) should be obtained prior to any commitment to construct.

Bird and Obstacle Hazard Management

- The area in which the proposed development is located is in the vicinity of Sydney (KS) Airport.
- To minimise the potential for bird habitation and roosting, the Proponent must ensure that non-bird attracting plant species are used in any landscaping design.
- Any landscaping design must minimise the attractiveness for foraging birds, i.e. site is kept clean regularly, refuse bins are covered, and detention ponds are netted.
- All trees to be planted shall not be capable of intruding into the Obstacle Limitation Surface when mature.

Lighting in the Vicinity of Aerodromes

- All proposed lighting, including floodlighting, must comply with CASA's Manual of Standards Part 139 - Aerodromes, Chapter 9, Section 9.21 "Lighting in the Vicinity of Aerodromes" (refer attached).

Please feel free to contact me if you require any further advice.

Peter Bleasdale
Airfield Design Manager
Sydney Airport Corporation Limited
Tel: +61 2 9667 9246

Section 9.21: Lighting in the Vicinity of Aerodromes

9.21.1 Advice to Lighting Designers

9.21.1.1 This Section supersedes a paper of the same name dated July 1988 and issued by the Civil Aviation Authority.

9.21.2 Introduction

9.21.2.1 The Civil Aviation Safety Authority (CASA) has the power through regulation 94 of the Civil Aviation Regulations 1988 (CAR 1988), to require lights which may cause confusion, distraction or glare to pilots in the air, to be extinguished or modified. Ground lights may cause confusion or distraction by reason of their colour, position, pattern or intensity of light emission above the horizontal plane. The text of regulation 94 is reproduced below for reference:

> *"Dangerous Lights*
>
> *94. (1) Whenever any light is exhibited at or in the neighbourhood of an aerodrome, or in the neighbourhood of an air route or airway facility on an air route or airway, and the light is likely to endanger the safety of aircraft, whether by reason of glare, or by causing confusion with, or preventing clear reception of, the lights or signals prescribed in Part XII or of air route or airway facilities provided under the Air Services Act 1995, CASA may authorise a notice to be served upon the owner of the place where the light is exhibited or upon the person having charge of the light directing that owner or person, within a reasonable time to be specified in the notice, to extinguish or to screen effectually the light and to refrain from exhibiting any similar light in the future.*
>
> *"(2) If any owner or person on whom a notice is served under this regulation fails, without reasonable cause, to comply with the directions contained in the notice, the owner or person shall be guilty of an offence punishable, on conviction, by a fine not exceeding 25 penalty units.*
>
> *"(3) If any owner or person on whom a notice under this regulation is served fails, within the time specified in the notice, to extinguish or to screen effectually the light mentioned in the notice, CASA may authorise an officer, with such assistance as is necessary and reasonable, to enter the place where the light is and extinguish or screen the light, and may recover the expenses incurred by CASA in so doing from the owner or person on whom the notice has been served."*

9.21.3 General Requirement

9.21.3.1 Advice for the guidance of designers and installation contractors is provided for situations where lights are to be installed within a 6 km radius of a known aerodrome. Lights within this area fall into a category most likely to be subjected to the provisions of the regulation 94 of CAR 1988. Within this large area there exists a primary area which is divided into four light control zones: A, B, C and D. These zones reflect the degree of interference ground lights can cause as a pilot approaches to land.

9.21.3.2 The primary area is shown in Figure 9.21-1. This drawing also nominates the intensity of light emission above which interference is likely. Lighting projects within this area should be closely examined to see they do not infringe the provision of regulation 94 of CAR 1988.

9.21.3.3 The fact that a certain type of light fitting already exists in an area is not necessarily an indication that more lights of the same type can be added to the same area.

9.21.3.4 Even though a proposed installation is designed to comply with the zone intensities shown in Figure 9.21-1, designers are advised to consult with CASA as there may be overriding factors which require more restrictive controls to avoid conflict.

9.21.4 Light Fittings

9.21.4.1 Light fittings chosen for an installation should have their isocandela diagram examined to ensure the fitting will satisfy the zone requirements. In many cases the polar diagrams published by manufacturers do not show sufficient detail in the sector near the horizontal, and therefore careful reference should be made to the isocandela diagram.

9.21.4.2 For installations where the light fittings are selected because their graded light emission above horizontal conform with the zone requirement, no further modification is required.

9.21.4.3 For installations where the light fitting does not meet the zone requirements, then a screen should be fitted to limit the light emission to zero above the horizontal. The use of a screen to limit the light to zero above the horizontal is necessary to overcome problems associated with movement of the fitting in the wind or misalignment during maintenance.

9.21.5 Coloured Lights

9.21.5.1 Coloured lights are likely to cause conflict irrespective of their intensity as coloured lights are used to identify different aerodrome facilities. Proposals for coloured lights should be referred to the Authority for detailed guidance.

9.21.6 Information and Correspondence

9.21.6.1 Check with the nearest CASA office for likely effect on aircraft operations of proposed lighting in the vicinity of an aerodrome.

