



Planning &
Environment

**ASSESSMENT REPORT:
Remediation and Associated Works,
Barangaroo Central (SSD 6533)**



Secretary's
Environmental Assessment Report
Section 89E of the
Environmental Planning and Assessment Act 1979

December 2015

ABBREVIATIONS

Applicant	Lend Lease (Millers Point) Pty Ltd (Lend Lease), or any other person or persons who rely on this consent to carry out the development that is subject to this consent
CIV	Capital Investment Value
Council	The City of Sydney Council
Department	Department of Planning and Environment
EIS	Environmental Impact Statement entitled ' <i>Block 5 Remediation, Environmental Impact Statement (SSD 6533), Remediation of Block 5 – Part of EPA Declaration Site 21122</i> ', prepared by JBA Urban Planning Consultants Pty Ltd and dated September 2014
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPA	Environment Protection Authority
EPI	Environmental Planning Instrument
Minister	Minister for Planning
OEH	Office of Environment and Heritage
RTS	Response to Submissions report – ' <i>State Significant Development Report (SSD 6533) Barangaroo Central, Remediation of Block 5 – Part of Remediation Site 21122</i> ', prepared by JBA Urban Planning Consultants Pty Ltd July 2015.
Second RTS	Second Response to Submission report - <i>State Significant Development Report (SSD 6533) Barangaroo Central, Remediation of Block 5 – Part of Remediation Site 2112</i> prepared by JBA Urban Planning Consultants Pty Ltd <i>October 2015</i>
Secretary	Secretary of the Department
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SSD	State significant development
SWC	Sydney Water Corporation
TNSW	Transport for NSW

Cover Photograph: Approximate location of the proposed remediation works
(Source: EIS)

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EXECUTIVE SUMMARY

This report provides an assessment of a State significant development lodged by Lend Lease (the Applicant) to remediate a portion (known as 'Block 5') of contaminated land within the EPA Declaration Area (no. 21122) and adjacent areas at Barangaroo.

The project has a capital investment value (CIV) of approximately \$49.62 million and will generate 108 jobs during construction.

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

Under clause 8 of *State Environmental Planning Policy No.55 - Remediation of Contaminated Land (SEPP 55)*, Category 1 remediation works may be carried out, despite any provision to the contrary in an Environmental Planning Instrument (EPI), with the consent of the consent authority. The proposed remediation works are Category 1 because they require consent under the SRD SEPP and are therefore permissible with development consent on the subject site.

The Department exhibited the Development Application (DA) and Environmental Impact Statement (EIS) for the proposal from Thursday 25 September 2014 until Friday 7 November 2014, during which eight submissions were received consisting of seven from government agencies and one public submission. The Applicant submitted a Response to Submissions (RTS) to address issues raised by the Department, other government authorities and the public which was exhibited for a second time from Thursday 6 August 2015 until Friday 11 September 2015. During the second exhibition three further agency submissions and two further public submissions were received. Cumulatively, the Department received ten submissions from government authorities and three public submissions. None of the government authorities objected to the proposal but issues of concern were raised and conditions recommended for inclusion in the development consent. Two of the public submissions objected to the proposal, raising concerns in relation to, the excessive scope of the remediation work, the assumptions driving the need for remediation, the absence of a proposed future use of the site and impacts to human health and the environment through the remediation process, including noise and air quality impacts.

The Department has assessed the merits of the proposal and has found that the key issues associated with the remediation works include contamination and waste management, construction impacts (noise and vibration, air quality, traffic, parking and access) and health impacts.

In its assessment of the proposal, the Department has fully considered all relevant matters under section 79C of the EP&A Act, the objectives of the EP&A Act and the principles of ecologically sustainable development. This assessment has concluded that with the implementation of the recommended conditions of consent, the impacts of the development can be mitigated and/or managed to ensure that relevant environmental, health and amenity standards can be met.

The Department's assessment notes that the development would address the significant risk of harm to human health and the environment identified by the EPA's Declaration (no. 21122). Further, the proposal is generally consistent with the approved Barangaroo Concept Plan (as modified), the strategic objectives for the area as identified in *A Plan for Growing Sydney* and the requirements of relevant environmental planning instruments and policies.

Consequently, the Department considers that the development is in the public interest and should be approved, subject to conditions.

1. BACKGROUND

1.1 Introduction

Lend Lease (the Applicant) is seeking approval to remediate contaminated land within part of an EPA Declaration Area (no. 21122) and adjacent areas at Barangaroo.

1.2 The Site

Barangaroo is located on the north-western edge of the Sydney CBD. The site is bounded by the Sydney Harbour foreshore to the north and west, Hickson Road and Millers Point to the east, and Kings Street Wharf/Cockle Bay/Darling Harbour to the south. The Barangaroo precinct is divided into three redevelopment areas (from north to south): Headland Park; Barangaroo Central; and Barangaroo South. A Location Plan is provided at **Figure 1** below.



Figure 1: Site context and Project Location

The subject land to be remediated is an irregular shaped area, approximately 2.1 hectares (ha) in size and covers land described as 'Block 5' at Barangaroo Central, as identified in the approved Barangaroo Concept Plan and illustrated in **Figure 2** and **Figure 3**. This land incorporates part of the EPA Declaration Area 21122 (**Section 1.2.2**) and is herein referred to in this report as the 'remediation area' (**Figure 2**).

Remediation-related logistics and storage areas would also be located on land immediately to the north and west of the site and stormwater diversion works would be undertaken on land to the immediate east within Hickson Road (**Figure 6**).

The site is generally flat and is currently either vacant and variably paved with concrete and asphalt or being used as construction access, storage and management areas supporting construction works at Barangaroo South.

The closest residents are located approximately 45m from the site on the eastern side of Hickson Road.

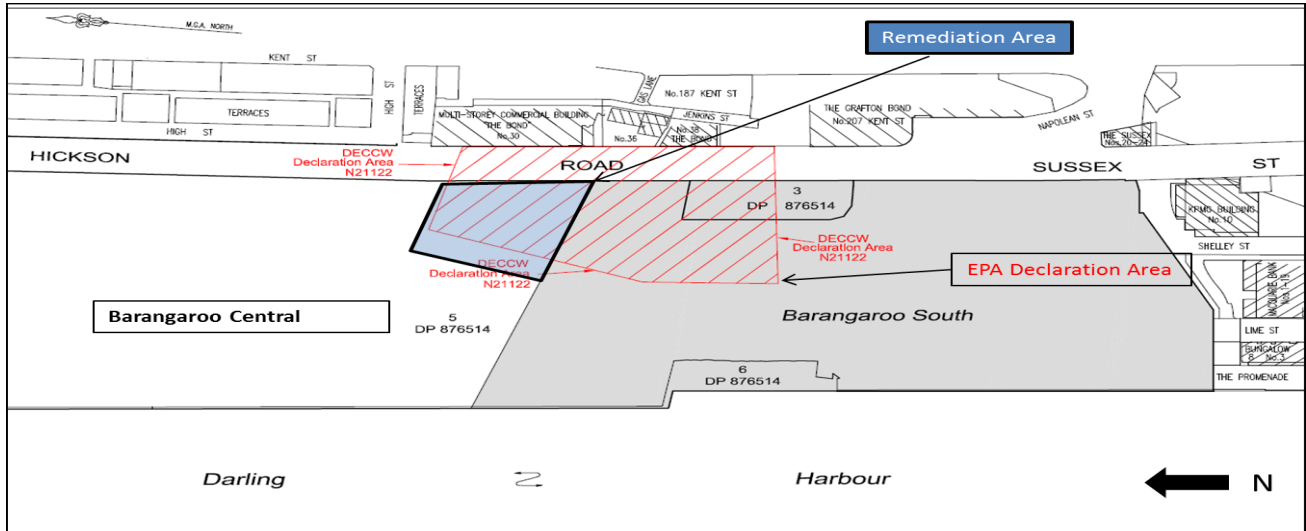


Figure 2: Location of 'remediation area' within the EPA Declaration Area

1.3 Approval History

1.3.1 Barangaroo Concept Plan

On 9 February 2007, the then Minister for Planning approved the Barangaroo Concept Plan (MP 06_0162). The Concept Plan approved a set of built form principles to guide development within the mixed use zone.

The detailed planning history of modifications to the Concept Plan for Barangaroo is provided at **Appendix B**. In summary, seven (7) modifications have been approved since the Concept Plan was originally approved. The location of the proposed remediation works relative to the approved configuration of development blocks at Barangaroo is depicted in **Figure 3**.

