



Planning &
Infrastructure

**STATE SIGNIFICANT DEVELOPMENT
ASSESSMENT REPORT:
Barangaroo Central Waterfront
Promenade and Interim Public Domain
Works (SSD 12_ 5374)**



Director-General's
Environmental Assessment Report
Section 89H of the
Environmental Planning and Assessment Act 1979

June 2013

ABBREVIATIONS

Applicant	Barangaroo Delivery Authority
CIV	Capital Investment Value
Department	Department of Planning and Infrastructure
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning and Infrastructure, or his delegate.
EA	Environmental Assessment
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPI	Environmental Planning Instrument
LEP	Local Environmental Plan
MD SEPP	State Environmental Planning Policy (Major Development) 2005
Minister	Minister for Planning and Infrastructure
PAC	Planning Assessment Commission
Regulation	Environmental Planning and Assessment Regulation 2000
RtS	Response to Submissions
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SEPP	State Environmental Planning Policy
SSD	State significant development

HYPERLINKS

[Hyperlinks](#) (CTRL + click to access) are included in this document to allow quick navigation to explanations and interpretations of commonly used legal, scientific or industry terms / phrases used in this document. The explanations / interpretations appear in the glossary appendix. Be sure to print the relevant glossary appendix to enable interpretation of these terms or phrases when printing the main body of the report.

Cover Photograph: Perspective of the Public Foreshore Promenade

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EXECUTIVE SUMMARY

This report is an assessment of a State significant development application lodged by the Barangaroo Delivery Authority (BDA) seeking approval for the construction of a 30m wide permanent promenade along the western boundary of Barangaroo Central. In addition, the application seeks approval to undertake interim public domain works, including landscaping (laying of turf and tree planting), installation of services, the creation of two 'zones' in which temporary pavilions and an event staging area will be constructed in the future (these works do not form part of the application), and staging a total of six major events per calendar year with a maximum capacity of 15,000 patrons per event.

The project has a capital investment value (CIV) of approximately \$27.2 million and will generate 5 operational jobs and 50 construction jobs.

The development is State significant development under clause 3 of Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP), as it is a development at Barangaroo that has a CIV of more than \$10 million. The Minister for Planning and Infrastructure is the consent authority.

The site is zoned 'B4 Mixed Use' and 'RE1 Public Recreation' under Part 12 Schedule 3 of State Environmental planning Policy (Major Development) 2005 (MD SEPP). The proposed is permissible with development consent.

The proposal was exhibited from 22 November 2012 until 21 December 2012. The department received submissions from the City of Sydney Council, Leichhardt Council, Environment Protection Authority (EPA), Roads and Maritime Services (RMS), Sydney Ports, NSW Trade and Investment and Sydney Water. Four submissions, two of which objected to the application, were received from the general public. The matters raised in the submissions included, landscape design, design inconsistencies, species selection, access, soil and drainage, traffic and transport, noise, air quality and odour management, view loss and climate change impacts.

The applicant provided a Response to Submissions, which:

- Provided further justification for the proposed landscape design;
- Confirmed that the noise management measures proposed in the noise management plan are consistent with the noise management measures requested by Leichhardt Council;
- Confirmed that species were selected for planting based on salt tolerance, consistency with the council's street tree master plan, and the ability to provide filtered views over the harbour in winter;
- Provided revised modelling to confirm the traffic and transport impacts of the application; and
- Confirmed that the BDA is committed to preparing and implementing the management plans requested by the EPA.

The department has assessed the merits of the proposal and has found the key issues associated with the project include: contamination and remediation; operational impacts, construction impacts, climate change and sea level rise, ESD and the provision of appropriate infrastructure to service the development. The department is satisfied that the impacts of the proposed development have been addressed in the Environmental Impact Statement and Response to Submissions, and can be adequately managed through the recommended conditions.

The department considers the site to be suitable for the proposed development and that the application is consistent with the objects of the EP&A Act (including ecologically sustainable development), NSW 2021, the draft *Metropolitan Strategy for Sydney to 2031* and the Barangaroo Concept Plan. The department is further satisfied that the site is suitable for hosting six major events per year subject to the applicant implementing the recommendations contained in the noise and traffic management plans provided within the EIS. The department has also recommended conditions requiring the applicant/event operator to prepare event specific management plans to manage the potential social and environmental impacts of the application. The department therefore considers the development would be in the public interest and recommends that the State significant development application be approved, subject to conditions.

1. PROPOSED DEVELOPMENT & SITE DESCRIPTION

1.1 The Proposal

The Barangaroo Delivery Authority (BDA) is seeking approval to construct a 30m wide permanent promenade along the western boundary of Barangaroo Central. In addition, the application seeks approval for interim public domain works, including landscaping (laying of turf and tree planting), installation of services, the creation of two 'zones' in which temporary pavilions and an event staging area will be constructed in the future (these works do not form part of the application), and staging a total of six major events per calendar year with a maximum capacity of 15,000 patrons per event. The application location is shown in **Figure 1** below.



Figure 1: Subject Site

1.2 Site Description

The proposed waterfront promenade and interim public domain is located within Barangaroo Central. The site is bounded by the Northern Cove and the Headland Park to the north, the harbour to the west, Hickson Road to the east, and the Lend Lease temporary construction staging area to the south. The site is generally flat and comprises a concrete hardstand.

1.3 Site History

On 27 March 2006, the then Minister for Planning advised that the Barangaroo site was to be considered a potential State significant site for inclusion in Schedule 3 of *State Environmental Planning Policy (Major Development) 2005* (Major Development SEPP), and confirmed the project as a Major Project subject to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

On 9 February 2007, the then Minister for Planning approved a Concept Plan for the site and on 12 October 2007, and the land was rezoned to facilitate its redevelopment via an amendment to Schedule 3 of the Major Development SEPP.

A subsequent amendment to Schedule 3, Part 12 of the MD SEPP was gazetted on 16 December 2010. The purpose of the amendment was to rectify inconsistencies between the SEPP and the Barangaroo Concept Plan that arose as a result of Modification 4 to the Concept Plan

The Concept Plan has been modified four times since approval. The Concept Plan, as modified currently permits:

- A mixed use development involving a maximum of 563,965m² gross floor area (GFA), comprised of:
 - (a) a maximum of 128,763m² and a minimum of 84,595m² of residential GFA;
 - (b) a maximum of 50,000m² of GFA for tourist use;
 - (c) a maximum of 39,000m² of GFA for retail uses;
 - (d) a maximum of 4,500m² of GFA for active uses in the 'Public Recreation' zone (3,000m² of which will be in Barangaroo South); and
 - (d) a minimum of 12,000m² of GFA for community uses (10,000m² of which will be in Barangaroo South).
- Approximately 11 hectares of new public open space/public domain, with a range of formal and informal open spaces serving separate recreational functions, and including a 2.2km public foreshore promenade;
- Built form and urban design principles, maximum building heights and GFA for each development block within the mixed use zone;
- A public domain landscape concept, including parks, street and pedestrian connections; and
- Works to the existing seawalls and creation of a partial new shoreline to the harbour.

1.4 Key Project Components and Features

Table 1 provides a summary of the development proposal's key components and features. The proposed project layout is depicted in **Figure 2**.

Table 1: Project Summary

Project Summary	Construction of a permanent foreshore promenade and temporary public domain works, and staging of a maximum of six major events per calendar year with a maximum capacity of 15,000 patrons per event.
Demolition Works	<ul style="list-style-type: none"> • Removal of existing site infrastructure.
Civil Works	<ul style="list-style-type: none"> • Earthworks to re-profile the temporary lawn area; • Filling to raise the levels along the promenade by between 1m and 1.5m via the receipt of 80,000m³ to 150,000m³ of fill from Barangaroo South and the Barangaroo Headland Park; • Construction of retaining walls to support the construction of the promenade; • Re-use of the existing cassions (including cathodic protection works as required); and • Construction of a temporary accessway connecting the promenade to Hickson Road.
Services and Infrastructure	<ul style="list-style-type: none"> • Installation of temporary and permanent services including: stormwater, sewer, potable water irrigation, telecommunications, security, and electrical.
Waterfront Promenade	<ul style="list-style-type: none"> • Construction of a 30m wide timber boardwalk along the lower level waterfront edge; • Installation of paving and standstone block walls adjacent to the boardwalk; • Installation of furniture including seats, rubbish bins, drinking fountains, bike racks and life buoys along the promenade; • Installation of signage and lighting; • Planting of shade trees; and • Construction of a public deck and stage within the Northern Cove.

Interim Public Domain	<ul style="list-style-type: none"> • Planting including trees and an interim lawn; and • Installation of signage and lighting.
Marine Uses	<ul style="list-style-type: none"> • Provision of a public wharf and water taxi pontoon with a ramp in the Northern Cove; and • Re-use of existing shipping infrastructure (bollards and fences).
Events	<ul style="list-style-type: none"> • Staging of a maximum of six major events per calendar year with a maximum capacity of 15,000 patrons per event; and • Nomination of locations for two temporary pavilions and an event stage for use during events.
General Hours of Operation	<ul style="list-style-type: none"> • 24-hours per day seven days per week.
Hours of Operation for Major Events	<ul style="list-style-type: none"> • Events are proposed between 9am and 10pm Sundays to Thursdays and 9am and 11pm Fridays and Saturdays. On New Year's Eve and Australia Day events are proposed between 9am and 2am the following day, and 9am and 12 midnight respectively.
Capital Investment Value and Job Creation	<ul style="list-style-type: none"> • \$27.2 million capital investment value; and • 50 construction jobs and 5 operational jobs.

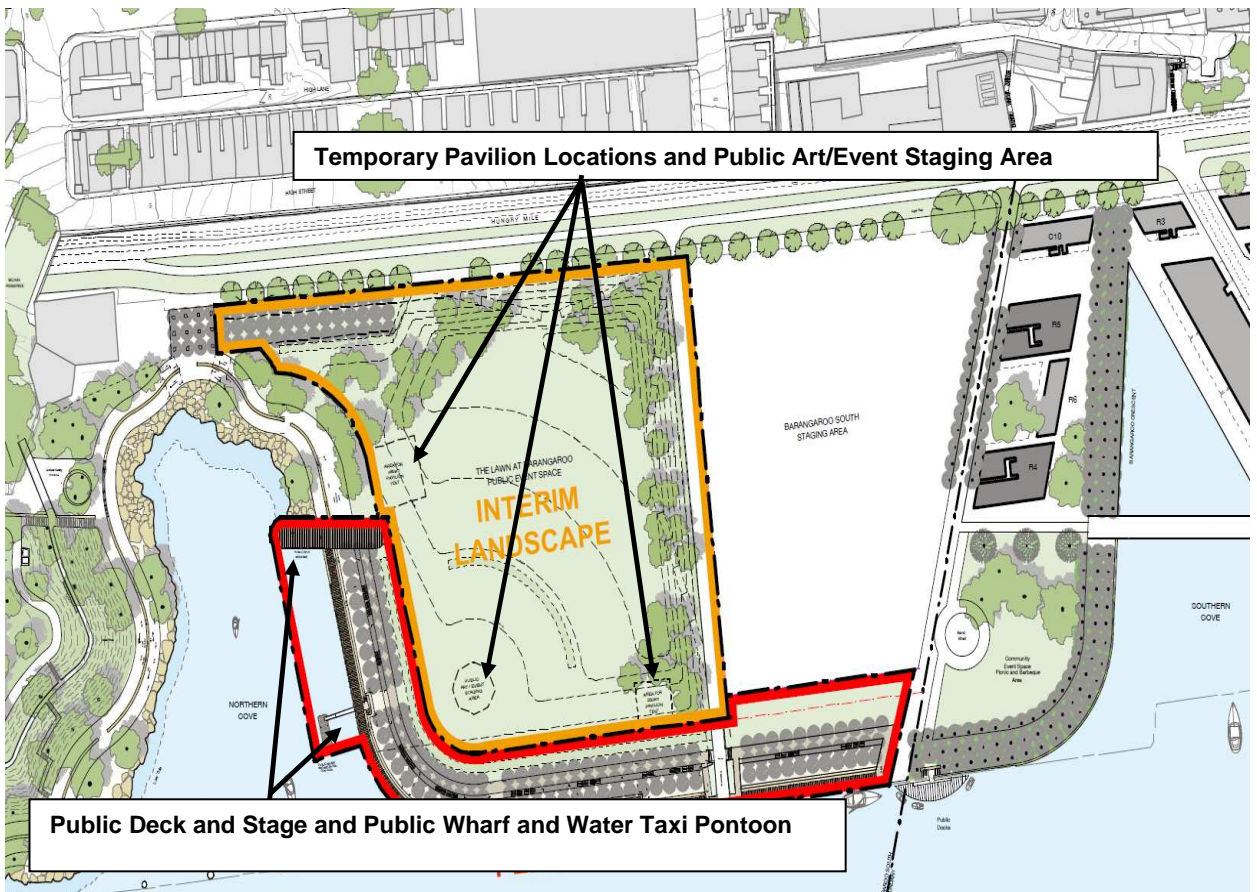


Figure 2: Location Plan

2. STATUTORY AND STRATEGIC CONTEXT

2.1 SEPP (State and Regional Development) 2011

The proposal is a State significant development pursuant to section 89C of *Environmental Planning and Assessment Act 1979* (EP&A Act) because it is development at Barangaroo with a capital investment value (CIV) in excess of \$10 million, under clause 3 of Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*. Therefore the Minister for Planning and Infrastructure is the consent authority.

2.2 Delegated Authority

On 27 February 2013, the Minister for Planning and Infrastructure delegated responsibility for the determination of State significant development under Division 4.1 of Part 4 of the EP&A Act to the Executive Director, Development Assessment Systems and Approvals where:

- The relevant local council has not made an objection;
- A political disclosure statement has not been made; and
- There were less than 25 submissions in the nature of objection.

The proposal complies with the terms of the delegation as the City of Sydney Council (council) did not object to the proposal, a political disclosure statement has not been made in relation to the application, and there were fewer than 25 submissions of objection (two submissions of objection).

2.3 Permissibility and Zoning

The site is zoned 'B4 Mixed Use' and 'RE1 Public Recreation' under Part 12 Schedule 3 of *State Environmental Planning Policy (Major Development) 2005* (MD SEPP). The proposed is permissible with development consent.

2.4 Environmental Planning Instruments

The following environmental planning instruments (EPIs) apply to the site:

- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy (Major Development) 2005 (MD SEPP);
- State Environmental Planning Policy No.55 – Remediation of Land;
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy (Temporary Structures) 2007;
- State Environmental Planning Policy No. 64 (Advertising and Signage);
- Sydney Regional Environmental Plan (Sydney Harbour Catchment 2005); and
- Draft State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Commercial and Industrial Development) 2012.

The department's assessment of compliance with the MD SEPP and State Environmental Planning Policy (Temporary Structures) 2007 is provided in Section 4 of this report. An assessment of compliance with the remaining EPIs is provided at **Appendix B**. In summary, the department is satisfied that the application complies with the relevant provisions of the EPIs.

2.5 Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the [objects of the EP&A Act](#), as set out in section 5 of the Act. The proposal complies with the objects of the Act as the application will make 3.8 hectares of land available for recreational uses whilst the long-term master plan for Barangaroo Central is prepared by the BDA. In addition, the interim public domain has been designed to utilise precinct-wide water and waste recycling infrastructure to provide an ecologically sensitive development during the construction and operational phases of the development. Accordingly, the application is considered consistent with the objectives of section 5 of the Act.

2.6 Compliance with Clause 3B of Schedule 6A of the EP&A Act

Clause 3B(2)(d) of the EP&A Act specifies that a consent authority must not grant consent under Part 4 unless it is satisfied that a development is generally consistent with the terms of the approval of a Concept Plan. The subject site is located within development blocks 5 to 7 of the Barangaroo Concept Plan (see **Figure 3**). The application is consistent with the terms of the Concept Plan as it will facilitate the construction of the public foreshore promenade within Barangaroo Central and will

provide temporary public open space generally in accordance with the architectural drawings approved under MP06_0164 MOD 4.



Figure 3: Barangaroo Concept Plan

In addition, modification B10 of the Concept Plan requires the applicant to investigate options for the future construction of a light weight bridge, floating dock or pontoon to facilitate pedestrian movement over the Northern Cove to continue the axis of Globe Street. The application incorporates a light weight public deck which extends into the Northern Cove which meets the terms of the Concept Plan approval.

2.7 Ecologically Sustainable Development

The EP&A Act adopts the definition of [Ecologically Sustainable Development](#) (ESD) found in the *Protection of the Environment Administration Act 1991* (POEA Act). Section 6(2) of the POEA Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes.

The department has considered the project in relation to the ESD principles. The precautionary and inter-generational equity principles have been applied in the decision making process via a thorough and rigorous assessment of the environmental impacts of the project.

The proposal is considered to be consistent with ESD principles as described in section 6.17 and Appendix 4 of the applicant's EIS and section 2.2 of the applicant's Response to Submissions, which have been prepared in accordance with the requirements of Schedule 2 of the Regulation.

2.8 Environmental Planning and Assessment Regulation 2000

Subject to any other references to compliance with the regulation cited in this report, the requirements for notification (Part 6, Division 6) and fees (Part 15, Division 1AA) have been complied with.

2.9 Strategic Context

The department considers that the proposal is consistent with the following State/regional/local strategies:

- The objectives of NSW 2021 via the creation of 50 new construction and 5 operational jobs within the Sydney CBD; and
- The planning objectives of the draft *Metropolitan Plan for Sydney to 2031*, which promotes:
 - the creation of arts and cultural venues around Sydney Harbour and the Sydney CBD;
 - increased opportunities for recreational access to the foreshore waters, including those offered by harbour side regeneration; and
 - the enhancement the Sydney sub-region as a premier visitor destination by showcasing cultural and recreational facilities for international events and promotion of an active day and night time economy.

2.10 Director-Generals Requirements

Section 3 of the EIS addresses compliance with the Director-General's Requirements. These matters have been sufficiently addressed in the EIS to enable the assessment of the proposal for determination purposes.

3. EXHIBITION CONSULTATION AND SUBMISSIONS

3.1 Exhibition

In accordance with section 89F of the EP&A Act and clause 83 of the Regulation, the Director-General has made the application and accompanying information publicly available in accordance with the Regulation for at least 30 days following the date of first publication (see **Table 2**).

Table 2: Exhibition Details

Exhibition/Notification	Format	Dates
Publicly Exhibited	DPI Bridge Street office and the City of Sydney Council's One Stop Shop and on the department's website	22 November to 21 December 2012
Newspaper Notice	Sydney Morning Herald and Daily Telegraph	Published 21 November 2012
Written Notices	Surrounding landowners	Dated 21 November 2012

3.2 Public Authority Consultation and Submissions

The department received 12 submissions during the exhibition of the application – seven submissions from public authorities, one submission from the Foreshores and Waterways Planning and Development Advisory Committee and four submissions from the general public. A summary of the issues raised in submissions is provided below.

City of Sydney Council (council)

The council did not object to the application, however it provided the following comments:

Design Comments

- The city questions why the temporary path along the site is driving permanent elements of the foreshore walk design;
- The city questions why there is a misalignment of the shared path and the separated cycleway in the Headland Park and a misalignment that occurs at the 'public deck and stage' within Barangaroo

Central. It would be clearer and safer if the Headland Park cycleway was in direct alignment with the zone for cycling at Barangaroo Central;

- The functionality of the public deck and stage area is questioned. The applicant should provide a development concept outlining how this space will function;
- The edge treatment along Hickson Road should be redesigned so it does not present as a grassed slope hard up against the street interface;
- The application should adopt a signage system that provides more consistency with the council's way finding system; and
- All light fittings should be compatible with the council's fittings for maintenance purposes. In addition, lighting levels should comply with the council's specifications.

Universal Access

- The proposed paving materials may preclude the provision of equitable access through the temporary public domain. In addition, the proposed paving materials are inconsistent with the council's public domain palette.

Soil and Drainage

- The creation of large mounded spoil areas may necessitate drainage works to prevent slumping or water logging. An interim design that provides levels which are consistent with the long term vision for Barangaroo may be a better solution; and
- The application does not provide details of the soil structure. It is suggested that additional drainage is provided to prevent ponding of water within the fill material in addition to that provided for the trees.

Traffic and Transport

- The applicant should undertake new traffic counts to ensure the traffic impacts of the development are addressed;
- New pedestrian counts should be undertaken to establish the impacts of the development on pedestrians utilising the Erskine Street/Sussex Street intersection;
- The traffic assessment does not address the impacts that additional queuing at the Sussex Street/Erskine Street intersection will have on the operation of the surrounding intersections;
- The timing of the signalisation of the Napoleon Street/Hickson Road intersection should be clarified by the applicant;
- The applicant should clarify how the council's *Connecting Our City* strategy has been utilised to determine the mode share targets when events are held on site;
- The EIS and transport assessment should be updated to address the information contained in the NSW Government's *Long Term Transport Masterplan*; and
- The applicant should identify all truck holding areas. In addition, all truck holding areas should be located on-site.

General Comments

- Any decomposed granite surfaces should be specified with a resin binder; and
- A tree management plan should be provided prior to the issue of a Construction Certificate.

The department has reviewed the council's concerns and considers that:

- It would be appropriate to permit an alternate yet complementary signage system which responds to the unique characteristics of Barangaroo. In order to ensure this occurs, the department has recommended a condition requiring the applicant to prepare a signage strategy in consultation with the council and Transport for NSW;
- The accessibility report provided at Appendix 19 of the EIS demonstrates that the application is capable of complying with AS1428.1 (2009), AS1428.2 and the City of Sydney Access DCP (2004). In addition, the department has recommended conditions of approval to ensure appropriate universal access is provided prior to the commencement of the use on site; and
- The applicant has addressed the council's residual design, soil and drainage, and traffic and transport concerns in its response to submissions (RTS) and the addenda to its RTS.

Leichhardt Council

The council raised no objection to the application, however it requested that the department notify residents in East Balmain of the project, and include the following conditions in any Instrument of Approval:

- Noise and air quality monitoring systems should be located at sensitive receptor locations, including Balmain East, to monitor cumulative noise and air quality impacts associated with the construction works currently occurring at Barangaroo, and the future operation of the temporary public domain. In the event of noise or air quality exceedences, the applicant should be required to implement appropriate mitigation measures;
- The applicant should be required to implement the measures outlined in the Operational and Noise Management Plan when public events are being held on-site; and
- An accredited noise consultant should be engaged to undertake compliance monitoring and reporting.

The department has reviewed the council's comments and considers that:

- The application was exhibited in accordance with the requirements of the EP&A Regulation;
- Noise and air quality monitoring is currently being undertaken to monitor the impacts of cumulative construction works at Barangaroo. In this regard there is a permanent noise monitoring station located at Balmain East. In addition, air quality monitoring is being undertaken in accordance with the EPL for the site (EPL 13336). In this regard, air quality monitoring stations are located on the eastern and southern boundaries of the Barangaroo site; and
- It is appropriate to include conditions of approval requiring the applicant to:
 - implement the recommendations of the Operational Noise Management Plan when major events are undertaken on-site; and
 - undertake noise monitoring during major events and provide the department with the results of the noise monitoring within 30 days of a major event.

Environment Protection Authority (EPA)

The EPA raised no objection to the application, however it advised that:

- All fill received from other parts of Barangaroo should comply with the criteria listed in Table 5 of the JBS Environmental document entitled *Air Quality and Health Impact Assessment – Barangaroo Central Waterfront Promenade and Barangaroo Central Interim Public Domain (November 2012)*;
- All works should be conducted in a manner that protects the water quality objectives and environmental values for Sydney Harbour estuarine waters. In addition, no contaminated or treated water should be permitted to enter Sydney Harbour unless it is in accordance with the conditions of Environmental Protection Licence (EPL) 13336; and
- All waste should be managed in accordance with EPA guidelines and the requirements of EPL 13336.

In addition, EPA requested that the applicant prepare and implement the following management plans and strategies during construction:

- Construction Noise Management Plan;
- Air Quality and Odour Management Plan; and
- Ambient Air Monitoring and Reactive Management Strategy.

The department has recommended conditions of approval to ensure that:

- All fill received from Barangaroo South complies with the criteria identified in the applicant's air quality and health assessment;
- No water is discharged into Sydney harbour unless it complies with the conditions outlined in EPL 13336;
- All waste is managed in accordance with EPA guidelines; and
- The applicant prepares and implements construction noise, air quality and odour management plans, and an air quality monitoring and management strategy.

Roads and Maritime Services (RMS)

RMS raised no objection to the application, however, it advised that:

- Footpaths and roads should be maintained throughout the construction works, not just repaired at the completion of work;
- Consultation with the relevant agencies should be undertaken to confirm the timing and type of provisions that will be made for coaches, taxis and buses along Hickson Road and for Barangaroo South;

- The EIS specifies that the intersection of Hickson Road, Sussex Street and Napoleon Street will be controlled by traffic lights by mid 2013. This was noted in section 6.11.4 of Appendix 15 but not used for all of the assessment scenarios in the report;
- The partial/full closure of Shelley Street will result in different traffic distribution patterns during construction and operation. This will affect the volume of traffic at intersections modelled in the applicant's traffic assessment, most noticeably the intersection of Sussex Street and Erskine Street;
- Heavy vehicle restrictions should apply in York Street between 2pm and 8pm Mondays to Fridays, not 2pm and 6pm as mentioned in Appendix 15;
- It is unlikely that the temporary pedestrian bridge along Hickson Road will be constructed given that traffic lights are proposed for construction at the intersection of Hickson Road, Sussex Street and Napoleon Street. Discussion with Lend Lease should be undertaken to confirm this;
- The analysis undertaken to show existing conditions is not reflective of the current conditions at the intersection of Sussex Street and Erskine Street. The performance of the intersection is worse than what is shown in the report particularly in the pm peak period;
- Figures 6.1, 6.3 and 6.4 of Appendix 15 were only indicative in the Barangaroo Integrated Transport Plan. Liaison with Transport for NSW should be undertaken to confirm what is actually, or currently intended to be provided; and
- Figure 6.4 and the supporting text should be reviewed in response to the release of *Sydney's Light Rail Future*, including light rail in the CBD.

The applicant updated its traffic report to address the issues raised by the RMS. A full discussion on the findings of the revised modelling is provided in section 3.4 of this report.

Sydney Ports

Sydney Ports raised concern with the following aspects of the applicant's Preliminary Navigation and Water Safety Report:

- There are inconsistencies in relation to the navigation aids proposed for installation under the application;
- The minimum RL for the Northern Cove will be – 4 metres. Discussions with the Harbour Master indicate that this may be reduced to RL – 3 metres. In the event that the depth of the cove is reduced, the BDA should investigate suitable depths for water taxis to ensure safe navigation of vessels in this area; and
- The applicant should undertake further consultation with Sydney Ports and the Harbour Master to ascertain the requirements for the berthing of vessels larger than 30 metres in length.

The applicant's RTS confirms that the final depth of the Northern Cove will be RL – 3 metres. Furthermore, the response notes that the final depth of the cove will not result in any adverse navigation impacts.

In addition, the department has included an advice note in the development consent requesting that the applicant liaise with Sydney Ports to ascertain the requirements for the berthing of vehicles in excess of 30m.

NSW Trade and Investment (Industry, Innovation and Investment and Arts NSW)

NSW Trade and Investment did not object to the application, however, it provided the following comments:

- Arts NSW is concerned that heavy vehicles accessing the site along Hickson Road will adversely impact on the functioning of the Walsh Bay arts precinct;
- It is requested that Arts NSW is invited to join the Barangaroo Planning Reference Group and is offered membership to the BDA's Public Domain Technical Working Group. This will provide Arts NSW with an opportunity to actively work with the BDA to design a connected waterfront and public domain between Barangaroo and the Walsh Bay arts precinct;
- Arts NSW should be consulted on any future proposals for public art within the temporary public domain and proposed festivals and outdoor theatres planned within the Barangaroo public event space. In addition, it is requested that the BDA consult Arts NSW on the design and content of the Heritage Interpretation Strategy for the site;
- The BDA should seek to enter into a formal agreement with Arts NSW to ensure that cultural events and festivals within the Walsh Bay arts precinct and Barangaroo Central are programmed appropriately; and

- It is anticipated that the Walsh Bay arts precinct will accommodate up to 11,000 people on key occasions such as Australian Day and New Years Eve. As such a precinct wide approach should be taken to manage access, traffic and transport, crowd control, emergency management and acoustic management.

The department has reviewed the comments provided by NSW Trade and Investment and has concluded that:

- The construction traffic access route identified in Appendix 15 confirms that vehicles will not be travelling along the portion of Hickson Road north of the site. As such, the department considers that construction traffic will not affect the continuing operation of the Walsh Bay arts precinct;
- The department supports Arts NSW request to be consulted on future developments at Barangaroo. Notwithstanding, this issue is outside the scope of this development application;
- The department agrees that a precinct wide approach should be taken to manage major events such as New Year's Eve and Australia Day. In this regard, the department has recommended a condition requiring the applicant to consult with the relevant public authorities when major events are held on New Year's Eve and Australia Day, or when major events coincide with events being held elsewhere within the CBD/Darling Harbour.

Sydney Water

In the event that trade wastewater is generated, the applicant must lodge an application to discharge trade wastewater to the sewerage system.

The department has recommended conditions to ensure no trade waste will be discharged into the sewer system unless the applicant obtains approval from Sydney Water.

Foreshores and Waterways Planning and Development Advisory Committee

The department referred the application to the Foreshore and Waterways Committee for comment in accordance with the requirements of Schedule 2 of the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005. In this regard, the Committee recommended that the department take into consideration the relevant matters as prescribed in the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 and the Sydney Harbour Foreshores & Waterways Area DCP for SREP (Sydney Harbour Catchment) 2005.

The department has assessed the application against the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 and the Sydney Harbour Foreshores & Waterways Area DCP and considers the application is consistent with the relevant requirements (see **Appendix B**).

3.3 Public Submissions

Four submissions were received from the public including one submission providing comments, two submissions of objection and one submission of support. The key issues raised in public submissions are summarised below.

Issue

Barangaroo should be designed to incorporate a unique centrepiece that will put it on the map. This could be achieved by providing a new opera house within Barangaroo Central.

Comment:

The current application is for the construction and use of temporary and permanent public domain. Issues associated with the long-term use of the site will be considered by the department once the BDA has finalised its long-term master plan for Barangaroo Central.

Issue

The application does not include a clear map of the development.

Comment

The application provides both location plans and detailed drawings which clearly identify the area in which the works are proposed to be undertaken.

Issue

The application does not consider whether the proposal will result in view loss or other amenity impacts at adjoining premises on the eastern side of Hickson Road.

Comment

The application proposes the construction of interim public domain works. These works involve turfing and paving the area within Barangaroo Central. The department does not consider that these works would result in any view loss for residents along High Street/Kent Street.

Furthermore, the department notes that the application will involve the erection of temporary structures when major events are held on-site. The department has recommended conditions to ensure that the design of temporary structures that do not comply with the provisions of the Exempt and Complying Development Code are submitted to the satisfaction of the Director-General 21 days prior to the corresponding major event.

In addition, the department considers that the EIS and PPR identify appropriate measures to maintain the amenity at adjoining premises during construction and operation.

Issue

The application proposes to use trees that are declared on the NSW Noxious Plant Register (Honey Locust). In addition, it is disappointing that the only native plants (Red Forest Gums) identified in the planting scheme are temporary.

Comment

The applicant's PPR confirms that the Honey Locus is not declared a noxious plant within the City of Sydney local government area.

Issue

The water used by the native trees proposed on site would be less than that of the imported exotics. This should have been taken into consideration given the ESD principles proposed for the site.

Comment

The applicant's PPR confirms that species were selected based on salt tolerance, consistency with the council's street tree master plan, and the ability to provide filtered views over the harbour in winter. Furthermore, trees were selected to provide a contrast to the naturalistic design of the Headland Park.

Issue

The EIS states that the highest astronomical tide in 2100 is predicted to be RL 1.975m. However, no value against the relevant tide gauge (Fort Denison) is provided for the RL 0 value. Given the above all values and information provided should be considered to be speculative.

Comment

The applicant's RTS confirms the finished RLs on site relative to the Fort Denison tidal gauge.

Issue

Support is provided for the creation of an international five star hotel.

Comment

The department notes that this application does not propose the creation of a five star international hotel.

3.4 Applicant's Response to Submissions

MG Planning, on behalf of the BDA, provided a RTS on 20 March 2013. The RTS provides the following commentary on the issues raised during the exhibition period.

Traffic and Access

The RTS includes a revised traffic impact assessment which concluded that:

- New classified traffic counts are not required on the basis that intersection counts were carried out in 2011 to predict the levels of service at the surrounding intersections;
- Further analysis at the Sussex Street/Erskine Street intersection is not required on the basis that the Erskine Street left turn queue already extends back through the intersection with Kent Street.

Furthermore, the options available to improve the operation of the intersection would generally relate to signal timing changes to reduce the delay for left turning traffic from Erskine Street and northbound traffic on Sussex Street. Preliminary analysis of this option has resulted in Aurecon concluding that altering the signal phasing in this manner would impact other movements through the intersection which would result in an overall lower level of service;

- Pedestrian volumes along Erskine Street were based on a worst case scenario (1300 movements per hour in the am and pm peak). These volumes are consistent with the pedestrian movements estimated in the Review of Environmental Factors for the Wynyard Walk Pedestrian Improvement Works prepared by Transport for NSW in April 2012;
- The *Connecting Our City* report was used in conjunction with the Barangaroo Integrated Transport Plan and other relevant background documents to identify the weekday trip patterns within the CBD;
- The revised SIDRA analysis prepared to reflect the signalisation of the Hickson Road/Sussex Street/Napoleon Street intersections confirms that these intersections will have an improved level of service following signalisation;
- Revised SIDRA analysis was prepared to determine the impact of the closure of Shelly Street on the Sussex Street/Erskine Street intersection. This analysis demonstrates that construction related traffic makes up a very small portion of traffic using this intersection, and as such will have a minimal impact on the operation of the intersection;
- Truck access along York Street is proposed as per the current conditions of approval for the basement car park and commercial buildings C3, C4, and C5; and
- The NSW Long Term Transport Master Plan (Transport for NSW 2012) states that the future light rail system will not extend past Circular Quay. As such, the Barangaroo development will be serviced by buses and pedestrian access from Wynyard Station via Wynyard Walk.

Public Domain

- The temporary path through the site doubles as a temporary overland flow path. Once the final design for Barangaroo Central is finalised permanent drainage infrastructure will be constructed and the path traversing the foreshore promenade will be decommissioned and replaced with a treatment that is consistent with the treatment along the waterfront promenade;
- The cycle path traversing the Headland Park and Barangaroo Central is not a commuter cycle path. Furthermore, the BDA considers that the public deck can be used a termination point to adjust to a new travel route. As such it is not necessary to realign the shared path/cycle way provided within the Headland Park with the shared path/cycleway proposed through Barangaroo Central;
- The main function of the public deck and stage is to mark the transition between the pedestrian foreshore system and the Globe Street axis. In addition, the deck will act as a waterfront plaza with the following types of activity:
 - a wide pier for enjoying being out over the Northern Cove;
 - a place to stage small scale public events and entertainment; and
 - an area with potential to accommodate future public amenities.
- The BDA does not consider that the use of the deck as an events staging area will impact on the operation of the pedestrian/cycle network given the size and frequency of events that are likely to be held there;
- The BDA intends to develop an integrated family of signs across Barangaroo. These signs will take into consideration the relationship between Barangaroo and the wider city network;
- Filling of the site is a temporary measure to create an appropriate drainage solution and facilitate the creation of an amphitheatre. In addition, the proposed fill solution will retain intermittent views along Hickson Road;
- The character of Hickson Road will be considered as part of the master planning process for Barangaroo Central;
- Tree species have been selected to provide a contrast between the naturalistic headland to the north and the civic uses proposed at Barangaroo Central. In addition, species were selected based on salt tolerance, consistency with the council's street tree master plan, and the ability to provide filtered views over the harbour in winter;
- The BDA intends to develop a lighting strategy for Barangaroo Central. This strategy will reflect the unique character of Barangaroo and will have regard to the council's Exterior Lighting Strategy and the BDA's design and management objectives for the area. In addition, the strategy will be prepared in consultation with Lend Lease and the council;

- The use of cobblestone paving is no longer proposed. In addition, the use of larger porphyry set pavers (140mm x 200/320mm) is now proposed in order to provide universal access across the site. The BDA is also considering the use of handrails and additional tactile warning devices to further enhance accessibility within the public domain; and
- All decomposed granite surfaces will be stabilised with a binder as suggested by the council.

Noise, Vibration and Air Quality Impacts

- The monitoring and mitigation measures proposed by Leichhardt Council are consistent with the measures proposed in Appendix 16 of the EIS; and
- The BDA is committed to developing and implementing the management plans recommended by the EPA. In addition, all works will comply with the requirements of EPL 13336 and the criteria listed in Table 5 of the JBS Environmental document entitled *Air Quality and Health Impact Assessment – Barangaroo Central Waterfront Promenade and Barangaroo Central Interim Public Domain* (November 2012).

Water

- All works will be undertaken in accordance with the water management provisions outlined in EPL 13336, and any modifications to the estuarine foreshore will be undertaken in accordance with EPA guidelines.

Navigation Issues

- The preliminary Water Safety and Navigation Report prepared by Hyder Consulting has been updated to clarify that:
 - two new navigational markers will be located on the eastern and western side of the Northern Cove, and a new cautionary marker will be provided at the centre of the mouth of the Northern Cove; and
 - the minimum RL for the Northern Cove will be RL – 3m.

Collaboration with Arts NSW

- The BDA has identified Arts NSW as a key stakeholder and it will continue to consult with Arts NSW throughout the development of the project. In addition, the formal involvement of Arts NSW in the Barangaroo Planning Reference Group and the technical working groups will be considered, where relevant.

The department referred the RTS to the City of Sydney Council, Leichhardt Council, RMS, Sydney Ports and NSW Trade and Investment. In this regard, Leichhardt Council and Sydney Ports advised that the RTS addressed their concerns in relation to noise management and navigational safety. NSW Trade and Investment has not provided any comments to date.

The City of Sydney Council and RMS advised that they hold residual concerns in relation to the proposed development. A summary of the council and the RMS' comments is provided below.

City of Sydney Council

The council advised that with the exception of the misalignment of the proposed cycle connection and the proposed level change in the foreshore promenade to accommodate the temporary overland flow path, the council's previous concerns in relation to the treatment and design of the temporary and permanent public domain have been addressed. Notwithstanding, the council advised that its residual design issues could be addressed via conditions requiring the applicant to:

- Align the proposed path with the path approved under the Headland Park main works application; and
- Provide a temporary bridge structure within the foreshore promenade over the overland path to provide a seamless connection.

In addition, the council advised that it holds the following residual concerns in relation to traffic management:

- The RTS outlines that queue lengths at the Sussex Street/Erskine Street intersection will affect the operation of intersections within its vicinity, however, it does not clarify which intersections will be affected, or the extent of the impact; and
- It is still unclear how the modal split targets have been determined, and the RTS does not confirm how the council's *Connecting Our City* report was used to determine the mode share targets when

the site is operating in 'event' mode, nor why these modal splits differ from the Barangaroo Transport Plan.

RMS

RMS advised that the following assumptions in the applicant's revised traffic response are incorrect:

- The Sussex Street and Shelly Street intersection configuration for the 'construction' scenario is incorrect. In addition, the model does not address the impacts associated with the opening of a two-way road between Lime Street and Hickson Road and the possible closure of Shelly Street following the construction of Wynyard Walk and commercial buildings C3, C4 and C5. The applicant's traffic modelling should be revised to reflect the correct configuration;
- Section 3.4 of the Traffic Addendum does not reflect that Hickson Road is identified as a future light rail route in the *Strategic Light Rail Plan*; and
- Section 10.4.2 of Appendix 7 specifies that RMS advised that traffic lights would be installed at the Sussex Street/Napoleon Street/Hickson Road intersection by mid 2013. This statement is incorrect as RMS has been advised by the developer of Barangaroo South (Lend Lease) that these lights would be installed by this time.

The department requested that the applicant provide a supplementary response to address the residual traffic issues raised by the council and RMS. This response was provided on 14 May 2013.

The supplementary response was forwarded to the council and RMS for comment. The council advised that the applicant's supplementary response addressed its residual traffic issues. RMS did not provide a response at the time of writing this report.

4. ASSESSMENT

4.1 Section 79C Evaluation

Table 3 identifies the matters for consideration under section 79C that apply to State significant development, in accordance with section 89H of the EP&A Act. The table also represents a summary for which additional information and consideration is provided for in Section 4 (Key and Other Issues) and relevant appendices or other sections of this report and the EIS, referenced in the table. The EIS has been prepared by the applicant to consider these matters and those required to be considered in the DGRs and in accordance with the requirements of section 78(8A) of the EP&A Act and Schedule 2 of the Regulation.

Table 3: Section 79C(1) Matters for Consideration

<u>Section 79C(1) Evaluation</u>	Consideration
(a)(i) any environmental planning instrument	Satisfactorily complies. The department's consideration of the relevant EPI's is provided within Section 2.4 and Appendix B of this report.
(a)(ii) any proposed instrument	Not applicable.
(a)(iii) any development control plan (not applicable to SSD)	Under clause 11 of the SRD SEPP, development control plans do not apply to SSD. However, consideration has been given to the relevant DCP at Appendix B .
(a)(iiia) any planning agreement	Not applicable.
(a)(iv) the regulations	The development application satisfactorily meets the relevant requirements of the Regulation, including the procedures relating to development applications (Part 6 of the Regulations), public participation procedures for SSD's and Schedule 2 of the Regulation relating to environmental impact statements.
(a)(v) any coastal zone management plan	Not applicable.
(b) the likely impacts of that development	Satisfactorily complies. See Section 4.2 of this report

(c) the suitability of the site for the development	See Table 3 at Appendix B
(d) any submissions	<p>Consideration has been given to submissions received during the exhibition period. See Tables 4 and 5. Key issues raised include:</p> <ul style="list-style-type: none"> • The need to provide long term cultural facilities across Barangaroo; • The impact of the proposed development on the amenity of the surrounding residential premises; • Tree species selection; • ESD; and • Impacts of sea level rise on the proposed development.
(e) the public interest.	The application is considered to be in the public interest as it will provide new public open space to activate the area between Barangaroo South and the Headland Park whilst the master planning for Barangaroo Central is being finalised by the BDA.
Biodiversity values exempt if:	
(a) On biodiversity certified land?	Not applicable
(b) Biobanking Statement exists?	Not applicable

4.2 Key and Other Issues

The department considers the key environmental assessment issues for the application to be:

- Contamination and remediation;
- Operational impacts;
- Construction impacts;
- Climate change and sea level rise;
- ESD; and
- Infrastructure and servicing requirements.

4.2.1 Contamination and Remediation

Barangaroo has been used for wharf/port related activities since the 1800s. In addition, a portion of the Barangaroo site was formerly used as a gasworks up until 1920. The primary potential for contamination within the Barangaroo site is associated with the use of uncontrolled fill imported during various stages of site reclamation, and the potential migration of contaminants from the former gasworks site.

Based on soil and groundwater testing undertaken within Barangaroo Central between 2007 and 2012, the relevant contaminants of concern are:

Heavy metals including arsenic, cadmium, copper, lead, nickel and zinc;

- Total petroleum hydrocarbons (TPH);
- Polycyclic aromatic hydrocarbons (PAHs);
- Cyanide;
- Phenols; and
- Asbestos.

It should be noted that on 6 May 2009, the former Department of Environment, Climate Change and Water (DECCW) declared the former gas works site and a portion of Hickson Road a 'remediation site' pursuant to section 21 of the *Contaminated Land Management Act 1997*. No land within Barangaroo Central is located within the boundaries of the DECCW Declared Area (see **Figure 4**).

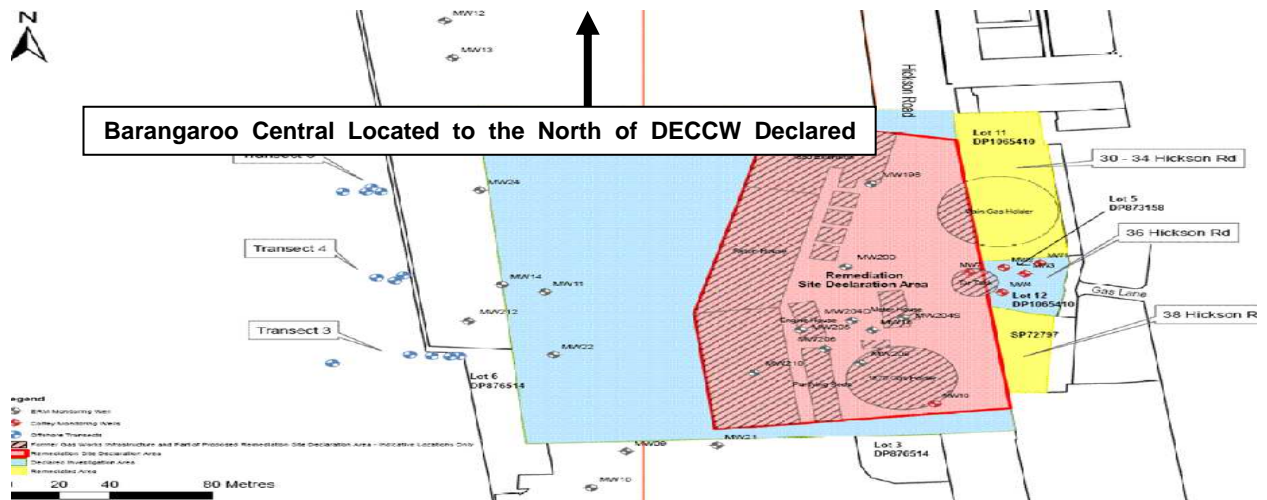


Figure 4: Extent of DECCW Declared Area

The EIS includes a Human Health and Ecological Risk Assessment (HHERA) prepared by JBS Environmental dated May 2013, and a Remedial Action Plan (RAP) prepared by JBS Environmental dated May 2013. The HHERA identifies clean-up criteria to facilitate the occupation of the site by future human and ecological populations based on known on-site contaminants and the possible type and duration of exposure. The HHERA also includes criteria to facilitate the safe receipt and re-use of between 80,000m³ and 120,000m³ of fill from Barangaroo South and the Headland Park.

The RAP provides an assessment of the areas that require remediation in order to achieve compliance with the clean-up criteria contained in the HERRA. In this regard, the RAP concluded that the site does not need to be remediated to ensure compliance with the applicable human health criteria. Notwithstanding, the RAP identified that some of the existing soil is not suitable to support the growth of vegetation on site. In order to address this issue, the RAP proposes the re-use of imported fill from other parts of the Barangaroo site located outside the DECCW declared area.

In order to ensure that no imported fill contains contaminants that exceed the human health and ecological criteria contained in the HHERA, the RAP contains a materials compliance management system (MCMS). The MCMS includes procedures requiring all imported fill to be tracked from its source point, handled, tested, and recorded to ensure that no fill is received unless it meets the applicable site acceptance criteria.

An EPA accredited Site Auditor, Graham Nyland, has reviewed the clean-up criteria identified in the HHERA and the conclusions and recommendations of the RAP, and has issued a Site B Site Audit Statement verifying that the site can be made suitable for use as temporary and permanent public domain subject to the implementation of the RAP. Accordingly, the department is satisfied that the proposed development can be made suitable for recreational uses consistent with SEPP 55.

In order to ensure the site is remediated in accordance with the provisions of the RAP, the department has recommended conditions requiring the applicant to:

- Undertake all remediation works in accordance with the requirements of the approved HHERA and RAP;
- Provide the department and the council with a detailed Site Audit Summary Report, Section A Site Audit Statement and Validation Report, prepared by an EPA accredited Site Auditor, in accordance with the requirements of the *Contaminated Land Management Act 1997*, confirming that the site is suitable for its approved use. These documents must be prepared within six months of the completion of the remediation works and prior to the use of the site as temporary and permanent public domain;
- Notify the council that remediation works have been completed, as per the requirements of clauses 17 and 18 of SEPP 55; and
- Prepare a Long Term Environmental Management Plan in accordance with the provisions of the approved RAP prior to the commencement of the use on site.

4.2.2 Operational Impacts (Major Events)

The application proposes to undertake a maximum of six major events per calendar year with a maximum patron capacity of 15,000 persons per event. Notwithstanding, it should be noted that whilst the maximum crowd capacity is 15,000 persons, the applicant is proposing the use of four event categories with a range of crowd capacities. Each event type is summarised below:

- Category 1 events – concerts with amplified music and crowds of up to 15,000 persons;
- Category 2 events – speaking events (amplified) with crowds of up to 12,000 persons;
- Category 3 events – live events with crowds up to 15,000 persons; and
- Category 4 events – fairs with crowds of up to 10,000 persons.

Furthermore, the application seeks approval to hold major events between 9am and 10pm Sundays to Thursdays and 9am and 11pm Fridays and Saturdays, with the exception of New Year's Eve and Australia Day, where the proposed hours of operation are between 9am and 2am the following day and 9am and 12 midnight respectively. The public domain would remain open to the public 24-hours-per-day seven-days-per-week when it is not being used to hold major events.

Based on the above the department considers that the application may result in noise, traffic/transport, navigational and social and other environmental impacts when the site is being used to hold major events. The department's assessment of these impacts is provided below.

Noise Impacts

The applicant's Construction and Operational Noise and Vibration Management Assessment provides an assessment of the likely impacts of noise associated with each major event category during the day, evening and night time periods. It should be noted that as there are no noise management criteria to regulate noise from major events, the Construction and Operational Noise and Vibration Management Assessment applied the use of the intrusive noise criterion specified in the NSW *Industrial Noise Policy* (INP). In this regard the INP specifies that the L_{Aeq} should not exceed the background noise by more than 5 dBA. The applicable noise management criteria based on the existing background noise levels at sensitive noise receivers are identified in **Table 4**.

The applicant's assessment of the impacts of category '1' to '4' events against the site specific intrusiveness criterion are summarised below:

- During 'Category 1' events, moderate to high exceedences of the intrusiveness criterion (between 9 and 31 dBA) are predicted during the day, evening and night time periods at residences located along Hickson Road, High Street, Merriman Street and Darling Island;
- During 'Category 2' events, moderate to high exceedences of the intrusiveness criterion (between 4 and 17 dBA) are predicted during the day, evening and night time period at residences located along High Street and Merriman Street. In addition, and a moderate exceedence of 5 dBA during the night time period is predicted at residences located at Balmain East, and a minor exceedence of 1 dBA is predicted during the night time period at residences located at Darling Island;
- During 'Category 3' events minor to moderate exceedences (between 1 and 5 dBA) of the intrusiveness criterion at residences along High Street and Merriman Street are predicted during the day, evening and night time periods;
- No exceedences of the intrusiveness criterion are predicted at any residential receivers during 'Category 4' events;
- During 'Category 1' events, minor to moderate exceedences of between 2 and 6 dBA are predicted at the High Street commercial receivers and the Merriman Street schools/child care centres during the day and evening period; and
- During 'Category 1' events high exceedences of up to 12 dBA are predicted during the day and evening period at the Balmain East schools/child care centres.

The applicant's noise predictions for each event type are provided in full at **Table 4** overleaf.

Table 4: Predicted Noise Levels from Event Operations at Residences and Other Receivers

Receiver	Predicted Noise Level	Intrusive Noise Goal (Day/Evening/Night)	Exceedence
Hickson Road Residences		58/58/54	Y/N
Category 1	67	+9/+9/+13	Y
Category 2	54	0/0/0	N
Category 3	45	0/0/0	N
Category 4	39	0/0/0	N
High Street Residences		52/49/46	
Category 1	77	+25/+28/+31	Y
Category 2	63	+11/+14/+17	Y
Category 3	55	+3/0/0	Y
Category 4	49	0/0/0	N
Merriman Street Residences		51/49/45	
Category 1	71	+20/+21/+26	Y
Category 2	55	+4/+6/+10	Y
Category 3	50	0/+1/+5	Y
Category 4	44	0/0/0	N
Balmain East Residences		54/50/45	
Category 1	66	+12/+16/+21	Y
Category 2	50	0/0/+5	Y
Category 3	38	0/0/0	N
Category 4	32	0/0/0	N
Darling Island Residences		52/49/45	
Category 1	60	+8/+11/+15	Y
Category 2	46	0/0/+1	Y
Category 3	37	0/0/0	N
Category 4	31	0/0/0	N
Blues Point Tower Residences		53/51/44	
Category 1	56	+3/+5/+12	Y
Category 2	37	0/0/0	N
Category 3	33	0/0/0	N
Category 4	27	0/0/0	N
Hickson Road Commercial Premises		70/70/-	
Category 1	67	0/0/0	Y
Category 2	54	0/0/0	Y
Category 3	45	0/0/0	Y
Category 4	39	0/0/0	Y
High Street Commercial Premises		70/70/-	
Category 1	76	+6/+6/-	N
Category 2	62	0/0/0	Y
Category 3	52	0/0/0	Y
Category 4	46	0/0/0	Y
Merriman Street Schools/Child Care Centres		65/65/-	
Category 1	67	+2/+2/-	N
Category 2	54	0/0/0	Y
Category 3	45	0/0/0	Y
Category 4	39	0/0/0	Y
Balmain East Schools/Child Care Centres		65/65/-	
Category 1	77	+12/+12/-	N
Category 2	63	0/0/0	Y
Category 3	55	0/0/0	Y
Category 4	49	0/0/0	Y

The applicant has provided a set of overarching event management plans and an Operational Noise Management Plan prepared by Wilkinson and Murray which include measures to manage potential noise impacts when major events are being held on site. These measures include:

- The use of specific noise management criteria for each event category as outlined in **Table 5**;
- The placement of speakers to ensure noise spill is minimised. In addition, the use of noise cancelling 'sub' arrays should be considered in the design and layout of the sound system;
- The use of a sound limiters/compressors to ensure music is locked below a desired noise level if required;
- The use of sound level meters at each sound desk to monitor noise levels and ensure that noise levels do not exceed the noise management criteria specified in **Table 5**;
- The use of compliance noise monitoring and reporting for category '1', '2' and '3' events;
- The use of event specific noise management plans to provide specific details on how to manage noise associated with each major event;

- The use of staff briefings to ensure production managers and sound engineers reduce noise levels as per the recommendations of the on-site acoustic consultant, and staff members are aware of the procedures for assisting patrons to exit the site quietly;
- The establishment of noise specific reduction procedures to ensure noise can be reduced rapidly if required;
- Restricting installation and decommissioning works to the day time period. If these works can not be undertaken during day time hours noisy works should be minimised during the evening and night time periods; and
- The use of community consultation prior to each major event, and the establishment of a 24-hour noise complaint hotline and complaint register.

Table 5: Proposed Noise Management Criteria

Major Event Category	Noise Management Criteria		
Category 1	The $L_{Aeq(t)}$ must not exceed 70 dB(A) ¹	The L_{Amax} must not exceed 80 dB(A) ¹	The L_{Cmax} must not exceed 100 dB(C) ¹
Musical Concerts using sound amplification equipment with a crowd capacity of 15,000 persons			
Category 2	The A-weighted sound pressure level ($L_{A19.T}$) must not exceed 10 dB(A) above the ambient background level (L_{A90}) between 10 am and 11 pm, or 5 dB(A) above the ambient background level (L_{A90}) at all other times.		
Speech events using sound equipment with crowd capacity greater than 10,000 persons			
Category 3	The A-weighted sound pressure level ($L_{A19.T}$) must not exceed 10 dB(A) above the ambient background level (L_{A90}) between 10 am and 11 pm, or 5 dB(A) above the ambient background level (L_{A90}) at all other times.		
Crowds of up to 15,000 persons with medium level amplification			
Category 4	The A-weighted sound pressure level ($L_{A19.T}$) must not exceed 10 dB(A) above the ambient background level (L_{A90}) between 10 am and 11 pm, or 5 dB(A) above the ambient background level (L_{A90}) at all other times.		
Fairs with up to 10,000 persons.			

Note¹: An exceedence of the noise limits for Category 1 events within a single five minute period during the first 15 minutes of each band or act will not be considered a breach.

Department Comment

The department's acoustic specialist has reviewed the potential impacts of major events and the mitigation measures provided by the applicant. In this regard, the department has concluded that whilst there will be significant noise exceedences at a number of residential and commercial/other' receivers during category '1' and '2' events, these exceedences are not unreasonable based on the limited frequency of the events (a maximum of six major events per calendar year) and the potential number of sensitive receivers affected. In addition, the department considers that the applicant has recommended the use of reasonable and feasible noise management measures to minimise potential noise impacts at sensitive noise receivers. Notwithstanding, the department considers that major events should be held on a trial basis to ensure that any adverse impacts are established and reviewed prior to full consent being issued. Conditions requiring the applicant to undertake noise monitoring and reporting have been recommended to enable the department to review the impacts of each event category.

In addition, in order to ensure events are managed appropriately the department has recommended the following conditions:

- All events must be held within the hours nominated in the applicant's EIS and in accordance with the noise limits specified in the Construction and Operational Noise and Vibration Management Assessment, and the an Operational Noise Management Plan; and
- All noise management and mitigation measures and noise monitoring and reporting must be undertaken in accordance with the recommendations of the Operational Noise Management Plan.

Traffic and Transport

The Traffic Impact Assessment (TIA) included an assessment of the traffic and transport impacts associated with major events with up to 15,000 persons based on:

- Anticipated traffic growth to 2020 (three per cent increase in background growth per year from 2012 levels);
- The implementation of the network changes proposed under the *Barangaroo Integrated Transport Plan (ITP)*; and
- The following mode splits based on the recommendations of the Barangaroo TMAP and the Barangaroo ITP when major events are being held:
 - 63 per cent rail;
 - 18 to 20 per cent bus;
 - 6 per cent walking;
 - 4 to 5 per cent private vehicle;
 - 4 to 5 per cent bicycle;
 - 2 per cent light rail;
 - 1 per cent ferry (4 to 6 per cent may be achievable); and
 - 1 per cent taxi.

Based on the performance of the surrounding intersections, the TIA predicted that the Towns Place/Hickson Road and the Sussex Street/Erskine Street intersections would maintain an acceptable level of service (C or above), and the Sussex Street/Napoleon Street/ Hickson Road intersection would deteriorate to an unacceptable level of service (LOS F) during the morning and evening periods by the year 2020. Furthermore, the TIA notes that the predicted performance results are primarily related to traffic generated by other development, or by background traffic growth, and not the subject development. Notwithstanding, the TIA concluded that performance at this intersection could be improved via the implementation of special event parking restrictions with selective vehicle access. Notwithstanding, the signalisation of this intersection should be considered to provide optimal network performance.

The TIA concludes that major events would have the following impacts on car parking, coach, pedestrian and cycle networks within close proximity to Barangaroo. This is discussed further below.

Car Parking

The application does not include the construction of car parking facilities, however 300 parking spaces will be available within the basement of the future cultural facility within the Barangaroo Headland Park. In the event that the four per cent of people accessing the site travel by car as per the mode share target outlined in the Barangaroo Transport Management and Accessibility Plan (TMAP), approximately 600 car parking spaces would be required to service a major event with a maximum capacity of 15,000 persons at Barangaroo Central. Visitors are likely to utilise off-street car parking facilities within the Headland Park or within close proximity to Barangaroo.

In order to reduce the reliance on off-street car parking during 'Category 1' major events which will accommodate up to a maximum of 15,000 people, the department has recommended a condition requiring the applicant to revise the Barangaroo Central Interim Public Domain Event Management Plans to include provisions to require event holders to consider the use of integrated ticketing and shuttle bus systems to encourage public transport use when major events are held on-site.

Bus/Coaches

The Barangaroo ITP does not depict any bus stops servicing Barangaroo Central or the Barangaroo Headland Park. In order to provide sufficient bus/coach parking facilities the application proposes to provide approximately 40m of permanent bus zone on the western kerb of the Hickson Road site frontage.

Based on a mode share target of five per cent, sufficient space to accommodate four bus/coaches would be required when major events are held on-site. In this regard, the application proposes to extend the proposed bus zone by 60m via the use of fold-down signs during major events to ensure sufficient capacity is provided.

Pedestrian

Footpath widths on the roads surrounding the site are sufficient to provide a Fruin level of service 'C' or 'D', or better with appropriate crowd management. In order to ensure this occurs, safe pedestrian crossings are proposed at major intersections and pedestrian bridges.

In addition, specific management measures have been included in the Event Management Plan to manage the impacts of deep water berthing during special events. A summary of the proposed management measures is provided below:

- All vessels, including small recreational boats shall apply for berthing/mooring permits to be approved by RMS and other relevant authorities;
- Provisions for furniture including bollards, and fender arrangements should provide for safe mooring and berthing; and
- Signage associated with restricted use and mooring/berthing by permit only may need to be established in accordance with the requirements of the relevant authorities.

Department Comment

The department has reviewed the impacts of major events on the surrounding road network and is satisfied that subject to the installation of temporary signals at the Sussex Street/Napoleon Street/Hickson Road, the surrounding road and cycle network will operate with acceptable levels of service during major events. Notwithstanding, the department has recommended conditions requiring the applicant/event holder to prepare event specific water based traffic and traffic, transport, access and parking management plans to ensure appropriate traffic and transport management measures are implemented when major events are held on site.

In addition, the department has assessed the navigational safety impacts of the application in conjunction with Sydney Ports and is satisfied that the use of the navigable waters adjoining the site would not cause any adverse safety issues subject to the installation of the proposed navigational aids. In addition, in order to manage the operational impacts associated with water craft accessing the public pier and deep shore berthing facilities, the department has recommended conditions requiring the applicant to:

- Prepare detailed designs for bollards and fender arrangements in consultation with RMS to facilitate the safe mooring and berthing of water craft at Barangaroo Central;
- Incorporate signage identifying restricted use and mooring by permit only areas within the waterways adjacent to Barangaroo Central within the final signage strategy. Prior to the finalisation of the Strategy, the BDA should consult with RMS and Sydney Ports to confirm all signage complies with their specifications;
- Consult with the Harbour Master to obtain any necessary safety requirements prior to permitting the berthing of vessels over 30m; and
- Ensure all requirements issued by the Harbour Master are adhered to at all times.

Social and Other Environmental Impacts

The department considers that the application could result in potential social impacts where alcohol is being served at major events. In addition, the department considers that that soil, water and waste will need to be managed in order to provide an appropriate environmental outcome.

The EIS includes an overarching event management plan which establishes principles for:

- Security management and security risk assessment;
- Emergency and incident management;
- Alcohol management;
- Waste management; and
- Maintaining occupational health and safety on-site.

It is important to note that the overarching management plan requires the preparation of event specific management plans for major events. These plans must be prepared in accordance with the principles of the overarching management plan, and approved by the BDA prior to the commencement of each major event.

The department has assessed the overarching management plan and is satisfied that it includes appropriate measures to ensure public safety is maintained during major events and the amenity of the surrounding residential and commercial premises is protected. Furthermore, the department has recommended conditions of approval to ensure the following event specific management plans are prepared by event operators prior to each major event:

- Security management plan;
- Waste management plan;
- Soil and water management plan;

- Emergency management and incident response plan
- Security risk assessment plan;
- Alcohol management plan;
- Work health and safety plan;
- Water based traffic and traffic, transport, access and parking management plan; and
- Infrastructure and services plan.

4.2.3 Temporary Structures

The application seeks approval to create one 250m² and one 490m² 'zone' in which temporary pavilions/marquees can be erected when major events are held on-site. The department notes that *State Environmental Planning Policy (Temporary Structures) 2007* (Temporary Structures SEPP) permits the erection of a tent or marquee for a private function on Crown land subject to the size of any individual tent or marquee not exceeding 100m², or where multiple tents/marquees are in use, the cumulative floor area of these structures does not exceed 300m². Furthermore, the Temporary Structures SEPP also permits the erection of a tent, marquee or booth for a community function on Crown land provided that the event takes place within the following hours, and does not exceed the following floor space and height limits:

- The event occurs between 7.30am and 11.00pm on Monday, Tuesday, Wednesday or Thursday, 7.30am to midnight on Friday or Saturday, and 8.00am to 8.00pm on Sunday;
- The floor area of the structure is no more than 100m², and if more than one structure is erected, the cumulative floor space of the structures does not exceed 300m²; and
- The structure is located more than 3m from the boundary of the property and the height of the wall of the structure do not exceed 5m in height, and the overall height of the structure is no greater than 6m.

Based on the above, pavilions and marquees could be erected on-site during community or private events without development consent. Notwithstanding, the department notes that the erection of pavilions or marquees that utilise the full extent of the nominated zones would require development consent. As the applicant has not provided architectural plans depicting the type of structures that may be erected within the temporary pavilion/marquee 'zones' when major events are held on-site, the department has recommended a condition requiring the applicant to submit the details of all temporary structures that exceed the requirements of the Temporary Structures SEPP to the satisfaction of the Director-General prior to a major event being held on-site.

In addition, in order to ensure that temporary structures erected on-site comply with the relevant building and fire safety requirements, the department has recommended conditions requiring the BDA/the event holder to:

- Provide a certificate from a suitably qualified person(s) certifying that the fire protection and structural capacity of the temporary structure(s) is appropriate for its intended use, and where applicable, complies with the relevant provisions of the Building Code of Australia (BCA) and the relevant Australian Standards adopted under the BCA;
- The ground on which the structure is erected is sufficiently firm and level to sustain the structure while in use;
- Access and facilities for people with disabilities shall be designed in accordance with Part D3 of the BCA Access Policy where relevant; and
- Provide the department with a copy of all certification documents within 24-hours of lodgement.

4.2.4 Construction Impacts

The department considers that construction works will have the potential to generate noise, vibration, air quality, and archaeological impacts. The department's assessment of these impacts is provided below.

Noise

The EIS includes a Construction and Operational Noise and Vibration Management Assessment prepared by Wilkinson and Murray that considers the impacts of the proposed development against the requirements of the following OEH policies and guidelines:

- *Interim Construction Noise Guideline*;
- *Assessing Vibration: A Technical Guideline*;
- *Industrial Noise Policy*;
- German Standard DIN 4150-3 *Structural Vibration Part 3 – Effects of Vibration on Structures*; and

- NSW Road Noise Policy.

The assessment identified 10 locations that have the potential to be affected by construction noise. Noise monitoring locations used to undertake the assessment are depicted in **Figure 6**. A full assessment of the construction noise impacts is provided overleaf.



Figure 6: Noise Monitoring Locations

The site specific construction noise management levels are summarised in **Table 6** below. The department has reviewed these criteria in conjunction with OEH, and considers them acceptable for the purpose of assessing potential noise impacts during the construction stage of the project.

Location	Construction Noise Management Level, L _{Aeq,15min} – dBA				Highly Noise Affected Level, L _{Aeq,15min} – dBA
	Day	Evening	Night	Saturday (extended hours)	
1 – Hickson Road Residences	63	58	54	56	75
2 – High Street Residences	57	49	46	50	75
3 – Merriman Street Residences	56	49	45	51	75
4 – Balmain East Residences	59	50	45	51	75
5 – Darling Island Residences	57	49	44	55	75
6 – Blues Point Tower	58	51	44	52	75
All Commercial Properties			70		-
Schools / Preschools			55*		-
Parks / Outdoor Play Areas			65		-

*The external noise goal of 55 dBA is based on a 10dB reduction through an open window.

**Noise management level has been established based on the RBL +10dBA for the daytime period. In the case of all other periods (incl. Saturdays) the noise management levels are based on the period RBL +5dBA.

Table 6: Site Specific Construction Noise Management Levels

The Construction and Operational Noise and Vibration Management Assessment modelled the impact of the following noise generating activities occurring on-site between 7am and 6pm Monday to Friday and 8am and 3pm on Saturdays:

- Bulk earthworks - incorporating the use of a large compactor, dozers, rollers and excavators;
- Demolition – incorporating the use of excavators with hammers and a crushing machine; and
- General construction – involving truck movements accessing the site to import and/or remove fill.

It should also be noted that the modelling was undertaken based on a ‘typical’ worst case scenario, where it was assumed that all plant and equipment is running continuously.

The applicant's assessment of the impacts of construction noise against the site specific noise management criteria concluded that:

- On Saturdays between 1pm and 5pm there would be exceedences of up to 22 dBA at residential receivers along High Street, and exceedences of up to 15 dBA at residential receivers along Merriman Street. Notwithstanding, all noise levels will be below the highly affected construction noise level of 75 dBA;
- All commercial premises, with the exception of Universal Music located at 3 Munn Reserve will achieve compliance with 70 dBA noise management level;
- The internal noise management level would be exceeded by up to 8 dBA at the Billabond Child Care Centre located on Hickson Road, and up to 17 dBA at the KU Lance Pre-School located on High Street when windows are open, therefore windows may need to be closed at these locations during intensive periods of construction; and
- The outdoor noise management level would also be exceeded by up to 7 dBA at the KU Lance Pre-School.

Tables 7 to 9 summarise the predicted construction noise impacts.

Location	Predicted		Day			Evening			Night			Saturday (Extended)		
	Noise	Day/Night	Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance
	dBA	dBA	dBA	dBA		dBA	dBA		dBA	dBA		dBA	dBA	
1 – Hickson Road Residences	63*	0	63	0	Yes	58		n/a	54		n/a	56	8	Yes
2 – High Street Residences	72*	0	57	15	No	49		n/a	46		n/a	50	22	No
3 – Merriman Street Residences	66*	0	56	10	No	49		n/a	45		n/a	51	15	No
4 – Balmain East Residences	51	0	59	0	Yes	50		n/a	45		n/a	51	0	Yes
5 – Darling Island Residences	55*	0	57	0	Yes	49		n/a	44		n/a	55	0	Yes
6 – Blues Point Residences	45*	0	58	0	Yes	51		n/a	44		n/a	52	0	Yes

*Includes a 5 dB penalty for impulsive noise.

Table 7: Construction Noise Levels Predicted at Residential Receivers $L_{Aeq, 15 \text{ min}}$

Location	Predicted		Day			Evening			Night			Saturday (Extended)		
	Noise	Day/Night	Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance
	dBA	dBA	dBA	dBA		dBA	dBA		dBA	dBA		dBA	dBA	
30 Hickson Road	63*	0	70	0	Yes	70	0	n/a	70	0	n/a	70	0	Yes
Universal Music Australia	72*	0	70	2	No	70	0	n/a	70	0	n/a	70	2	No

*Includes a 5 dB penalty for impulsive noise.

Table 8: Predicted Noise Levels at Commercial Receivers $L_{Aeq, 15 \text{ min}}$

Location	Predicted		Day Playground			Day Internal Noise		
	Noise Day/ Night		Criteria	Exceedance	Compliance	Criteria	Exceedance	Compliance
	dBA		dBA	dBA		dBA	dBA	
Billabond Child Care Centre	63	0	65	0	Yes	55	8	No
KU Lance Preschool	72	0	65	7	No	55	17	No

Table 9: Predicted Noise Levels at Pre-School Receivers $L_{Aeq, 15 \text{ min}}$

The Construction and Operational Noise and Vibration Management Assessment also modelled the cumulative impact of construction work at the Barangaroo Headland Park, Barangaroo South and Barangaroo Central. The results of the modelling demonstrate that the cumulative noise level would exceed the noise management level by between 3 and 16 dBA at receivers located on Hickson Road, High Street, Merriman Street and Darling Island. In addition, the noise management level would be exceeded by between 3 and 8 dBA at the Universal Music Studios, the Billabond Child Care Centre and the Ku Lance Pre-Primary. Notwithstanding the above, all properties with the exception of the Universal Music Studios would not exceed the highly affected noise management level (75 dBA). **Table 10** below summarises the cumulative construction noise impacts.

Residences	South Barangaroo Construction Noise	Headland Park North Cove Construction Noise	Central Park	Cumulative Noise Level	Noise Management Level
38 Hickson Road	73	57	63	74	63
37 High St	56	66	72	73	57
Merriman - Merriman Street	52	65	66	69	56
Balmain East	52	54	51	57	59
Darling Island Studios	57	49	55	60	57
30 The Bond	53	73	72	76	70
Billabond Childcare	64	57	59	66	70
Ku Lance	66	57	63	68	65 (55)*
	56	66	72	73	65 (55)*

*Outside and Internal Objectives

Table 10: Cumulative Construction Noise Levels (Barangaroo South, Barangaroo Central and Headland Park) $L_{Aeq}(15 \text{ minutes})$

In terms of the cumulative noise impacts associated with 70 additional construction vehicles accessing the site, the assessment concluded that the additional vehicle movements would result in an external $L_{Aeq} (1 \text{ hour})$ of 65 dBA at the closest residential receiver located at 38 Hickson Road. This exceeds the 2 dBA increase permitted under the *NSW Road Noise Policy*, where the current external $L_{Aeq} (1 \text{ hour})$ exceeds 55 dBA on a local road (62 dBA currently experienced during the morning peak period at 88 Hickson Road).

Notwithstanding the above, the noise impact assessment noted that of the 70 truck movements required per day to facilitate the construction of the permanent and temporary public domain at Barangaroo Central, only 40 trucks would be accessing the site during the morning peak period. As such, the noise impact assessment concluded that the exceedance of the road noise criterion could be reduced by planning truck movements so that they are distributed evenly throughout the day.

Vibration Impacts

The Construction and Operational Noise and Vibration Management Assessment also modelled the impact of the use of hydraulic rock breakers and vibratory rollers during excavation and site consolidation works against the human comfort and structural vibration criteria recommended in the EPA's *Assessing Vibration: A Technical Guideline* and German Standard DIN 4150-3 *Structural Vibration Part 3 – Effects of Vibration on Structures*. The applicable human comfort and structural vibration criteria are summarised in **Tables 11** and **12**.

Location	Daytime		Night Time	
	Preferred	Maximum	Preferred	Maximum
	Value	Value	Value	Value
Critical areas	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Table 11: Acceptable Dose Values for Intermittent Vibration

Guideline Values for Velocity – mm/s		
1-10 Hz	10 to 15 Hz	40 to 50 Hz
3	3 to 8	8 to 10

Table 12: Maximum Vibration Levels Recommended for Heritage Buildings

The assessment predicted that vibration levels at the nearest residences on High Street when hydraulic hammers and vibratory rollers are in use would be less than 0.02 mm/s and less than 1.7 mm/s respectively. Whilst the use of hydraulic hammers would comply with the structural damage criteria, the use of vibratory rollers would exceed the human comfort criterion by 1.3 mm/s. In order to manage the potential impacts of vibration associated with the use of vibratory rollers, the assessment recommends that the applicant undertake trial testing where a vibratory roller is proposed for use along the eastern boundary of the site.

Proposed Management Measures

In order to manage the impacts of construction noise and vibration the Construction and Operational Noise and Vibration Management Assessment recommends the implementation of the following noise management/mitigation measures:

- Minimisation of the use of hydraulic percussion hammers. In the event that the use of such hammers is unavoidable, low noise models should be used where possible;
- Selection of plant with noise control kits installed where available;
- Localised treatment such as barriers around fixed plant;
- Where out of hours work is proposed, consideration should be given to planning construction activities so that the loudest activities occur during standard construction hours (where feasible). In addition, the use of respite periods could be implemented via the Noise and Vibration Management Plan under the Environmental Construction Site Management Plan;
- The implementation of noise audits to confirm that all critical items of mobile plant comply with the noise limits appropriate to those items prior to their use;
- Staff training to ensure plant and equipment operators are aware of techniques that will minimise noise emissions;
- The selection of appropriate plant and the use of noise silencers and other attenuation devices to ensure total noise emissions comply with the EPA guidelines;
- Positioning of plant and equipment in a manner that reduces noise levels at sensitive receivers;
- Installation of non-tonal or automatically adjusting reversing alarms on mobile plant;
- The use of rock saws and rippers, and the use of smaller rock breakers with quiet 'city hammers' where possible;
- Preparation of dilapidation reports prior to the commencement of works; and
- Provision of regular community updates.

The department notes that the mitigation measures outlined above have been incorporated into the Preliminary Construction Noise and Vibration Management Plan.

Department's Comments

The department's acoustic specialist has reviewed the Construction and Operational Noise and Vibration Management Assessment in conjunction with OEH, and considers that the potential construction noise and vibration impacts of the projects are acceptable for the following reasons:

- The exceedences predicted at residential receivers along Hickson Road, High Street and Merriman Street are below the maximum construction noise goals recommended in OEH's *Interim Construction Noise Guideline* (maximum of 75 dBA recommended, and 74 dBA predicted);
- The exceedence of the highly affected noise management level at Universal Music Studios would only occur when windows are open. Subject to all operable windows being closed during periods of intense construction, an internal noise level of approximately 47 dBA could be achieved. As such the internal noise levels are not anticipated to disrupt most office activities. Furthermore, the recording areas located on-site incorporate specialist acoustic treatments to deal with internal noise levels of the magnitude predicted in the applicant's assessment;
- The department has recommended a condition requiring the applicant to prepare a noise management plan in conjunction with the management of the Billabond Child Care Centre to ensure the internal noise levels are managed in accordance with the internal noise management criterion (55 dBA);
- All exceedences are based on a worst case construction scenario, which would only occur for a limited period; and
- Any potential exceedences could be managed via the implementation of the noise mitigation measures recommended in the Construction and Operational Noise and Vibration Management Assessment and the applicant's Preliminary Construction Noise and Vibration Management Plan.

In order to ensure construction works are managed appropriately the department has recommended conditions requiring the applicant to implement the noise mitigation measures outlined in the Construction and Operational Noise and Vibration Management Assessment and the applicant's Preliminary Construction Noise and Vibration Management Plan.

Air Quality

The EIS includes an Air Quality and Health Impact Assessment prepared by JBS Environmental. This assessment modelled particulate emissions (PM₁₀, total suspended particulates (TSP), and deposited dust) for five construction scenarios. In addition, the assessment modelled potential chemical emissions and odour impacts associated with the stockpiling and handling of contaminated soils.

The assessment predicted that there would be no non-compliances of the applicable air quality assessment criteria for scenarios one to five when assessing the site in isolation. Notwithstanding moderate exceedences of the PM₁₀ 24-hour and PM₁₀ annual assessment criteria are predicted for construction scenarios two to five at receptors 1, 2 and 4 when construction works are assessed on a cumulative basis (with construction works at Barangaroo South and the Headland Park).

In addition, the assessment predicted that the level of chemical constituents would be well below the relevant assessment criteria. This is due to the absence of significant levels of contamination in the upper depth soil profile of the site. Furthermore, the assessment predicted that the maximum one second concentration for malodorous constituents would be well below the applicable odour criteria.

In order to manage potential non-compliances with the PM₁₀ 24-hour and PM₁₀ annual assessment criteria when cumulative construction works are being undertaken, the air quality assessment recommends:

- The use of real-time monitoring, with a commitment to stop work/redesign works during periods of exceedences to ensure compliance with the relevant air quality criteria;
- The strict implementation of the soil acceptance protocol outlined in the Remedial Action Plan to ensure no contaminated soils are received at Barangaroo Central; and
- The applicant updating the Air Quality Management Plan prepared for the Headland Park main works project to include the works proposed at Barangaroo Central.

The department has reviewed the applicant's Air Quality and Health Impact Assessment and has concluded that subject to the implementation of the abovementioned management and mitigation measures, the proposed construction works will comply with the applicable air quality management criteria. In order to ensure all management and mitigation measures are implemented, the department has recommended a condition requiring the applicant to update the Air Quality Management Plan for

the Headland Park main works project to incorporate the subject site and the management and mitigation measures outlined in the Air Quality and Health Impact Assessment.

Traffic

The EIS includes a Traffic Impact Assessment (TIA) for the construction and operational phases of the project prepared by Aurecon. It should be noted that the assessment for the construction phase of the project was amended in response to issues raised by the council and RMS in relation to the validity of a number of the modelling assumptions. A summary of the impacts of the construction phase, as amended by the applicant's Response to Submissions is provided below.

The TIA includes SIDRA analysis to identify the existing capacity of the Towns Place/Hickson Road, Sussex Street/Napoleon Street/Hickson Road, and the Sussex Street/Erskine Street intersections. In this regard, each intersection currently has the following levels of service (LOS):

- LOS 'A' (good operation) at the Towns Place/Hickson Road intersection in the morning and evening peak periods;
- LOS 'B' (good with acceptable delays and spare capacity) at the Sussex Street/ Napoleon Street/Hickson Road intersection in the morning and evening peak periods; and
- LOS 'C' (satisfactory) at the Sussex Street/Erskine Street intersection in the morning peak, and LOS 'F' (over capacity/unstable operation) in the evening peak period.

The application proposes the use of the construction routes approved for the Headland Park Main Works Project (MP10_0048). These routes are depicted in **Figure 7**. Based on the proposed traffic routes, the TIA predicts that construction related traffic, inclusive of traffic associated with the construction of the Headland Park, the basement car park and commercial buildings C3, C4 and C5 at Barangaroo South, and Wynyard Walk, will have the following impacts at the surrounding intersections:

- The Towns Place/Hickson Road intersection will retain its current level of service during the morning and evening peak periods (LOS 'A');
- A reduction in the level of service at the Sussex Street/Napoleon Street/Hickson Road intersection to LOS 'D' (operating near capacity) is predicted during the morning and evening peak period; and
- A reduction in the level of service at the Sussex Street/Erskine Street intersection to LOS 'C' is predicted in the morning peak period, and LOS 'F' (over capacity/unstable operation) is predicted in the evening peak period.

In addition, the department notes that the TIA includes SIDRA analysis which predicts the impacts associated with construction vehicles accessing gate No. 5 along Hickson Road. In this regard, the SIDRA analysis demonstrates that this entry point will operate at LOS 'D' during the morning peak period and LOS 'A' during the evening peak. The SIDRA results for the existing traffic and proposed traffic scenarios are provided in **Tables 13 and 14**.

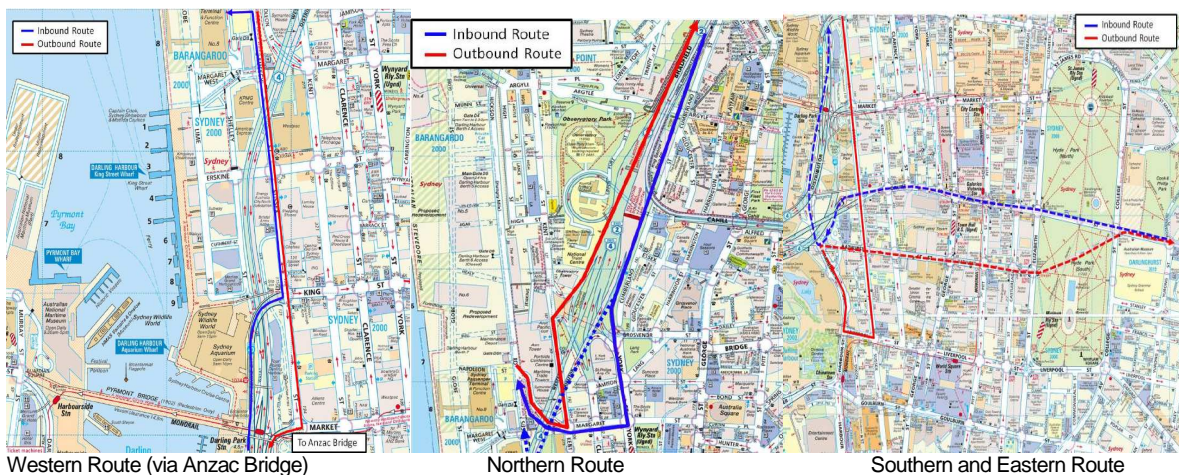


Figure 7: Approved Truck Access Routes

Intersection*	Control type	Existing traffic SIDRA results					
		AM			PM		
		DS	Average Delay (secs/veh)	LOS	DS	Average Delay (secs/veh)	LOS
Towns Place/Hickson Road	Priority Give Way	0.214	8.9	A	0.166	8.6	A
Sussex Street/Napoleon Street/Hickson Road	Priority Stop	0.653	15.2	B	1.037**	28.4**	B
Sussex Street/Erskine Street	Signalised	0.724	29.1	C	1.135	95.7	F

* For priority control intersections, the maximum DS, delay and LOS are reported. Average values are reported for signal intersections.

** Adjusted figures for traffic queue impacts from Sussex St/Erskine St.

Table 13: SIDRA Analysis of the Existing Traffic Situation at Surrounding Intersections

Intersection*	2014 SIDRA results					
	AM Peak			PM Peak		
	DS	Average Delay (secs/veh)	LOS	DS	Average Delay (secs/veh)	LOS
Towns Place/Hickson Road	0.224	9.1	A	0.173	8.7	A
Hickson Road/Gate No. 5	0.526	58.5	E	0.351	24.2	B
Sussex Street/Napoleon Street/Hickson Road (signalised)	1.008	54.6	D	1.171	48.8	D
Sussex Street/Erskine Street	0.811	30.2	C	1.143	96.9	F

* For priority control intersections, the maximum DS, delay and LOS are reported. Average values are reported for signal intersections.

Table 14: SIDRA Analysis of the Proposed Traffic Situation at Surrounding Intersections

The TIA recommends the following measures to manage the impacts of construction related traffic:

- Restricting truck access along York Street to between 6am and 10am and 2pm and 8pm Monday to Friday;
- Maintenance of safe pedestrian access along the western side of Hickson Road;
- Provision of a pedestrian crossing at the intersection of Hickson Road and Napoleon Street;
- The use of traffic controllers and traffic control devices to manage construction vehicles accessing the site in the morning peak period, particularly at the intersection of Hickson Road and gate No. 5;
- The staggering of construction vehicles accessing the site, particularly in the morning peak period;
- Any damage to roads, kerbs or footpaths that are damaged by construction vehicles should be rectified prior to the completion of construction works;
- Construction staff should be encouraged to use public transport to minimise traffic and parking impacts;
- Vehicular, pedestrian, cycle and emergency service access along Hickson Road should be maintained at all times. The use of RMS approved crash barriers may be required to maintain pedestrian and cyclist safety.

The department has reviewed the revised TIA in conjunction with the council and RMS and is satisfied that construction related traffic will only have a minor impact on the average delay time and therefore the level of service at the Sussex Street/Erskine Street intersection. In addition, the department is satisfied that the applicant has provided suitable measures to manage the impacts of construction related traffic on the surrounding road network. Notwithstanding, in order to ensure the implementation of the proposed traffic management measures, the department has recommended a condition requiring the applicant to prepare and implement a construction traffic management plan to the satisfaction of the Director-General.

Archaeology

The EIS includes an Archaeological Assessment prepared by Godden Mackay Logan. This assessment is based on the results of the Barangaroo Archaeological Assessment and Management Plan (AAMP) prepared by Astral Archaeology in 2010, and the results of archaeological investigations

undertaken within the Headland Park project area directly north of the subject site. A summary of the potential Aboriginal and historic archaeological items likely to occur within the site is provided below.

Aboriginal

- Barangaroo Central contains no previously identified Aboriginal sites or places;
- Two Aboriginal sites have been recorded to the north of the site within the Headland Park project area (see **Figure 8**), one of which recorded as being destroyed prior to the site being under the ownership of the BDA;
- Due to the topography of the site, a large portion of the site area would have been inaccessible to Aboriginal people pre-settlement. In addition, any evidence of Aboriginal use of the site is likely to have been disturbed or removed during the use and development of the site post-settlement. As such, the site is considered to have no or very low potential to contain in-situ Aboriginal archaeological evidence; and
- The proposed works are unlikely to result in any Aboriginal archaeological impacts.



Figure 8: Aboriginal Archaeological Sites Located within Proximity to Barangaroo Central

Historic

- Whilst land within the Headland Park project area and Barangaroo South was extensively developed during the nineteenth century, Barangaroo Central remained largely undeveloped until the 1860s, therefore Barangaroo Central has little or no potential to contain historical archaeological remains associated with late eighteenth century and early to mid nineteenth century historical development;
- The north-eastern portion of the site has moderate potential to contain historical archaeological evidence associated with the maritime related development of the area during the late nineteenth century. Such evidence is likely to include structural supports for wharves/jetties, remnant seawalls and other infrastructure (see **Figure 9**);
- Parts of the site have a moderate potential to contain historical archaeological evidence associated with the redevelopment of the site in the early to mid twentieth century. This evidence is likely to include structural supports for wharves/jetties and associated infrastructure as well as fill deposits introduced during the progressive reclamation of the site. Parts of the site may also

include evidence about the impact of large scale resumption, demolition, reclamation and redevelopment on remains of the earlier development (see **Figure 9**);

- The potential historical archaeological remains associated with late nineteenth and early twentieth century maritime industrial development of the site are considered to be of local significance with limited archaeological potential; and
- The proposed construction and operation of a permanent and interim public domain is unlikely to result in any historical archaeological impacts.



Figure 9: Areas of Historical Archaeological Potential

Based on the above, the archaeological assessment includes the following recommendations to manage potential archaeological deposits on site:

- The construction and operation of the proposed permanent and interim public domain works should commence without the need for further archaeological assessment or investigation works;
- Any excavation proposed on the eastern boundary of the site should be limited to a depth of 2m below the natural ground level to minimise the disturbance of potential archaeological remains;
- In the event that any unexpected historical archaeological items are identified during construction works all work in the affected area should cease and the Heritage Branch of the OEH should be notified in accordance with section 145 of the *Heritage Act 1977*;
- In the event that any unexpected Aboriginal archaeological items are identified during construction works all work in the affected area should cease and the OEH should be notified in accordance with section 91 of the *National Parks and Wildlife Act 1974* and a suitable procedure negotiated; and
- If any archaeological items are discovered, opportunities for interpretation within the site should be investigated and either incorporated into the approved works or elsewhere within the Barangaroo site.

The department has reviewed the conclusions and recommendations contained in the Archaeological Report and is satisfied that the report accurately identifies the potential for Aboriginal and historical archaeological items to be found on site. Furthermore, the department agrees that based on the limited extent of excavation within the areas containing potential historic archaeological items it is unlikely that any potential items will be unearthed. Notwithstanding, in the event that any unexpected archaeological items are encountered during construction works the department has recommended conditions requiring the applicant to:

- Stop all works in the affected area and notify the department and the OEH in accordance with section 91 of the *National Parks and Wildlife Act 1974* and a suitable procedure negotiated; and
- Stop all works in the affected area and notify the department and the OEH in accordance with section 145 the *Heritage Act 1977*.

4.2.5 ESD

The Statement of Commitments (SOCs) approved under the Concept Plan (as modified) provide environmental performance targets for future project applications. The performance targets applicable to public domain applications include:

- Provision of a 35 per cent reduction in potable water consumption and a 40 per cent reduction in flows to the sewer compared to a standard practice development;
- Provision of a 35 per cent reduction in greenhouse gas emissions compared to a standard practice development;
- 20 per cent of power is to be purchased from low impact renewable sources, or there should be a 20 per cent reduction in greenhouse gas emissions through carbon offsets. The purchase of renewable energy should be at world best practice level;
- Key public open spaces shall receive direct sunlight in mid-winter;
- Primarily non-invasive species are to be used on site; and
- 100 per cent of waste bins are to allow for waste separation.

The EIS includes an ESD report prepared by SLR Consulting. The ESD report proposes the use of the following overarching ESD principles and initiatives during the construction and operational phases of the development:

Overarching Principles

- Provision of a water positive development by recycling and exporting water generated on-site;
- Provision of a zero waste development;
- Provision of a carbon neutral development by generating more renewable energy on-site than total net greenhouse gas emissions; and
- Provision of a socially sustainable development through the creation of learning programs, the installation of effective community infrastructure and creation of cultural and public art facilities.

The department has assessed the proposed ESD objectives and initiatives and is satisfied that the proposed development will assist in achieving compliance with the site wide water, greenhouse gas and renewable energy targets outlined in the Concept Plan SOCs. In addition, the application is consistent with requirements in relation to solar access, and does not include the planting of any invasive species.

4.2.6 Climate Change and Sea Level Rise

A Climate Change and Sea Level Rise Assessment (CCSLRA) was provided within the ESD report prepared by SLR Consulting and the Civil and Hydraulic Services Planning Design Report prepared by Warren Smith and Partners. Both assessments recommend a minimum site level of RL 2.65m. This level is derived by applying the 0.9m planning benchmark recommended in the now repealed *NSW Sea Level Rise Policy Statement* to the 2010 high water level in Darling Harbour (RL 1.0), plus 0.7m to account for increased wave heights during a 1 in 100 year storm event.

The department notes that the minimum site level proposed under the current development application is higher than the minimum levels recommended in the CCSLRAs prepared for the Headland Park main works project (MP10_0048) and the bulk excavation and basement car park project (MP10_0023) at Barangaroo South. In this regard, these CCSLRAs recommend minimum site levels of between 2.335 m to 2.575 m based on applying the 0.9m planning benchmark recommended in the now repealed *NSW Sea Level Rise Policy Statement*, to either the highest astronomical tide in 2010 with a 0.6m storm surge (RL 1.675 m), or the 2010 1 in 100 year extreme sea level event (RL 1.435 m).

The department notes that lowest point in the permanent public domain is RL 2.20m (timber boardwalk), which is 0.4m lower than the minimum finished level recommended to safeguard against sea level rise to the year 2100 in the applicant's sea level rise assessment, and between 0.135m and 0.375m lower than the minimum levels recommended in the climate change assessments for the Headland Park and the bulk excavation and basement car park applications. As the timber boardwalk is not a primary access route, the department considers it reasonable to apply the lower range of levels predicted to accommodate climate change within the Barangaroo site (RL 2.355m) to this component of the application. A condition requiring the above has been recommended as a condition of approval.

4.2.7 Infrastructure Provision

The EIS includes a Civil and Hydraulics Services Report prepared by Warren Smith and Partners and an Electrical Works Planning and Design Report prepared by Webb Australia. These reports identify that that upgrades are required to extend water, power, sewer, drainage, telecommunications and natural gas services to the site. In this regard all service upgrades/extensions have been designed to accommodate the loads associated with the use of the site for major events with crowds of up to 15,000 people. As such, the department is satisfied that the proposed service upgrades are suitable to accommodate the future uses proposed on-site.

4.2.8 Public Interest

The application is considered to be in the public interest as it will facilitate the future development of Barangaroo in accordance with the approved Barangaroo Concept Plan, which in turn will provide the following key public benefits:

- The construction of 3.8 hectares of publicly accessible open space within Barangaroo whilst the BDA finalises its masterplan for Barangaroo Central;
- The construction of the foreshore promenade linking the Barangaroo Headland Park and Barangaroo South;
- The creation of a temporary events site which will enliven the CBD in accordance with the objectives of the draft *Metropolitan Plan for Sydney to 2031*; and
- The creation of approximately 50 construction jobs.

Government agencies and the City of Sydney and Leichhardt Council recommended a number of conditions in order to mitigate the environmental impacts of the proposed development and these have been incorporated into the approval, where appropriate. Consequently, the department recommends approval of the projects, subject to conditions.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The department has assessed the EIS and considered all submissions lodged as a result of exhibition. The key issues relating to the assessment of the proposed buildings include: contamination and remediation, operational impacts, construction impacts, climate change and sea level rise, ESD, and Infrastructure and servicing requirements.

The department considers that the application complies with the controls for the site approved under the MD SEPP and the Concept Plan (as modified), and will provide a high quality permanent and interim public domain.

The department has reviewed the EIS and duly considered advice from public authorities as well as issues raised in public submissions in accordance with section 75(2) of the EP&A Act. All key environmental issues associated with the proposal have been assessed, and appropriate conditions are recommended.

The development is consistent with the strategic objectives for the area, the *Draft Metropolitan Strategy for Sydney to 2031*, and the requirements of relevant planning instruments, policies and objectives.

The department is of the view that the recommended conditions and implementation of the management and mitigation measures detailed in the applicant's EIS will adequately mitigate the

environmental impacts of the proposal during the construction and operational phases of the development. In particular, the department has recommended the preparation and implementation of a number of management plans to manage the traffic, transport and noise impacts associated with conducting six major events per calendar year on-site.

The department considers the site to be suitable for the proposed development and that the application is in the public interest. Consequently, the department recommends approval of the development, subject to the conditions outlined in the consent.

5.2 Recommendation

In accordance with section 89E of the *Environmental Planning and Assessment Act 1979*, it is recommended that the Executive Director, Development Assessment Systems and Approvals, as delegate of the Minister for Planning and Infrastructure, grants development consent for the construction of the Barangaroo Central waterfront promenade and interim public domain works, and the temporary use of the site for a maximum of six major events per calendar year (SSD 12_5374).

Endorsed by:



Heather Warton

26/6/13

Director, Metropolitan and Regional Projects North

Approved by:

Chris Wilson

Executive Director, Development Assessment Systems and Approvals

APPENDIX A RELEVANT SUPPORTING INFORMATION

The following supporting documents and supporting information to this assessment report can be found on the Department of Planning and Infrastructure's website as follows.

1. Environmental Assessment

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5374

2. Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5374

3. Applicant's Response to Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5374

APPENDIX B CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENT(S) (INCLUDING DRAFT) AND DCP(S)

State Environmental Planning Policy (State and Regional Development) 2011

The aims of this SEPP are to identify State significant development and State significant infrastructure and provide the necessary functions to joint regional planning panels to determine development applications.

The proposal is for SSD in accordance with section 89C of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it is development with a capital investment value (CIV) in excess of \$10 million at Barangaroo under clause 14 of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011.

State Environmental Planning Policy (Major Development) 2005

The aims of the MD SEPP are to facilitate the redevelopment of important sites such as Barangaroo for the benefit of the State and provide for the development of major sites for a public purpose.

State Environmental Planning Policy No.55 – Remediation of Land

SEPP 55 aims to provide a State wide approach to the remediation of contaminated land. In particular, SEPP 55 aims to promote the remediation of contaminated land to reduce the risk of harm to human health and the environment by specifying:

- Under what circumstances consent is required;
- The relevant considerations for consent to carry out remediation work; and
- That remediation works undertaken meet certain standards and notification requirements.

Clause 7 of the SEPP prevents a consent authority from issuing development consent unless it has considered:

- Whether the subject site is contaminated;
- Whether a contaminated site is suitable for its proposed use in its current state, or will be suitable following remediation; and
- Whether it is satisfied that the site will be remediated before the land is used for the purpose proposed under the application.

In addition, where remedial works are required, clause 17 of the SEPP requires all remedial works to be undertaken in accordance with the EP&A Act, any guidelines drafted under the *Contaminated Land Management Act 1997*, and a remedial action plan (if works are 'Category 1' works), prepared in accordance with the *Contaminated Land Planning Guidelines*. Clause 17 also requires the applicant to notify the relevant council within 30 days of the completion of remedial works.

Based on a number of environmental investigations undertaken on-site between 2007 and 2012, the department considers that the subject site contains contaminants (TPH, PAH and heavy metals) beyond normal background levels. As such the site will need to be remediated to make it suitable for recreational purposes. Furthermore, as the proposed development requires consent under the provisions of clause 3 of Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*, the proposed works are classified as 'Category 1' works under clause 9 of SEPP 55, and the applicant must obtain consent before undertaking the remedial works.

In order to satisfy the requirements of SEPP 55, the applicant has provided a Human Health and Ecological Risk Assessment (HHERA), Remedial Action Plan (RAP) and Remedial Work Plan (RWP) prepared by JBS Environmental. These documents have been reviewed by an EPA Accredited Site Auditor (Graham Nyland) who issued a Site B Site Audit Statement confirming that:

- The RAP has been prepared in accordance with the relevant guidelines; and
- Subject to the implementation of the RAP and RWP, the site can be made suitable for recreational uses. Need to confirm, not provided to date.

Given the above, the department is satisfied that the subject site can be made suitable for its proposed use subject to conditions requiring the applicant to:

- Undertake the works in accordance with the RAP and RWP prior to the use of the site for recreational purposes;
- Provide the relevant notices to the department and the council under clause 17 and 18 of SEPP 55 within 30 days of the remedial works being completed; and
- Provide a site audit summary report, a site audit statement prepared by an accredited EPA site Auditor in accordance with the *Contaminated Land Management Act 1997*, and a validation report within 6 month of the completion of the remediation works.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

Consideration of the relevant clauses in SREP (Sydney Harbour Catchment) 2005 are addressed in Table 2 below.

Table 2: Consideration of SREP (Sydney Harbour Catchment) 2005

SREP (Sydney Harbour Catchment) 2005	Criteria	Department Comment / Assessment	Complies
Part 3, clause 17 Zoning W1 Maritime Waters	<ul style="list-style-type: none"> • Land is divided into a number of zones as shown on the zoning map. • The objectives of the zone are to protect waters required for effective movement of public water transport, allow development that is compatible with and will not affect public water transport and to promote equitable use of the waterway. 	<ul style="list-style-type: none"> • Although the W1 Maritime Waters zone is adjacent to the site no works will be carried out in the zone. 	N/A
Part 3, clause 18 Development control	<ul style="list-style-type: none"> • Development may only be carried out in the W1 Maritime Zone if it outlined in the Table. 	<ul style="list-style-type: none"> • See above. 	N/A
Part 3, clause 20 Matters for Consideration	<ul style="list-style-type: none"> • The matters referred to in Division 3 must be considered by the consent authority. 	<ul style="list-style-type: none"> • The department has considered the relevant matters below. 	YES
Part 3, clause 21 Biodiversity, ecology & environmental protection	<ul style="list-style-type: none"> • The consent authority must take into consideration biodiversity, ecology and environmental protection matters that are outlined in this clause. 	<ul style="list-style-type: none"> • The proposed development will have a neutral effect on the quality of water entering the waterway as appropriate soil and water management measures will be implemented. • Public access is proposed along the foreshore and along Hickson Road. • The wharf (in the Northern Cove) and the retention of deep water berthing facilities will ensure the maintenance of a working harbour. • The proposal will not have an adverse effect on the waterway. • The works will improve the scenic quality of the harbour and foreshore. • The proposed development will not have any adverse view impacts, 	YES

		particularly as structures erected on the site to service events will be removed at the cessation of the event.	
Part 3, clause 29 Foreshores & Waterways Development Advisory Committee	<ul style="list-style-type: none"> A consent authority must not grant consent to a DA unless it has referred and considered the views of the Advisory Committee. 	<ul style="list-style-type: none"> The application was referred to the Advisory Committee who raised no objection to the application. The department has considered these matters in its assessment of the application, including SREP 26 and DCP, environmental impacts, and consideration of Leichhardt Council's views. 	YES

State Environmental Planning Policy No 64. (Advertising & Signage)

Consideration of the relevant clauses in SEPP 64 are addressed in **Table 3** below:

Table 3: Consideration of SEPP 64

SEPP 64	Criteria	Department Comment / Assessment	Complies
Part 1, clause 3 Aims, objectives	<ul style="list-style-type: none"> This policy aims to ensure advertising is compatible with the amenity and visual character of the area, provides effective communication, and is of a high quality design and finish. 	<ul style="list-style-type: none"> No advertising signage is proposed under this application. 	YES
Part 2, clause 13 Matters for consideration	<ul style="list-style-type: none"> The Minister for planning must not grant consent to an application for an advertisement unless it is consistent with the objectives and has been assessed against Schedule 1 and the Guidelines. 	<ul style="list-style-type: none"> See above. 	YES
Schedule 1 Assessment Criteria	<ul style="list-style-type: none"> Character of the area Special areas Views and Vistas Streetscape, setting or landscape Site and building Associated devices Illumination Safety 	<ul style="list-style-type: none"> The department has recommended conditions of approval to ensure that the BDA consults with the City of Sydney Council and Transport for NSW to ensure all signage is compatible with the character of the surrounding area. All signage will be integrated with the design of the temporary public domain to ensure views and vistas are not obscured or compromised. The scale of the signage structures (3 m for precinct identification signage, 2 m or below for residual signage) is appropriate for the site's setting. Given the size of the site overall, it is considered that the 	YES

		<p>number of signs proposed (14 directional/interpretive/circulation) will not clutter the landscape or be unsightly.</p> <ul style="list-style-type: none"> The signs are an appropriate size and are in proportion with existing and proposed structures on the site. The signs will be innovative in that they will be integrated with the landscape design for the entire Barangaroo site. The applicant has not advised that such devices are part of the design of the signs. Conditions have been recommended to ensure that all illumination complies with the requirements of AS/NZ1158 and AS4282. 	
Transport Corridor Outdoor Advertising & Signage Guidelines	<ul style="list-style-type: none"> Specific design criteria for advertisements in transport corridors must be considered 	<ul style="list-style-type: none"> The site is not within a transport corridor. 	N/A

State Environmental Planning Policy (Temporary Structures) 2007

Consideration of the relevant clauses in SEPP (Temporary Structures) 2007 are addressed in Table 4 below:

Table 4: Consideration of SEPP (Temporary Structures) 2007

SEPP 64	Criteria	Department Comment / Assessment	Complies
Part 1, clause 3 Aims, objectives	<ul style="list-style-type: none"> This policy aims to ensure suitable provision is made to ensure the safety of patrons and the protection of the environment. 	<ul style="list-style-type: none"> Recommended conditions of consent require event managers to provide the BDA with documentation from a suitably qualified consultant certifying that all temporary structures comply with the State's building laws, and ensure the facility will not have a detrimental impact on the environment. 	YES
Part 2, clause 12 Matters for consideration	<ul style="list-style-type: none"> Whether number of persons should be restricted. Adverse noise impacts. Limitation on hours of operation Parking impacts Principles for minimising crime risk Satisfactory location Toilets Whether it is located on land that comprises a State heritage item, an item of environmental heritage (Aboriginal objects etc) or is in a heritage conservation area or a 	<ul style="list-style-type: none"> Major events are limited to a maximum of 15,000 patrons per event. Conditions of consent will ensure noise impacts are controlled whilst the site is in operation. The department has restricted the hours of operation for events from 9am to 10pm Sunday to Thursday and 9am to 	N/A

	<p>place of significant Aboriginal significance.</p> <ul style="list-style-type: none"> • Duration of consent • Conditions relating to dismantling or removal of structures. 	<p>11pm Friday and Saturday. On New Year's Eve it is recommended that the hours are between 10am and 2am and Australia Day between 10am and 12 midnight. Outside of event days, the site will be publicly available 24-hours-a-day, 7-days-a-week.</p> <ul style="list-style-type: none"> • No parking is proposed on site. Notwithstanding, 300 underground car parking spaces will be available for public use within the Headland Park. The department considers this arrangement appropriate for a CBD location. • The application includes identifiable pathways and areas, CCTV cameras, signage, and security. These measures are expected to minimise the risk of crime. • The site is in a well-serviced strategic location and will provide an important link between the Headland Park and Barangaroo South. • Amenities are included and will be provided in accordance with BCA requirements. • There are heritage items on surrounding land, however no works will be done to any of these items. • Development consent will be limited to 5 years. • Recommended conditions of consent require the structures to be dismantled within 2 days of events ceasing. 	
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Local Environmental Plan(s)

No local environmental plans apply to the site.

Development Control Plans

Consideration of the Sydney Harbour Foreshores & Waterways DCP is provided in **Table 5** below.

Table 5: Summary of Compliance with the Sydney Harbour Foreshores & Waterways DCP

DCP	Key controls	Compliance
Ecological assessment	<ul style="list-style-type: none"> • Determination of conservation status, statement of intent and performance criteria. 	N/A. The site contains no terrestrial or aquatic ecological communities as identified in the DCP.

<p>Landscape assessment</p>	<ul style="list-style-type: none"> • Consideration of landscape character types and performance criteria. 	<p>N/A. The site contains no landscape characters as identified in the DCP.</p>
<p>Design Guidelines (General & Land/Water based)</p>	<ul style="list-style-type: none"> • General requirements • Foreshore access • Waterway conflicts • Siting of buildings & structures • Built form • Signage 	<ul style="list-style-type: none"> • Yes. Public access to Barangaroo is currently not available due to remediation works occurring within the Headland Park and Barangaroo South. Following completion of the works a permanent walkway will be provided along the western boundary of the site to provide a seamless connection between Barangaroo South and the Headland Park. • The proposal will not result in conflicts on the waterway nor will it interfere with navigation, and the wharf will not obstruct the flow of tides. • The development will not dominate the landscape and the siting of the structures are appropriate (i.e. >2.5m). • The built form of the structures are commensurate with other large scale structures in the area, and will only be there on a temporary basis. • The preliminary signage strategy provided with the EIS demonstrated that signage will not be obtrusive and will be consistent with the recreational nature of the facility. In addition, the department has recommended conditions to control the levels of illumination in accordance with the relevant Australian Standards.

APPENDIX C GLOSSARY

Ecologically Sustainable Development can be achieved through the implementation of:

- (a) *the precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*
 - (i) *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
 - (ii) *an assessment of the risk-weighted consequences of various options,*
- (b) *inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
- (c) *conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
- (d) *improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:*
 - (i) *polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
 - (ii) *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
 - (iii) *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.(Cl.7(4) Schedule 2 of the Regulation)*

Objects of the Act

- (a) *to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*
 - (v) *the provision and co-ordination of community services and facilities, and*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) *ecologically sustainable development, and*
 - (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

Relevant Environmental Planning Instruments.

These are EPIs that are required to be taken into consideration in the assessment of the project under s. 79C. A detailed evaluation of each is provided at Appendix B.

Section 79C Evaluation

(1) Matters for consideration—general

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

- (a) *the provisions of:*
 - (i) *any environmental planning instrument, and*

- (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and
- (iii) any development control plan, and
- (iii a) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and
- (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and
- (v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979), that apply to the land to which the development application relates,
- (b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,
- (c) the suitability of the site for the development,
- (d) any submissions made in accordance with this Act or the regulations,
- (e) the public interest.

Note. See section 75P (2) (a) for circumstances in which determination of development application to be generally consistent with approved concept plan for a project under Part 3A.

Note. The consent authority is not required to take into consideration the likely impact of the development on biodiversity values if:

- (a) the development is to be carried out on biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995), or
 - (b) a biobanking statement has been issued in respect of the development under Part 7A of the Threatened Species Conservation Act 1995.
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