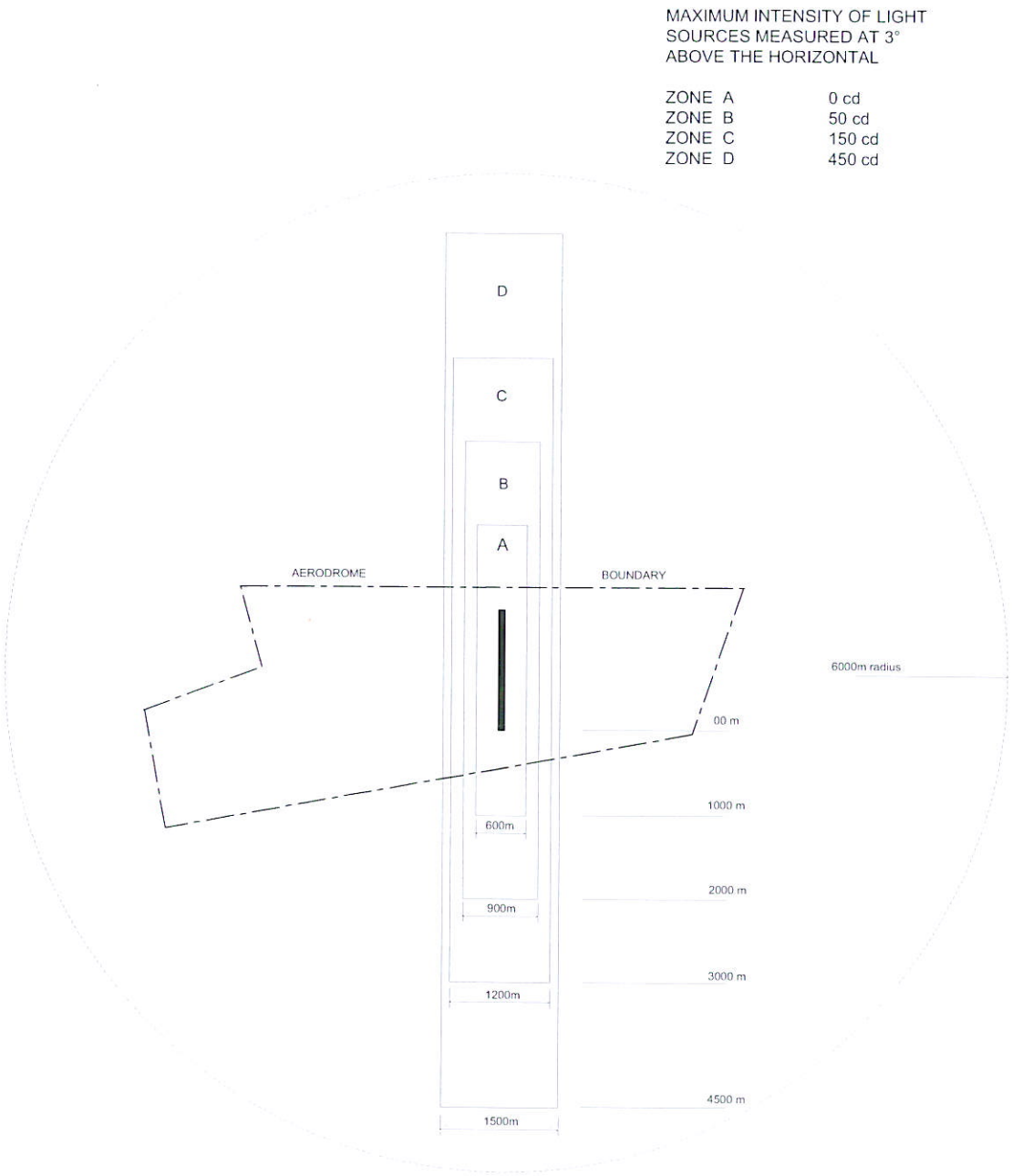

Figure 9.21-1: Maximum lighting intensities

Sophy Townsend

From:	Evan Smith
Sent:	Tuesday, 19 March 2013 1:43 PM
To:	Sophy Townsend
Cc:	Evan Milton
Subject:	FW: Port Botany Container Terminal Project - Air Quality Assessment
CompleteRepository:	2121961
Description:	Port Botany Redevelopment Project
JobNo:	21961
OperatingCentre:	21
RepoEmail:	2121961@ghd.com
RepoType:	Job

From: Dana Alderson [mailto:Dana.Alderson@epa.nsw.gov.au]
Sent: Tuesday, 19 March 2013 1:42 PM
To: Evan Smith
Subject: RE: Port Botany Container Terminal Project - Air Quality Assessment

Hi Evan,

I can confirm that the EPA is happy with your proposed assessment approach in relation to air quality in relation to this proposal.

Kind regards,
Dana

Dana Alderson
Operations Officer | Sydney Industry Section | NSW Environment Protection Authority |
☎: (02) 9995 6851 | 🖷: (02) 9995 6900|🖱: dana.alderson@epa.nsw.gov.au

Please consider the environment before printing this e-mail

From: Evan Smith [mailto:Evan.Smith@ghd.com]
Sent: Monday, 4 March 2013 4:27 PM
To: Alderson Dana
Cc: Pollock, Richard (Richard.Pollock@patrick.com.au); Rima Exikanas; Sophy Townsend
Subject: Port Botany Container Terminal Project - Air Quality Assessment

Good afternoon Dana,

This email is a follow-up from the phone discussion we had this morning. I wanted to confirm that you are happy with our assessment approach for the air quality component of the Section 75W Modification – Port Botany Container Terminal Project (DA-453-12-2002-i MOD 7) Environmental Assessment.

We have reviewed the Air Quality Assessment undertaken by SKM for the Port Botany Expansion Project in 2003. The results of the SKM assessment (which assessed earthworks and other dust generating activities of a much larger scale to this project) showed compliance with the relevant air quality criteria. Furthermore, ongoing dust deposition monitoring during construction confirms that dust deposition is complying with the air quality criteria. This project is of a much smaller scale and is farther from the nearest sensitive receivers than the Port Botany Expansion. Therefore, the project is unlikely to have a significant impact on air quality providing appropriate management is in place.

Our qualitative assessment has included a description of ambient air quality and meteorology, a discussion of the proposed construction methodology and equipment, as well as sources of air emissions. Because this is an established site, and based on the proposed works and the outcomes of the Port Botany Expansion Project, a detailed assessment including air dispersion modelling has not been undertaken. Quantities of emissions have not been determined, however, management practices have been identified to control any potential dust impact during construction.

Can you please confirm that you are happy with this approach to assessing potential air quality impacts of the Section 75W Modification – Port Botany Container Terminal Project (DA-453-12-2002-i MOD 7)?

Regards,

Evan Smith
Senior Environmental Engineer – Air and Noise Assessments

GHD
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Level 15 133 Castlereagh Street Sydney NSW 2000 Australia | www.ghd.com

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Sophy Townsend

From: Evan Milton
Sent: Tuesday, 19 March 2013 1:46 PM
To: Sophy Townsend
Subject: FW: Operational noise assessment approach for the Port Botany Container Terminal Project DA-453-12-2002–Mod-7

CompleteRepository: 2121961
Description: Port Botany Redevelopment Project
JobNo: 21961
OperatingCentre: 21
RepoEmail: 2121961@ghd.com
RepoType: Job

FYI

Regards

Evan Milton
Senior Acoustic Engineer
Team Leader – Air, Noise and Vibration

GHD Accomplish More Together
T: 61 2 9239 7205 | V: 217205 | E: evan.milton@ghd.com
Level 15, 133 Castlereagh Street Sydney NSW 2000 Australia | http://www.ghd.com/
Water | Energy & Resources | Environment | Property & Buildings | Transportation

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From: Dana Alderson [mailto:Dana.Alderson@epa.nsw.gov.au]
Sent: Tuesday, 19 March 2013 1:39 PM
To: Evan Milton
Subject: RE: Operational noise assessment approach for the Port Botany Container Terminal Project DA-453-12-2002–Mod-7

Hi Evan,

I can confirm that the EPA does not require you to complete a new noise assessment, rather we will be satisfied should you be able to demonstrate that the existing EPL noise limits are able to be achieved in relation to the proposal.