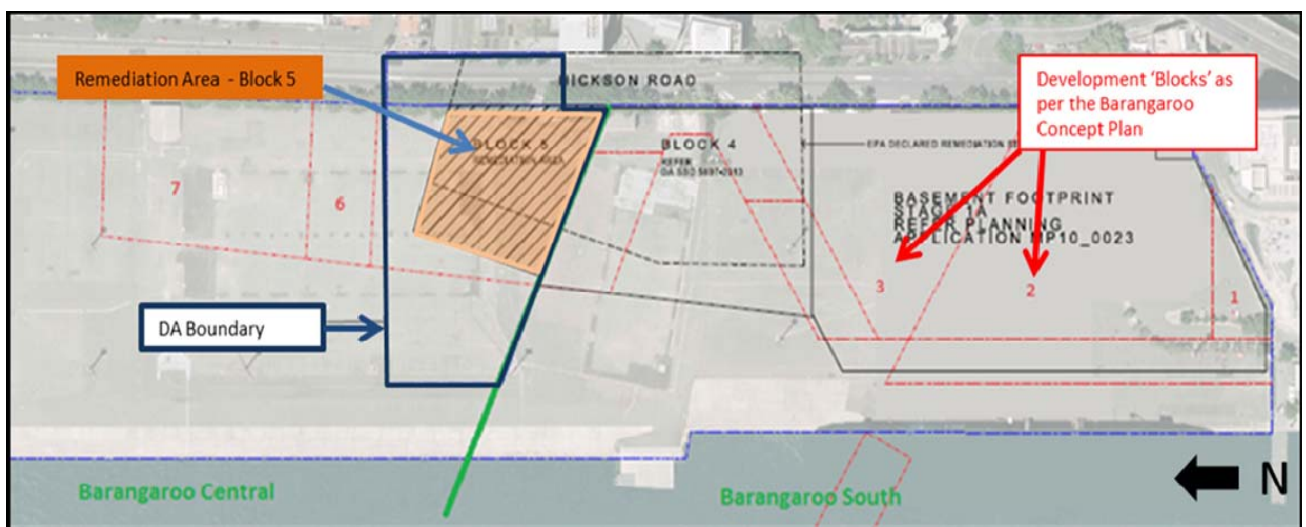


Figure 3: Block configuration at Barangaroo South and Barangaroo Central and location of remediation works in Block 5 (hatched area)

1.3.2 Staged Remediation of the EPA Declaration Area

The primary objective of the remediation work within Block 5 is to enable the NSW EPA's declaration of the Declaration Area as a Remediation Site to be revoked under the current land use. The intent of the proposed remediation works is not therefore to make the land suitable for any intended future land use(s) but to remediate the site to address the significant risk of harm to human health and the environment identified through the EPA Declaration.

The EPA has indicated that the Declaration (no. 21122) will not be lifted until the entire area (i.e. Block 4, Block 5 and Hickson Road) has been successfully remediated (**Figure 4**).

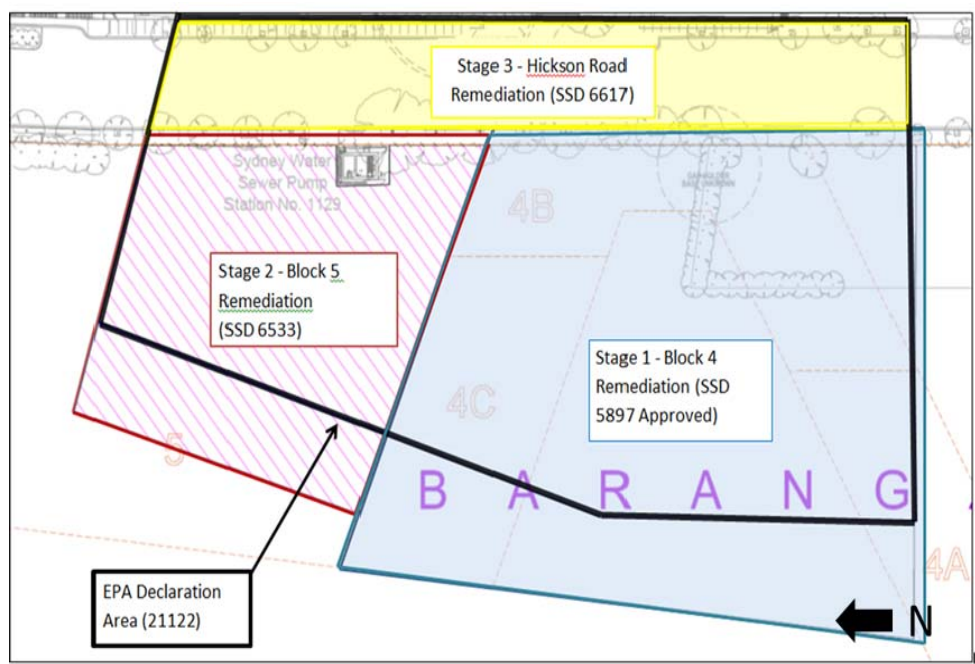


Figure 4: Location of remediation works (red hatched area) within and adjacent to the EPA Declaration Area 21122 at Barangaroo.

The Stage 1 SSD involved the remediation of Block 4 and the adjacent public domain areas (SSD 5897), and was approved on 10 November 2014.

The Stage 2 SSD which involves the remediation of Block 5 is the subject of this application (SSD 6533). Stage 3 relates to the remediation of Hickson Road and is the subject of a separate application (SSD 6617) currently being considered by the Department.

1.4 Contamination History

Barangaroo has been used for wharf/port related activities since the 1800s. From 1839 to 1921, the former Australian Gas Light Company (now Jemena) gasworks operated at Millers Point on parts of Blocks 4 and 5 and the area now occupied by Hickson Road before being demolished in 1922 (**Figure 5**). Gasworks were used to produce town gas by heating coal for lighting, cooking and heating. The remainder of the site largely consisted of finger wharfs which were used for ship berthing and associated activities.

Due to past land use the land is contaminated with gasworks waste, particularly waste tar, and a range of other chemicals likely to be associated with uncontrolled fill used in various stages of site reclamation. The key chemical contaminants identified at the site include; petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs) and metals, some of which are classified as human carcinogens and substances toxic to aquatic ecosystems.

Investigations have also revealed that remnant subsurface infrastructure from the Millers Point gasworks remain on site, including part of the annulus of the former main gasholder, a smaller secondary gasholder, tar tanks, purifying beds, condensers and the engine house.

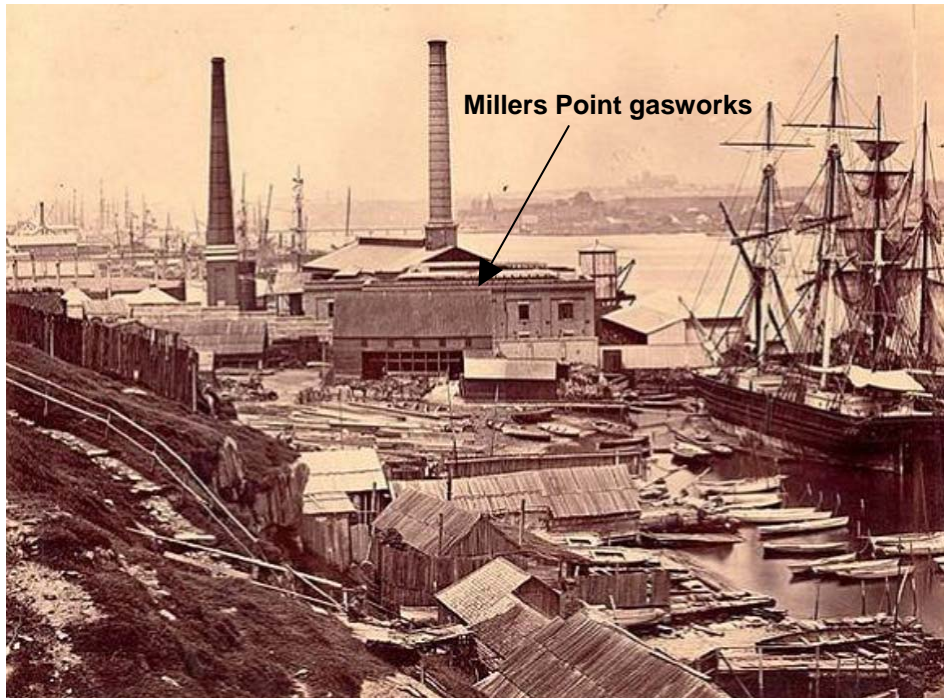


Figure 5: View of the Millers Point gasworks from the north in 1880

In May 2009, the EPA considered that the area was contaminated in such a way as to present a significant risk of harm to human health and the environment and as such declared part of Millers Point to be a remediation site (no. 21122) under the *Contaminated Land Management Act 1997* (CLM Act). The site to which the declaration relates (the 'EPA Declaration Area') coincides with the known footprint of the former Millers Point gasworks and is located within Block 4, a portion of Block 5 and a portion of Hickson Road. The extent of the EPA Declaration Area is depicted in **Figure 2**.

On 23 July 2010, the EPA approved a Voluntary Management Proposal (VMP) application (no. 20101719) by the Barangaroo Delivery Authority (BDA) under section 17 of the CLM Act to remediate the site to enable the EPA Declaration (no. 21122) to be revoked.

In 2011, Lend Lease (on behalf of the BDA) commissioned AECOM to quantify the nature and the extent of the contamination by conducting Human Health and Ecological Risk Assessments (HHERAs), develop remediation goals and provide a subsequent Remedial Action Plan (RAP).

Accordingly, the remediation works proposed by Lend Lease are being undertaken pursuant to the BDA's approved VMP with the EPA, to enable the EPA Declaration to be revoked.

2. PROPOSED DEVELOPMENT

2.1 Development Summary

The proposed development involves:

- remediation works including construction of perimeter retention walls, excavation and associated works within and adjacent to the EPA Declaration Area (No. 21122);
- diversion and augmentation of existing stormwater infrastructure within the site and to the east of the site on Hickson Road;

- erection of temporary excavation enclosures and emission stacks;
- treatment of wastewater (contaminated surface and groundwater) at the existing wastewater treatment plant; and
- tree removal, demolition of existing structures on site and associated works.

The objective of the remediation works is to enable the EPA Declaration to be revoked. This requires demonstration that the contamination at the Declaration Area is not significant enough to warrant regulation under the current land use scenario. The current land use for the site is defined as being 'vacant paved, open space'.

The proposed remediation strategy comprises the excavation of approximately 39,000m³ of material inside excavation enclosure(s) with emission control systems. No on-site treatment of contaminated material is proposed. Excavated material is to be classified onsite in accordance with the EPA's *Waste Classification Guidelines* 2014, loaded into trucks inside the excavation enclosure, covered, sealed (by covering the exposed soil surface with a foam agent) and transported off-site for treatment and disposal at an EPA-licensed facility. Excavations would be backfilled using suitable clean fill.

Groundwater contamination would be addressed by dewatering contaminated groundwater from below the excavated soil level and transferring the water to the existing wastewater treatment plant (WTP) located on site (**Figure 6**). Wastewater would then be treated and discharged into Sydney Harbour or sewer in accordance with Environmental Protection Licence (EPL) limits and/or Sydney Water trade waste requirements.

2.2 Major Components of the Development

The major components of the development (as modified by the RTS) are summarised in **Table 1** and depicted in **Figure 6**. The proposed development is described in full in the Environmental Impact Statement (EIS), Response to Submissions (RTS) and second RTS, which are attached at **Appendix C** and **Appendix F** respectively.

Table 1: Key development components

Aspect	Description
Remediation Works and Strategy	<ul style="list-style-type: none"> • Remediation works to enable the EPA Declaration to be revoked. • The proposed remediation strategy includes in-situ and ex-situ soil waste classification, excavation, offsite treatment (if required) and disposal (Section 2.2). • Estimated remediation volume (contaminant mass) 27,800m³.
Temporary perimeter walls to support excavation	<ul style="list-style-type: none"> • Construction of temporary perimeter walls (e.g. sheet piles) around remediation area to control ground water and facilitate bulk excavation and remediation (Figure 6). • Indicative excavated volumes estimated at 39,000m³.
Diversion of Stormwater Infrastructure	<ul style="list-style-type: none"> • Diversion of a Sydney Water stormwater pipeline currently running through Block 5 to Hickson Road to run around the remediation area.
Air and Odour Control/Excavation Enclosure	<ul style="list-style-type: none"> • Erection of temporary excavation enclosure(s) (tent-like structure or similar) up to 14m in height with emission control system(s) to mitigate emissions of air pollutants, particularly odour during excavation, stockpiling and truck loading. • The enclosure would operate under negative pressure. The EPA-approved emission control systems include particulate/odour control devices, activated carbon adsorption system and exhaust stacks (4 metres high) which are expected to achieve reduction efficiencies in pollutant emissions of up to 99.8%. • Air emission monitoring would be undertaken for all potential pollutants of concern from the exhaust stacks.
Wastewater Treatment	<ul style="list-style-type: none"> • Dewatering for groundwater extraction. • Treatment of wastewater (contaminated surface and ground water) at the existing wastewater treatment plant (WTP) on site (Figure 6). • Discharge of treated wastewater into Sydney Harbour or sewer in accordance with

Aspect	Description		
	EPL limits and/or Sydney Water trade waste requirements.		
Demolition	<ul style="list-style-type: none"> Demolition of concrete hardstand areas around the site. 		
Tree Removal	<ul style="list-style-type: none"> Removal of approximately three (3) Beach Hibiscus trees on the site (Figure 6). 		
Parking and Access	<ul style="list-style-type: none"> No on-site parking to be provided for the construction workforce. The vehicle access will be via a gated entry and exit to the North of Block 5, connecting to Hickson Road. 		
Decontamination Station	<ul style="list-style-type: none"> All workers entering and leaving the site would be required to pass through a clean/dirty zone and a decontamination station. 		
Hours of Operation	<table border="0"> <tr> <td style="vertical-align: top;"> <u>Construction</u> <ul style="list-style-type: none"> 7am to 6pm (Monday to Friday); 7am to 5pm (Saturday); and No work Sundays or public holidays. </td> <td style="vertical-align: top;"> <u>Operation</u> <ul style="list-style-type: none"> 24 hours, 7-days-a-week for some activities such as essential maintenance (e.g. dust suppression) and material deliveries, operation of the WTP and odour control devices in the excavation enclosures, Bentonite Plant and electrical generators. </td> </tr> </table>	<u>Construction</u> <ul style="list-style-type: none"> 7am to 6pm (Monday to Friday); 7am to 5pm (Saturday); and No work Sundays or public holidays. 	<u>Operation</u> <ul style="list-style-type: none"> 24 hours, 7-days-a-week for some activities such as essential maintenance (e.g. dust suppression) and material deliveries, operation of the WTP and odour control devices in the excavation enclosures, Bentonite Plant and electrical generators.
<u>Construction</u> <ul style="list-style-type: none"> 7am to 6pm (Monday to Friday); 7am to 5pm (Saturday); and No work Sundays or public holidays. 	<u>Operation</u> <ul style="list-style-type: none"> 24 hours, 7-days-a-week for some activities such as essential maintenance (e.g. dust suppression) and material deliveries, operation of the WTP and odour control devices in the excavation enclosures, Bentonite Plant and electrical generators. 		
Capital Investment Value	<ul style="list-style-type: none"> \$49.62 million. 		
Employment	<ul style="list-style-type: none"> Construction – 108 full-time jobs. 		
Project Duration	<ul style="list-style-type: none"> Approximately 24 months. 		

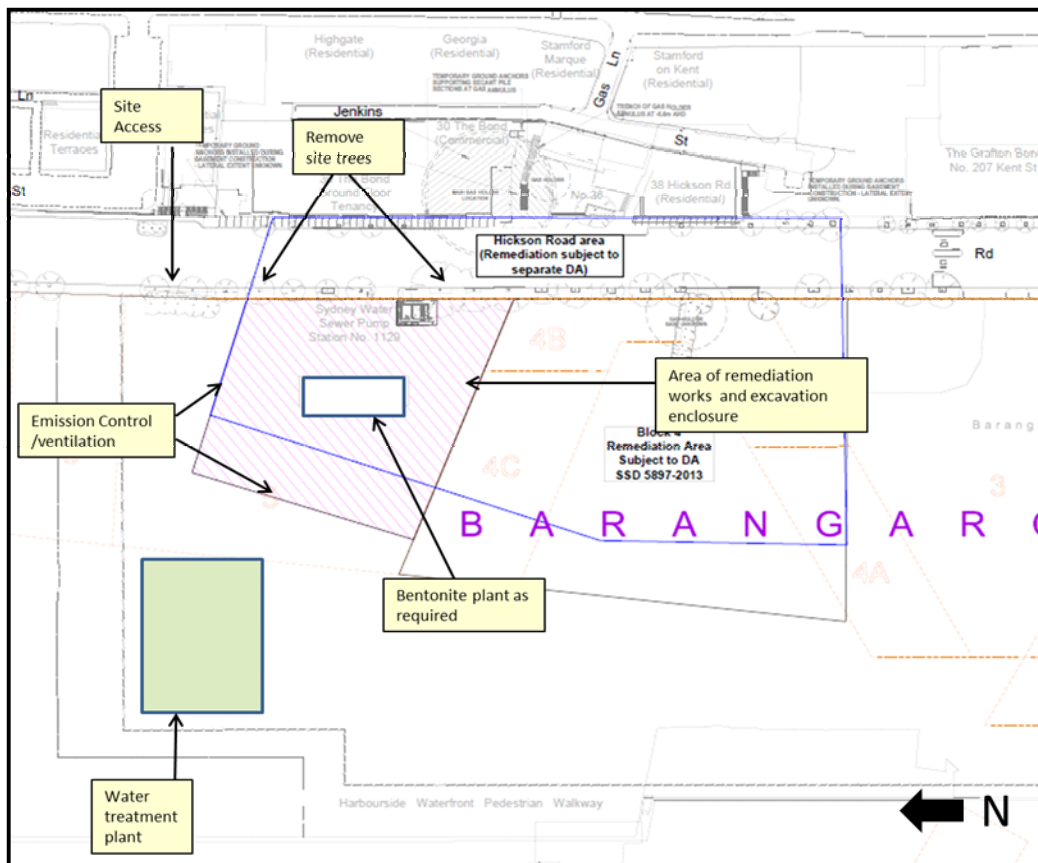


Figure 6: Overview of the proposed remediation work

2.3 Staging

The development would be undertaken in 4 stages as summarised in **Table 2**, with completion anticipated in October 2017.

Table 2: Block 5 remediation staging program

Stage	Description	Duration
1	<ul style="list-style-type: none"> Establish temporary stormwater management system and install temporary retaining walls. 	7 months
2	<ul style="list-style-type: none"> Install and commission excavation enclosure/s and dewatering infrastructure. 	2 months
3	<ul style="list-style-type: none"> Excavate contaminated material and dispose of off-site (as required). 	6 months
4	<ul style="list-style-type: none"> Backfilling and decommissioning. 	9 months

2.4 Project Need and Applicant's Justification

The need to remediate the site (of which Block 5 would be the second stage) has been established by the EPA's Declaration (no. 21122) which identifies the site as contaminated in such a way as to present a significant risk of harm to human health and the environment.

The Applicant has also stated that the proposed remediation works will provide social, economic and environment benefits through:

- removing a significant risk identified to human health and the environment by removing contaminated material currently identified within Block 5 and surrounding area;
- contributing to the long-term improvement in groundwater quality migrating into Sydney Harbour; and
- delivering intergenerational equity consistent with the principles of ecologically sustainable development by ensuring that historic contamination is addressed and the subject land is made suitable for its current use.

3. STATUTORY CONTEXT

3.1 SEPP (State and Regional Development) 2011

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

3.2 Permissibility

Under clause 8 of *State Environmental Planning Policy No.55 - Remediation of Contaminated Land (SEPP 55)*, Category 1 remediation works may be carried out despite any provision to the contrary in an Environmental Planning Instrument (EPI), with the consent of the consent authority.

The proposed remediation works are Category 1 because they require consent under the SRD SEPP and are therefore permissible with development consent on the subject site.

3.3 Delegated Authority

On 16 February 2015, the Minister for Planning delegated responsibility for the determination of State significant development to the Executive Director, where:

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

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

Accordingly, the application is able to be determined by the Executive Director under delegation.

3.4 Environmental Planning Instruments

Under section 79C of the EP&A Act, the consent authority, when determining a development application, must take into consideration the provisions of any environmental planning instruments (EPIs) and draft EPIs (that has been subject to public consultation and notified under the EP&A Act) that apply to the proposal.

The following EPIs apply to the site:

- *State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP)*;
- *State Environmental Planning Policy (Major Development) 2005 (MD SEPP)*;
- *State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)*;
- *State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007*;
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment 2005)*; and
- *Sydney Harbour Foreshores and Waterways Development Control Plan 2005 (Sydney Harbour Waterways DCP)*.

Detailed consideration of the provisions of all EPIs that apply to the proposed development is provided in **Appendix D** of this report. The Department is satisfied that the proposed development generally complies with the relevant provisions of these EPIs.

It is also noted that while DCPs do not apply to SSD under clause 11 of the SRD SEPP, consideration has been given to the relevant clauses of the Sydney Harbour Waterways DCP in **Appendix D**.

3.5 Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the EP&A Act, as set out in section 5.

The proposal complies with the objects of the EP&A Act as the application would promote the orderly and economic use and development of land at Barangaroo. This is because the proposal would result in the remediation of significantly contaminated land which is generally consistent with the approved Concept Plan for Barangaroo (**Section 3.6**).

The Department's assessment in **Section 5** of this report demonstrates that the proposal would have no adverse impacts on native flora or fauna, including threatened species, populations and ecological communities, and their habitats and is therefore consistent with the principles of ESD (**Section 3.7**).

Accordingly, the application is considered consistent with the objects of section 5.

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

Clause 3B(2)(d) of Schedule 6A the EP&A Act specifies that a consent authority must not grant consent under Part 4 unless it is satisfied that a development is generally consistent with the terms of the approval of a Concept Plan. The Department has considered the proposed development and is of the opinion that the proposal is consistent with the Concept Plan for the following reasons:

- the original environmental assessment for the approved Barangaroo Concept Plan identified that parts of the site (particularly those within the known footprint of the former gasworks) were contaminated and would need to be remediated;
- the approved Concept Plan for Barangaroo (as modified, see **Appendix B**) outlines that Block 5 is expected to accommodate a range of commercial, residential and retail buildings, with a total GFA of 41,225 sqm, including a maximum GFA of 15,000sqm for residential uses. The remediation works may indirectly facilitate the envisaged future development of the site by treating the historic contamination that is present within Block 5; and

- importantly, the Department considers that the works will not impact on or preclude the future development of Barangaroo in accordance with the Barangaroo Concept Plan.

The Department concludes that the proposed works are generally consistent with the terms of the Barangaroo Concept Plan.

3.7 Ecologically Sustainable Development

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

The Applicant has demonstrated that the proposal is consistent with the principles of ESD as described in section 8.3 of the EIS, which has been prepared in accordance with the requirements of Schedule 2 of the EP&A Regulation.

As concluded by the Department's assessment in **Section 5** of this report, the proposal has the potential to significantly reduce environmental harm through the remediation of historic contaminants and as such potentially result in an overall positive impact on current and future environmental resources and ecosystem integrity in the near area. The proposal is therefore consistent with the principles of ESD.

3.8 Environmental Planning and Assessment Regulation 2000

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

3.9 Strategic Context

The Department considers that the proposal is consistent with the planning objectives of the NSW Government's *A Plan for Growing Sydney* which provides a framework to guide land use planning decisions for the next 20 years and recognises the strategic importance of the revitalisation of the Barangaroo site.

A Plan for Growing Sydney notes that Barangaroo's waterfront location, size, and proximity to the western edge of the CBD presents an opportunity to deliver substantial new commercial floor space and recreational opportunities. Coupled with significant infrastructure improvements and recreational and cultural activities, the redevelopment of Barangaroo can contribute to the sustained growth and enhance the position of Sydney within the Asia-Pacific region and the global market more generally.

By facilitating the future development of the Barangaroo site, the proposal will help meet key planning challenges for the Sydney CBD as identified in *A Plan for Growing Sydney* by:

- providing a significant and innovative opportunity to grow Sydney CBD office space;
- diversifying the CBD by enhancing the cultural ribbon to support tourism and the entertainment economy;
- maintaining and improving amenity and cultural opportunities by providing a world class open space including a new headland park and foreshore walks; and
- improving water quality and the biodiversity of Sydney Harbour to achieve healthy and sustainable environments.

3.10 Secretary's Environmental Assessment Requirements

Section 7.1 of the EIS addresses compliance with the Director-General's (now Secretary's) Environmental Assessment Requirements. These matters have been sufficiently addressed in the EIS to enable the Department to undertake a proper assessment of the proposal in accordance with the EP&A Act.

3.11 Considerations under Section 79C of the EP&A Act

Section 79C(1) of the EP&A Act sets out the matters to be considered by the consent authority in determining a development application. The Department's consideration of these matters is set out in **Table 3** below.

Table 3: Considerations under Section 79C of the EP&A Act

Section of EP&A Act	Matter for Consideration	Consideration in this Report
79C(1)(a)(i)	Provisions of any Environmental Planning Instrument.	Section 3.4 and Appendix D
79C(1)(a)(ii)	Any proposed instrument that has been subject to consultation under the EP&A Act and notified by the consent authority.	N/A
79C(1)(a)(iii)	Any development control plan.	N/A - Section 3.4 and Appendix D
79C(1)(a)(iiia)	Any planning agreement entered into under section 93F.	N/A
79C(1)(a)(iv)	The regulations	The Department has undertaken its assessment in accordance all relevant matters prescribed by the regulations.
79C(1)(a)(v)	Any coastal zone management plans.	N/A
79C(1)(a)(b)	The likely impacts of the development.	Section 5 and Appendix C
79C(1)(a)(c)	Suitability of the site for the development.	Section 1 to Section 3
79C(1)(a)(d)	Any submissions received.	Section 4 and Section 5
79C(1)(a)(e)	The public interest.	Section 5

4. CONSULTATION AND SUBMISSIONS

4.1 Public Exhibition

In accordance with section 89(F) of the EP&A Act, the Department publicly exhibited the application from **Thursday 25 September 2014** until **Friday 7 November 2014**. The application was made publicly available on the Department's website and exhibited at the Department's Information Centre and City of Sydney Council's One Stop Shop.

The Department also placed a public notice in the Sydney Morning Herald and the Daily Telegraph on **Wednesday 24 September 2014** and notified adjoining landholders and relevant State and local government authorities.

The Department received eight submissions on the proposal (**Appendix E**), seven from government agencies and one public submission from Jemena.

The government authorities all provided comments, recommended conditions of consent and/or requested additional information to undertake assessment. The public submission received from Jemena objected to the proposal.

4.2 Response to Submissions

On receipt of the Response to Submissions (RTS) the Department re-exhibited the development application. The second exhibition period ran from **Thursday 6 August 2015** through to **Friday 11 September 2015**. The RTS was made publically available on the Department's website and at the Department's Information Centre and City of Sydney Council's One Stop Shop. The Department advertised the public re-exhibition in the Sydney Morning Herald, Daily Telegraph and the Central

Courier on the **5 August 2015** (and a clarification on 12 August 2015) and notified adjacent landholders, the public objector and relevant State and local authorities.

During the second exhibition period, the Department received three further government agency submissions and two further public submissions.

In total, over the two exhibition periods, the Department received ten agency submissions and three public submissions. Two of the public submissions object to the proposal (Jemena Ltd and a local resident).

A summary of the issues raised in submissions is provided below and discussed in **Section 5.0**.

4.3 Public Authority Submissions

Table 4: Summary of agency submissions on the proposed development

Agency	Summary of Issues
City of Sydney Council (Council)	
EIS	<p>Council did not object to the proposed development but noted:</p> <ul style="list-style-type: none"> • air and noise controls proposed for the Block 5 remediation should build upon successful controls implemented for the Block 4 remediation; and • the noise controls proposed are incorporated into conditions of the consent.
RTS	No further comments
Environment Protection Authority (EPA)	
EIS	<p>The EPA requested further information on the following issues:</p> <ul style="list-style-type: none"> • site contamination including: <ul style="list-style-type: none"> - a potential inconsistency between the preferred remediation methodology outlined in the Declaration Area RAP (i.e. on-site treatment) and the proposed soil treatment methodology in the EIS (i.e. off-site treatment); and - further information on the off-site destination for treatment and disposal of contaminated waste. • Air Quality Impact Assessment (AQIA) to address: <ul style="list-style-type: none"> - the use of best practice dust and odour controls (e.g. storage in sealed containers) for the transport of untreated gasworks waste, off-site treatment and disposal; - final design of the excavation enclosures to ensure worst-case emissions are accurately predicted, assessed and mitigated; and - the air quality management and monitoring program including pro-active and continuous monitoring and management throughout the duration of the works. • health and air quality impacts including: <ul style="list-style-type: none"> - best practice air emission controls for works to be undertaken outside excavation enclosures; - consideration of future sensitive receptors at Barangaroo; - management of asbestos; and - clarify a number of issues with the Air, Soil, Water and Health Impact assessments in the EIS. • noise and vibration management including: <ul style="list-style-type: none"> - clarification on mitigation measures factored into noise modelling, the mitigation benefits (in terms of noise reduction) and the provision of further feasible noise mitigation and monitoring; and - provide justification for not assessing 24-hour noise sources against operational noise criteria in the EPA's <i>Industrial Noise Policy</i>. • water quality management: <ul style="list-style-type: none"> - ensure the existing water treatment plant is configured to treat contaminated groundwater to an acceptable level. • waste management including: <ul style="list-style-type: none"> - clarify waste treatment inconsistencies in the remediation strategy (onsite/offsite);

Agency	Summary of Issues
	<ul style="list-style-type: none"> - address the disposal of all materials after treatment and the need for resource recovery exemptions.
RTS	<p>On review of the RTS the EPA requested further information on health and air quality impacts:</p> <ul style="list-style-type: none"> • information required to address potential health impacts and air emissions from the off-site transport, treatment and disposal of Barangaroo waste; and • information required to assess potential air quality impacts and to effectively mitigate those impacts identified.
NSW Health	
EIS	<p>NSW Health made no objection providing remediation works are carried out in accordance with the following:</p> <ul style="list-style-type: none"> • NSW Health's <i>'Environmental Health Risk Assessment: guidelines for assessing human health risks from environmental hazards'</i> (2012); • measures are implemented to control and treat contaminated water seepage and runoff on the site; • treatment of contaminated water runoff, including air impurities, prior to release into Sydney Harbour; and • implementation of measures to vent sump pits collecting contaminated water.
RTS	No further comments
Department of Primary Industries (DPI)	
EIS	<p>DPI requested that the applicant:</p> <ul style="list-style-type: none"> • confirm if groundwater dewatering is temporary or permanent; • obtain a dewatering licence under the <i>Water Act 1912</i>; and • prepare a Groundwater Monitoring and Management Plan in consultation with DPI (NSW Office of Water).
RTS	<p>DPI requested that:</p> <ul style="list-style-type: none"> • a dewatering licence is obtained; and • a groundwater management plan accompanied with detailed hydrogeological assessment and dewatering volumes be prepared in consultation with DPI.
Transport for NSW (TfNSW)	
EIS	<p>TfNSW requested that a Construction Pedestrian and Traffic Management Plan (CPTMP) be prepared prior to the commencement of the remediation works which:</p> <ul style="list-style-type: none"> • considers new bus routes in the Barangaroo area (Hickson Road) commencing mid-2015; • minimises impacts on existing traffic, pedestrian, cycling movements and facilities and identifies alternatives in the event facilities need to be closed due to construction activities; • further consider cumulative traffic impacts and management arising from overlap of construction projects at Barangaroo and the Wynyard Precinct; • include consultation with the State Transit Authority regarding operational traffic management; and • limit truck movements to and from the site during the peak period on weekdays.
RTS	<p>TfNSW requested:</p> <ul style="list-style-type: none"> • a detailed Construction Pedestrian and Traffic Management Plan (CPTMP) which considers cumulative impacts, prepared in consultation with TfNSW, RMS and the Council and endorsed by TfNSW; • a road occupancy licence (ROL) must be obtained for any activity impacting the operating efficiency of the road; and • include construction impacts from Wynyard walk and Barangaroo Ferry projects in the CPTMP.
Roads and Maritime	
EIS	<ul style="list-style-type: none"> • No comments provided
RTS	<ul style="list-style-type: none"> • CPTMP to include management of any impacts associated with the new signalised intersection of Sussex, Hickson and Napoleon and any new signals on Hickson Road.
Sydney Water Corporation (SWC)	

Agency	Summary of Issues
EIS	SWC required that the Applicant continue to liaise with SWC to ensure that the proposed work methods are acceptable and in accordance with SWC's Asset Creation Process.
RTS	On review of the RTS, SWC requested: <ul style="list-style-type: none"> • further application and approval required by SWC for the protection and monitoring requirements of work near SWC assets; • the application must be supported by an Environmental Management Plan, structural assessments, geotechnical studies and other relevant information; • emergency and operational access to assets is retained; and • any works impacting Sydney water systems that require environmental approval will need to be considered under the EIS approval.
Fire and Rescue NSW (FRNSW)	
EIS	FRNSW made no objection but noted that should a fire or emergency occur at the site first responders must have access to information (e.g. types of chemicals involved in a fire incident) to enable suitable control measures to be implemented. FRNSW recommended conditions as follows: <ul style="list-style-type: none"> • preparation of an Emergency Plan to address and mitigate potential fire and hazmat incidents; • Emergency Plan to be stored next to the entry to the site for ease of access; and • provide firefighting equipment for all plant on site and training in the effective operation of this equipment.
RTS	Noted that original conditions were agreed to by the applicant in the RTS.
Safe Work NSW	
EIS	No comments received.
RTS	Provide a Health and Safety Management Plan for site remediation works to ensure health risks for workers are adequately addressed and include: <ul style="list-style-type: none"> • details on the engineering, safe work practices and effective hygiene procedures to be implemented to reduce risks of worker exposure; • consider the need to undertake health monitoring; and • details on risk management processes related to asbestos hazards.
Port Authority of NSW	
EIS	No comments received.
RTS	Requested that the applicant consult with the Port Authority on any traffic changes on Hickson Road that may impact the passage of trucks servicing the cruise ships at the Overseas Passenger Terminal.

In response to the RTS, the Department also requested additional information on; noise mitigation, groundwater remediation and flows, details of the excavation enclosures and clarification of the current 'land use' that is referenced in the Remedial Action Plan.

4.4 Public Submissions

Jemena objected to the application during the first public exhibition and reiterated the objection on review of the RTS. The grounds within both objections include:

- the remediation works exceed what is required to facilitate the removal of the EPA Declaration and the excavations proposed are to facilitate future development of the Barangaroo site;
- the Human Health and Ecological Risk Assessment (HHERA) that drives the need for the remediation and underpins the Declaration Area RAP is based on flawed assumptions (e.g. that workers digging trenches on the site would not wear personal protective equipment and that Groundwater Dependent Ecosystems are present on the site) which leads the HHERA to incorrectly conclude that contamination within Block 5 presents an unacceptable risk to human health and the environment;
- the Applicant has not properly considered all available options for remediation in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*;
- the proposed remediation works are inconsistent with the approved Block 4 remediation works;

- the inability of the consent authority to fully consider the proposal in the absence of details on the future proposed development of Block 5; and
- the Applicant has failed to explain if the proposed works would result in a more significant risk of harm to human health or the environment than the ongoing lawful use of the land in its current contaminated state.

Two further public submissions were received from local residents during the second exhibition period, one objecting to the proposal on the basis of potential health impacts from air emissions, the other submission did not object to the proposal but raised concerns in relation to air quality, noise and vibration impacts.

4.5 Response to Submissions – Second RTS

The Applicant provided a second RTS in response to submissions raised during the second exhibition. The response and additional information provided did not result in significant changes to the proposed development (**Appendix F**).

This report assesses the Applicant's proposal as put forward in the RTS and second RTS and considers each of the public and government authorities' final position on the proposed development upon review of the RTS and second RTS.

5. ASSESSMENT

The Department has considered the EIS, the issues raised in submissions, the Applicant's RTS and second RTS in its assessment of the proposal. The Department considers the key issues to be:

- remediation and waste management;
- air quality and odour;
- noise, vibration and hours of construction;
- health impacts;
- water management and quality; and
- traffic parking and access.

All other environmental impacts are considered to be minor and the Department's assessment of these issues is provided in **Section 5.7**.

5.1 Remediation and waste management

The EPA has declared the site to be a 'remediation site' under the *Contaminated Land Management Act 1997* as the soil and groundwater at the site is contaminated with gasworks waste in such a way as to present significant risk of harm to human health and the environment. An overview of the contaminants present is provided in **Section 1.4**.

In July 2013, a site specific *NSW Declared Remediation Site No. 21122 Remedial Action Plan* (Declaration Area RAP) was prepared by AECOM for the proposed remediation of the site and is included in the EIS. The Declaration Area RAP outlines the remediation activities necessary to enable the revocation of the EPA Declaration (no. 21122) based on the current land use of the site (open, vacant land).

The Declaration Area RAP has been reviewed and approved by an independent EPA-accredited Site Auditor (Mr. Graeme Nyland) consistent with the BDA's EPA-approved Voluntary Management Proposal (VMP). The Site Auditor has issued Section B Site Audit Statements verifying that the nature and extent of the contamination has been appropriately determined and the Declaration Area RAP is appropriate to facilitate the abovementioned objective. The Declaration Area RAP also provides a validation process and that further site audit statements are required to confirm successful remediation.

The remediation strategy proposed involves the excavation and transport of contaminated waste for off-site treatment and disposal. As such the applicant has provided a Waste Management Plan (WMP) as part of the EIS to support the management and disposal of contaminated materials. The WMP notes that waste sources will be classified in accordance with the relevant EPA guidelines, outlines indicative quantities of waste (both contaminated and non-contaminated) and identifies potential reuse, storage, transport and disposal options.

In its original submission, the EPA raised a number of issues (**Section 4.3**), specifically that the remediation strategy proposed (i.e. off-site treatment of contaminated waste) was inconsistent with the preferred method outlined in the Declaration Area RAP (on-site treatment). The EPA also requested further details on the destination of untreated gasworks waste and best practice measures to manage emissions during transport and off-site treatment.

In the Response to Submissions (RTS), the Applicant provided a supplementary assessment reviewing sections of the Declaration Area RAP that refer to 'off-site treatment and disposal' to demonstrate the methodology is consistent with the remediation approach described in the Declaration Area RAP. The Site Auditor has reviewed the supplementary assessment and concluded that the proposed off-site treatment is consistent with remediation approach described in the Declaration Area RAP.

The RTS also provided a Supplementary Assessment: '*Off-site transport and treatment of Hazardous Waste*' prepared by AECOM and dated 4 March 2015, outlining mitigation measures to manage emissions during transport of materials off site which included, among other controls:

- the use of an appropriate foam sealant to seal materials during transport; and
- ongoing inspection and monitoring.

On review of the RTS, the EPA requested further assessment of the offsite health risks associated with transport, treatment and disposal of waste material.

In response, the Applicant provided an Addendum to the Declaration Area RAP (RAP addendum). The RAP addendum outlines environmental controls to mitigate and manage potential odour emissions from the transportation of untreated contaminated material. Controls include:

- relevant approvals for off-site treatment, including immobilisation approvals and appropriate preparation (i.e. dewatering, mixing, drying or screening);
- transport of material to appropriate licenced facilities for treatment and disposal;
- odour management through the use of excavation enclosures, load covering and use of foam sealant during transport;
- appropriate route selection and vehicle tracking; and
- inspections on departure from site and at receiving facility.

The Site Auditor has endorsed the RAP addendum as providing a suitable methodology for odour control during off-site transportation.

On review, the EPA has not raised further issues of concern but noted that there are opportunities for improvement in the assessment of contaminated material treatment and disposal. The EPA has requested the Applicant confirm that:

- there are appropriate technologies to treat any generated material; and
- disposal sites/methodologies will not result in adverse environmental or human health impacts.

The Department considers that the EPA's comments above can be addressed through a recommended condition requiring the submission and approval of a WMP. The Department notes that the WMP must incorporate detailed information on the licensed facilities to be utilised, the treatment methodologies and associated EPA licences to minimise any adverse risk to the environment. The WMP must also demonstrate that current best practice in the treatment and disposal of contaminated materials is considered in identifying suitable licensed facilities.

A public submission was received from Jemena objecting to the proposed remediation based on an unsuitable remediation methodology, excessive extent/scope of the proposed remediation works, flawed assumptions in the Human Health and Ecological Risk Assessment (HHERA) and increased risks in undertaking remediation works relative to the risk of maintaining the current land use.

Jemena's submission is accompanied by a report prepared by Dr. Ian Swane (an EPA-accredited site auditor) reviewing the HHERA associated with the Declaration Area RAP and outlining a number of potentially flawed assumptions (**Section 4.4**). The submission asserts that flawed assumptions lead the HHERA to incorrectly conclude that contamination within Block 5 presents an unacceptable risk to human health and the environment.

In the RTS, the Applicant has provided a comprehensive response to the issues raised by Jemena (**Appendix F**). The Applicant notes that the EPA Declaration has determined that the site is significantly contaminated, that the proposed scope of the works is clearly limited by the Declaration Area RAP which establishes remediation objectives, and the proposed remediation works are specifically designed to enable the revocation of the EPA Declaration (no. 21122).

On review of the RTS during the re-exhibition period, Jemena maintained its objection to the application.

The Department's assessment concurs with the Applicant's view that the need for remediation works has been established by the EPA's Declaration of a Remediation Site (Declaration Number 21122) under the *Contaminated Land Management Act 1997*, whereby the EPA has determined that the site is contaminated in such way as to present significant risk of harm to human health and the environment.

In response to Jemena's concerns regarding a lack of clarity of the underlying land use which is required to remove the EPA Declaration, the Department has recommended conditions to limit the consent to the proposed remediation works and to require that the land is reinstated to its original condition, including the removal of all temporary structures associated with the works. This recommended condition is considered to clearly articulate that this assessment relates only to the proposed remediation work and does not consider or allow for any amendment to the current land use and/or development not associated with remediation work.

The Department considers that the scope and scale of the works proposed, the assumptions utilised in the HHERA in relation to the current land use and proposed remediation methodology are more appropriately considered, as required, through an assessment by an accredited site auditor. While the Department notes the concerns raised by the Applicant and the EPA accredited auditor (Dr. Ian Swan), the Department's assessment concludes that as the HHERAs, Declaration Area RAP and RAP Addendum have been certified and or endorsed by an accredited EPA site auditor and reviewed by the EPA, they can be relied upon to ensure that the land will be remediated in accordance with the requirements of SEPP 55 to facilitate the revocation of the EPA Declaration (no. 21122).

Remediation works to revoke the Declaration Area will ultimately result in a net improvement in environmental quality through removing an existing significant risk identified (via the Declaration) to human health and the environment. The Department considers that while the proposed remediation works may present some risk of harm to human health and the environment during the works, these risks can be appropriately managed subject to the implementation of environmental management plans to mitigate potential construction (e.g. air, noise, vibration and traffic) and health impacts as outlined in the subsequent sections of this report.

The Department has recommended conditions that require the remediation works to be carried out in accordance with the Declaration Area RAP, the RAP Addendum and supporting HHERAs which have been reviewed and endorsed by an EPA-accredited site auditor. The Department notes that the recommended conditions also include a requirement for an EPA accredited site auditor to

complete a site audit statement and a validation report, to ensure the site is appropriately remediated. With these conditions in place, the Department concludes that the site can be successfully remediated and validated in accordance with the relevant legislation.

5.2 Air Quality and Odour

The EIS for the proposed development included an Air Quality Impact Assessment (AQIA). The AQIA identifies primary pollutants of concern, the nearest sensitive receivers and undertakes dispersion modelling to assess potential air quality impacts in accordance with the relevant guidelines.

Primary air pollutants identified in the assessment include heavy metals, petroleum derived Volatile Organic Compounds (VOCs), nitrogen oxides (NO_x), phenol, naphthalene, dust and odour. These pollutants were identified as being generated during excavation and materials handling, where heavy metals from contaminated soil may be released to the air attached to dust or small soil particles (Particulate Matter - PM₁₀). The combustion of diesel fuel in plant and equipment would generate a range of pollutants primarily nitrogen oxide gases (NO₂) from exhaust fumes and the excavation of material would also generate the gaseous emission of pollutants and odour to air.

To minimise the emission of pollutants, excavation, handling and loading of contaminated materials will be undertaken in excavation enclosures operated under negative pressure with emission control systems (air filtration systems).

The EPA raised a number of issues in relation to potential air emissions associated with the remediation works which are summarised in **Section 4.2**. In particular, the assumptions used for air dispersion modelling scenarios, the final design of the emission control system and the management of asbestos. The EPA also requested further information on best practice odour and emission control during transport and treatment of excavated material, management of stockpiles and/or works outside of excavation enclosures and clarification of appropriate monitoring measures.

In response, the Applicant provided an updated AQIA as part of the RTS to address the concerns identified by the EPA. The updated AQIA includes:

- revised air emission modelling to consider changing parameters (i.e. larger excavation areas);
- a revised cumulative assessment (scenario 1 includes; Block 5 excavation, Block 4 remediation, construction of commercial building C1 and the operation of the water treatment plant. Scenario 2 includes all the aforementioned activities and the construction stage 1C basement/Crown);
- inclusion of future occupants of Barangaroo south as receptors within the emission modelling; and
- the inclusion of a supplementary assessment to address specific control measures to mitigate emissions generated outside of the excavation enclosure, such as construction of the perimeter retaining wall.

The amended air emission modelling provided in the revised AQIA for a cumulative assessment scenario 1 predicts no air quality exceedances above background levels. Although when currently proposed Crown Sydney Hotel, including Stage 1 excavation/construction activities are included in the dispersion model (scenario 2) exceedances of the EPA impact criteria were predicted to occur for levels of exhaust fumes (nitrogen oxides).

On review of the RTS and amended AQIA, the EPA requested further assessment of the predicted air quality exceedances identified and additional mitigation measures. The EPA also requested further details on aspects of the air dispersion modelling, reactive management processes, and reiterated the requirement for best practice mitigation measures to minimise emissions during transport, treatment and disposal.

Two local residents also raised concerns (one objecting to the proposal) on review of the exhibited RTS on air quality, associated health impacts and the ability to warn residents should pollutants be emitted at dangerous levels.

The Applicant has provided a second RTS providing a further amended AQIA to address the additional concerns raised. The revised AQIA notes that the cumulative exceedances to the air quality criteria identified in the revised modelling are largely attributable to Stage 1C works (basement 1C and Crown) as the relative emissions from Block 4 and 5 remediation works are very low and not anticipated to have an adverse impact on receptors. The Applicant also provided:

- amendments to the AQIA to provide further details on the modelling (sensitivity analysis, emission rates used for generators) and the levels of pollutants that would trigger a reactive management process;
- confirmation that except for excavation works during the perimeter retention walls all other contaminated material is to be managed in excavation enclosure(s). A specific management plan is provided to manage odours and emissions when working in an excavation enclosure is not possible;
- commitment to providing further detailed design of the emission control system (filters and discharge (emission) stacks) for EPA review and comment to prevent pollutants entering the atmosphere;
- commitment to providing an Air Quality Management Plan detailing the ambient air monitoring program and emission control measures linked to real time warnings. The reactive management system would enable work programs to be adapted to ensure are quality impact criteria are not exceeded; and
- a commitment to utilising the best available control technology and best practice to reduce emissions to the maximum extent achievable.

The EPA did not raise any further issues, however, recommended a number of conditions of consent, including:

- all remediation activities are to be conducted in excavation enclosures, with emission control systems to minimise fugitive emissions;
- detailed design of the proposed odour control structures must be submitted to the EPA for review;
- an Air Quality Verification Report is prepared to ensure that the detailed design is consistent with key parameters outlined in the air quality impact assessment; and
- Air Quality Management and Monitoring Plan incorporating proactive and reactive management strategies for all pollutant sources.

The Department considers that the matters of concern raised by the EPA have been satisfactorily addressed or can be addressed through relevant recommended conditions of consent. Notably, the Department's recommended conditions of consent include the EPA's recommended conditions and additional conditions to ensure that the Applicant submits an Air Quality Management Plan which includes the proposed methodologies outlined in the Preliminary odour control plan and the RAP addendum to ensure that air quality impacts from the proposed remediation works, the proposed perimeter retention wall works (outside of excavations enclosures) and the handling and transport of contaminated material can be effectively managed.

The Department concludes that with the recommended conditions in place, the emissions and odour from the remediation works can be appropriately managed so that they do not adversely impact the environment or human health. In reaching this conclusion it is noted that the activities at the Barangaroo site are regulated by conditions attached to the Environmental Protection Licence (EPL) number 13336 which is held by the Barangaroo Delivery Authority. The EPL specifies maximum allowable discharges of pollutants to air to protect human health and the environment. As such, the activities on site will need to be carefully managed to ensure compliance with the EPL. Compliance with the EPL is included as a recommended condition of consent.

5.3 Noise, vibration and construction hours

Construction Noise

The EIS for the proposal contains a Construction Noise and Vibration Assessment. An amended Construction Noise and Vibration Assessment (CNVA) was provided with the RTS to address comments raised by the EPA. The amended CNVA clarifies assumptions, reiterates relevant assessment guidelines, and provides additional detail on monitoring procedures. The amended CNVA also includes an updated assessment of predicted cumulative noise impacts associated with other Barangaroo projects that may be undertaken concurrently with the proposed remediation works.

The CNVA outlines that remediation works would take approximately 24 months to complete and would be undertaken from 7am to 6pm (Monday to Friday) and from 7am to 5pm on Saturdays. The proposed hours of construction on Saturdays are outside of the EPA's standard construction hours which are from 8am to 1pm. Some activities would also occur 24-hours, 7-days-a-week such as essential maintenance (e.g. dust suppression), material deliveries, the wastewater treatment plant (WTP), the odour control systems and electrical generators in the remediation enclosures.

Key sources of noise identified in the CNVA include bulldozers, excavators, rock saws, trucks, piling and soil treatment plant required to undertake the remediation works. Noise Management Levels (NML) or acceptable noise levels for the remediation works are based on the EPA's Interim Construction Noise Guidelines. The Guidelines define NMLs for potential residential receivers as background noise levels plus 10dBA during the day (standard construction hours) and plus 5dBA at all other times. The guidelines also provide the maximum acceptable construction noise level of 75dBA at the nearest receptors.

The CNVA assessed background noise levels via noise logging sites located as illustrated in **Figure 7** and presented the applicable noise criteria (NML) at residential, commercial and pre-school receivers in the vicinity of Barangaroo. Site related noise emissions were modelled to predict noise levels from remediation works at the various construction stages and to identify if the predicted noise levels exceed the relevant NMLs at various receivers.

The amended CNVA found that noise from construction activities during the day period and during the extended hours on Saturday will exceed the noise management criteria (NML) as summarised below.

Residential Receivers

The highest noise exceedances are generally restricted to the residences at Millers Point, Hickson Road, residential building R8 and High Street. The greatest potential exceedances of up to 16dBA (above NML) are predicted on Saturdays during the extended construction hours for residences at the southern end of High Street due to their close proximity to the development site.

Noise levels are predicted to meet all relevant criteria at night time due to limited activities and assuming that generators are acoustically treated.

Commercial Receivers

Commercial receivers are located at King Street Wharf, Shelly Street and on Hickson Road (i.e. Lend Lease offices). The relevant NML for commercial receivers is 70 dBA (24-hours, all days). Compliance with the NML is predicted at all surrounding commercial premises.



Figure 7: Surrounding receivers identified (A to P) & Noise logging locations (1 to 8)

KU Lance' Pre-School

A pre-school is located approximately 150 m to the north on High Street. Construction noise levels are predicted to comply with the 65 dBA noise objective for 'active recreational areas' or external play areas during the day. In the case of internal areas, a minimal exceedance of internal noise levels by 2dBA is expected, if windows are open. If windows are closed no exceedance of internal noise criteria is anticipated, accordingly, windows could be potentially closed during intensive periods of construction.

Cumulative Noise Impacts

Construction works at Block 5, Block 4, commercial building C2 and Stage 1C/Crown have been modelled to provide a cumulative scenario to assess 'worst-case' noise levels from the works. The highest predicted exceedance is 19dBA at the Hickson Road residences on Saturday during the extended construction hours.

To address the identified exceedances the Applicant has committed to preparing a Construction Noise and Vibration Management Plan (CNVMP) to implement recommended management and mitigation measures outlined in the amended CNVA. The mitigation measures include:

- installing attenuators on the exhaust fans, filtration and air handling plant associated with the excavation enclosures;
- audit plant to select equipment with the lowest practical commercially available noise levels and site noise planning to minimise noise via the layout and positioning of noise producing plant;
- localised treatment such as barriers and shrouds to control noise from fixed plant;
- 2.4m metre noise barriers along the eastern and western boundaries of the site;
- provision of respite from noise producing activities during extended hours of operation (extended hours of operation on Saturday); and

- ongoing community engagement and implementation of an effective complaints and consultation program.

Extended operating hours

Within the RTS, the Applicant has identified the proposed hours of construction from 7am to 6pm (Monday to Friday) and from 7am to 5pm on Saturdays. While the hours on Saturday will exceed standard construction hours as provided by the EPA's Interim Construction Noise Guidelines they are considered reasonable by the Department for this project. The extended hours are consistent with similar projects approved by the Minister (including existing approved construction works at the southern end of Barangaroo). The extended hours will enable the works to be carried out in a more efficient manner shortening the overall construction period and the length of time sensitive receptors are exposed to increased noise and vibration. The construction hours proposed are also consistent with the standard hours applied by Sydney City Council in the CBD.

On review of the amended CNVA and RTS, the EPA did not raise any further concerns in relation to noise impacts.

The Department notes, that two public submissions were received during the re-exhibition of the RTS outlining concerns in relation to construction and vibration noise, specifically 'low frequency' noise from equipment required to operate 24-hours-a-day, 7-days-a-week, such as generators/self-powered lights.

The Applicant has advised that noise levels are predicted to meet relevant noise criteria at night time providing that diesel generators are acoustically treated. The Department recommends a condition of consent requiring that wherever feasible power shall be supplied to the site by the grid, where this is not feasible all generators utilised, exhaust fans, filtration and air handling plant are to be acoustically treated to achieve the relevant noise management levels.

In its assessment, the Department accepts the following points noted in the amended CNVA:

- the noise modelling undertaken in the CNVA is conservative such that predicted noise levels at nearby sensitive receivers are likely to be less than forecast because it does not take into account the likely 'shielding effects' from noise provided by excavation walls;
- at no time are noise levels predicted to exceed the 75 dBA highly affected noise level provided by the guidelines as likely to cause a strong community reaction; and
- the Applicant has committed to implementing all reasonable and feasible noise mitigation measures, and due to the close proximity of construction works there is limited scope to further reduce construction noise levels by using engineered noise controls.

The Department recognises that the works and associated noise impacts are temporary in nature and the proposal will provide a long-term public benefit by removing contamination that presents significant risk to human health and the environment as demonstrated by the EPA's Declaration (no. 21122).

A number of conditions are recommended to enable the active management of noise levels, including the provision of an updated CNVMP to provide for community liaison, site contacts, real time monitoring and reactive management procedures to minimise exceedances of NMLs.

The Department concludes that the remediation works to be in the broader public interest and considers that providing the conditions recommended above and mitigation measures are appropriately implemented, on site potential construction noise impacts on nearby sensitive receivers would be temporary in nature and will be minimised as far as reasonably practicable.

Vibration

The CNVA evaluates the impact of vibrations from the operation of rock breakers and vibratory rollers during excavation works which could impact human comfort or cause structural damage to nearby buildings. The minimum distance between rock breaking activities and the nearest building is approximately 30 metres. At this distance the CNVA notes that cosmetic or structural damage to buildings as a result of vibrations caused by the project is unlikely. Operation of vibratory rollers on the eastern side of the site, however, may generate vibration levels which exceed human comfort criteria at properties along Hickson Road.

On review of CNVA, the EPA requested justification for the human comfort criteria referred to and recommended trial testing where equipment has the potential to exceed the human comfort criteria. The EPA also requested details of monitoring and mitigation measures to confirm predicted impacts.

In response, the amended CNVA provided in the RTS includes a reference to the British Standard utilised to establish the human comfort criteria, committed to undertaking trial vibration monitoring to determine appropriate work distances and equipment types, committed to utilising the smallest practical size of vibratory roller, and notifying occupant's adjacent to the site when these activities are planned to occur. In addition the applicant has committed to implementing a Construction Noise and Vibration Management Plan which incorporates mitigation measures currently implemented at Barangaroo South.

The EPA did not raise any further issues in relation to predicted vibration levels.

Noting the above the Department has recommended conditions of consent which include:

- the approval of a updated Noise and Vibration Management Plan that incorporates all recommendations of the CNVA including the requirement to undertake trial vibration monitoring; and
- specifying vibration limits to ensure human comfort criteria are not exceeded and structural damage avoided.

With these conditions in place, the Department considers that the relevant human comfort criteria can be achieved.

Traffic Noise

The main truck haulage route for disposal of contaminated material would be along Sussex Street connecting to the Western Distributor, Cross City Tunnel or Eastern Distributor. The EPA's *Road Noise Policy* (RNP) provides acceptable levels for additional noise from construction traffic. The CNVA presents that the predicted increase in traffic noise is predicted to be less than 2 dBA and therefore satisfies the requirements of the RNP. Further, the traffic operations would generally be limited to standard construction hours therefore no traffic noise impact would occur during the night.

The Applicant provided further analysis in the RTS to address the EPA's concerns in relation to the impact on local roads, noting that existing traffic noise levels in the area is such that the additional noise from the remediation works will not exceed the applicable requirements of the RNP.

The EPA did not raise any further concerns in relation to the revised analysis provided. In this regard the Department accepts that the proposed traffic noise is within acceptable limits outlined in the relevant EPA noise policy.

5.4 Health Impacts

A Health Impact Assessment (HIA) was included in the EIS to address the risk to human health from potential exposure to contaminated material during the remediation works. The HIA identifies key sensitive receptors (human workers, site visitors, nearby residents and ecological receptors)

that may be affected by contaminants and investigates potential exposure scenarios including inhalation of chemicals on airborne particles (i.e. dust), inhalation of soil or ground water derived vapours, incidental ingestion and or dermal absorption of chemicals from the soil and groundwater.

The HIA presents a qualitative risk assessment that identifies that the primary risk of exposure is through the inhalation of suspended particles and vapours (soil and water) and/or dermal contact, and is likely to be of a higher risk for workers working on and adjacent to the site. All other identified potential exposure pathways to sensitive receptors (such as nearby residents and pedestrians) are considered to be low to moderate risk.

The HIA also found that the highest health risks were for workers on and adjacent to the site. To ensure the risk for workers is minimised, a range of mitigation measures are recommended to be implemented on site, these include:

- on-site dust control measures (to be formalised in an Air Quality Management Sub-Plan for the development);
- engineering controls, safe work practices and effective hygiene procedures (such as hand washing);
- use of the odour and dust filtration devices on the excavation enclosure/s;
- implementation of an Asbestos Management Plan (as part of the CEMP); and
- use of appropriate PPE.

To ensure that potential human health impacts on other sensitive receptors are minimised, the Applicant has also committed to the implementation of a broad range of management measures to be applied at the source of the emission (source controls), including but not limited to:

- dust suppression, including water spraying of exposed surfaces;
- excavation of contaminated materials within enclosures fitted with odour and dust filtration devices (emission filtration);
- minimising groundwater removal where possible to ensure excavated material is kept wet;
- minimising haul road lengths, truck speeds, covering truck loads (with odour suppressant foams) and ensuring good material clean-up practices are in place;
- the erection of perimeter hoarding for adjacent sensitive receptors;
- prompt removal, covering (e.g. placement of tarpaulins over stockpiles) and surface stabilisation of contaminated material where possible; and
- treatment of contaminated surface water to enable safe discharge in accordance with the relevant regulatory limits.

With the implementation of these control measures, the HIA concludes that the risk of exposure to harmful pollutant concentrations to both the workers on site and the nearby sensitive receivers would be low and within acceptable limits.

The EPA and NSW Health did not object to the proposal but requested additional information to clarify the potential health impacts assessed, including:

- the risk analysis for determining levels of health impact risk on sensitive receptors;
- the relationship between odour and health risks;
- control measures to manage water in the event of large rainfall events, overflows, leaks and blockages;
- consideration of potential mist derived exposure pathways and contaminated surface water resulting from the use of mist sprays;
- contaminated water entering the site from adjacent areas is appropriately controlled and treated prior to release, and
- sump pits are appropriately vented to minimise human health risk.

The HIA has been amended within the RTS to address the concerns raised. The amended HIA confirms a suitable vapour and dust monitoring program will be implemented as part of the Air Quality Management Plan to manage the intensity, location and duration of work and ensure that appropriate corrective work actions and or additional control measures are implemented if

required. Misting sprays will be addressed via waste water management on site and are not themselves considered to provide additional exposure pathways. The emergency management plan will address any potential overflow or water blockage that may arise on site and outline an appropriate response.

The amended HIA also clarifies that there is no direct relationship between odour and health risks in that odour detection is routinely significantly below toxicity thresholds. That being noted, odour itself can cause discomfort to some receptors and must therefore be monitored as part the Air Quality Monitoring Plan.

On review of the RTS and amended HIA, the EPA requested further information on the potential for off-site health risks resulting from the transport, treatment and disposal of the Barangaroo waste. SafeWork NSW requested further detail on the proposed mechanisms to protect workers from the exposure pathways identified. NSW Health raised no further concerns.

The Applicant provided a RAP addendum as part of the second RTS which outlines controls to minimise emissions during transport and an updated HIA which includes an assessment of the potential off-site health risk. The updated HIA now includes potential exposure pathways for off-site receptors from the transport of materials, including pedestrians, residences and businesses located in close proximity to transportation routes, drivers, and workers that may potentially be involved in some emergency response /clean up. The risk to the receptors identified is assessed to be 'low' risk.

The HIA notes that as assessment is not required for potential health impacts at treatment and disposal facilities as these have been assessed and are managed through EPA licences/approvals.

The EPA has not raised any further concerns but has requested that the Applicant confirm there are appropriate technologies to treat any generated material and that the disposal sites/methodologies will not result any adverse environmental or human health impacts.

The Department has reviewed the updated HIA and is generally satisfied that the mitigation measures described to protect human health can effectively manage potential health impacts, subject to the imposition of appropriate conditions of development consent. The Department has recommended that a Waste Management Plan provide detailed information on the licensed facilities to be utilised, the treatment methodologies to be utilised and all associated EPA licences. Providing the licensed facilities are operating in accordance with their licence requirements, the risk to human health would be actively managed and minimised.

In addition to the above requirements and to ensure health impacts are appropriately managed, the Department has recommended key conditions which would require the Applicant to prepare an Emergency Management Plan, