

# State Significant Development Environmental Impact Statement



## Building R1 (SSD 6513-2014)

Barangaroo South

Submitted to Department of Planning and Environment  
On Behalf of Lend Lease (Millers Point) Pty Ltd

October 2014 ■ 10051

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This report has been prepared by:



Brendan Hoskins and Michael Rowe 30/10/2014

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## ○ Infrastructure Letters

*Lend Lease*



## Statement of Validity

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### Development Application Details

Applicant name	Lend Lease (Millers Point) Pty Ltd
Applicant address	Level 4, The Bond, 30 Hickson Road Millers Point NSW 2000
Land to be developed	Lots 5 in DP 876514
Proposed development	Building R1 within Barangaroo South as described in Section 3.0 of this Environmental Impact Statement (SSD 6513-2014)

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### Prepared by

Name	Michael Rowe
Qualifications	BPlan (Hons) MPIA
Address	Level 7, 77 Berry Street, North Sydney
In respect of	State Significant Development - Development Application

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### Certification

I certify that I have prepared the content of  
this EIS and to the best of my knowledge:

- it is in accordance with Schedule 2 of the  
Environmental Planning and Assessment  
Regulation 2000;
- all available information that is relevant to  
the environmental assessment of the  
development to which the statement  
relates; and
- the information contained in the statement  
is neither false nor misleading.

Signature



Name Michael Rowe

Date 30/10/2014

## Disclaimer

All place names specified within this Environmental Impact Statement are used for identification purposes only and do not represent the final names which will be adopted. All place names will be subject to a separate naming approval process.

# Executive Summary

## Purpose of this Report

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the Building R1 at Barangaroo South.

The proposed Building R1 is located entirely within the Barangaroo Site, which is identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*. Development at Barangaroo with a capital investment value of more than \$10 million is State Significant Development (SSD) for the purposes of the EP&A Act. As the proposed development will have a capital investment value of approximately \$12.4 million it is SSD for the purposes of the EP&A Act.

The Secretary's Environmental Assessment Requirements (SEARs) were issued on 12 June 2014 under SSD 6513-2014. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs. The EIS has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) with regards to requirements for an EIS.

## Overview of the Development

This application seeks approval for the construction of a three storey building (to a height of RL21) known as Building R1, comprising 804m<sup>2</sup> of floor space, within Block X of Barangaroo South.

The application also seeks approval for:

- operation and use of the basement car park to accommodate 15 car spaces and
- construction of the structural slab and piling (including associated earthworks and remediation) for Building R1 outside of the Basement Car Park diaphragm wall.

The building is intended to be used for a food and drink premises. A further DA will be lodged for the fit-out and use of the building once the tenant has been confirmed.

## The Site

Barangaroo is located on the north western edge of the Sydney Central Business District, bounded by Sydney Harbour to the west and north, the historic precinct of Millers Point (for the northern half), The Rocks and the Sydney Harbour Bridge approach to the east and a range of new development dominated by large CBD commercial tenants to the south.

The Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – the Headland Park, Barangaroo Central and Barangaroo South, and has been subject to multiple investigations that detail the physical and natural characteristics of the site.

The area of land within which development is proposed under this Development Application, comprises land within Barangaroo South generally known and identified in Concept Plan (Mod 7) as Block X and the area of the foreshore between Block X and Darling Harbour.



At the time of the initial Concept Plan Approval, the Barangaroo site comprised an open concrete/bitumen apron largely reclaimed over water. Construction of the Stage 1A basement car park, approved under a separate planning approval MP10\_0023, has commenced within a portion of the Development Application site.

## Planning Context

Section 4.1 of the EIS considers all applicable legislation in detail. The development is consistent with and complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines, including Concept Plan (Mod 7).

## Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the development in accordance with the SEARs and sets out the undertakings made by Lend Lease to manage and minimise potential impacts arising from the development. It demonstrates that the proposed development is satisfactory with respect to:

- Land Use and GFA
- Urban Design and Built Form
- Public Domain and Public Access
- Transport and Accessibility
- Heritage
- Contamination
- Environmentally Sustainable Development (ESD)
- Infrastructure Provision
- Noise
- Air and Odour
- Water, Drainage, Stormwater and Groundwater
- The Building Code of Australia
- Environmental, Construction and Site Management
- Staging
- Consultation

All measures that have been recommended as part of the detailed technical studies to mitigate potential environmental impacts have been incorporated into the proposed development, or are included in the Mitigation Measures at Section 6.0.

## Conclusion and Justification

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the development is justified for the following reasons:

- There is a strategic need to provide the Building R1 within Barangaroo South to ensure there is a building that:
  - integrates and provides an appropriate transition between development within the wider Barangaroo site and the existing development at King Street Wharf; and

- clearly identifies the southern entry to Barangaroo South and creates an inviting environment for the large number of future visitors, residents and workers.
- The development is consistent with and complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines, and Concept Plan (Mod 7).
- The development will have a wide range of positive social and economic impacts.
- There are no adverse environmental impacts that cannot be appropriately managed by the mitigation measures set out in this EIS.

# 1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of a State Significant Development (SSD) Application for the Building R1 at Barangaroo South.

The proposed Building R1 is located entirely within the Barangaroo Site, which is identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*. Development at Barangaroo with a capital investment value of more than \$10 million is SSD for the purposes of the EP&A Act. As the proposed development will have a capital investment value of approximately \$12.4 million it is SSD for the purposes of the EP&A Act.

The report has been prepared by JBA on behalf of Lend Lease (Millers Point) Pty Ltd, and is based upon the architectural drawings supplied by Collins and Turner (**Appendix A**), and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the Requirements of the Secretary of the Department of Planning and Environment for the preparation of the EIS (SEARs), which are included at **Appendix B**. This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

## 1.1 Background

### 1.1.1 Approved Concept Plan

The Barangaroo Concept Plan (MP06\_0162) was approved in February 2007. The Concept Plan covers urban design and policy initiatives and is the statutory planning approval to guide the urban renewal of Barangaroo.

The approved Concept Plan has been modified six times since originally being approved and the Statement of Commitments has been revised accordingly. The most recent modification, referred to as Concept Plan (Mod 7), was approved on 11 April 2014.

The Concept Plan (Mod 7) provides for:

- a 563,965m<sup>2</sup> mixed use development across the entire Barangaroo site, comprising:
  - a maximum of 514,465m<sup>2</sup> mixed uses GFA, including residential, commercial and retail uses which includes;
    - a maximum of 128,763m<sup>2</sup> of residential uses (a minimum of 99,763m<sup>2</sup> of which will be in Barangaroo South);
    - a maximum of 50,000m<sup>2</sup> of tourist uses GFA;
    - a maximum of 39,000m<sup>2</sup> of retail uses;
  - a maximum of 4,500m<sup>2</sup> of active uses GFA (3,000m<sup>2</sup> of which will be in Barangaroo South); and
  - a minimum of 12,000m<sup>2</sup> of community uses GFA (10,000m<sup>2</sup> 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 including a 2.2km public Waterfront Promenade;

- built form principles, maximum building heights and GFA for each development block within the mixed use zone;
- public domain landscape concept, including parks, streets and pedestrian connections; and
- alteration of the existing seawalls and creation of a portion of the new shoreline to the Harbour.

To facilitate the redevelopment of the Barangaroo site under the Concept Plan, the site was listed in Part 12 of Schedule 3 of State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP).

The Major Development SEPP zones the site part B4 Mixed Use and part RE1 Public Recreation. It also establishes maximum building heights and gross floor area (GFA) restrictions for the nominated development blocks within the B4 Mixed Use zone.

### 1.1.2 Stage 1 Tender and Bid Process

The 22 hectare Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – the Headland Park, Barangaroo Stage 2 (referred to herein as Barangaroo Central) and Barangaroo Stage 1 (herein referred to as Barangaroo South).

Lend Lease was successfully appointed as the preferred proponent to develop Barangaroo South on 20 December 2009. This application forms one of a series of individual applications that Lend Lease either has or will be submitting to deliver Barangaroo South.

### 1.1.3 Bulk Excavation and Basement Car Park

A Project Application for Bulk Excavation and Basement Car Parking (MP10\_0023) was approved by the Minister for Planning on 2 November 2010 (the Basement Car Park Approval). This followed the approval of a project for the demolition of existing structures at Barangaroo (MP07\_0077).

Following the initial approval of the Bulk Excavation and Basement Car Parking project, a further six Section 75W Modification Applications to modify that project have been approved. The approval relates to an area referred to as 'Stage 1A' in the southern part of the Barangaroo South site.

The approved Basement Car Park project generally comprises:

- demolition of existing structures and footings, part of an underground caisson wall, hardstand areas, removal of piles, and removal of existing vegetation within Blocks 1, 2, 3 (in part), 4A (in part) and X and within the adjacent public domain area, which have not been previously approved to be demolished or removed under MP 07\_0077 Demolition Works;
- site establishment, including provision of concrete crushing infrastructure, environmental protection structures, de-watering infrastructure, and groundwater treatment;
- bulk earthworks for the purposes of excavating for the basement within Blocks 1, 2, 3 (in part), 4A (in part) and X and the adjacent public domain area;
- on-site treatment and remediation of contaminated soils;
- temporary stockpiling of excavated material across the Barangaroo site as required;
- transportation and disposal of material off site, where required;

- structural works, comprising the construction of:
  - foundations (piling, caps and footings);
  - basement levels;
  - perimeter retention system to basement walls; and
  - all associated elements and structures;
- car parking spaces required to support GFA as envisaged by the approved Concept Plan (as modified) for Blocks 1, 2, 3 (in part), 4A (in part) and X in accordance with the car parking rates approved under the Concept Plan;
- indicative parking layout, loading, plant location, bicycle parking and associated amenities;
- road works;
- construction of temporary vehicular access from Hickson Road and permanent vehicular access from Lime Street;
- associated utilities and infrastructure works including decommissioning and/or relocation of services;
- temporary use of the basement for construction related storage and activity;
- construction of the above ground basement risers, car park fire stairs, access lifts, and bicycle entry and exit ramps that will eventually be integrated into the design of the future peripheral buildings C1, C2, C6, R7 and R1; and
- temporary ground floor treatments and public domain within the footprint of the future peripheral buildings C1, C2, C6, R7 and R1.

#### 1.1.4 Other Applications within Stage 1A

Project Approval has been granted for three commercial buildings, known as Commercial Building C3, C4 and C5 and two Residential Buildings (R8 and R9) within the Stage 1A site.

A SSD DA is currently being assessed by the Department for the permanent public domain within Stage 1A, including around Building R1. Specifically, that DA seeks approval for the following works within Stage 1A of Barangaroo South:

- demolition of any existing hardstand areas and site preparation (including excavation and remediation) in the area to the west of the approved Basement Car Park (MP10\_0023);
- construction of the public domain, comprising:
  - the pedestrian lanes, walks and places, including Shelley Lane, City Walk, Union Walk, Transport Place and Hickson Place;
  - the vehicular streets, including Globe Street and Lime Street; and
  - the Waterfront Promenade, including modification to the seawall and temporary public domain within Globe Square.

The public domain works include provision of all ground treatments and finishes, landscaping, furniture and fixtures, public domain structures, lighting, civil and stormwater infrastructure and utility services.

#### 1.1.5 Barangaroo Delivery Authority

The Barangaroo Delivery Authority was established on 30 March 2009 under the *Barangaroo Delivery Authority Act 2009* (NSW) to manage the redevelopment of Barangaroo and to deliver world class benchmarks in urban design, public domain and sustainability.

The creation of the Barangaroo Delivery Authority reinforces the NSW Government's commitment to the delivery of Barangaroo in a coordinated and financially responsible manner.

The Barangaroo Delivery Authority is subject to the control and direction of the NSW Premier.

The objects of the *Barangaroo Delivery Authority Act 2009* are:

- to encourage the development of Barangaroo as an active, vibrant and sustainable community and as a location for national and global business;
- to create a high quality commercial and mixed use precinct connected to and supporting the economic development of Sydney;
- to facilitate the establishment of Barangaroo Headland Park and public domain land;
- to promote the orderly and sustainable development of Barangaroo balancing social, economic and environmental outcomes; and
- to create in Barangaroo an opportunity for design excellence outcomes in architecture and public domain design.

The Barangaroo Delivery Authority is the registered landowner of most of the Barangaroo site, including the development application site.

## 1.2 Objectives of the Development

The objectives of the Building R1 DA are to:

- provide a building that achieves design excellence and is consistent with the Concept Plan;
- create a positive transition between the existing development at King Street Wharf and the larger scale development within Barangaroo to the north;
- deliver a 'statement building' at the southern entry of the Barangaroo site;
- accommodate future uses that will contribute to the vitality and vibrancy of Barangaroo; and
- ensure that any environmental impacts associated with the construction and operation of the building are appropriately mitigated.

## 1.3 Summary of Approval Sought

This application seeks approval for the construction of a three storey building (to a maximum height of RL 21) known as Building R1, comprising 804m<sup>2</sup> of floor space, within Block X of Barangaroo South.

The application also seeks approval for:

- operation and use of the basement car park to accommodate 15 car spaces and
- construction of the structural slab and piling (including associated earthworks and remediation) for Building R1 outside of the Basement Car Park diaphragm wall.

The building is intended to be used for a food and drink premises. A further DA will be lodged for the fit-out and specific use of the building once the tenant has been confirmed.

This DA also does not seek approval for development that has been approved under the Basement Car Park Approval, which encompasses:

- demolition of any existing structures and footings, hardstand areas, piles and vegetation within the basement area;
- site establishment, environmental protection structures, de-watering infrastructure, and groundwater treatment;
- bulk earthworks for the purposes of excavating the basement;
- on-site treatment and remediation of contaminated soils within the basement; and
- associated utilities and infrastructure works associated with that Project Application including decommissioning and / or relocation of services.

This DA also does not seek approval for development that is currently proposed under the Stage 1A Public Domain, which encompasses all the public domain around Building R1 as well as demolition and remediation (if required) in the area west of the basement diaphragm wall to the western facade of the proposed R1 building.

## 1.4 Analysis of Alternatives

### Strategic need for the proposal

As detailed in **Section 1.1**, the redevelopment of the Barangaroo site is the result of a long term strategic planning process which culminated in February 2007 when the NSW Minister for Planning approved a concept plan to guide the urban renewal of Barangaroo.

Barangaroo South is the southern 7.5 hectares of the Barangaroo site which is destined to become the most advanced financial district and the first large scale, carbon neutral precinct in Australia. With a mix of uses, including commercial, residential, retail and dining along with a new landmark hotel, on completion it will be home to around 1,200 residents, 23,000 office workers and more than 2.9 hectares of public space.

The success of Barangaroo relies heavily on the comprehensive delivery of a new urban form and land uses as envisaged under the Concept Plan. Building R1 is located at the southern entry to the Barangaroo site as envisaged by the Concept Plan. Specifically the Building R1 site has the important strategic role under the Concept Plan of:

- integrating and providing an appropriate transition between the wider Barangaroo site and the existing development at King Street Wharf; and
- clearly identifying the southern entry to Barangaroo South to create a cohesive an inviting environment for the large number of future visitors, residents and workers.

### Alternative Options

Three options are available to Lend Lease in responding to the identified need for Building R1 within Barangaroo South.

#### Option 1: The Proposal

Option 1 involves providing the building as proposed in this DA (as described in **Section 3.0**). The proposal will ensure that a high quality building is provided on the site that responds to the strategic need identified above.

**Option 2: Do Nothing**

Not providing a building on the site would not be an appropriate outcome for a site of the strategic importance of Barangaroo. The space between the approved Commercial and Residential Buildings at Barangaroo South would not provide a positive transition between development at Barangaroo and existing development to the south at Kind Street Wharf. The Barangaroo Concept Plan (as modified) envisages a building in the subject location which will provide a clear entry into the Barangaroo precinct.

**Option 3: Alternative Designs**

A design competition was conducted in accordance with the Barangaroo Design Excellence Strategy. This competition included alternative designs submitted by other emerging architects including Lacoste and Stevenson, Draw, LAVA, Sylvester Fuller, Scale Architecture and Turner and Collins. The Collins and Turner design (Option 1) was selected as the winner of the competition as it resulted in the best outcome for the site in terms of achieving the primary objectives referred to above.

## 1.5 Project Team

An expert project team has been formed to deliver the project and includes:

Proponent	Lend Lease (Millers Point) Pty Limited
Urban Planning	JBA
Architect	Collins and Turner
Traffic and Transport	ARUP
Contamination and Remediation	AECOM
Site Auditor	Graeme Nyland (Environ)
Public Domain	Aspect Oculus
Civil Engineering	Cardno
Air Quality & Odour	AECOM
Noise & Vibration	Wilkinson Murray
Environmental, Construction & Site Management	Lend Lease Building
Ecologically Sustainable Development	Lend Lease Design
BCA & Accessibility	McKenzie Group
Wind	CPP
Surveyor	Rygate

## 1.6 Secretary's Environmental Assessment Requirements

In accordance with section 89G of the EP&A Act, the Secretary of the Department of Planning and Environment issued the environmental assessment requirements for the preparation of the EIS on 12 June 2014 under SSD 6513 - 2014.