As discussed over the phone, if you are able to provide details of the noise specifications of the new Autostrad carriers that would assist in our assessment.

Kind regards,
Dana

Dana Alderson
Operations Officer | Sydney Industry Section | NSW Environment Protection Authority |
☎: (02) 9995 6851 | 🖷: (02) 9995 6900 | 🖱: dana.alderson@epa.nsw.gov.au

---

From: Evan Milton [mailto:Evan.Milton@ghd.com]
Sent: Monday, 4 March 2013 4:26 PM
To: Alderson Dana
Cc: Richard.Pollock@patrick.com.au; Rima Exikanas; Sophy Townsend; Greg Marshall
Subject: Operational noise assessment approach for the Port Botany Container Terminal Project DA-453-12-2002–Mod-7

Hi Dana

Thanks for taking the time (on Friday 1 March) to discuss the operational noise assessment approach for the Section 75W Modification – Port Botany Container Terminal Project (DA-453-12-2002-i MOD 7) Environmental Assessment.

As discussed the DGRs (ref: 12/08493-1) and the EPA recommendations (DOC13/3432) vary. The DGRs refer to the existing noise limits and are as follows:

> *"Noise impacts - an assessment of the construction and operational noise impacts of the development on adjoining land uses and sensitive receivers. The EA shall detail how the site will continue to meet its existing operational noise limits during the construction and operational phases. The EA shall consider the Interim Construction Noise Guidelines (DECC, 2009) and the NSW Industrial Noise Policy (EPA, 2000)."*

The EPA recommendations refer to the INP for operational noise and are more generic. For the operational noise assessment can you please confirm that EPA are satisfied if the existing EPL noise limits are achieved on site?

For the operational noise assessment, the only noise generating sources changing on the site are the existing (manual) straddle carriers which are going to be replaced with automatic straddle carriers (Autostrad). The following should be noted:

- Autostrad straddle carriers will be fitted with noise reduction kits with sound attenuation material on the side and top plates of the power unit cover and acoustic louvers on the outlet ventilation system. The supplied noise data sheets from the manufacture indicate that the Autostrad straddle carriers will be approximately 11 dB(A) quieter than the existing manual straddle carriers.
- The location of the straddle carriers is not proposed to significantly change from existing operations.
- The Autostrad straddle carriers will not have reversing alarms fitted (which was a requirement for the existing manually operated straddle carriers). This will reduce any sleep disturbance impacts associated with LAmax noise levels generated by reversing alarms.

Considering the above, the strategy for assessing operational noise will be:
1/ To review compliance noise monitoring (undertaken bi-annually as part of the site Conditions of Approval) to confirm that the site currently complies with the existing EPL noise limit.
2/ Show that the proposed modifications to the site are anticipated to decrease operational noise emissions.
If the above can be shown then the modifications should comply with the EPL noise limits.
Please confirm EPA are satisfied with this approach.

Thanks

Evan Milton
Senior Acoustic Engineer
Team Leader – Air, Noise and Vibration

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Attachment B - Compliance checklist (*Port Botany Development Code 2012*)

Attachment B
Compliance checklist (Port Botany Development Code 2012)

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
1	Visual Amenity				
2	Maximum Height above Zero Fort Denison Tide Gauge (ZFDTG) not to exceed 32.5m	No	Control tower would be approx 43 m in height.		s2.2 p1
3	Container Stacks not to exceed a height of six containers	NA			s2.2 p3
4	Air conditioning units, telecommunications equipment or mechanical plant to be concealed or behind roof line (minimise visibility to main road frontages)	Yes	Architectural design (including drawings) approved before construction commences.		s2.2 p4
5	Building to be oriented towards the primary street frontage with office component to address the street to provide attractive frontage	Yes	Architectural design (including drawings) approved before construction commences.		s2.2 p4
6	Building Designs to minimise the perception of bulk and scale by:				s2.2.1 p6
7	articulation of building facades	Yes	Architectural design (including drawings) approved before construction commences.		s2.2.1 p6
8	varying facade alignments and heights	Yes	Architectural design (including drawings) approved before construction commences.		s2.2.1 p6
9	breaking up of facades (windows, decorative features, etc)	Yes	Architectural design (including drawings) approved before construction commences.		s2.2.1 p6
10	varying materials and colours used	Yes	Architectural design (including drawings) approved before construction commences.		s2.2.1 p6
11	Buildings to comprise of external materials incorporating muted recessive colours with material or tonal colour variation to break the mass of buildings and walls. Lighter shades to be used for larger wall areas and darker has highlights.	Yes	Architectural design (including drawings) approved before construction commences.		s2.2.2 p8
12	Materials and colours for buildings and roofs to minimise reflectivity. All glazing to have a reflectivity coefficient of less than 20%.	Yes	Architectural design (including drawings) approved before construction commences.		s2.2.2 p9
13	Dark less reflective colours to be used on light poles greater than 15m in height.	Yes	Dark reflective colours will be used on light pole finishes.		s2.2.2 p10
14	All tanks to be painted white or light grey	Yes	Light grey		s2.2.2 p11
15	Visibility of mobile elements (e.g.. cranes) to be reinforced through colour (colour to be used to be identified)	NA			s2.2.2 p12
16	Sustainable Development				
17	Development to incorporate as many of the suggested measures contained in the Sydney Ports Green Ports Guidelines as practicable (relevant checklist to be included)	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p1
18	All buildings to achieve a minimum 4 star green star rating for the applicable rates version (only to building where rating is applicable)	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p2
19	Buildings to be designed and constructed to maximise the use of natural lighting and ventilation, and minimise energy use associated with heating, cooling and lighting	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p3
20	Development is to collect sufficient rainwater for reuse on site (e.g.. container washing, grey water flushing and irrigation of landscaping)	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p4
21	Low maintenance and robust materials to be used	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p5
22	Dedicated storage area for the separation, collection and recycling of waste with adequate access	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p6
23	Climate change risk assessment to be provided in accordance with the most current NSW Sea Level Rise Policy Statement	NA	Design will comply with the requirements under the Development Deed. All designs will be approved by SPC prior to construction licence.		s3.2 p7
24	Incorporate measures to minimise greenhouse gas emissions	Yes	Architectural design (including drawings) approved before construction commences.		s3.2 p8
25	Access, Parking and Loading				
26	Assess onsite and off site traffic impacts and provide a Traffic Management Plan in accordance with Sydney Ports' Traffic Management Plan Guidelines 2007.	Yes	Construction and Operational Traffic Management Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Traffic Management Plan within CEMP and OEMP.	s4.2 p1

Attachment B
Compliance checklist (Port Botany Development Code 2012)

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
27	Vehicular access points and paths located and designed to avoid conflicts between pedestrians, light vehicles and truck movements	Yes	Construction and Operational Traffic Management Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Traffic Management Plan within CEMP and OEMP.	s4.2 p2
28	Container facilities to provide separate access points to an adjoining roadway for light vehicles and trucks	Yes	Construction and Operational Traffic Management Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Traffic Management Plan within CEMP and OEMP.	s4.2 p3
29	Designated pedestrian paths clearly delineated from site internal vehicle roads and parks via a perceivable change in material and/or colour	Yes	Construction and Operational Traffic Management Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Traffic Management Plan within CEMP and OEMP.	s4.2 p4
30	All employee and visitor car parking to be located within the leased area	Yes	Sufficient car-park spaces created as per the requirements under the Development Code.	Lay-out designs	s4.2 p5
31	Car parking areas to conform to:				s4.2 p5
32	Designed in accordance with AS1428:1-4 Design for access and mobility	Yes		Lay-out designs	s4.2 p5
33	Designed in accordance with AS2890.1 Car Parking Facilities	Yes		Lay-out designs	s4.2 p5
34	Designed in accordance with AS28902 Commercial Vehicle Facilities	Yes		Lay-out designs	s4.2 p5
35	One parking space per staff member and contractor on site at any one time plus 10%	Yes		Lay-out designs	s4.2 p5
36	provide at least two visitor parking spaces	Yes		Lay-out designs	s4.2 p5
37	provide one mobility impaired parking space located adjacent to building entries and clearly delineated	Yes		Lay-out designs	s4.2 p5
38	be paved with concrete or bituminous surfacing designed and drained to the approved stormwater system	Yes		Lay-out designs	s4.2 p5
39	incorporate landscaping to provide visual screening to reduce the visual impact, particularly from external roadways	Yes		Lay-out designs	s4.2 p5
40	Perimeter screen planting for car park	Yes		Lay-out designs	s4.2 p6
41	Additional car park tree bays (1.2 x 3m min) incorporated at one for every 10 spaces	Yes		Lay-out designs	s4.2 p7
42	Garbage bins and waste recycling areas accommodated on site, appropriately screened and accessible by both users and for collection	Yes		Lay-out designs	s4.2 p8
43	Bicycle parking provided of 2 + 5% of the total number of car parking spaces.	Yes		Lay-out designs	s4.2 p9
44	Bicycle parking to be highly visible, in an illuminated area and secured to site to prevent removal, vandalism and theft	Yes		Lay-out designs	s4.2 p9
45	Security				
46	All leased areas to be appropriately fenced with chain wire fencing with optional 3-strand barbed wire along top portion (up to a max of 3.5m)	Yes	Fence design as per Port Guidelines.		s5.2 p1
47	All chain wire fencing posts, rails and gates that are visible from the water and main port roads are to be black in colour. Fencing in other locations may comprise a metallic finish.	Yes	Fence design as per Port Guidelines		s5.2 p2
48	Access points to be secured with durable gates and checkpoint facilities where necessary. Gates to either be chain wire fence set with a framed rim or palisade gates.	Yes	Fence design as per Port Guidelines		s5.2 p3
49	Truck entry to site to be set back a minimum of 65m for Container facilities or 30m for non-container facilities	Yes	Fence design as per Port Guidelines		s5.2 p4
50	Landscaping				
51	Landscaping to be provided in front of fences that face external roads and non-active waterfronts	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p1

Attachment B
Compliance checklist (Port Botany Development Code 2012)

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
52	landscaped areas to be planted to achieve a minimum of 75% planting density once fully mature	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p2
53	Only suitable native plant species to be used and be locally sourced provenance stock where practical	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p3
54	Plant sizes to be:				s6.2 p3
55	Trees - 25 litres	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p3
56	Accents - 5 litres	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p3
57	Groundcovers - 100mm	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p3
58	All landscaping to take into account the need to maintain passive surveillance	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p4
59	For landscaping on internal boundaries tree trunks not to be within 2.5m of the perimeter fence and no overhang to adjoining properties	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p5
60	Landscaped areas to be irrigated for a minimum 12mths to ensure establishment. Irrigation systems to be automated drip systems with approved back flow prevention devices, controllers (vandal resistant) and appropriate zoning	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p6
61	Mown grass verges, adjoining landscaping strips or otherwise, are to comply with appendix A to the Port Botany Development Code	Yes	Landscape design (including drawings) approved before construction commences.		s6.2 p7; Appendix A
62	Specific Criteria for landscaped areas that face roads external to leased areas and not affected by potential fire:	Yes	Landscape design (including drawings) approved before construction commences.		
63	Establish a 5m landscaped buffer strip within the leased area, facing the roadway. The buffer strip is to have flush timber edging with the security fence located behind the landscaping	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.1 p8
64	Develop and maintain a consistent pattern of selected native planning including layered and banded ground stratum planting (0.5-0.7m); accent planting with large perennials (up to 1.4m) clustered and individual small to medium tree planting (8-12m); clusters to have a max spacing of 15m between groups	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.1 p9
65	Ensure a high level of security and passive surveillance via no dense, mid stratum shrub planting; no tree planting within 2.5m of fence line; under prune trees to minimum 2.5m above ground level and maintain adequate branch clearance from the security fence	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.1 p10
66	Existing landscape areas that do not comply with s6.2.1 p8-10 to be removed and replaced with compliant landscaping	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.1 p11
67	Specific Criteria for potential fire risk landscaped areas and non-active water front landscaped areas:	Yes	Landscape design (including drawings) approved before construction commences.		
68	Establish a 5m landscaped buffer strip within the leased area, facing the roadway. The buffer strip is to have flush timber edging with the security fence located behind the landscaping	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.2 p13
69	Continue repetition of form, texture and colour to create a strong multi-layered, rhythmic pattern in the landscape via layered and banded ground stratum planting (0.4-0.7m); highlights within the landscape buffer strip using grouped accent planting with large perennials (up to 1.4m)	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.2 p14
70	Develop layered bedding pattern with a progression from smaller species at the front to larger species at the back (near fence line)	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.2 p15
71	Existing landscape areas that do not comply with s6.2.2 p13-15 to be removed and replaced with compliant landscaping	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.2 p16
72	Use hardy native or indigenous plant species suited to site-specific environmental conditions with low fire risk	Yes	Landscape design (including drawings) approved before construction commences.		s6.2.2 p17
73	Signage				

Attachment B
Compliance checklist (Port Botany Development Code 2012)

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
74	All directional signage outside or on the leased area fence and public notice signage:				s7.2 p1
75	located in a prominent position and clearly visible	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
76	not to be located above a roadway	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
77	of a size and location so as not to obscure vehicle sightlines	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
78	to be positioned where it does not obstruct walkways and pathways	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
79	to consist of colours similar to that of Sydney Ports Corporation colour scheme or of typical safety warning signage	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
80	blade signage to be consistent with figure 12	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
81	may include company logo for direction purposes	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
82	for car parking, deliver and loading areas to be located close to the main access	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p1
83	No advertising signs other than business identification	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p2
84	Business identification signage is to:		Signage design (including drawings) approved before construction commences.		s7.2 p3
85	be located outside the leased area and conform to Sydney Ports' standard blade signage	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p3
86	of a size and location so as not to obscure vehicle sightlines	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p3
87	is permitted on one elevation of the primary building except where a site has two main road frontages or where there are multiple occupants of one building	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p3
88	not be illuminated or comprise of moving or flashing signage	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p3
89	not to occupy more than 10% of any facade or elevation	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p3
90	identify visitor entrance points to lease areas	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p3
91	Business identification on tanks is not to exceed one sign per leased area and should be subordinate in elevation to the tank	Yes	Signage design (including drawings) approved before construction commences.		s7.2 p4
92	Lighting				
93	Lighting levels to be just sufficient to meet operational requirements and to the relevant Australian Standard	Yes	This design achieves the levels stated within the "Lighting Design Outcomes Document" DKB 071112 which was supplied.	"Lighting Design Outcomes Document" & the lighting design.	s8.2 p1
94	All lighting to meet Civil Aviation Safety Authority (CASA) / Air Services Australia (ASA) requirements (CASA Manual of Standards Part 139 - Aerodromes)	Yes	All floodlights used within the design are asymmetric flat glass floodlights, with a "zero" degree tilt elevation.	Lighting design & a schedules that shows tilt elevation.	s8.2 p2
95	Appropriate lighting to be provided at key locations (e.g.. pedestrian paths, driveways, parking areas, building entries) to identify and provide safe access routes for employees and visitors	Yes	There will be minimum pedestrian activity within this area. The lighting levels achieved meet the requirements stated within "Lighting Design Outcomes Document" DKB 071112	Lighting Design Outcomes Document & the lighting design.	s8.2 p3
96	Lighting to be positioned so as not to cause distraction to vehicle drivers on roadways or to occupants of adjoining sites	Yes	The threshold increment has been assessed on the International Terminal Access Rd. The results show compliance to "Light Residential".	The lighting design, which also contains the results. These results are provided within a schedule.	s8.2 p4
97	Light spill to be avoided through:				s8.2 p4
98	focussing lights downwards	Yes	All luminaires use either flat-glass, or areoscreen technology, with a "zero" degree upcast.	Lighting design & a schedules that shows tilt elevation.	s8.2 p4

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
99	cut-offs or shields on lights	Yes	No shields have been used as this will affect the performance of the flood light. These will effect the results achieved throughout the area.	Lighting design & a schedules that shows tilt elevation. A product specification will be provided.	s8.2 p4
100	minimising light mast height	Yes	35m poles have been used within the main terminal area. 20m have been used within the "Wharf Access Road". 10m - 12m will be utiliesed within truck entry area.	Lighting design provides luminaire mounting height detail.	s8.2 p4
101	using low mounting height poles to light non-terminal operational areas	Yes	Same as above.	Same as above	s8.2 p4
102	Specific criteria for lighting in areas adjacent to Penrhyn Estuary:				
103	No fixed light to result in spill into the estuary or flushing channel	Yes	Lighting directed into Terminal - Space between Patrick and Estuary occuplied by SICTL.		s8.2.1 p6
104	Low mounting height poles to be used adjacent to the estuary	Yes	35m poles have been used to achieve the required levels.	Lighting Design	s8.2.1 p7
105	Moving lights (e.g.. vehicles) to be screened	N/A			s8.2.1 p8
106	High level lighting on operational equipment is not to shine into the estuary	Yes	High mast lighting on the perimeter face the terminal, and not the estuary. Minimal lighting faces the estuary area.	Lighting Design	s8.2.1 p9
107	Heritage				
108	Heritage impact statement required for developments proposed that could impact and items listed in Sydney Ports' Heritage and Conservation Register	NA	No indigenous or non-indigenous sites or relics are recorded as occurring within the site.	Section 75W Modification Environmental Assessment	s9.2 p1
109	Development in the vicinity of a heritage item is to be designed to respect and complement the heritage item	NA	No indigenous or non-indigenous sites or relics are recorded as occurring within the site.	Section 75W Modification Environmental Assessment	s9.2 p2
110	Safety and Hazard Management				
111	All new development in Port Botany is to undergo a risk assessment (as part of the application for development) and demonstrate the development:				
112	will not contribute to any increase in cumulative risk as shown in figure 2 of the *Port Botany Land Use Safety Study Overview Report 1996 (Overview Report)*	Yes	An assessment of the potential hazards and risks associated with the proposal has been undertaken. The assessment concluded the proposal would not present an increased overall risk to the surrounding land uses and would comply with the *Port Botany Land Use Safety Study Overview Report*.	Section 75W Modification Environmental Assessment	s10.2 p1
113	will not result in any propagation of risks to neighbouring facilities	Yes	As above.	Section 75W Modification Environmental Assessment	s10.2 p1
114	will not result in a significant increase in the number of people exposed to risk inside the residential contour as shown in Figure 2 of the *Overview Report*	Yes	As above.	Section 75W Modification Environmental Assessment	s10.2 p1
115	will identify and implement risk reduction and safety management measures as required	Yes	As above.	Section 75W Modification Environmental Assessment	s10.2 p1
116	Hazardous facilities to follow the following Specific Criteria for the risk assessment, covering the implementation operation and maintenance phases of the development, to demonstrate:				

Attachment B
Compliance checklist (Port Botany Development Code 2012)

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
117	That all foreseeable hazards (personal health and safety, environmental, property) have been clearly identified	Yes	An assessment of the potential hazards and risks associated with the proposal has been undertaken. The assessment concluded the proposal would not present an increased overall risk to the surrounding land uses and would comply with the *Port Botany Land Use Safety Study Overview Report.*	Section 75W Modification Environmental Assessment	s10.3 p2
118	That potential propagation for hazardous incidents to neighbouring facilities is identified and is As Low As Reasonably Practicable (ALARP)	Yes	As above.	Section 75W Modification Environmental Assessment	s10.3 p2
119	That risks associated with the identified hazards are appropriately analysed and assessed	Yes	As above.	Section 75W Modification Environmental Assessment	s10.3 p2
120	that the development will not contribute to any increase in cumulative risk as shown in figure 2 of the *Port Botany Land Use Safety Study Overview Report 1996 (Overview Report)*	Yes	As above.	Section 75W Modification Environmental Assessment	s10.3 p2
121	that the assessed risks comply with the relevant risk criteria published by the regulatory authorities	Yes	As above.	Section 75W Modification Environmental Assessment	s10.3 p2
122	that all identified risks will be controlled and minimised by protection and mitigation	Yes	As above.	Section 75W Modification Environmental Assessment	s10.3 p2
123	that incidents at hazardous facilities will not impact on the use or operation of adjacent land including common areas and not exceed acceptable published risk criteria. This is to be detailed in a quantitative analysis of incident impacts relating to consequence severity and risk and include risk contributors.	Yes	As above.	Section 75W Modification Environmental Assessment	s10.3 p2
124	Minimum separation distances to 'protected places' to comply with the relevant Australian Standard	Yes			s10.3 p3
125	The industrial premises risk contour for the development must remain within the lease boundary	Yes	Designs within new lease boundary.		s10.3 p4
126	Specific Criteria for Bulk liquid storage facilities (Not Applicable)	NA			s10.3.1
127	Specific Criteria for Pipelines (Not Applicable)	NA			s10.3.2
128	Specific Criteria where petroleum, petroleum products are handled or stored:				
129	Required to be bounded in accordance with the relevant standard including hose and pipeline connections are made or broken for operational activities	Yes	CEMP and OEMP will be prepared (and approved by DP&I).		s10.4 p11
130	Bounded areas to be impervious to prevent percolation of any spills into the underlying soil. The materials to be resistant to heat and the corrosive effects of the range of products to be handled or stored.	Yes	CEMP and OEMP will be prepared (and approved by DP&I).		s10.4 p12
131	Bounded area surfaces to be graded to permit the flow of surface water to suitable drainage; the surface to be maintained to prevent ponding	Yes	CEMP and OEMP will be prepared (and approved by DP&I).		s10.4 p13
132	Stormwater from bunded areas to be directed through a separator system located outside the bunded area	Yes	CEMP and OEMP will be prepared (and approved by DP&I).		s10.4 p14
133	Areas for loading road tankers or refuelling are to have 'roll-over' bunding and impervious paving. The paving and adjoining materials are to be resistant to heat and the corrosive effects of the product to be handled. Drainage to tube directed to a drainage system via an appropriate treatment system.	Yes	CEMP and OEMP will be prepared (and approved by DP&I).		s10.4 p15
134	Water Quality and Stormwater				
135	1:20 year storm event (i.e.. 5% Annual Excedence Probability (AEP)) to be accommodated within the piped stormwater system. Where the site does not drain directly to an adjacent water way, the 1:100 year storm event is to be retained on site.	Yes			s11.2 p1

Attachment B
Compliance checklist (Port Botany Development Code 2012)

ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
136	The design and layout of leased areas to take into consideration the need to provide unobstructed stormwater overland flow paths	Yes			s11.2 p2
137	The first flush from impervious areas is to be captured and treated to prevent pollutants from entering Botany Bay, including litter, sediments, rubbish, oils, and greases.	Yes	Installation of GPT devices.	Section 75W Modification Environmental Assessment	s11.2 p3
138	Stormwater leaving the site is not to create erosion within Penrhyn Estuary	NA	No stormwater from the site drains into the Penrhyn Estuary.		s11.2 p4
139	Measures to contain spills and prevent them from discharging through the stormwater system are to be identified and spill response procedures documented	Yes	Soil and Water Managment Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Soil and Water Management Plan within CEMP and OEMP.	s11.2 p5
140	Emergency spill kits are to be available on site and staff are to be trained in how to use them	Yes	Soil and Water Managment Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Soil and Water Management Plan within CEMP and OEMP.	s11.2 p6
141	Air Quality				
142	Trafficked site areas to be sealed to minimise dust	Yes	Fully sealed pavement in all areas.		s12.2 p1
143	Information regarding products stored and handled to be available/provided (i.e.. MSDS).	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p2
144	Products handled which have an odour to be handled in a closed circuit or sealed system	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p2
145	Vehicles, plant and equipment to be maintained and operated in good working condition. To be turned off when not in use.	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p3
146	Building materials that may potentially contribute to poor internal air quality are to be avoided	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p4
147	Air filters to be installed in all ventilation systems	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p5
148	All development to incorporate measures to minimise emissions that adversely impact local air quality	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p6
149	Any emissions of smoke, dust, particulate matter, steam or gas must meet CASA/ASA requirements	Yes	CEMP and OEMP will be prepared (and approved by DP&I).	CEMP and OEMP.	s12.2 p7
150	Bird Management				
151	Provide assessment of any aspects of the development that could attract bird species including mitigation measures, roosting areas, water ponding, rubbish collection, etc	Yes			s13.1 p1
152	Maximum Height above Zero Fort Denison Tide Gauge (ZFDTG) not to exceed 32.5m for all structures unless a shore bird impact assessment is undertaken confirming no adverse impact on shorebird access or use of Penrhyn Estuary	No	Control tower would be approx 43 m in height.		s13.1 p2
153	No port operations other than access permitted within 20m of the western edge of Penrhyn Estuary	NA			s13.1 p3
154	Container stacks, buildings and tanks are to be set back at least 100m from the western edge of Penrhyn Estuary and 64m from the southern edge of Penrhyn Estuary	Yes	Lease boundary		s13.1 p4
155	Noise and Vibration				
156	For all new developments identify:				
157	relevant noise criteria based on the Office of Environmental and Heritage guidelines	Yes	Listed in Environmental Assessment.	Section 75W Modification Environmental Assessment	s14.2 p1
158	all sources of noise	Yes	Noted in Environmental Assessment.	Section 75W Modification Environmental Assessment	s14.2 p1

Attachment B
Compliance checklist (Port Botany Development Code 2012)

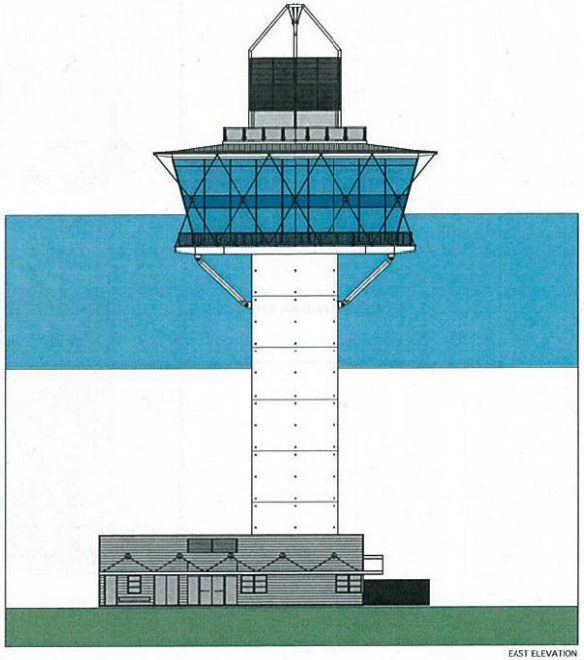
ID	Element	Design Compliant with Criteria: Yes / No / NA	How addressed or proposed alternative?	Supporting Documentation/ Material	Relevant Code Reference
159	noise emission levels	Yes	During construction, noise emissions are predicted to comply with the existing EPL noise limits and the ICNG construction noise management levels. Traffic noise levels are also predicted to comply with the RNP noise criteria. During operation, noise emissions are anticipated to decrease as a result of the replacement of manual straddle carriers with automated straddle carriers and would therefore continue be below the existing EPL operational noise limits.	Section 75W Modification Environmental Assessment	s14.2 p1
160	proposed mitigation measures	Yes	Noise Managment Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Noise Management Plan within CEMP and OEMP.	s14.2 p1
161	All buildings, equipment and operational processes are to be selected or designed to minimise noise emissions	Yes	Noise Managment Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Noise Management Plan within CEMP and OEMP.	s14.2 p2
162	Noise reduction measures for mobile equipment, trucks, and other vehicles and machinery are to be implemented such as insulation, engine off policies, etc. Audible movement alarms must not be used unless a safety risk assessment has been undertaken to recommend there use.		Noise Managment Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Noise Management Plan within CEMP and OEMP.	s14.2 p3
163	Noisy plant and equipment to be located as far as possible from noise sensitive areas utilising attenuation effects from topography, natural and purpose built barriers.		Noise Managment Plan will be prepared as part of the CEMP and OEMP (and approved by DP&I).	Noise Management Plan within CEMP and OEMP.	s14.2 p4
164	Vibration transmitted outside the site during operations must be within acceptable limits based on Office of Environmental and Heritage guidelines	NA	No change to existing conditions.	Section 75W Modification Environmental Assessment	s14.2 p5
165	Contamination and Acid Sulphate Soils				
166	Assessment of potential and likelihood of soil and groundwater contamination to be undertaken and mitigation and remediation measures undertaken in accordance with the Office of Environment and Heritage guidelines or as approved under the *Contaminated Land Management Act 1997*, if a hazard is deemed possible.	Yes	Provided in Environmental Assessment.	Section 75W Modification Environmental Assessment	s15.1 p1
167	Assessment of potential acid sulphate soil is to be undertaken and mitigation measures undertaken.	Yes	Contamination assessment will be undertaken in the proposed excavation footprints prior to the commencement of construction. If potential acid sulfate soils are encountered, an Acid Sulfate Soils Management Plan will be prepared as part of the CEMP	Acid Sulphate Soil Sub-plan within CEMP	s15.1 p2
168	Ground Water Management Zone (Elias Deed) (Not Applicable)				s16

Attachment C - Proposal plans

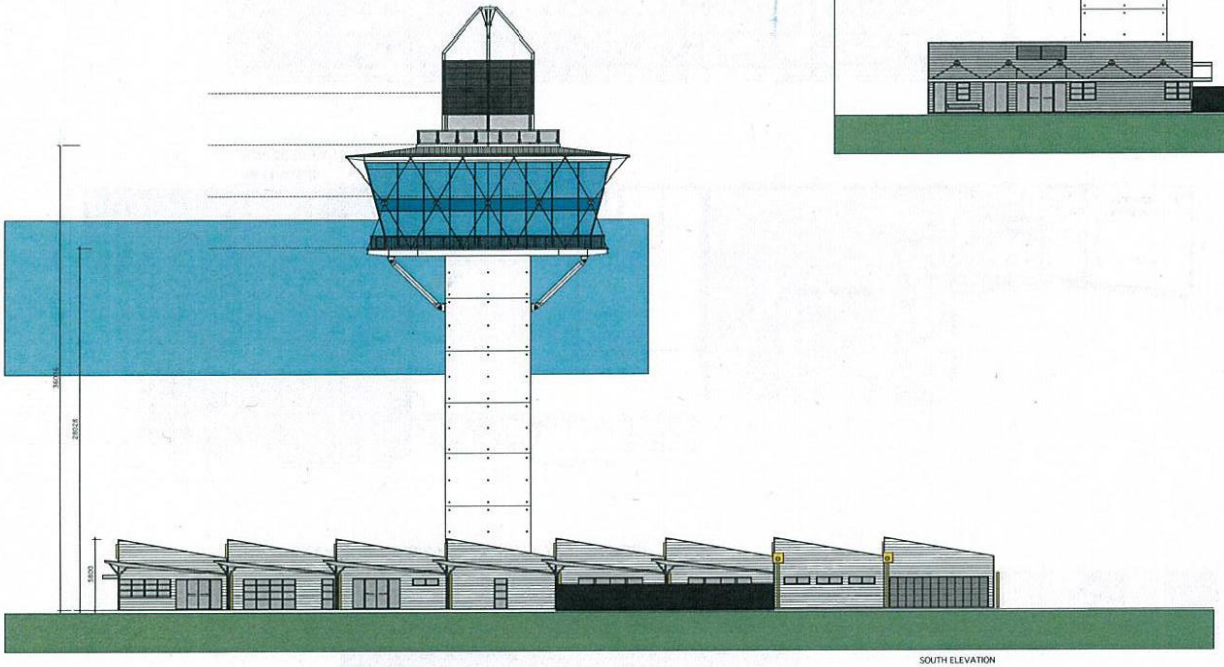
Amendments

Item	Description	Date
	SSD APPLICATION	21/02/2012

LOCATION PLAN



EAST ELEVATION



SOUTH ELEVATION

PATRICK
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Client
Patrick Stevedores Operations Pty Ltd

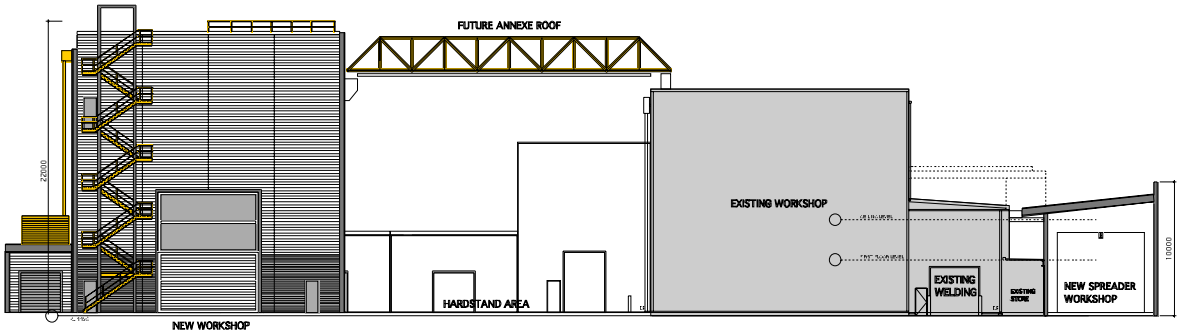
Project Title :
ADMIN/CONTROL BUILDING

Address:
Port Botany Container Terminal
Penrhyn Road
Banksmeadow

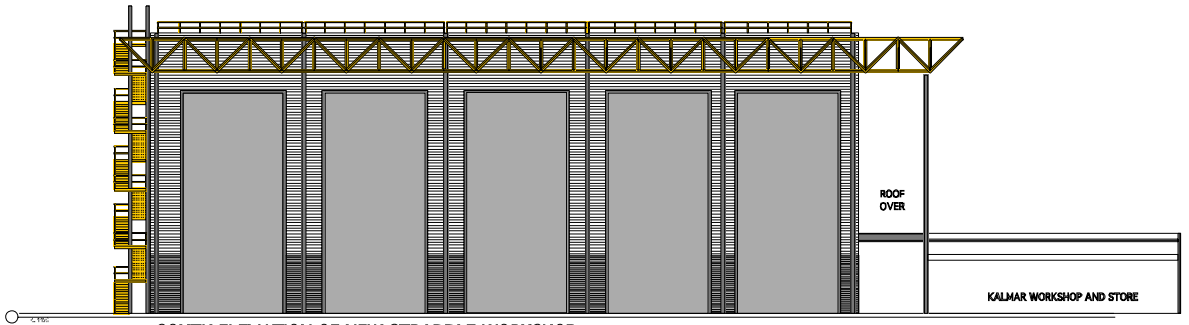
Drawing Title:
ELEVATIONS

Scale : 1:200	Date : August 2011
Drawn : IO	
Comp. Ref. No. :	
Drawing No. : AR-07	Issue : -

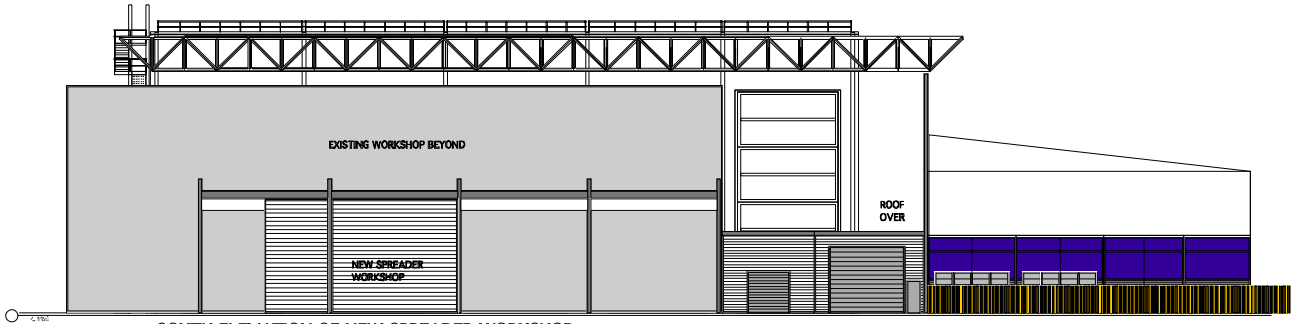
EAST ELEVATION OF OFFICE/AMENITY AND STORES



WEST ELEVATION



SOUTH ELEVATION OF NEW STRADDLE WORKSHOP



SOUTH ELEVATION OF NEW SPREADER WORKSHOP

Amendments

Issue	Description	Date
	SSD APPLICATION	21/02/2012

LOCATION PLAN

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Client:
Patrick Stevedores Operations Pty Ltd

Project Title:
WORKSHOPS AND AMENITY BUILDING

Address:
Port Botany Container Terminal
Pawhyn Road
Banksmeadow

Drawing Title:
ELEVATIONS

Scale:	Date:
1:200	August 2011
Drawn: LO	

Comp. Ref. No.:

Drawing No.	Issue:
AR-14	-