A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix B**.

**Table 1** provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

**Table 1 – Secretary's Requirements**

Requirement	Location in EIS	
General		
The Environmental Impact Statement (EIS) must address the <i>Environmental Planning and Assessment Act 1979</i> and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000.	Sections 1-8	
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 4 and 5	
Where relevant, the assessment of the key issues below, and any other significant issues identified in the assessment must include: <ul style="list-style-type: none"><li>– Adequate baseline data</li><li>– Consideration of potential cumulative impacts due to other development in the vicinity.</li><li>– Measures to avoid, minimise, and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risk to environment.</li></ul>	Section 5	
The EIS must be accompanied by a report from a qualified quantity surveyor providing: <ul style="list-style-type: none"><li>– A detailed calculation of the capital investment value (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived.</li><li>– An estimate of the jobs that will be created by the development</li><li>– Certification that the information provided is accurate at the date of preparation.</li></ul>	Submitted under a separate cover	
Key Issues	Report / EIS	Technical Study
<b>1. Environmental Planning Instruments, Policies &amp; Guidelines</b> Address the relevant statutory provisions applying to the site, contained in the relevant EPIs, including: <ul style="list-style-type: none"><li>– State Environmental Planning Policy (State and Regional Development) 2011;</li><li>– State Environmental Planning Policy (Major Development) 2005;</li><li>– State Environmental Planning Policy 55 - Remediation of Land;</li><li>– State Environmental Planning Policy (Infrastructure) 2007; and</li><li>– Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.</li></ul> Address the relevant provisions, goals and strategic objectives in the following: <ul style="list-style-type: none"><li>– NSW2021;</li><li>– Draft Metropolitan Plan for Sydney to 2031;</li><li>– Draft Sydney City Sub-Regional Strategy; and</li><li>– Barangaroo Integrated Transport Plan..</li></ul>	Section 4.1	-
<b>2. Barangaroo Concept Plan</b> <ul style="list-style-type: none"><li>– Demonstrate consistency with the terms of approval of the Barangaroo Concept Plan MP06_0162 (as modified).</li></ul>	Section 4.2	-
<b>3. Land Use and GFA</b> <ul style="list-style-type: none"><li>– Provision of a table identifying the building's different land uses*, including a Floor by floor breakdown of GFA, total GFA and site coverage.</li><li>– Provision of a table identifying:<ul style="list-style-type: none"><li>- the total GFA approved for retail, commercial, tourist and community uses approved across the entire Barangaroo site to date;</li><li>- the total GFA approved across the entire Barangaroo (block-by-block) site to date; and</li></ul></li></ul>	Section 4.3	Appendix A

<ul style="list-style-type: none"> <li>- The residual floor space available within development block X and across the entire Barangaroo site.</li> </ul> <p>* Retail uses must be separately defined as per the Standard Instrument.</p> <ul style="list-style-type: none"> <li>- If the proposed uses include pubs, bars, nightclubs or the like, detailed</li> <li>- Plans of Management and Security Management Plans must be prepared.</li> </ul>		
<p><b>4. Urban Design and Built Form</b></p> <p>Demonstrate how the proposed development will achieve design excellence including:</p> <ul style="list-style-type: none"> <li>- the design process leading to the proposal;</li> <li>- a high standard of architectural design, materials and detailing appropriate to each building and its location</li> <li>- the form and external appearance of the proposed building and/or structures and how it will improve the quality and amenity of the public domain;</li> <li>- the sustainable design principles incorporated into the development in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security, resources, and water and energy efficiency; .</li> <li>- the height, bulk and scale of the development</li> <li>- a view analysis is to be undertaken inclusive of photomontages and perspectives of key elements and views of the development from key locations (including, but not limited to, from Hickson Road, Shelly Street, Margaret Street West, Lime Street and harbour foreshore);</li> <li>- impacts on key views from within the Barangaroo site;</li> <li>- shadow diagrams; and</li> <li>- wind effects report.</li> </ul>	Section 4.4	Appendix A
<p><b>5. Public Domain and Public Access</b></p> <ul style="list-style-type: none"> <li>- Identify proposed open space, public domain and linkages with and between other public domain spaces, including Hickson Road, Margaret Street West, Lime Street and the harbour foreshore.</li> <li>- Detail and outline the interface between the proposed uses and the public domain.</li> </ul>	Section 4.5	Appendix A & Appendix F
<p><b>6. Transport and Accessibility Impacts</b></p> <ul style="list-style-type: none"> <li>- Justification of proposed quantum of on-site car and bicycle parking for the proposal having regard to the Concept Plan approval (as amended), Barangaroo Integrated Transport Plan and accessibility of the site to public transport..</li> <li>- The EIS shall include a Transport Management and Accessibility Plan that outlines: <ul style="list-style-type: none"> <li>- transport and traffic management within the overall Barangaroo precinct, including the demonstration of a minimalist approach to car parking provision;</li> <li>- pedestrian and cycle access/circulation to meet the likely future demand within the precinct and connections to the external networks, particularly the City of Sydney Cycle Network; and</li> <li>- Measures to promote public transport usage and pedestrian and bicycle linkages.</li> </ul> </li> <li>- Daily and peak traffic movements likely to be generated by the proposed development, including modelling and assessment of the performance of key intersections providing access to the site, and any upgrades (road/intersections) required as a consequence of the proposal.</li> <li>- Identification of Travel Demand Management (TDM) measures that will optimise the opportunity provided by the project site's proximity to public transport, including the preparation of a Work Place Travel Plan.</li> <li>- In relation to construction traffic: <ul style="list-style-type: none"> <li>- cumulative impacts associated with other construction activities on the Barangaroo site;</li> <li>- Details of anticipated truck movements to and from the site; and</li> <li>- Details of access arrangements for workers to/from the site, emergency vehicles and service vehicle movements.</li> </ul> </li> <li>- Relevant Policies and Guidelines <ul style="list-style-type: none"> <li>- Barangaroo Integrated Transport Plan</li> <li>- Barangaroo Transport Management and Accessibility Plan</li> </ul> </li> </ul>	Section 4.6	Appendix D

<ul style="list-style-type: none"> <li>- Guide to Traffic Generating Development</li> <li>- E/S Guidelines - Road and Related Facilities (DoPt)</li> <li>- NSW Planning Guidelines for Walking and Cycling.</li> </ul>		
<b>7. Heritage</b> <ul style="list-style-type: none"> <li>- The EIS must include an assessment of the likely impacts of the proposal on any heritage and archaeological items and outline mitigation and conservation measures.</li> </ul>	Section 4.6	-
<b>8. Contamination</b> <ul style="list-style-type: none"> <li>- Demonstrate compliance with the requirements of SEPP 55.</li> <li>- If remediation works are required, the EIS must include a Remedial Action Plan (RAP). The RAP must be accompanied by a Site B audit statement prepared by an Environment Protection Authority (EPA) accredited site auditor and the RAP must be prepared in accordance with the contaminated land planning guidelines under section 105 of the <i>Environmental Planning and Assessment Act 1979</i> and relevant guidelines produced or approved under section 105 of the <i>Contaminated Land Management Act 1997</i>.</li> <li>- Relevant Policies and Guidelines: The current guidelines under section 145C of the <i>Environmental Planning and Assessment Act 1979</i> are the guidelines "Managing Land Contamination, Planning Guidelines, SEPP 55 Remediation of Land" 1998.</li> </ul>	Section 4.8	Appendix E
<b>9. ESD</b> <ul style="list-style-type: none"> <li>- Identify how the development will incorporate ESD principles in the design, construction and operational phases of the development.</li> </ul>	Section 4.9	Appendix H
<b>10. Infrastructure Provision</b> <ul style="list-style-type: none"> <li>- Detail any infrastructure proposed to service the development and demonstrate that the site can be suitably serviced.</li> <li>- Detail the existing infrastructure on-site, and identify any possible impacts on Infrastructure arising from the construction of the proposed works.</li> <li>- Where the proposed works affect existing infrastructure, the application should detail any mitigation works proposed, including service relocations.</li> </ul>	Sections 3.4 and 4.10	Appendix I
<b>11. Noise</b> <ul style="list-style-type: none"> <li>- Undertake a noise impact assessment of the main noise generating sources and activities at all stages of construction (including cumulative noise), and any noise sources during operation (for intensive uses such as pubs, bars etc. a detailed noise impact assessment must be undertaken). Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land especially on adjoining residential buildings.</li> <li>- Relevant Policies and Guidelines: <ul style="list-style-type: none"> <li>- NSW industrial Noise Policy (EPA)</li> <li>- Interim Construction Noise Guideline (DECC)</li> <li>- Assessing Vibration: A Technical Guideline 2006 NSW</li> <li>- Road Noise Policy (DECCW 201 1)</li> </ul> </li> </ul>	Section 4.11	Appendix K
<b>12. Air, and Odour</b> Address potential air quality and odour impacts, in particular during the construction and operation of the development and appropriate mitigation measures.	Section 4.12	Appendix J
<b>13. Water, Drainage, Stormwater and Groundwater</b> <ul style="list-style-type: none"> <li>- Prepare a Stormwater and Drainage Assessment to assess the impacts of the proposal on surface and groundwater hydrology and quality.</li> <li>- Identify appropriate water quality management measures focussing on the management of the impacts from the proposed works on Sydney Harbour.</li> <li>- Prepare a Water Management Plan. This should include stormwater and wastewater management, including any re-use and disposal requirements, demonstration of water sensitive urban design and any water conservation measures.</li> <li>- Prepare an infrastructure Management Plan. The applicant shall provide information on the required water and waste water services and any augmentation of Sydney Water infrastructure that may be required for the proposed development</li> </ul>	Section 4.13	Appendix I
<b>14. Building Code of Australia</b> Prepare a BCA and access report demonstrating compliance with the Building Code of Australia.	Section 4.14	Appendix L

<b>15. Environmental, Construction and Site Management Plan</b> The EA shall provide an Environmental and Construction Management Plan for the proposed works, and is to include: <ul style="list-style-type: none"> <li>– Community consultation, notification and complaints handling;</li> <li>– Impacts of construction on adjoining development and proposed measures to mitigate construction impacts:</li> <li>– noise and vibration impacts on and off site;</li> <li>– air quality impacts on the neighbourhood;</li> <li>– odour impacts;</li> <li>– water quality management for the site; and</li> <li>– Construction waste classification, transportation and management methods in accordance with DECCW's Know Your Responsibilities: Managing Waste from Construction Sites Guideline.</li> </ul>	Section 4.15	Appendix M
<b>16. Staging</b> Details regarding the staging of the proposed development	Section 4.16	-
<b>17. Consultation</b> Undertake an appropriate level of consultation with council and State government agencies. Provide details on the Community Engagement Framework to guide the public consultation process.	Section 4.17	-

## 2.0 Site Analysis

### 2.1 Site Location and Context

Barangaroo is located on the north western edge of the Sydney Central Business District (CBD), bounded by Sydney Harbour to the west and north, the historic precinct of Millers Point (for the northern half), The Rocks and the Sydney Harbour Bridge approach to the east and a range of new development dominated by large CBD commercial tenants to the south.

The 22 ha Barangaroo site is generally rectangular in shape and has a 1.4 kilometre harbour foreshore frontage, with an eastern street frontage to Hickson Road. The locational context of the site is shown in **Figure 1**.



Figure 1 – Locality Plan



## 2.2 Site Description

The Barangaroo site has been divided into three distinct redevelopment areas (from north to south), comprising the Headland Park, Barangaroo Central and Barangaroo South (see **Figure 1**), and has been subject to multiple investigations that detail the physical and natural characteristics of the site.

For the purposes of construction staging, Lend Lease has broken Barangaroo South into two areas, referred to as Stage 1A and Stage 1B. Stage 1A is generally known and identified in Concept Plan (Mod 7) as Blocks 1, 2, 3 and X and the area of the foreshore between Block X and Darling Harbour. The proposed development is located within part of Block X and part of the foreshore area of Stage 1A of Barangaroo South.

A site plan from the Stage 1A Public Domain SSDA showing Building R1 in relation to the remainder of Stage 1 is shown at **Figure 2**.



**Figure 2** – Stage 1A of the Barangaroo South showing Building R1

### Land Ownership and Description

A site survey plan is included at **Appendix C**.

Under the *Barangaroo Delivery Authority Act 2009* (NSW), Barangaroo is defined as the land identified as the “Barangaroo Delivery Authority operational area on the Barangaroo Delivery Authority Operational Area Map”. The operational area comprises Lots 1-6 in DP 876514, Lot 7 in DP 43776, Lot 100 in DP 83823 and Lots 6 and 7 in DP 869022.

The Barangaroo Delivery Authority owns the majority of Barangaroo, however small areas are owned by other Government agencies including the Marine Ministerial Holding Corporation, the Roads and Maritime Services and the Crown.

The Building R1 site, the subject of this SSDA comprises Lot 5 in DP 876514. The Barangaroo Delivery Authority is the owner of the Site.

The Barangaroo Delivery Authority has issued landowner's consent to the making of this DA, provided with the completed Application Form submitted under separate cover.

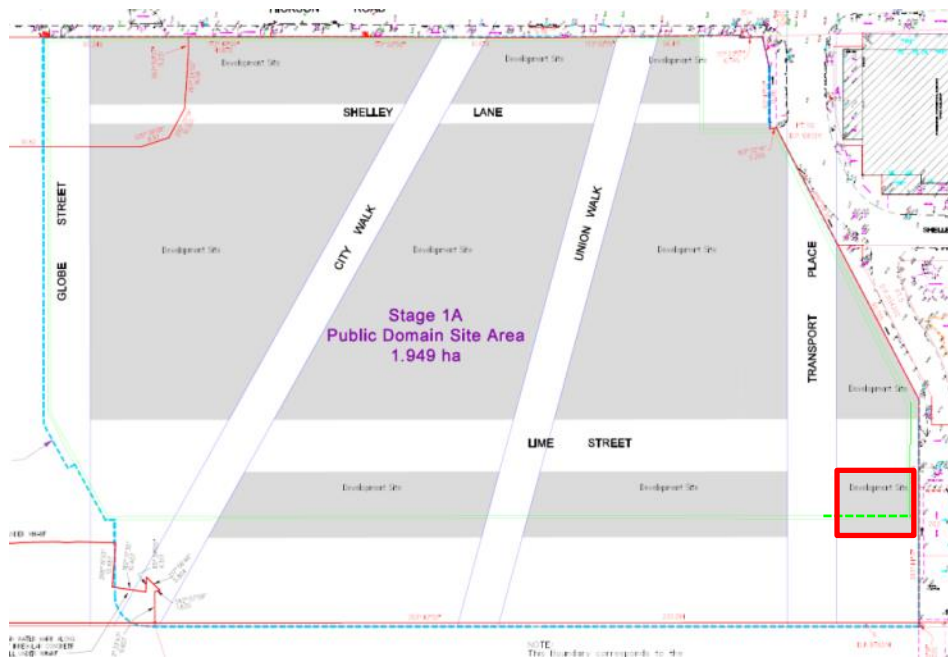
## 2.3 Existing Development and Structures

### 2.3.1 Built Form

At the time of the initial Concept Plan Approval, the Barangaroo site comprised an open concrete/bitumen apron largely reclaimed over water.

As identified at **Section 1.1.3**, under the Basement Car Park Approval, approval granted for the demolition of any existing structures and footings, part of an underground cassion wall, hardstand areas, removal of piles, and removal of existing vegetation within Blocks 1, 2, 3 (in part), 4A (in part) and X of Barangaroo, and with the adjacent public domain area, which had not previously been approved to be demolished or removed under the approval issued in respect of MP 07\_0077 Demolition Works.

Construction under the Basement Car Park Approval has substantially commenced and the site of the proposed R1 Building is located largely within the zone of those construction works. A portion of the site is located beyond the area the subject of the Basement Car Park Approval and remains an open concrete apron which is currently being used in-part for construction purposes. The extent of the Basement Car Park Approval and its relationship to the Building R1 site is illustrated in **Figure 3**.



**Figure 3** – Extent of Basement Car Park Approval (green line) and relationship to the Site (red line)

Various other approvals have been granted for development within the Barangaroo South site. Relevant to the site are the following approvals:

- MP11\_0044 – Approval for the construction of Commercial Building C3, allocation of car parking spaces, temporary public domain works, remediation and associated works.
- MP10\_0025 – Approval for the construction of Commercial Building C4, allocation of car parking spaces, public domain works and remediation and associated works.

- MP10\_0227 – Approval for the construction of Commercial Building C5, allocation of car parking space, temporary public domain works, remediation and associated works.
- MP11\_0002 – Approval for the construction of Residential Building R8 and Residential Building R9, comprising ground floor retail, upper level residential apartments, and public domain works.

Construction works have commenced on all of the above approvals.

A SSD DA is currently being assessed by the Department for the permanent public domain within Stage 1A, including around Building R1. Specifically, that DA seeks approval for the following works within Stage 1A of Barangaroo South:

- demolition of any existing hardstand areas and site preparation (including excavation and remediation) in the area to the west of the approved Basement Car Park (MP10\_0023);
- construction of the public domain, comprising:
  - the pedestrian lanes, walks and places, including Shelley Lane, City Walk, Union Walk, Transport Place and Hickson Place;
  - the vehicular streets, including Globe Street and Lime Street; and
  - the Waterfront Promenade, including modification to the seawall and temporary public domain within Globe Square.

The public domain works include provision of all ground treatments and finishes, landscaping, furniture and fixtures, public domain structures, lighting, civil and stormwater infrastructure and utility services.

## 2.3.2 Infrastructure and Services

### Stormwater

The external catchment draining to the existing stormwater drainage system is approximately 14 Ha. The existing stormwater drainage system consists of large diameter pipes along Hickson Road that turn across the Barangaroo site and discharge untreated water into the harbour. Overland flows in excess of the piped flows are directed to the existing low point in Hickson Road and ponded water traverses the Barangaroo South site and ultimately discharges to the harbour.

Changes to the existing stormwater network, including the provision of trunk drainage works and the relocation of existing stormwater pipes, are approved under the Basement Car Park project. Additionally, grates and inlets to collect surface flows from the Public Domain form part of SSDA SSD6303 including Civil Walk, Union Walk, Transport Place and Shelley Lane.

### Water

The existing water supplies to the Barangaroo site are supplied from a 300mm diameter Sydney Water main in Hickson Road. Trunk water supply infrastructure will be provided to the R1 site as part of the works approved under the Basement Car Park project.

### Sewer

There is an existing sewer trunk main in Hickson Road near the western kerb line draining which drains to an existing Sydney Water sewage pumping station SP1129 outside the Barangaroo site. Trunk sewer infrastructure will be provided to the R1 site as part of the works approved under the Basement Car Park project.



## Electricity

The Barangaroo South site was served by 5 KV high voltage feeders entering the Barangaroo site at the southern end of Hickson Road and terminating in an AusGrid (formerly Energy Australia) HV switch room. The HV supply and private HV reticulation were decommissioned and the private substations demolished as part of demolition works in 2010/2011.

## Telecommunications

NBN Co. will supply communication infrastructure to the Barangaroo South site via a flexible communications fibre optic backbone.

## Natural Gas

There is an existing gas supply at the intersection of Napoleon Street and Hickson Road and also at the end of Lime Street near the south-west corner of the Barangaroo site.

# 2.4 Traffic and Transport

## 2.4.1 Vehicular Access

Hickson Road connects into Sussex Street south of Napoleon Street and is the north-south access road for Barangaroo South. Local road access to the Barangaroo site is provided:

- via Napoleon Street and Margaret Street from the eastern CBD from Millers Point via Dalgety Road;
- via George Street from the north east; and
- via Harbour Street, Wheat Road (through King Street Wharf) to Shelley Street from the south via Sussex Street/Kent Street/Napoleon Street from the southern CBD.

Building R1 fronts the future Lime Street to the east. Once constructed, Lime Street will connect to Hickson Road via Globe Street in the north, and continue south through the King Street Wharf precinct.

## 2.4.2 Existing Public Transport

The Barangaroo site is served by the following public transport modes:

- **Rail:** Wynyard, Martin Place, Town Hall and Circular Quay railway stations are within walking distance of the Barangaroo site and provide frequent services throughout the day.
- **Bus:** There is a major bus interchange located at Wynyard Station for buses servicing the Hills District, Northern Beaches and the North Shore areas. These services all utilise the bus lane on the Harbour Bridge to access Wynyard. Stops for services to other locations are provided through the CBD including along George, Park, Elizabeth and Castlereagh Streets.

A number of bus routes terminate in the vicinity of the Barangaroo site, King Street Wharf and Circular Quay.

- **Ferry:** Commuter ferry services arrive and depart from both King Street Wharf and Circular Quay.

Further information on existing and known planned public transport accessibility of the Barangaroo site is provided in the Transport Assessment prepared by ARUP at **Appendix D**.

### 2.4.3 Pedestrians and Cyclists

#### Pedestrian Access

The NSW Government has commenced construction on Wynyard Walk (previously Barangaroo Pedestrian Link), a direct pedestrian link between the new Barangaroo development and Wynyard Station and transport interchange. Wynyard Walk, expected to be complete by 2015, will provide a high level of access to public transport for the growing western corridor of the CBD, including Barangaroo and King Street Wharf. This will assist in accommodating the additional commuters who are expected to use this route to access the Barangaroo site.

Pedestrian access to Barangaroo is available along local roads, all of which are footpath lined. Notwithstanding the high degree of pedestrian footpaths and thoroughfares, there are generally low levels of pedestrian activity adjacent to the Barangaroo site. Limited pedestrian access is currently available across the Barangaroo site and along the waterfront via fenced routes.

#### Bicycles

A marked bicycle lane exists along part of Hickson Road and forms part of a cycle way between Circular Quay and Napoleon Street which is utilised by both commuter and recreational cyclists. Cycling connections to the site have been improved through the construction of separated cycleways along King Street and Kent Street by City of Sydney Council (Council). A bicycle lane connecting Kent Street to the Barangaroo site via Napoleon Street may be the subject of a separate future application.

## 2.5 Physical Characteristics

### 2.5.1 Topography

The ground surface of the Building R1 site is relatively flat with a slight slope from west to east.

The surrounding landform (outside the bounds of the Barangaroo site) rises rapidly to the east. A 10m high sandstone cliff is situated east of Hickson Road and Sussex Street and is likely to continue beneath the fill and alluvial materials present on the site (see **Section 2.5.2** below).

### 2.5.2 Geology and Geomorphology

Investigation reports prepared previously by AECOM and others provide a detailed analysis of the geological and geomorphological characteristics of the Building R1 site and the Barangaroo site generally.

The Sydney Geological Map Scale 1:100,000 and the Sydney Geological Map Scale 1:250,000 indicate the Barangaroo site is underlain by Hawkesbury Sandstone. Quaternary sediments and man-made fill overlay the Hawkesbury Sandstone.

Previous Geotechnical Reports which covered the Barangaroo site indicate that it is underlain by manmade fill, which is in turn underlain by marine sediment and Hawkesbury Sandstone. The fill material is up to 21m deep and comprises a mix of silt clay, coarse gravel and fragments of concrete, brick, steel, glass and ash. The majority of the Building R1 site was included within the excavation works under the approved Basement Car Park and has already been excavated.

Structural lineaments and dykes of note include:

- The Luna Park Fault Zone located near the northern extent of the Barangaroo South area and which is associated with significant reductions in rock strength; and
- The Pittman LIV Dyke is inferred to traverse the northern extent of the Barangaroo South area.

### 2.5.3 Site Contamination

A number of site history studies and environmental site investigations have been undertaken to assess the extent and nature of contaminants within the Barangaroo site as a whole, as well as within the Barangaroo South area which includes the site.

Investigations have revealed that both the soil and groundwater is contaminated, and that the extent of the contaminated materials varies across the Barangaroo site.

Concentrations of lead, total petroleum hydrocarbons (TPHs), benzene, xylenes and polycyclic aromatic hydrocarbons (PAHs) in the soil variably exceed applicable guideline criteria. The contamination is largely associated with the operation of a former gasworks (which was located to the north east of Stage 1A of the site), and from the importation of materials historically used to fill the Barangaroo site.

In May 2009, the Department of Environment, Climate Change and Water (DECCW) (now the NSW Office of Environment and Heritage) declared part of the Barangaroo site (part of Blocks 4A, 4B, 4C and 5) and immediately adjacent land within the Hickson Road reservation to be a "remediation site" under the *Contaminated Land Management Act, 1997* (Declaration No. 21122) (known as the 'DECCW Declaration Area') (see **Figure 4**). No part of the Building R1 site is located within the DECCW Declaration Area.

Remediation of the DECCW Declaration Area within Concept Plan (Mod 7) Block 4 is currently proposed under SSD\_5897 being assessed by the Department. The remediation of the remainder of the Barangaroo South site and immediately adjacent land within Barangaroo Central and Hickson Road will be the subject of a separate application(s) (not yet approved).

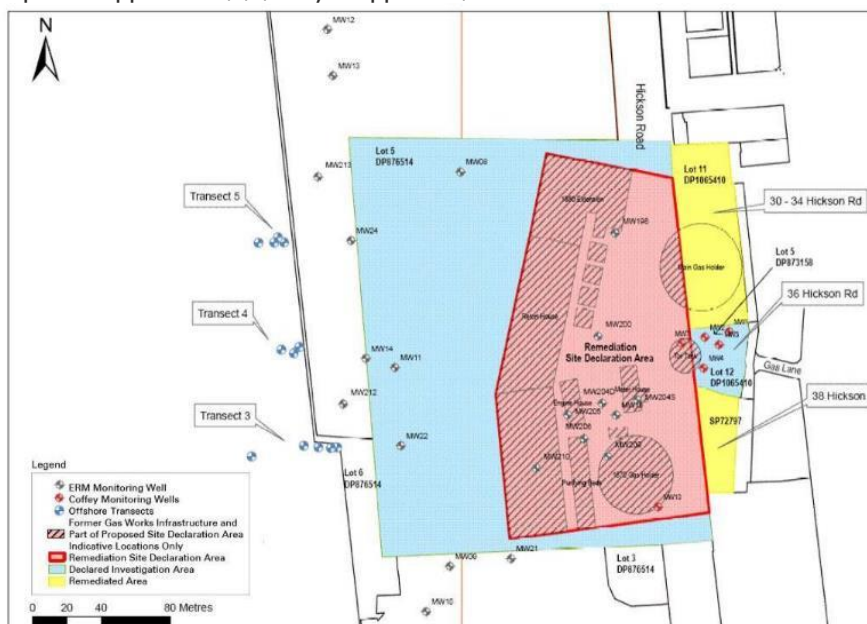


Figure 4 – DECCW Declared Areas

ERM has prepared an Overarching Remedial Action Plan (RAP) for the Barangaroo site on behalf of the Barangaroo Delivery Authority (see **Appendix E**). The Overarching RAP presents a summary of the contamination issues identified on the Barangaroo site and outlines an approach to the remediation of the site as a whole.

A Site Auditor's Statement has been prepared by Graeme Nyland in relation to the Overarching RAP (see **Appendix E**). The Overarching RAP requires that site specific RAPs be developed for the DECCW Declaration Area and for the other development sites. Site specific Remedial Works Plans are also required under the Overarching RAP, which are to detail remedial measures.

In accordance with the requirements of the Overarching RAP, a Site Specific Remedial Action Plan known as the "Amended Remedial Action Plan - Barangaroo - Other Remediation Works (South) Area" has been prepared by AECOM Australia Pty Ltd, dated 7 July 2011 (ORWS RAP) (see **Appendix E**). An addendum to this RAP, known as the Addendum to OWRS RAP was prepared in 2012 by AECOM to include a further portion of the Barangaroo South site within the boundaries of the original OWRS RAP. The OWRS RAP (as amended) includes the majority of the DA site. The preparation of the OWRS RAP (as amended) was informed by the Human Health Environmental Risk Assessment, prepared by AECOM, dated 4 July 2011 (HHERA), including the Site Specific Target Criteria (SSTC) that are contained in the HHERA.

Full details of the soil and groundwater contamination and exceedance levels within the site are documented in the AECOM Remedial Action Plans submitted with Bulk Excavation and Basement Car Parking Project Application (as modified).

Works approved in the Basement Car Park Approval (as modified) include the establishment of a remediation enclosure (exclusion zone) for the management of contaminated material, construction of an ex-situ treatment facility within the exclusion zone, and set up of decontamination stations and wheel wash zones at the entrance and exit points of the remediation enclosure. Suitably treated and excavated material will be re-used across the broader Barangaroo site to minimise the need to import fill for public domain works, and the creation of the Headland Park.

Accredited Site Auditor, Graeme Nyland, completed a Site Audit Report and Site Audit Statement that approved the ORWS RAP, as well as an addendum report and statement which approved the addendum to the OWRS RAP (see **Appendix E**). The HHERA and the ORWS RAP were approved by the Office of Environment and Heritage (OEH) in satisfaction of condition A8 of the Basement Car Park Approval (as modified).

After giving consideration to the approvals given by OEH and the site auditor, and after reviewing the RAP, the Minister for Planning and Environment approved the Basement Car Park project, including the RAP on 17 August 2011. Further modifications to the Basement Car Park and the Addendum to the Amended OWRS RAP have since been approved.

## 2.5.4 Groundwater and Hydrogeology

The groundwater profile beneath the Barangaroo site is likely to be influenced by the groundwater flow from the east beneath the CBD and tidal fluctuations associated with Sydney Harbour.

Data collected in July 2006 indicates that the depth of groundwater ranged between 1.7m and 2.5m below ground level. Short term variations in groundwater levels were reported particularly close to the sea wall.

A detailed chemical composition of the groundwater was prepared and is addressed in ERM's RAP. In summary, groundwater analysis indicates varying concentrations of contaminants. Detectable concentrations of TPH, PAHs and BTEX are limited to the north eastern area of Barangaroo South associated with the former gasworks. Heavy metal concentrations likely to be related to fill materials are present in groundwater across the Barangaroo site.

As identified at **Section 1.1.3**, the Basement Car Park Approval (as modified) covers site establishment works within Blocks 1-3, and X (which includes the part of the Building R1 site), including de-watering infrastructure and groundwater treatment, and the on-site treatment and remediation of contaminated soils.

This SSDA is informed by the detailed assessments in relation to groundwater and hydrogeology undertaken as part of the Basement Car Park Approval (as modified).

### 2.5.5 Soil Landscapes

This SSDA is informed by the detailed soil assessments undertaken as part of the Basement Car Park Approval. The 1:100,000 Sydney Soil Landscape Map indicate the Stage 1A site is underlain by disturbed soils.

An Acid Sulfate Soils Management Plan prepared by AECOM in relation to the Basement Car Park Approval has identified Potential Acid Sulfate Soils (PASS) to be potentially present at depths ranging from -10.58 to 15.36m AHD across the site (refer to Acid Sulfate Soils Report prepared by AECOM at Appendix I of the EAR prepared by JBA dated June 2010 in support of the Basement Car Park Project Application).

This plan provided strategies for dealing with those PASS (refer to Appendix I of that EAR).

As identified at **Section 1.1.3**, the Basement Car Park Approval includes bulk excavation works below the footprint of the proposed building, and these works are largely complete.

### 2.5.6 Vegetation

The site is devoid of existing vegetation.

### 2.5.7 Heritage and Archaeology

#### Heritage

The approved Concept Plan and Demolition Project Application comprehensively addressed the heritage significance of the Barangaroo site. The Heritage Impact Statement prepared for the Barangaroo site by City Plan Heritage in 2007 (refer to Demolition Project Application MP07\_0077) confirms the Barangaroo South site is not of heritage significance and does not exhibit heritage values (including existing buildings and structures).

The Statement of Commitments for the Concept Plan required an Interpretation Strategy to be prepared prior to any works commencing that involve surface disturbance. Accordingly, an Outline Interpretation Plan was prepared by Tanner Architects and was submitted to the Department of Planning and Environment as part of the EAR for the Basement Car Park Project Application (refer to Appendix FF of that EAR). The Outline Interpretation Plan relates to the whole of the Barangaroo South area, including the Building R1 site.

## Indigenous and Non-Indigenous Archaeology

A Non-Indigenous Archaeological Assessment undertaken by Casey and Lowe for the Barangaroo South area and for land within the vicinity of the broader Barangaroo site was submitted with the Basement Car Parking Project Application. That Assessment indicated that there was a moderate to high level of non-indigenous archaeological potential across most of the Barangaroo site. The Barangaroo site contains a mixture of archaeological remains associated with maritime infrastructure, shipbuilding and industrial land uses.

A search of the OEH's Aboriginal Heritage Information Management System (AHIMS) indicates that no known Aboriginal sites have been previously recorded within or in the vicinity of the Barangaroo site or the broader Barangaroo site.

An Aboriginal Archaeological and Cultural Heritage Assessment was prepared by Comber Consultants for the entire Barangaroo site and was submitted with the Basement Car Park Project Application. That Assessment suggests that, notwithstanding the above, subsurface archaeological deposits containing artefact scatters and/or middens may be located within the eastern portion of the Barangaroo South area (east of the site), including land particularly near the original shoreline.

During 2011 and 2012 Casey & Lowe and Comber Consultants undertook a ten month archaeological program of excavation and recording. Following completion of the program there are considered to be no surviving significant archaeological remains within the site. No archaeological issues were identified in the area to the west of the eastern 40m of Barangaroo South. The Building R1 site is considered to have no archaeological potential or significance. As set out above, the majority of the Building R1 site has been excavated under the Basement Car Park Approval.

## 2.6 Surrounding Development

A description of the existing development and future proposed development envisaged under the Concept Plan (Mod 7) is outlined below.

### 2.6.1 Existing Development

The approved development under the Basement Car Park Approval and Residential and Commercial Building consents (described in Section 1.1) are currently under construction within, and to the north and east of the Building R1 site, in Stage 1A Barangaroo South. Further to the north is Stage 1B of Barangaroo South, which includes the DECCW Declaration Area and is currently hardstand utilised in association with construction on Stage 1A.

To the south of the Building R1 site are the existing buildings at King Street Wharf, including KPMG, Macquarie Bank and Bungalow 8. To the west is the existing hardstand curtain being used for public pedestrian access along the foreshore, and further to the west is Darling Harbour.

### 2.6.2 Future Development

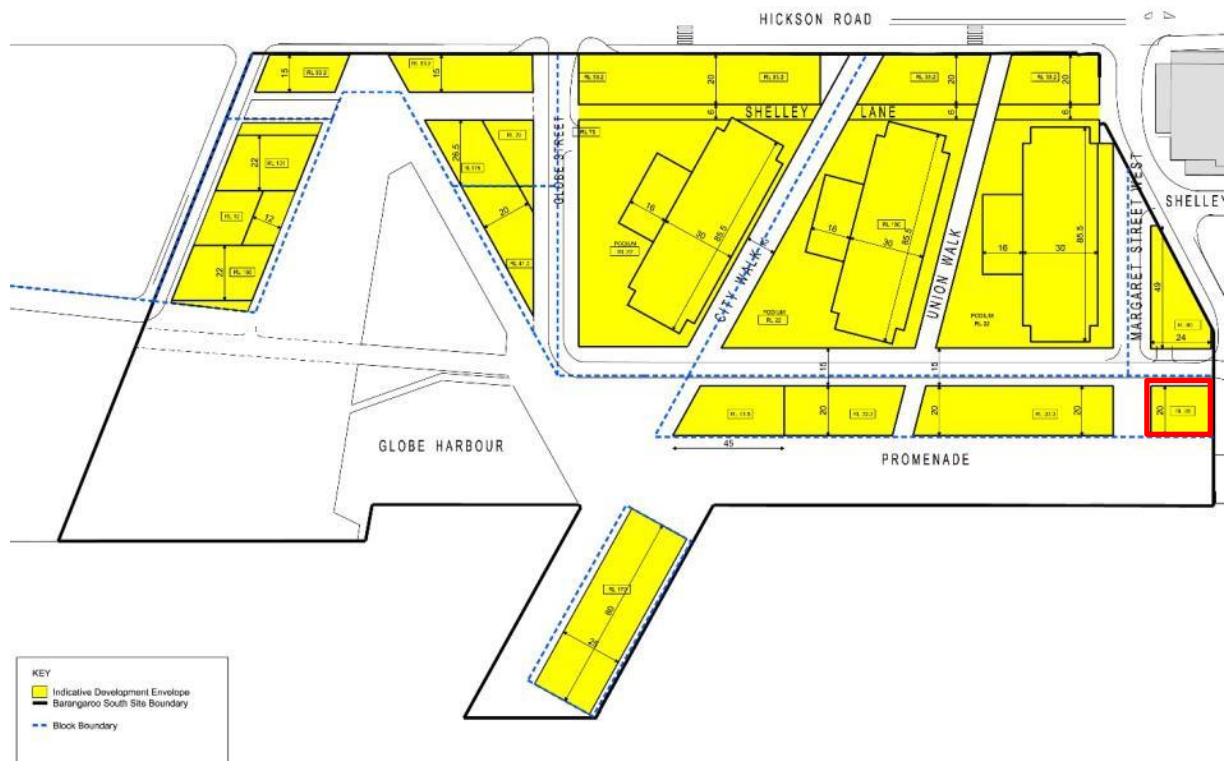
The future development as envisaged by the Concept Plan for Barangaroo South is indicated on **Figure 5**.

Immediately to the north of the Building R1 site is the remainder of Block X, which comprises approved Residential Buildings R8 and R9. To the east is Block 1, which will accommodate Building R7. Diagonally to the north east is Commercial Building C5.

To the west of the site is the foreshore promenade, currently proposed under the Stage 1A Public Domain SSDA (SSD 6303).



To the south of the site is Shelley Street, and the existing development at King Street Wharf.



**Figure 5 – Building R1 (red outline) in relation to the approved Concept Plan (Mod 7) Indicative Building Layout**

### 3.0 Description of the Development

This chapter of the report provides a detailed description of the proposed development. Architectural Drawings and a Design Statement prepared by Collins and Turner are included at **Appendix A**.

This application seeks approval for the construction of a three storey building (RL 21) known as Building R1, comprising 804m<sup>2</sup> of floor space, within Block X of Barangaroo South. Piling and associated earthworks and remediation will be completed to support Building R1.

The building is intended to be used for a food and drink premises. A further DA will be lodged for the fit-out and specific use of the building once the tenant has been confirmed.

A photomontage of Building R1 is shown at **Figure 6**.



**Figure 6** – Photomontage of Building R1

*Source: Collins and Turner*

The SSDA does not seek approval for development that has been included in the approved Basement Car Park project (as modified), which encompasses:

- demolition of any existing structures and footings, hardstand areas, piles and vegetation within the Stage 1A basement area;
- site establishment, including the provision of concrete crushing infrastructure, environmental protection structures, de-watering infrastructure, and groundwater treatment;
- bulk earthworks for the purposes of excavating the basement;
- on-site treatment and remediation of contaminated soils within the basement;
- transportation or stockpiling of excavated material; and
- associated utilities and infrastructure works associated with that Project Application including decommissioning and / or relocation of services, including the Harbour Heat Rejection plant approved under Basement Mod 5.



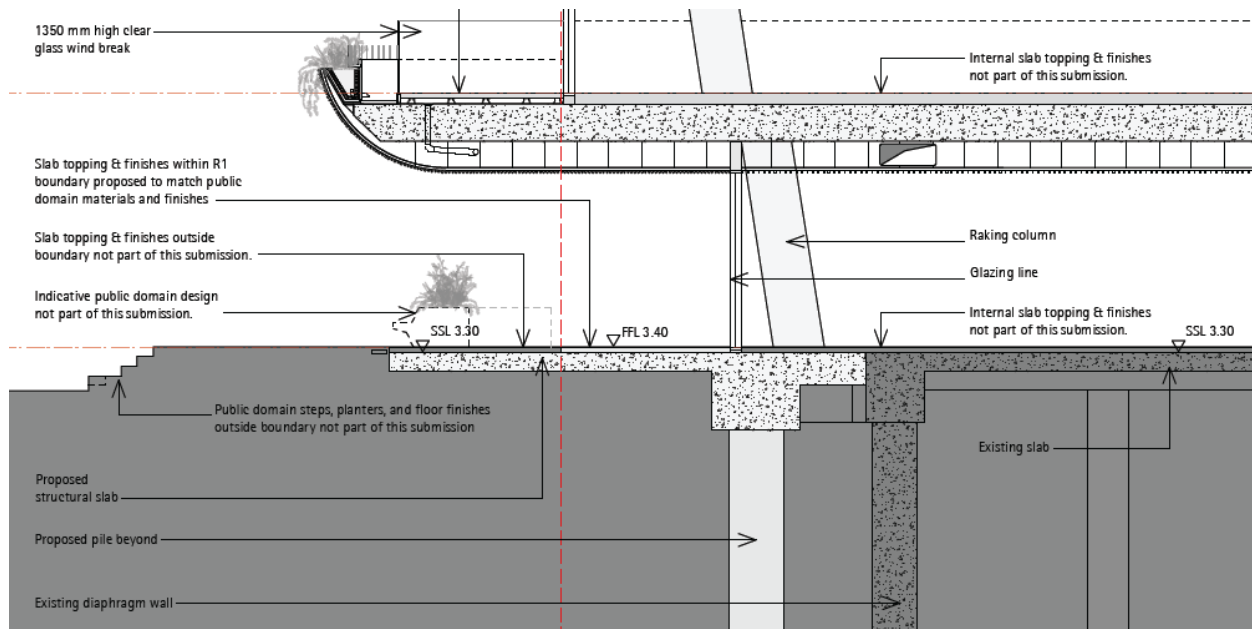
### 3.1 Site Preparation

The Basement Car Park and Stage 1A Public Domain applications provide for the demolition of any existing hardstand areas, majority of footings and piles and site preparation works including remediation (if required) within the Building R1 site.

In light of the works either approved or contemplated under those separate applications, this DA only seeks approval for:

- four piles located outside of the basement diaphragm wall, and associated earthworks work to accommodate piling; and
- the construction of an approximately 9m wide section of concrete slab between the basement slab, which ends at the diaphragm wall, and the Public Domain slab.

The location of the proposed piling and basement slab is shown on the Architectural Drawings at **Appendix A** and at **Figure 7**.



**Figure 7** – Section illustrating the proposed piles and slab (light grey)

The piling and associated works will be carried out in accordance with the Environmental Construction and Site Management Plan. During piling and excavation works, there is potential that contaminated material may be encountered. This DA therefore seeks approval for the remediation of the material in accordance with the ORWS RAP (as amended).

### 3.2 Building R1

Building R1 is a three storey building with a maximum height of RL 21 and a total GFA of 804m<sup>2</sup>.

The building is oval in shape, with floor plates of varying sizes stacked on top of each other to create an overhang effect. The internal floor plates will be open plan and on the upper levels have access to large usable landscaped outdoor terraces via operable glazing. It is noted that planter boxes are provided around the perimeter of the terraces however the specific landscaping will form part of the tenant fitout DA.

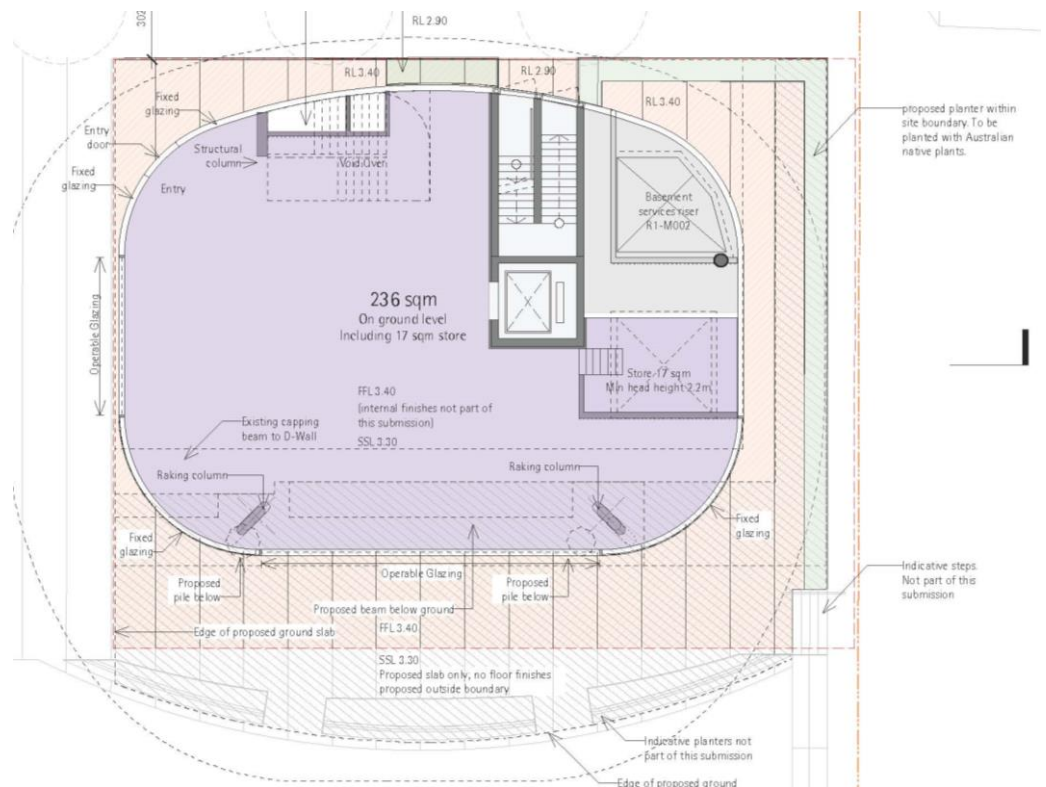
The main entry to the building will be from the corner of Transport Place and Lime Street. Operable glazing is also provided along sections of the north and west facades in order to provide future access from within the tenancy to the outdoor space around the building. Internal access between floors is provided via internal stairs and a lift.

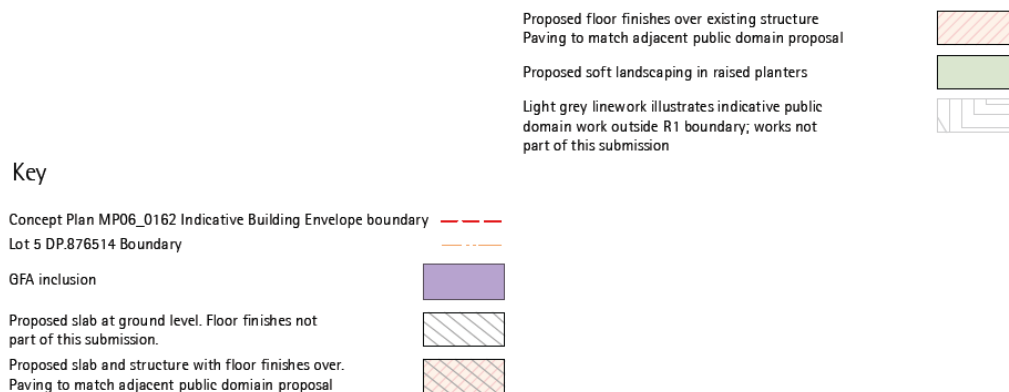
The facade design of Building R1 is emphasised as three horizontal layers, with an aesthetic of dark timber, glazing and metallic finishes. Each level is presented as a curved 'bowl' shape, with future planting along the perimeter of each level (by a future tenant). Further details on the materials and finishes to be applied to Building R1 are provided in the Architectural Drawings at **Appendix A**.

The application also seeks approval for the operation and use of the basement car park to accommodate 15 car spaces.

### 3.3 Public Domain

It is proposed to provide public domain around the perimeter of the building as illustrated in **Figure 8** below. The remainder of the public domain works interfacing with Building R1 at the ground plane are proposed under the Stage 1A Public Domain SSDA (SSD 6303). The paving proposed as part of this application will match the paving provided under the Stage 1A public domain. The relevant Stage 1A Public Domain Drawings prepared by Aspect Oculus have been included at **Appendix F** for information purposes.





**Figure 8 – Ground floor plan illustrating extent of public domain works**

### 3.4 Building Services and Infrastructure

All infrastructure provision to the R1 site, including water, gas, electricity and communications, is being provided under either the Basement Car Park Approval or is currently proposed in the Stage 1A Public Domain SSDA (SSD 6303). The building will connect to this basement infrastructure. The following services are provided within the building:

#### Communications

The building will be supplied with fibre optic and copper cables. All communications will be connected to a basement node point and terminated on the ground floor of R1 awaiting future connection/distribution by the tenant.

#### Electrical

A 415amp power supplier will be supplied to the R1 via a sub-main from one of the basement main switch rooms. The sub-main will be terminated on the ground floor of R1 together with a meter and isolator. The future tenant shall reticulate their electrical services from this point forward.

#### Fire

The fire services for the building include fire detection, sprinkler services, fire hose reels, hydrants and a booster valve system for fire brigade connection. All services will be connected to the basement infrastructure and monitored by the precinct wide operations. Both the sprinkler and detection system shall be reticulated throughout the entire R1 building and commissioned prior to practical completion.

#### Lifts

A single car passenger and goods lift shall be dedicated to the R1 building which services Levels B2, Ground, L1 and L2.

#### Hydraulics

The building will be supplied with a 50mm potable water supply from the basement infrastructure. The service will be terminated on the R1 Ground floor for future reticulation by the tenant.

The building will be supplied with a 3000L grease arrestor located in the basement. A grease trap/pipe shall be run from the grease arrestor room in the basement (the plant room located directly underneath Building R1) to a point on the ground floor for future reticulation by the tenant.

A recycled water supply from the basement shall be run to a point on the R1 Ground floor for future reticulation to the tenant's toilets and urinals.

#### Gas

A 7.5Kpa, 1000MJ gas service shall be supplied by the basement infrastructure. The gas service will run from the basement to the R1 Ground floor for future reticulation by the tenant. All services supplied from the basement shall be terminated on the ground floor with appropriate meters and connection points.

#### Mechanical

A chilled water supply shall be supplied from the basement to the R1 Ground floor for future reticulation by the tenant. The chilled water service shall be meter at the ground floor termination point.

### 3.5 Construction Hours

In accordance with the Environmental, Construction and Site Management Plan prepared by Lend Lease at **Appendix M**, construction works are proposed to be undertaken between the hours of 7.00am and 7.00pm Monday-Friday and between 7.00am and 5.00pm on Saturdays. No work will be undertaken on Sundays or public holidays.

### 3.6 Construction Hoardings

The construction site will be secured by Class A hoardings. The conceptual treatment of the hoardings will be designed to improve the appearance of the site in the streetscape throughout the construction phase and provide a transparent and open view of the site to the community. It will include information about Barangaroo South and its aspirations, such as sustainability, community engagement, heritage and the overall ambitions of the development, all of which may be updated from time to time. It may incorporate elements of public art as part of the graphic installation but will not include any third party advertising material.

A maintenance regime will be implemented to ensure the appearance and integrity of the hoarding is maintained. The final graphic treatment for the hoardings and any future changes will be submitted to the Secretary of the Department of Planning and Environment for approval prior to its implementation on site.

## 4.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed development. It addresses the matters for consideration set out in the SEARs (see **Section 1.6**).

The Mitigation Measures at **Section 6.0** complement the findings of this section.

As detailed at **Section 1.1.3** of this EIS, the lodgement of the Building R1 SSDA follows the approval and commencement of works under the Demolition and Basement Car Park projects relating to Blocks 1, 2, 3 (in part), 4A (in part) and X of Barangaroo South.

The Basement Car Park Approval and Stage 1A Public Domain SSDA allows for demolition works, tree removal, site establishment, bulk earthworks, onsite treatment and remediation of contaminated soils and construction of a basement car park and associated services and infrastructure to support Building R1.

The EAR and PPR and subsequent modifications accompanying the Basement Car Park Project Approval provide detailed information and environmental assessment of a number of planning and environmental issues, including, relevantly the following:

- demolition, part excavation and tree removal;
- remediation of contaminated material;
- non-indigenous archaeology;
- indigenous archaeology;
- geotechnical impacts;
- acid sulphate soils; and
- de-watering, groundwater treatment and water quality.

This SSDA is informed by the detailed assessments included in the Basement Car Park Project Application EAR to the extent that they are relevant to the proposed development.

### 4.1 Relevant EPIs, Policies and Guidelines

**Table 2** demonstrates that the proposed development will comply with / is consistent with the relevant strategies, environmental planning instruments, and Concept Plan as determined in the SEARs.

**Table 2** – Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument / Strategy	Comments
Strategic Plans	
NSW 2021	<p>NSW 2021 is a 10 year plan to rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen our local environment and communities. The Barangaroo site has an important role in the NSW 2021 Plan as it will assist with achieving multiple goals set out in the Plan, including but not limited to improving the performance of the NSW economy, increasing the competitiveness of doing business in NSW, providing critical infrastructure, building liveable centres.</p> <p>As discussed in <b>Section 1.4</b>, Building R1 plays a role in the success of Barangaroo South and achievement of the above goals. In addition Building R1 will directly contribute to the goal of providing capacity for further employment in a central location.</p>

Instrument / Strategy	Comments																																		
Draft Metropolitan Strategy for Sydney to 2031	<p>The SSDA is consistent with the draft Metropolitan Strategy for Sydney to 2031, as it will deliver a building in Barangaroo South which is identified as one of the key priorities for Global Sydney within the Strategy.</p> <p>More specifically Building R1 is consistent with the objectives for a 'Liveable City' in that it will create a new building and urban environment which is active and inviting. It will also provide employment throughout the construction and operational phases.</p>																																		
Draft Sydney City Sub-Regional Strategy	The Development Application is consistent with the Draft Sydney City Subregional Strategy as it will deliver a building at Barangaroo South which is identified in the Draft Strategy as a major development opportunity to conduct a focused and considered renewal process aimed at generating a new urban precinct in Australia's premier city.																																		
Barangaroo Integrated Transport Plan	<p>The Barangaroo Integrated Transport Plan (BITP) addresses a range of transport modes and recommends actions in the areas of walking, cycling, traffic and taxi access, Wynyard Bus Interchange, ferry services, light rail and bus services, Wynyard Station upgrades, rail capacity and a Transport Square Interchange on the western foreshore of the CBD. The development is consistent with the mode share targets that were established under the Concept Plan that are reinforced in the BITP (see <b>Appendix D</b>).</p> <p>The proposed development integrates with the BITP's vision for Transport Place, in particular the way it creates an arrival / entry statement for the future ferry wharves.</p>																																		
<b>State Legislation</b>																																			
EP&A Act	<p>The proposed development is consistent with the objects of the EP&amp;A Act for the following reasons:</p> <ul style="list-style-type: none"> <li>– it reflects the proper development of the site for the purpose of promoting the social and economic welfare of the community and a better environment; and</li> <li>– it will ensure the promotion and co-ordination of the orderly and economic use and development of land.</li> </ul> <p>The proposed development is consistent with Division 4.1 of the EP&amp;A Act, particularly for the following reasons:</p> <ul style="list-style-type: none"> <li>– the proposed development has been declared to be of state significance;</li> <li>– the development is not prohibited by an environmental planning instrument; and</li> <li>– the development has been evaluated and assessed against the relevant heads of consideration under section 79C.</li> </ul>																																		
EP&A Regulations	<p>The EIS has addressed the specification criteria within clause 6 and clause 7 of Schedule 2 of the EP&amp;A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 7.3).</p> <p>As required by Clause 7(1)(d)(v) of Schedule 2, and as set out below, no additional approvals will be required in order to permit the proposed development to occur.</p> <table border="1"> <thead> <tr> <th>Act</th><th>Approval Required</th></tr> </thead> <tbody> <tr> <td colspan="2"><b>Legislation that does not apply to State Significant Development</b></td></tr> <tr> <td>Coastal Protection Act 1979</td><td>N/A</td></tr> <tr> <td>Fisheries Management Act 1994</td><td>N/A</td></tr> <tr> <td>Heritage Act 1977</td><td>N/A</td></tr> <tr> <td>National Parks and Wildlife Act 1974</td><td>N/A</td></tr> <tr> <td>Native Vegetation Act 2003</td><td>N/A</td></tr> <tr> <td>Rural Fires Act 1997</td><td>N/A</td></tr> <tr> <td>Water Management Act 2000</td><td>N/A</td></tr> <tr> <td colspan="2"><b>Legislation that must be applied consistently</b></td></tr> <tr> <td>Fisheries Management Act 1994</td><td>No</td></tr> <tr> <td>Mine Subsidence Compensation Act 1961</td><td>No</td></tr> <tr> <td>Mining Act 1992</td><td>No</td></tr> <tr> <td>Petroleum (Onshore) Act 1991</td><td>No</td></tr> <tr> <td>Protection of the Environment Operations Act 1997</td><td>No</td></tr> <tr> <td>Roads Act 1993</td><td>No</td></tr> <tr> <td>Pipelines Act 1967</td><td>No</td></tr> </tbody> </table>	Act	Approval Required	<b>Legislation that does not apply to State Significant Development</b>		Coastal Protection Act 1979	N/A	Fisheries Management Act 1994	N/A	Heritage Act 1977	N/A	National Parks and Wildlife Act 1974	N/A	Native Vegetation Act 2003	N/A	Rural Fires Act 1997	N/A	Water Management Act 2000	N/A	<b>Legislation that must be applied consistently</b>		Fisheries Management Act 1994	No	Mine Subsidence Compensation Act 1961	No	Mining Act 1992	No	Petroleum (Onshore) Act 1991	No	Protection of the Environment Operations Act 1997	No	Roads Act 1993	No	Pipelines Act 1967	No
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Instrument / Strategy	Comments										
SEPP 55	<p>The site will be remediated in accordance with the ORWS RAP as approved under the Basement Car Park and Stage 1A Public Domain applications and as required during the piling and excavation works associated with Building R1.</p> <p>AECOM has confirmed (see <b>Appendix E</b>) that the presence, or otherwise, of contamination within the ORWS Development Area was considered by the soil and groundwater analytical data obtained by the environmental site investigations listed in Section 3.4 of the ORWS Amended RAP (AECOM, 2011). The ORWS Amended RAP (AECOM, 2011) concluded that the concentrations of contamination reported within the ORWS Area (Stage 1A development area) did not require remediation to render the site suitable for the proposed land uses (including the uses envisaged for Building R1).</p>										
Major Development SEPP	<p>The Barangaroo site is listed as a State Significant Site under Part 12 of Schedule 3 of the Major Development SEPP.</p> <table> <tr> <td>Clause 8 - Zone B4 Mixed Use</td><td>The subject application does not seek consent for a use. It is noted that the likely future use as a food and drink premises is permissible and consistent with the objectives of the B4 Mixed Use zone.</td></tr> <tr> <td>Clause 9 – Zone RE1 Public Recreation</td><td>Part of the Building R1 balconies are located within the RE1 Public Recreation zone. The subject application does not seek consent for a use, however it is noted that the likely future use as a food and drink premises is permissible and consistent with the objectives of the zone. Should consent be sought for a use that is not permissible in the RE1 zone then it will be subject to an assessment under clause 23 'Development near zone boundaries'.</td></tr> <tr> <td>Clause 17 - Height of buildings (Maximum RL 41.5)</td><td>Building R1 has a maximum RL of 21, and therefore complies with the maximum permitted height development standard.</td></tr> <tr> <td>Clause 18 - Gross Floor Area Restrictions - Maximum 18,908m<sup>2</sup> (across Block X)</td><td>Building R1 has a GFA of 804m<sup>2</sup>, which when added to the GFA of the other buildings (R8 and R9) approved within Block X results in a total GFA of 18,897m<sup>2</sup>, and therefore complies with the maximum GFA development standard. See Section 4.3.</td></tr> <tr> <td>Clause 19 - Design Excellence</td><td>The proposed development demonstrates Design Excellence in accordance with clause 19. See Section 4.4.1.</td></tr> </table>	Clause 8 - Zone B4 Mixed Use	The subject application does not seek consent for a use. It is noted that the likely future use as a food and drink premises is permissible and consistent with the objectives of the B4 Mixed Use zone.	Clause 9 – Zone RE1 Public Recreation	Part of the Building R1 balconies are located within the RE1 Public Recreation zone. The subject application does not seek consent for a use, however it is noted that the likely future use as a food and drink premises is permissible and consistent with the objectives of the zone. Should consent be sought for a use that is not permissible in the RE1 zone then it will be subject to an assessment under clause 23 'Development near zone boundaries'.	Clause 17 - Height of buildings (Maximum RL 41.5)	Building R1 has a maximum RL of 21, and therefore complies with the maximum permitted height development standard.	Clause 18 - Gross Floor Area Restrictions - Maximum 18,908m <sup>2</sup> (across Block X)	Building R1 has a GFA of 804m <sup>2</sup> , which when added to the GFA of the other buildings (R8 and R9) approved within Block X results in a total GFA of 18,897m <sup>2</sup> , and therefore complies with the maximum GFA development standard. See Section 4.3.	Clause 19 - Design Excellence	The proposed development demonstrates Design Excellence in accordance with clause 19. See Section 4.4.1.
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Clause 19 - Design Excellence	The proposed development demonstrates Design Excellence in accordance with clause 19. See Section 4.4.1.										
SEPP (Infrastructure)	The proposed development includes piling and therefore involves excavation more than 2m below ground level within 'Zone B' on the interim rail corridor map. The northern most pile of R1 is located within the Sydney Metro corridor. However, as detailed in Section 4.18, Lend Lease has prepared a letter (see <b>Appendix J</b> ) which demonstrates the proposed development will be carried out in accordance with the previous advice received and Deed it has entered into with Barangaroo Delivery Authority and Transport for NSW to ensure the protection of the Sydney Metro corridor.										
SEPP (State and Regional Development)	Development that has a capital investment value (CIV) of more than \$10 million on land identified as being within a State Significant Development Site is State Significant Development under Schedule 2 of State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP). Accordingly, with a CIV of \$12.4 million this development is State Significant Development.										
Sydney Harbour REP	<table> <tr> <td>Clause 20 General</td><td>The matters referred to in Division 2 are addressed below.</td></tr> <tr> <td>Clause 21 Biodiversity, ecology and environment protection</td><td>The proposed mitigation measures set out in Section 6 will ensure the development will not have any impact on the Harbour's biodiversity, ecology or environment.</td></tr> <tr> <td>Clause 22 Public access to, and use of foreshores and waterways</td><td>The development is consistent with the Concept Plan which provides improved pedestrian access to Barangaroo and the foreshore, and is therefore considered entirely consistent with clause 22.</td></tr> <tr> <td>Clause 23 Maintenance of a working harbour</td><td>The proposed Building R1 forms part of the redevelopment of the wider Barangaroo site for mixed uses that was assessed as part of the Concept Plan for the site.</td></tr> <tr> <td>Clause 24 Interrelationship of water and foreshore uses</td><td>The proposed development will not have any adverse impacts on the use of waterway for maritime functions. The development is located away from the foreshore.</td></tr> </table>	Clause 20 General	The matters referred to in Division 2 are addressed below.	Clause 21 Biodiversity, ecology and environment protection	The proposed mitigation measures set out in Section 6 will ensure the development will not have any impact on the Harbour's biodiversity, ecology or environment.	Clause 22 Public access to, and use of foreshores and waterways	The development is consistent with the Concept Plan which provides improved pedestrian access to Barangaroo and the foreshore, and is therefore considered entirely consistent with clause 22.	Clause 23 Maintenance of a working harbour	The proposed Building R1 forms part of the redevelopment of the wider Barangaroo site for mixed uses that was assessed as part of the Concept Plan for the site.	Clause 24 Interrelationship of water and foreshore uses	The proposed development will not have any adverse impacts on the use of waterway for maritime functions. The development is located away from the foreshore.
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Instrument / Strategy	Comments
Clause 25 Foreshore and waterways scenic quality	This application seeks to provide a high quality new building that will contribute to the scenic quality of the waterway.
Clause 26 Maintenance, protection and enhancement of views	The proposed development will not adversely impact any views and vistas, preserving the key view down Transport Place to the Harbour from Wynyard Walk and Hickson Place. It will also provide new views to the Harbour from the new building.
Clause 27 Boat storage facilities	N/A. No boat storage facilities are proposed.

## 4.2 Barangaroo Concept Plan

This SSDA seeks approval for the construction of Building R1 as described in Section 4 of this report. Building R1 is located within Block X of Barangaroo as identified under the approved Concept Plan (Mod 7) and has been designed in accordance with the approved Concept Plan, as detailed below.

The Barangaroo Concept Plan identifies maximum GFA and height controls for each Development Block within Barangaroo South, including Block X, within which Building R1 is located. In addition, the Concept Plan requires future applications to demonstrate consistency with the Built Form Principles and Urban Design Controls within the Supplementary Urban Design Statement by RSH+ P (12 November 2010), as modified subject to Condition B9.

Compliance with the conditions of consent, and consideration of the Built Form Principles, was imposed by the Minister for Planning to ensure that the bulk and scale of future buildings on the Development Blocks is acceptable with respect to the relationship between the surrounding land uses and the bulk and scale of buildings.

### Numeric Concept Plan Controls

**Table 3** provides a comparison of Building R1's consistency with the Concept Plan numerical controls.

**Table 3** – Compliance with Concept Plan (Mod 7) Block X GFA and Height Controls

Block X Concept Plan (Mod 7) Control	Residential Buildings R8 & R9	Building R1	Block X Cumulative Total	Compliance
Maximum GFA – 18,908m <sup>2</sup>	18,104m <sup>2</sup>	804m <sup>2</sup>	18,908m <sup>2</sup>	Compliant
Maximum height – RL 41.5	N/A	RL21	N/A	Compliant

Further discussion regarding GFA is provided in Section 4.3.

### Built Form Principles

As demonstrated in the Architectural Drawings and Design Statement at **Appendix A**, Building R1 complies with the Concept Plan (Mod 7)'s Built Form Principles, specifically it will:

- Contribute to a ribbon of buildings along the waterfront to mediate the scale between the tower forms and the public promenade consistent with Built Form Principle 1;
- define the public sense of space to the street by building the facades to the street alignment consistent with Built Form Principle 3;
- assist with achieving a tapering building form across Barangaroo South consistent with Principle 5;



- provide for pedestrian permeability through Block X consistent with Built Form Principles 4 and 6; and
- be orientated to the west to define the linear nature of the promenade consistent with Built Form Principle 8.

It is noted that the development is not inconsistent with the other Built Form Principles, however they do not specifically relate to Building R1.

## Urban Design Controls

In the introduction to the Urban Design Controls, the document states that the Controls are intended to *"guide the built form and allow flexibility for the design of individual buildings and spaces, within the certainty of a structured framework."* The controls are not implemented as a prescriptive set of design requirements in order to allow for innovation, creativity and alternative design solutions to be achieved on each of the development blocks.

Building R1 complies with the principles and controls by providing:

- a building mass that is appropriate within the envelope;
- a street wall that defines the promenade;
- an articulated, well-proportioned and legible building mass;
- permeability and accessibility through Block X;
- an articulated and legible rooftop;
- high architectural quality facades that contribute to the buildings articulation and mass; and
- potential activation of the promenade through providing 100% of the façade for future active uses.

**Table 4** demonstrates that Building R1 is generally consistent with the key Urban Design Controls of the Concept Plan (Mod 7).

**Table 4 – Compliance with Concept Plan Urban Design Controls**

Concept Plan (Mod 7) Block X Control	Building R1	Comment
<b>Control 1 Building Mass and Location</b>		
Above Ground floor level the westerly oriented facades to have a minimum 3m setback. Open and enclosed balconies are allowed to protrude into the setback zones.	Above ground level, Building R1 is setback 3.15m to the Block X boundary. It is noted that the balconies on the upper levels do protrude into this zone.	Consistent
The building mass height will be between maximum and minimum heights of RL41.5 and RL25 respectively.	The proposed building height sits at RL 21 and is therefore below the minimum height. See further discussion below.	See further discussion in Section 4.4.2.
On the easterly oriented facades a minimum of 1m setback is required.	At ground level the eastern façade is setback 2.15m from the Block X boundary. This setback reduces on the upper levels to a minimum of 1.52, still in excess of the 1m minimum setback.	Consistent
<b>Control 2 Street Wall Establishment</b>		
The building mass at the podium is to form a continuous Street Wall around the site for a minimum of 85% of the site perimeter.	The proposed building mass forms a continuous street wall around the site.	Consistent
<b>Control 3 Building Articulation</b>		
To reduce the impact of the buildings mass, the envelope and floor plates are to be horizontally and/or vertically articulated, in particular at upper levels.	Building R1 is horizontally articulated through the design of each level being reflective of bowls. The use of materials and landscaping contributes to breaking up the mass of the building.	Consistent

Building Form is to express sustainability features such as for example access to natural light, ventilation and solar shading.	The design of Building R1 has considered cross ventilation and solar access, particularly in regards to its westerly aspect. Glazing is to be provided around the internal floor plate to allow natural daylight penetration. A significant proportion of this glazing will be operable allow for natural ventilation.	Consistent
<b>Control 4 Building Legibility</b>		
The separate primary components of the building will be expressed and include additional elements such as the open and enclosed balconies.	The different architectural elements of the building are well expressed with significant open terraces on each level above ground.	Consistent
Building form is to be reinforced using modulation of open and enclosed balconies, building elements, etc. to avoid monotony.	The low scale nature of the building ensures a monotonous built form is avoided. The use of natural materials and provision for future landscaping softens the built form and assistance the building in achieving a striking design.	Consistent
<b>Control 5 Ground Floor Permeability and Accessibility of Public Realm</b>		
Public access around the Block is to be maintained on all edges.	The building design has been tailored to facilitate and encourage pedestrian movements.	Consistent
To provide one north to south and four east to west primary connections.	Building R1 is located in the position identified under the indicative design scheme and therefore facilitates these connections through the site.	Consistent
<b>Control 6 Ensuring Quality of Rooftops</b>		
Roof forms to incorporate architectural elements.	A flat roof form has been adopted to minimise the scale of the building when viewed from the public domain. The roof incorporates PV Cells as architectural elements.	Consistent
Architectural treatment of exposed elements such as lift shafts, overruns control rooms and any sustainability features.	The necessary building plant material will be appropriately screened and located to ensure that it is not discernable from the public domain.	Consistent
Exposed mechanical equipment is to be avoided.	The plant material has been located away from the western frontage to ensure that views from the key public domain area towards the building are not interrupted by plant material.	Consistent
Good quality materials (i.e. durable, hardwearing, sustainable) to be used.	Good quality materials will be used to ensure a suitable building longevity.	Consistent
Roof to incorporate no more than 60% accessible terraces.	No portion of the roof is proposed to be an accessible terrace.	Consistent
<b>Control 7 Facades</b>		
The choice of appropriate materiality for longevity, durability and flexibility. Materials such as steel, glass, concrete, timber and aluminium shall be considered.	Sustainable materials are proposed for the façade design. These materials will provide a natural appearance and have a suitable longevity, durability and flexibility.	Consistent
Environmentally sustainable design is to be incorporated on all facades.	Each façade has been designed to enhance the environmental sustainability of the building by maximising natural ventilation and solar access.	Consistent
Depth and layering of facades is to be achieved through relief and protrusions. Mirrored facades should be avoided.	The internal floor plate is well setback from the building edge, allowing for useable outdoor terraces and variation in the building façade.	Consistent
Facade components such as external shading shall be used to provide light and shade to the building.	The depth of the internal floor plate from the building edge ensures that excessive solar access is avoided on the western façade.	Consistent

<b>Control 8 Active Street Fronts</b>		
At least 85% of the Ground Level is to be active on the primary Street Wall facades ( North & West)	There is an opportunity to maximise the activation of the building at ground plane by the provision of extensive glazing. A future separate application will seek the use and fitout of the building which will maintain demonstrate consistency with this control.	Consistent
Building entrances to internal areas such as residential lobbies, exit ways and service areas or loading docks shall be considered as part of the 85% active requirement.	Noted.	Noted
Building service areas, parking entrances and loading docks will not be located on the promenade with the majority of servicing occurring from the basement.	The majority of servicing is envisaged to occur from within the basement. No services are located on the prominent western frontage.	Consistent
The width of driveways shall be minimised.	No driveways are proposed.	N/A

### Statement of Commitments

The Statement of Commitments requires a number of Plans and Strategies to be submitted to the Planning Reference Group prior to lodgement of any relevant Project Application (other than for demolition or early /site preparation work). In conformance with the Statement of Commitments the above plans and strategies were submitted to the Planning Reference Group prior to the submission of the Commercial Building C4 Project Application. There are no commitments that specifically relate to Building R1.

## 4.3 Land Use and GFA

It is intended that Building R1 will be used as a food and drink premises. A separate future DA will be lodged for the use and fitout of the building once a tenant has been confirmed. The impacts of the future use will be assessed as part of that application. Depending on the final use, if required, the future DA will provide Plans of Management and Security Management Plans.

A summary of the Building R1's areas, including a floor by floor breakdown of GFA, the total GFA and the Concept Plan indicative building site coverage is provided at **Table 5**.

**Table 5** – Summary of proposed building areas

<b>Building R1</b>	
Total GFA	804
Ground	236
Level 1	330
Level 2	238
Site Coverage	100%

A summary of the total approved/proposed GFAs by Concept Plan block, land use and precinct are provided in **Tables 6** and **7**.

**Table 6** – Summary of approved/proposed GFA by Concept Plan block

Block	Building	Approved/Proposed GFA (m <sup>2</sup> )	Max Allowable GFA (m <sup>2</sup> ) under the approved Concept Plan (Mod 7)	Residual GFA
Block 1	Building R7	1,927	9,400	7,473
	<b>Total</b>	<b>1,927</b>		
Block 2	Commercial Building C2	7,920	209,213	12,070.5
	Kiosk C6	25		
	Commercial Building C4	99,097		
	Commercial Building C5	90,105		
	<b>Total</b>	<b>197,147</b>		
Block 3	Commercial Building C3	117,968*	142,669	24,701
	<b>Total</b>	<b>117,968*</b>		
Block X	Residential Building R8	9,694	18,908	0
	Residential Building R9	8,410		
	Building R1	804		
	<b>Total</b>	<b>18,908</b>		

**Table 7** – Summary of approved/proposed land uses across Barangaroo South

	Retail	Commercial	Tourist	Community	Residential
Building C2	635	7,285	-	-	-
Commercial Building C3	7,021	106,593	-	1,677	-
Commercial Building C4	2,338	97,099	-	-	-
Commercial Building C5	4,593.70	85,330.50	-	-	-
Kiosk C6	25				
Residential Building R8	832	-	-	-	8,826
Residential Building R9	815	-	-	-	7,595
Building R1	804	-	-	-	-
Building R7	1,499	338	-	91	-
<b>Total</b>	<b>18,562.70</b>	<b>295,645.50</b>		<b>1,768</b>	<b>16,421</b>

## 4.4 Urban Design and Built Form

### 4.4.1 The Design Process and Design Excellence

Pursuant to Clause 19, Part 12 of Schedule 3 of the Major Development SEPP and DGR 4 - Urban Design and Built Form, in determining an application for a new building at Barangaroo, the consent authority must consider whether the proposed development exhibits design excellence.

In considering whether the proposed building exhibits design excellence, the consent authority must have regard to the following matters:

- whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved;*
- whether the form and external appearance of the building will improve the quality and amenity of the public domain;*
- whether the building will meet sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency; and*

- d) if a design competition is required to be held in relation to the building, as referred to in subclause (3), the results of the competition.*

Clause 19(3) requires a design competition to be held for development that will be greater than RL 57, or where the erection of a new building is proposed on a site of greater than 1,500 square metres.

In addition, Condition C2 – Design Excellence of the approved Concept Plan (Mod 7) requires a design excellence competition to be held by the Director-General and convention of a design review panel for development that exceeds 55 metres in height, or is on land exceeding 1,500m<sup>2</sup> in area. Under Condition C2, the key matters for consideration are:

- whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved;
- whether the form and external appearance of the building will improve the quality and amenity of the public domain;
- whether the building meets sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency;
- a comparison of the proposed development against the indicative building controls identified in Section 13.0 – Built Form of the approved Concept Plan EAR; and
- whether the new development detrimentally impacts on view corridors, particularly from public spaces and streets.

The proposed development does not trigger the above requirements. However, a design competition was held for the building with the intent of selecting an architect that demonstrates the capacity to design a building that exhibits design excellence.

## The Design Process

In order to ensure design excellence was achieved across the Barangaroo South site Lend Lease prepared a Design Excellence Strategy (DES). The DES has been provided to the Barangaroo Reference Group. The DES set out a range of initiatives and elements to ensure a high quality design outcome is achieved for all individual buildings. Specifically Lend Lease selected Building R1 as the location for a design competition for an emerging architect.

The competition was held in 2013 and included alternative designs submitted by a range of eminent emerging architects including Lacoste and Stevenson, Draw, LAVA, Sylvester Fuller, Scale Architecture and Collins and Turner.

A judging panel comprising Lend Lease team members, a Barangaroo Delivery Authority representative and Ivan Harbour from Barangaroo South master architects Rogers Stirk Harbour and Partners (RHS+ P) selected Collins and Turner over the other entrants due to its “artistic design” and “well-researched, well organised and flexible approach”.

An overview of the design vision is provided in the Architectural Design Statement at **Appendix A**.

Following the completion of the design competition the proposed design for Building R1 has been through a rigorous process of design review, both internally and with the independent design experts. The proposed design was presented to the Barangaroo Delivery Authority’s Design Director and design advisors. Comments from all of the design reviewers have been taken into account and have led to the refinement of the design.

## The Design Team

Prior to establishing their practice, Penny Collins and Huw Turner each gained over 15 years experience internationally working with industry leaders including Barangaroo's lead architects RHS+ P, Grimshaw, Hassell, and Foster and Partners. Since the inception of the practice in 2002, Collins and Turner has established a track record in realising unique design solutions.

Collins and Turner's architectural achievement has been recognised nationally and internationally with extensive publication of projects in books and magazines, on-line, and on television. A number of Collins and Turner projects have been recognized with design excellence awards. In 2013, the firm won the Sulman Medal (the highest honour awarded by the Royal Australian Institute of Architects in NSW) for the Waterloo Youth Family Community Centre, along with a national award for public architecture, and state and national awards for sustainability, and the national Bluescope steel award for best steel building for the same project. Further information regarding Collins and Turner can be found in their Architectural Design Statement at **Appendix A**.

The design of Building R1 was informed by the 'Master Architects' of the Barangaroo South, RHS+ P. Other members of the consultant team, including Aspect Oculus have also contributed greatly to the design, ensuring that Building R1 is a realistic, integrated and innovative design. Lend Lease's team of world class specialists in engineering, sustainability, urban planning and landscape design have all helped to shape the scheme from its inception.

The project team has always been mindful of emerging trends throughout the world and has benchmarked the scheme against other projects in Australia and internationally.

## High Standard of Architectural Design

Some of the key design features of Building R1 that demonstrate the high standard of architectural design include:

- the form is articulated as three horizontal layers, with the fenestration recessed to different depths at each level and each facade, to create a playful abstract form;
- the soffits are expressed as 'louvered bowls' that allow daylight to filter through the layered cladding at its perimeter, whilst above the soffit is a glazed to provide weather protection;
- the ground plane creates a permeable and active edge to the waterfront; and
- implementing a variety of environmentally sustainable measures.

## Achieving Design Excellence

The proposed development will exhibit design excellence as:

- emerging architectural practice Collins and Turner has been engaged as architects on the project to work alongside other esteemed members of the consultant team;
- a high standard of architectural design, materials and detailing is achieved, appropriate to the building type and location;
- the building form, external appearance and the ground floor plane provides for high amenity and quality of public domain;
- Lend Lease commits to ensuring continuity in the design process and realisation of the submitted design in the completed building by ensuring that Collins and Turner have direct involvement in the design documentation phase;
- it generally complies with the planning framework established for the site;

- the new development will have no adverse impacts on view corridors, particularly from public spaces and streets.
- it utilises Lend Lease's skills and proven track record to deliver an exemplary commercial building; and
- it explores and implements innovative technical and sustainable solutions, contributing to cutting edge design excellence.

The Development Application exhibits design excellence and therefore clearly meets at the intent of Clause 19 of the Major Development SEPP and Condition C2 of the approved Concept Plan (Mod 7). The strategy is also consistent with the DES requirements established in the approved Concept Plan's associated Statement of Commitments.

#### 4.4.2 Height, Bulk and Scale

The Urban Design Controls for Block X indicated that the building height would be between a minimum and maximum height of RL25 and RL41.5 respectively. The proposed building is slightly lower than the minimum height of RL 25, at RL21.

The 'minimum height' for R1 specified in the Concept Plan controls was determined with the intent of stepping built form down as it approaches the waterfront, when the intended height of Building R7 was envisaged to be 70m. Lend Lease now envisages that Building R7 will extend to approximately 19m in height (to a level of approximately RL 22.68) building. The proposed height of Building R1 has been reduced to achieve a transition in scale down to the waterfront, consistent with the intent of the Concept Plan height control.

In light of the above, the proposed height is considered to achieve the most appropriate transition between the two critical interfaces of Bungalow 8 and Residential Building R9, and the Waterfront Promenade and R7 and provide the highest amenity outcome for the future public domain along the foreshore.

Building R1's low building height and small floor plates means that the building has a low scale appearance when viewed from the surrounding public domain. The contrast of solids and voids gives depth and modulation to the building, disseminating any perceived bulk. The curved form of each level, and the use of natural materials and landscaping further softens the building. The unique architecture featuring curved lines and natural materials is appropriate for the Building's siting adjacent to Sydney Harbour, and will create an exciting contrast with its highly urbanised eastern-backdrop of the CBD and other commercial and retail buildings at Barangaroo South. As a result of these features, the building will have an iconic presence, despite its diminutive form.

In light of the above, Building R1's height is considered to be generally consistent with the Concept Plan.

#### 4.4.3 View Analysis

Due to the small scale of R1, it is not visually prominent, and in some cases not visible, from the established Concept Plan key viewpoints. Accordingly the view impacts have been considered from the following key locations in order to assess the impact of the proposed building:

- View north and south along the Foreshore Promenade; and
- View west down Transport Place to Darling Harbour.



### View north and south along the Foreshore Promenade

The view north and south along the Waterfront Promenade will be an important view for both pedestrians that arrive to the site from King Street Wharf or the Ferry Wharves and pedestrians moving from the site to King Street Wharf.

The alignment of the western facade of Building R1 is based on the alignment established by Residential Buildings R8 and R9, which achieves an unobstructed 30m corridor along the foreshore. The 30m setback from the foreshore ensures the important view corridor is maintained.

Consistent with the approach taken for approved Residential Buildings R8 and R9, parts of the upper level terraces protrude within the 30m zone. However, as shown in **Figure 9**, these terraces, which are fundamental to the architecture of the building, will not impact on the views along the Foreshore Promenade.



**Figure 9** – Building R1 with foreshore in the background

### View west down Transport Place to Darling Harbour

The view west from Transport Place to Darling Harbour will be an important view for pedestrians that arrive to the site from Sussex Street or Wynyard Walk. Building R1 forms the southern-side frame to this view, opposite Residential Building R9 to the north.

The building will be located within the indicative development footprint envisaged under the Concept Plan. Some sections of the upper level terraces protrude beyond the northern-extent of the indicative Concept Plan building footprint. However, this will not detrimentally impact on the intended view corridor given the terraces will be balanced by commensurate voids in the building's horizontal form to create an interesting frame for the view.

#### 4.4.4 Overshadowing

As illustrated in the Shadow Studies at **Appendix A**, the low scale nature of Building R1 results in very minor overshadowing. The impact of the shadow cast by Building R1 were assessed and approved under the Concept Plan, which considered a building up to RL 41.5. As the proposed building is substantially smaller the shadow impacts that would be created by the proposal are considered to be minor and acceptable.

The shadows of the proposed building will largely fall within the shadow of the approved and future buildings within Barangaroo South. On 21 June, the shortest day of the year, the shadow impacts are as follows:

- 9am: no additional shadow;
- 12pm: a small shadow falls directly to the south on the pedestrian path between Bungalow 8 and R1; and
- 3pm: the shadow falls predominantly on the Lime Street road reserve.

With the exception of mid-summer during early morning, when shadows are desirable, the building will not cast any additional shadow on the Waterfront Promenade or any other key public spaces.

#### 4.4.5 Wind

A Wind Study has been prepared by CPP and is included at **Appendix G**. The Study identifies that the wind flow around Building R1 is dictated by the neighbouring taller structures and the open harbour to the west. The results of the wind tunnel testing demonstrate that, from a pedestrian comfort perspective, the wind conditions around the site all met the pedestrian walking criterion and at the majority of locations will be as acceptable for pedestrian standing activities.

It is noted that the prismatic massing model used in the testing is expected to generate higher wind acceleration around the building corners, and therefore the proposed curved design would be expected to have similar or lower wind conditions to those assessed.

### 4.5 Public Domain and Public Access

The Building R1 SSDA only proposes a small area of public domain around the perimeter of the building. The remainder of the public domain will be provided as part of the Stage 1A Public Domain SSDA (SSD 6303) which proposes the public domain treatments for the entire Stage 1A area within Barangaroo South, including the vicinity of Building R1. The public domain works at the ground plane of Building R1 will integrate seamlessly with this public domain as illustrated on the Architectural Drawings (**Appendix A**).

The pedestrian experience around Building R1 has been considered in the overall design of the building. The curved nature of the building has been modelled to allow for more free-flowing pedestrian flows through the Barangaroo South site. The curved form of the building will allow for more organic pedestrian movements and enhance site lines within the public domain. **Figure 10** illustrates the aim of the building form in facilitating pedestrian movements around the site.

The proposed usable terraces on the western frontage of Building R1 will also enhance the public domain through improving surveillance and the presence of activity at upper levels as well as along the ground plane.

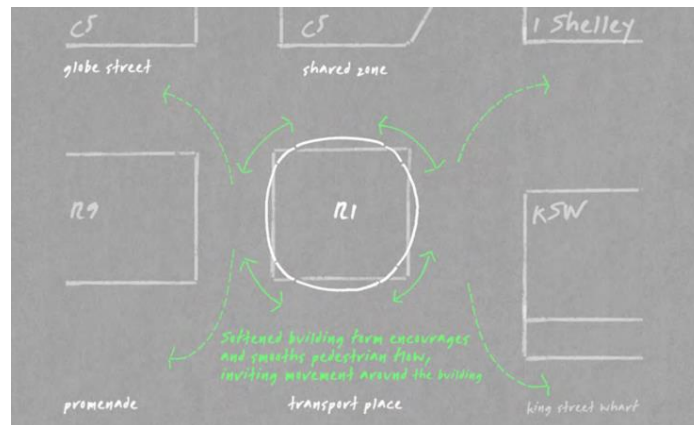


Figure 10 – Pedestrian experience diagram

Source: Collins and Turner

## 4.6 Transport and Accessibility Impacts

A Transport Assessment has been prepared by ARUP and is included at **Appendix D**. A summary of the assessment and proposed mitigation measures are provided below.

### 4.6.1 Operational Traffic

#### Assessment

On the basis that the building is intended to be used as a food and drink premises, ARUP has determined that the majority of Building R1 users will arrive via non-car modes of transport, such as walking, cycling or public transport. A variety of public transport linkages are located within close proximity to the site and bicycle parking will be provided throughout the public domain (proposed as part of SSD 6303).

Considering the quantum of floor space provided, and the likely use as a food and drink premises, ARUP has determined that the traffic generation of Building R1 will be 6 vehicles per hour during peak hours. This traffic increase is considered to be negligible.

Applying the 'other uses' car parking rates established under the Concept Plan, ARUP has determined the maximum number of spaces available to Building R1 to be 15 spaces. Accordingly 15 spaces are proposed within the basement, consistent with the Concept Plan.

In line with Statement of Commitment No. 47, off-street bicycle parking and shower facilities will be provided within buildings in line with the minimum rate for Other Uses of 6 bicycle spaces for every 100 Other Uses car parking spaces. This equates to 0.9 bicycle spaces. Alternatively, providing bicycle parking for 4% of staff on site would require 1 bicycle parking space. Bicycle parking for the R1 building will be provided within the adjacent public domain in front of Building R7. This bicycle parking is proposed as part of the Stage 1A Public Domain SSD (SSD 6303).

#### Mitigation Measures

Due to the negligible traffic generation, the proximity of the site to public transport, and the provision of an appropriate number of car and bicycle spaces, ARUP has not recommended any mitigation measures for the operation phase of the proposal.

## 4.6.2 Construction Traffic

### Assessment

Arup has outlined the expected construction programme for works associated with the Barangaroo site, including internal and external works. These timeframes have informed an assessment of the cumulative construction traffic expected for the Barangaroo South and nearby projects on other land, whilst the Building R1 works are being undertaken.

The highest expected combined level of construction activity generated by all worksites associated with the site will be during August 2014. The Building R1 works are expected to commence in June 2015 and are anticipated to generate eight construction vehicle movements per day, with no more than two trucks per hour forecast to access the site. This expected increase is negligible in the overall construction traffic of works at the Barangaroo site.

The majority of construction truck movements will occur prior to the afternoon peak commuter period, to minimise the potential impact on the surrounding road network. During the morning peak period the access road is expected to operate satisfactorily and requires no further works to mitigate the minor increase in construction traffic.

### Mitigation Measures

Due to the minor nature of the increase in construction traffic resulting from the proposed Building R1 works, ARUP has not recommended any specific mitigation measures.

## 4.7 Heritage

As outlined in Section 2.5.7, it has been confirmed that the Barangaroo South site does not contain any further items of heritage or archaeological significance. Furthermore, no items of heritage significance are located in the immediate vicinity of the proposed Building R1. Proposed Building R1 is located internally to the Barangaroo South site, and is consistent with the maximum parameters established under the Concept Plan (Mod 7). Previous studies and significant excavation works have been undertaken on the site, and potential archaeological items of significance have been identified and removed. As such, the proposed development will not have any impact on items listed on any heritage register.

## 4.8 Contamination

As identified at Sections 1.1.3 and 3.1 of this EIS, the Basement Car Park Approval provides for the remediation of all contaminated material within the site with the exception of any contaminated material found as a result of the excavation works for the piling.

AECOM has prepared a letter (see **Appendix E**) confirming that the proposed works:

- are consistent with the works contemplated with the ORWS Amended RAP (AECOM, 2011) and can be appropriately managed by the provisions of that document;
- will not require amendment of the ORWS Amended RAP (AECOM, 2011 ); and
- the information presented in this letter will enable the relevant consent authority to comply with Clause 7(1 ), 7(2) and 17(1) of SEPP 55- Remediation of Land

## Assessment

Clause 7(1) of SEPP 55 provides that a consent authority must not consent to the carrying out of any development on land unless:

- (a) it has considered whether the land is contaminated, and*
- (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
- (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

Clause 7(2) of SEPP 55 also requires a consent authority, when considering an application for consent to carry out development that would involve a change of use on land, to consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

Clause 4.6 of the Guideline identifies that in carrying out functions under the EP&A Act in relation to land that is or potentially is contaminated, planning authorities should take into account the following principles:

- No planning decision should be made unless sufficient information is available to make the decision.
- Development applications should include sufficient information on past uses of the subject land to allow the suitability of the land for the proposed use to be assessed.
- Changes of use on contaminated land may proceed provided:
  - the land is suitable for the intended use, or
  - provisions are included in the planning instrument to require appropriate investigation or restrictions on any subsequent development applications, or
  - conditions are attached to the development consent to ensure that the subject land can and will be remediated to a level appropriate to its intended use prior to, or during, the development stage.

In accordance with Clause 7(1)(a) of SEPP 55, this DA has considered and identified that the land that is subject to this DA is contaminated. The works proposed as part of this DA include some excavation works for the piling. The SSDA therefore seeks approval for the remediation of that excavated material.

ERM has prepared an Overarching Remedial Action Plan (Overarching RAP) for the Barangaroo site for the Barangaroo Delivery Authority (see **Appendix E**). The Overarching RAP presents a summary of the contamination issues identified on the Barangaroo site and outlines an approach to the remediation of the site as a whole.

In accordance with the requirements of the Overarching RAP, a Site Specific Remedial Action Plan known as the "Amended Remedial Action Plan - Barangaroo - Other Remediation Works (South) Area" has been prepared by AECOM Australia Pty Ltd, dated 7 July 2011 (ORWS RAP) (see **Appendix E**). An addendum to this RAP, known as the Addendum to OWRS RAP was prepared in 2012 by AECOM to include a further portion of the Barangaroo South site within the boundaries of the original OWRS RAP. The OWRS RAP (as amended) includes the majority of the Development Application site. The preparation of the OWRS RAP (as amended) was informed by the Human Health Environmental Risk Assessment, prepared by AECOM, dated 4 July 2011 (HHERA), including the Site Specific Target Criteria (SSTC) that are contained in the HHERA.



Section 1.3.1 of the ORWS Amended RAP (AECOM, 2011) states that the proposed landuse within the ORWS Public Domain (i.e. the area west of the Stage 1A basement diaphragm wall) 'will incorporate open space with community, mixed commercial and retail land use, and landscaping (planter boxes, paved area and parking)'. The maximum height of development within the ORWS Public Domain was also defined to be 'limited to two storeys'.

Building R1 will be 3 storeys and extend into the ORWS Public Domain where it will be constructed as 'slab on grade'. This land use (that is a slab on grade building with a height of greater than 2 storeys) was not specifically provided for by the ORWS Amended RAP (AECOM, 2011). Notwithstanding, it is considered that the land use in that part of Building R1 that falls outside the Stage 1A groundwater retention wall (within the ORWS Public Domain) is generally consistent with the range of land uses envisaged by the ORWS Amended RAP (AECOM, 2011) and will not present an unacceptable risk to human health.

Construction of the piles is considered to be consistent with the limited excavation works anticipated by the ORWS Amended RAP (AECOM, 2011). Excavation works required for construction of the ground beam and structural slab is also considered to be consistent with the limited excavation works anticipated by the ORWS Amended RAP (AECOM, 2011).

The ORWS RAP, which is to be applied to the Building R1 Development Application works therefore satisfies the requirement for a 'plan of remediation' under clause 17(1)(c) of SEPP 55 and has been prepared in accordance with the contaminated land planning guidelines.

Accordingly, the ORWS RAP (including the HHERA and SSTC) together with copies of all documents referred to in this section are formally submitted to the Minister, as the relevant consent authority, for approval in connection with this SSDA for the purposes of SEPP 55.

### Mitigation Measures

Remediation works for the piling and excavation activities associated with Building R1 should be carried out in accordance with the Remedial Action Plan – Other Remediation Works (South) Area prepared by AECOM (including all RAP addendums prepared and remedial work plan(s) prepared in conformance with these RAPs).

## 4.9 Ecologically Sustainable Development

A range of significant sustainability targets have been established for Barangaroo South that will be delivered progressively throughout the development phase.

Building R1 specific initiatives include:

- The proposed design will be strongly connected to the external environment through the use of shaded outdoor terraces and indoor spaces that can operate as mixed mode.
- Materials, sealants and adhesives will be chosen responsibly to be consistent with Green Star to minimise VOCs and formaldehyde.
- Incorporation of rooftop solar photovoltaics.
- Use of sustainable materials including responsibly sourced timber and low embodied carbon concrete.
- Low energy design incorporating external shading, external planting to enhance micro-climates, mixed mode design, low energy LED lighting and connection to precinct district cooling plant.

- Connection to non-potable water supply from Recycled Water Treatment Plant for flushing.
- Selection of low flow fittings and controls to minimise water use.

The ESD Report prepared by Lend Lease included at **Appendix H** demonstrates that the proposed development supports the site wide aspirations through the use of renewable energy, water sensitive urban design and selection of environmentally responsible materials.

An analysis of the proposal against the principles of ecologically sustainable development set out in the EP&A Regulation is provided in **Section 7.3**.

## 4.10 Infrastructure Provision

Cardno has prepared an Infrastructure Provision and Stormwater Statement outlining the existing infrastructure, how the proposed Building R1 will be serviced, and if any impacts will occur on existing infrastructure as a result of the proposed development (refer **Appendix I**). The key elements of the Infrastructure Provision and Stormwater Statement are outlined below.

### Assessment

All infrastructure provision to the R1 site, including water, gas, electricity and communications, is being provided under either the Basement Car Park Approval or is currently proposed in the Stage 1A Public Domain SSDA (SSD 6303). The building will connect to this basement infrastructure (see Section 3.4). No existing infrastructure is expected to be impacted or require relocation as a result of the proposed works.

Similarly, all water, drainage, stormwater and groundwater considerations have been resolved under the Basement Car Park Approval or are being addressed in the Stage 1A Public Domain SSDA (SSD 6303). The proposed building will integrate with these networks (see Section 3.4).

The design of the proposal has anticipated all required servicing arrangements, and it is confirmed that the proposal will not have any impact on any existing infrastructure (refer to Infrastructure Letters at **Appendix O**).

### Mitigation Measures

As there are no environmental impacts Cardno has not recommended any mitigation measures for the proposed works.

## 4.11 Noise Impacts

An Acoustic Report has been prepared by Wilkinson Murray and is included at **Appendix L**. This report has examined the potential noise and vibration impacts of the proposed Building R1 works. A summary of the assessment and proposed mitigation measures are provided below.

### Assessment

Wilkinson Murray has identified the sensitive residential and commercial receivers located within the vicinity of the Barangaroo South site. The potential construction noise of the proposal has then been identified and assessed against the applicable criteria.

Due to the scale of Building R1, Wilkinson Murray has confirmed that it is unlikely there will be any excessive noise levels at surrounding receivers. Wilkinson Murray has also modelled the cumulative potential noise impact of construction at



Barangaroo South. It has been determined that the construction noise from Building R1 will not significantly add to the noise levels cumulatively on the Barangaroo South site.

Based on the expected traffic generation, it is not expected that any adverse construction traffic noise will be associated with Building R1.

Wilkinson Murray has explained that the potential operational noise impacts of Building R1 are more appropriately addressed in association with the proposed use and fit out of the building in the future, which will be addressed via a separate application. Potential noise generators have been identified as plant material and equipment. Wilkinson Murray suggests that adequate mitigation measures can be implemented during the design development phase of the proposal. Due to the absence of any specific use being proposed as part of this SSDA, no assessment of noise generated from different uses has been undertaken. The assessment of potential noise generated from specific uses and any required mitigation measures will be undertaken as part of a future application for the use of the building.

Due to the nature of the construction works associated with Building R1, no significant vibration levels are expected to be generated and no mitigation measures will be necessary.

### Mitigation Measures

Wilkinson Murray has determined that no specific noise and vibration measures are required for the proposed Building R1 works. It is recommended by Wilkinson Murray that the procedures and management measures included in the existing Environmental Site Construction Management Plan are continually applied during the construction of Building R1.

## 4.12 Air and Odour

### 4.12.1 Air Quality and Odour

An Air Quality Assessment Letter has been prepared by AECOM and is included at **Appendix K**. A summary of the air quality assessment and proposed mitigation measures are provided below.

#### Assessment

AECOM has identified that a range of construction activities will be concurrently undertaken at Barangaroo and the cumulative impact of these activities along with the proposed Building R1 works need to be considered.

The Building R1 works proposed under this application are typical of a low rise building and will be low impact.

Based on studies for construction activities at Barangaroo, AECOM has confirmed that the Building R1 works will not substantially increase air emissions. AECOM's cumulative assessment of construction activities associated with concurrent construction of five main Barangaroo buildings (C3, C4, C5, R8 and R9); the operation of a concrete batching plant; recycled water treatment plant; remediation works in Block 4; and other approved works in the immediate surrounds of the Barangaroo South site determined that the EPA's 24 hour and annual PM10 and 1 hour NO2 ambient criteria would be exceeded. This has largely been attributed to the operation of the concrete batching plant.

In this cumulative assessment AECOM noted that no emissions of pollutants to cause odours were likely to exceed the relevant criteria. It has been confirmed that the Building R1 works will not result in any exceedances of this criteria both in the construction and operational phases. Subject to the ongoing implementation of the mitigation measures specified below, AECOM has confirmed that the air quality

impacts of the Building R1 works will be acceptable from an air quality perspective.

### Mitigation Measures

Currently a reactive dust mitigation system has been implemented by Lend Lease at the Barangaroo South site. This includes ambient pollution monitoring directly linked to real-time warnings and incorporates work procedures to ensure that action is taken to reduce dust levels when they are elevated and at risk of exceeding acceptable air pollution levels. The system has been operational on the Barangaroo South site for many months, and will continue to operate throughout the Building R1 construction works.

AECOM has recommended that the Building R1 construction works be incorporated into the existing environmental management plans and the reactive dust mitigation system be continued. If these mitigation measures are implemented, no adverse effects on local air quality are expected to occur in association with this development.

## 4.13 Water, Drainage, Stormwater and Groundwater

A Infrastructure, Water and Drainage Assessment has been prepared by Cardno and is included at **Appendix I**. A summary of the assessment is provided below.

### Assessment

All water, drainage, stormwater and ground water infrastructure is subject to a Construction Certificate Application covered under the Bulk Excavation and Basement Car Parking Project Application (MP10\_0023). Grates and inlets to collect surface flows from the Public Domain form part of SSDA SSD6303 including Civil Walk, Union Walk, Transport Place and Shelley Lane. The proposed building will integrate into these surrounding systems. No further infrastructure works are required to facilitate the construction of Building R1.

### Mitigation Measures

As there are no environmental impacts Cardno has not recommended any mitigation measures for the proposed works.

## 4.14 Building Code of Australia

A Building Code of Australia (BCA) Assessment has been prepared by McKenzie Group Consulting and is included at **Appendix M**. The assessment identifies the areas of the proposal including fire resistance, egress, fire services and equipment, ventilation and smoke hazard management, lift services, sanitary facilities, access and energy efficiency that either comply with the BCA requirements or are to be the subject of a performance based alternative.

Due to the size and nature of the building, it is anticipated that the building will feature alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA. The alternate solutions will be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.

The proposed building has been assessed against the provisions for Access for People with Disabilities in Part D3 of the BCA. Compliance with these provisions is proposed to be achieved subject to further review of detailed design of the proposed development. Details of compliance with Part D3 of the BCA for the proposed development will be resolved as part of the Construction Certificate process.

## 4.15 Environmental, Construction and Site Management Plan

An Environmental Construction and Site Management Plan (ECSMP) has been prepared by Lend Lease (**Appendix N**) to address environmental issues associated with the construction of Building R1 including the following as required by the SEARs:

- Community consultation, notification and complaints handling;
- Impacts of construction on adjoining development and proposed measures to mitigate construction impacts;
- Noise and vibration impacts on and off site;
- Air quality impacts on the neighbourhood;
- Odour impacts;
- Water quality management for the site
- Traffic management; and
- Waste and chemical management.

Key elements of the ECSMP can be summarised as follows:

- Works are proposed to be undertaken between the hours of 7.00am and 7.00pm Monday-Friday and between 7.00am and 5.00pm on Saturdays. No work will be undertaken on Sundays or public holidays.
- The Building R1 site will be enclosed by Class A hoardings along all frontages.
- Site vehicular access will be off Hickson Road.
- Existing lunch, change and ablution facilities on the Barangaroo South site will be used by all personnel.
- All site personnel, including subcontractors and visitors, will be inducted under Lend Lease's Environment, Health and Safety Management System (EH&S). Records of all induction, ongoing training and reporting will be maintained.
- Tower cranes, which form part of the approved buildings, will be used for materials handling.

A materials handling team member will ensure the efficient management of deliveries and removals and hence minimise disruption to traffic around the Barangaroo site.

- Site specific Environmental Management protocols will be established to ensure environmental responsibilities are implemented and documented.
- Primary contact(s) to deal with environmental emergencies will be nominated and their 24 hour/day 7 days/week contact details will be prominently displayed on site.
- Management and monitoring of the noise and vibration generated from construction activity will be addressed according to the recommendations of the Wilkinson Murray, Barangaroo South; Public Domain, Construction Noise and Vibration Assessment.
- Dust suppression, as well as erosion and sediment control measures, will be installed prior to excavation works and service installations, and will be maintained for the duration of construction.
- Surface and ground water hydrology and quality, including Darling Harbour water quality, will be assessed and monitored with monitoring in place as part of the works and processes approved under the Basement Car Park Approval.

The monitoring will be continued during construction works. In addition, supplementary erosion and sediment control measures such as temporary sediment basins, will be implemented to treat surface run-off during construction works.

- ORWS RAP prepared by AECOM will be implemented for remediation of contaminated soil and water as part of the works and processes approved under the Basement Car Park Approval.
- Management of construction generated solid and liquid waste will be addressed in accordance with the Spoil & Waste Management Sub-Plan operating at the site.
- Vehicular and pedestrian traffic management and controls will be implemented and monitored to minimise disruptions to site activities, the surrounding road network, as well as the ongoing operation of the passenger terminal. The site haulage route and Waterfront Promenade will continue to be managed in accordance with the works and processes set out in the Basement Car Park Approval.
- A comprehensive Stakeholder Engagement Strategy (refer to Appendix A of the ECSMP) will be implemented to maintain a good neighbour policy with surrounding businesses, residents and special interest groups during construction.

The development will be undertaken in accordance with **Appendix M** and accordingly the above recommendations are reflected in the Mitigation Measures in Section 6.0.

## 4.16 Staging

Lend Lease proposes to undertake the construction of Barangaroo South in a staged manner. Building R1 will be constructed concurrently with the other approved developments within Barangaroo South. As a result of the small size of the building it is intended that Building R1 will be complete at a similar time to the occupation of Commercial Building C5, in December 2015.

Building R1 will be completed in a single build, however to facilitate the construction process it is requested that the Minister structure the consent conditions to provide flexibility for interim construction and occupation certificates to be issued for discrete works packages (i.e. a staged construction process).

It is intended that the delivery of public domain adjacent to Building R1 will be coordinated with the delivery of the building.

## 4.17 Consultation

In accordance with the SEARs for this Development Application (see **Appendix B**), an appropriate level of consultation was undertaken with Council and State government agencies.

This section details the consultation undertaken as part of the preparation of this Development Application and proposed ongoing stakeholder engagement. Accordingly, consultation has been undertaken as required by the SEARs and in conformance with the Department of Planning and Environment's *Major Project Community Consultation Guidelines 2007*.

In addition to the consultation processes described below, the proposed development will be placed on public exhibition for 30 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During

the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

### Council and Agency Consultation

Lend Lease recognises the importance of positive relationships with Council and agencies and seeks to proactively engage with them over the duration of the project. Lend Lease proposes to undertake stakeholder engagement to ensure all individuals and/or groups that have an interest in the DA are consulted with.

Council was involved in the identification of architects for the design competition process for Building R1. As part of the preparation of the DA, Lend Lease met with Council and presented the Building R1 design. During the presentation the Council provided feedback, which has been incorporated into the DA submission where appropriate.

Lend Lease meets with the EPA, Sydney Water, Transport for NSW and Roads and Maritime Services on a regular basis. As part of those regular meetings Lend Lease has informed each of the agencies that a future application would be lodged for Building R1.

### Community and Stakeholder Engagement

The Barangaroo Delivery Authority and Lend Lease are consulting with local residents and other relevant stakeholders as part of its ongoing community engagement program related to Barangaroo. The opportunity to participate has been provided through a number of direct and indirect mediums including community consultation events, Barangaroo Open Day, presentations and workshops, the Barangaroo South website and Barangaroo South newsletter.

Lend Lease engaged with the Metropolitan Local Aboriginal Land Council via Comber Consultants in April 2010 during the preparation of the Barangaroo South Aboriginal Archaeological and Cultural Heritage Assessment and subsequent Aboriginal Archaeological Management Plan and Research Design Report. These documents were originally prepared in relation to the Basement Car Park project (MP10\_0023) and relate to the whole Barangaroo South site.

Following lodgement of the Development Application, Lend Lease will undertake further detailed consultation and notification to the local community and relevant stakeholders, prior to the commencement of works.

## 4.18 Structural Engineering

A Structural Engineering Letter for Building R1 has been prepared by Lend Lease and is included at **Appendix J**. The Structural Engineering Letter provides information with respect to the design of the piles to be constructed to support Building R1. Although the Sydney Metro project is currently on hold, the Structural Engineering Letter has assessed the proposed Building R1 piles with respect to their relationship to the Metro protection corridor.

On 15 November 2011, a Deed regarding the carrying out of development at Barangaroo was executed between the Director General of Department of Transport (TfNSW), Lend Lease (Millers Point) Pty Ltd and the Barangaroo Delivery Authority. This Deed, amongst other things, requires that Lend Lease consults with TfNSW regarding future applications, complies with stipulated requirements for the design and construction of development, and obtains the approval of TfNSW for works in the vicinity of the Sydney Metro corridor. These requirements apply regardless of the requirement for concurrence of the Minister for Transport under the ISEPP.

The Deed includes requirements on design of buildings and structures at Barangaroo and the structural stability of these buildings in relation to ground movement, vibration and settling; fire resistance; and avoidance of impacts on the operation and structure of the Metro. Requirements related to construction methodology under the Deed include controls to limit impact on rock adjacent to the Metro infrastructure and over-excavation and over-drilling, over-cutting and over-sawing for works in the proximity of Metro infrastructure. The design of the piles to support Building R1 has been based on these requirements. It is therefore unlikely that there will be any impact on the Sydney Metro corridor.

The proposed development will be carried out in accordance with the Deed and informed by previous advice to ensure the protection of the Sydney Metro corridor. The footprint of Building R1 partially overlies the Metro protection corridor. Lend Lease has confirmed that the design of the piles have been based on the following:

- The relevant Australian Standards listed in the Building Code of Australia (Specification A1.3) particularly AS1170 Structural Design Actions (Parts 1-4), AS2159-2009 Piling-Design and Installation and AS3600 Concrete Structures.
- Various relevant project related reports and documents, including geotechnical reports issued by Coffey Geotechnics Pty Ltd and Arup Pty Ltd relating to the site and advice from Mott McDonald regarding pile design along the waterfront at Barangaroo South.

In light of the above, it is concluded that the proposed works will suitably accommodate the Metro and will avoid impacts on the Sydney Metro.

## 5.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the development has been adapted from *Australian Standard AS4369. 1999 Risk Management and Environmental Risk Tools*.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

**Figure 11** indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of mitigation measures;
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

**Figure 11** – Risk Assessment Matrix



				Risk Assessment		
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Key: C – Construction, O: Operation						
Wind	O	– Increase wind speeds and impact pedestrian activities	The wind conditions around the site will all meet the pedestrian walking criterion and pass the distress criterion. The proposed development will not change the local wind conditions. Therefore no mitigation is required.	2	1	3 (Low)
Infrastructure	C	– Impact on existing infrastructure	Cardno has determined that no existing infrastructure is expected to be impacted or require relocation as a result of the proposed Building R1 works.	1	1	2 (Low)
Air Quality and Odour	C	– Diminished air quality levels – Increase odours during construction	Currently a reactive dust mitigation system has been adopted by Lend Lease at the Barangaroo South site. This includes ambient pollution monitoring directly linked to real-time warnings and incorporates work procedures to ensure that action is taken to reduce dust levels when they are elevated and at risk of exceeding acceptable air pollution levels. The system has been operational on the Barangaroo South site for many months, and will continue to operate throughout the public domain works. AECOM has recommended that the Building R1 works be incorporated into the site management plan and the reactive dust mitigation system be adopted. If these mitigation measures are implemented, no adverse effects on local air quality are expected to occur.	2	3	5 (Low/Medium)
Noise	C	– Increase in noise and vibration levels during construction activities – Increase in noise levels during operation	Wilkinson Murray has noted that no specific noise and vibration measures are required for the proposed Building R1 works. It is recommended by Wilkinson Murray that the procedures and management measures included in the existing site-wide environmental management plan are continually applied during the construction of Building R1. Potential noise impacts and mitigation measures required during the operation of Building R1 will be determined as part of separate acoustic assessment undertaken as part of the application for the use of the building.	2	3	5 (Low/Medium)

				Risk Assessment		
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Water, Drainage, Stormwater and Groundwater	C+O	<ul style="list-style-type: none"> <li>– Altered overland flow patterns causing flooding</li> <li>– Increased sediment and erosion runoff</li> <li>– Diminished water quality levels</li> </ul>	All water, drainage, stormwater and groundwater considerations have been resolved under the Basement Car Park Approval or are being addressed in the Stage 1A Public Domain SSDA (SSD 6303).	2	2	4 (Low/Medium)
Traffic	C+O	<ul style="list-style-type: none"> <li>– Increased construction traffic</li> <li>– Increased delay times</li> <li>– Diminished level of service</li> </ul>	Arup has determined that the additional traffic generated during the construction of Building R1 is negligible in the overall construction traffic of Barangaroo.	2	2	4 (Low/Medium)
Contamination	O	<ul style="list-style-type: none"> <li>– Impact on human health as a result of contamination</li> </ul>	Any contamination encountered during excavation works as part of the Basement Car Park Approval and Stage 1A Public Domain DA and piling works for Building R1 will be remediated in accordance with the ORWS RAP, ensuring there is no risk to human health. Therefore no further mitigation measures are required.	4	1	5 (Low/Medium)

## 6.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 8** below. These measures have been derived from the previous assessment in Section 5.0 and those detailed in appended consultants' reports.

**Table 8 – Mitigation Measures**

<b>Mitigation Measures</b>	
<b>Contamination</b>	
	Remediation works for the minor piling and excavation activities associated with Building R1 should be carried out in accordance with the Remedial Action Plan – Other Remediation Works (South) Area prepared by AECOM (including all RAP addendums prepared and remedial work plan(s) prepared in conformance with this RAP).
<b>Air and Odour</b>	
	The Building R1 construction works are to be incorporated into the existing environmental management plans and the reactive dust mitigation system be continued.
<b>Noise</b>	
	The procedures and management measures included in the existing Environmental Site Construction Management Plan are to be applied during the construction of Building R1.
<b>Building Code of Australia</b>	
	Alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA should be considered. The alternate solutions should be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.
	Details of compliance with Part D3 of the BCA should be resolved as part of the Construction Certificate process.
<b>Environmental, Construction and Site Management Plan</b>	
	The ECSMP should be implemented into the constructional phase of the development.

## 7.0 Justification of the Proposal

In general, investments in major projects are justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits. The EP&A Act specifies that such a justification must be made having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development.

The proposed development involves provision of Building R1 at Barangaroo South. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

Various components of the biophysical, social and economic environments have been examined in this EIS and are summarised below.

### 7.1 Social and Economic

Barangaroo South is the southern 7.5 hectares of the Barangaroo site, which is destined to become the greenest and most advanced financial district and the first large scale, carbon neutral precinct in Australia. It will comprise a mix of uses, including commercial, residential, retail and dining along with a new landmark hotel, on completion it will be home to around 1,200 residents, 23,000 office workers and more than 2.9 hectares of public space. The social and economic success of Barangaroo relies heavily on the delivery of new buildings to support these uses.

The proposed development will provide a new building within Stage 1A of Barangaroo South and will therefore have a significant positive social and economic impact for the large number of future visitors, residents and workers at Barangaroo South. Specifically, Building R1 will:

- provide for a use that services residents, workers, visitors and tourists to Barangaroo, supporting the surrounding uses on the site and wider Sydney CBD;
- create a landmark building at the southern entry to Barangaroo; and
- provide a range of employment opportunities during construction and operation.

There are no adverse social or economic impacts as a result of the proposed development.

### 7.2 Biophysical

**Section 4.0** of this EIS contains a thorough assessment of the likely biophysical impacts of the proposed development. The environmental risk assessment contained at **Section 4.18** demonstrates that the proposed development will not result in any significant adverse environmental impacts that cannot be appropriately addressed through standard conditions of consent or the mitigation measures included at **Section 6.0**.

The environmental impact assessment of the proposed development has demonstrated that:

- water management measures will be implemented to ensure that there are no adverse water, drainage, stormwater or groundwater impacts;
- responsive measures will ensure that air quality impacts are managed during the construction phase;

- no specific noise or vibration management measures are required for the proposal; and
- construction and operational traffic can be appropriately managed.

### 7.3 Ecologically Sustainable Development

The EP&A Regulation lists four principles of ecologically sustainable development to be considered in assessing a project. They are:

- the precautionary principle;
- intergenerational equity;
- conservation of biological diversity and ecological integrity; and
- improved valuation and pricing of environmental resources.

An analysis of these principles follows.

#### Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides 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. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any uncertain and serious threat of irreversible damage to the environment.

#### Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- enhancing the experience of visitors to the precinct through providing another critical building in the built form of Barangaroo South;
- providing a new building to contribute to the vitality and activation of the public domain within Barangaroo South; and
- implementing safeguards and management measures to protect environmental values.

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as climate change will be avoided and/or minimised by design and through the application of safeguards and management measures described in this EIS and the appended technical reports during construction.

#### Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

This EIS has demonstrated that the proposal will not have any significant effect on the biological diversity and ecological integrity of the site and surrounding area.

The potential impacts associated with development identified in the expert consultant reports (see **Section 4.0**), particularly those associated with construction, have been incorporated into the mitigation measures as **Section 6.0** of this EIS.

#### Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

## 8.0 Conclusion

The EIS has been prepared to consider the environmental, social and economic impacts of the proposed Building R1 at Barangaroo South.

The EIS has addressed the issues outlined in the SEAR's and accords with Schedule 2 of the EP&A Regulation with regards to requirements for an environmental impact statement.

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- There is a strategic need to provide the Building R1 within Barangaroo South to ensure there is a building that:
  - integrates and provides an appropriate transition between the wider Barangaroo site and the existing development at King Street Wharf; and
  - clearly identifies the southern entry to Barangaroo South to create an inviting environment for the large number of future visitors, residents and workers.
- The development is consistent with and complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines, including Concept Plan (Mod 7).
- The development will have a wide range of positive social and economic impacts.
- There are no adverse environmental impacts that cannot be appropriately managed by the mitigation measures set out in this EIS.

Given the merits described above it is requested that the application be approved.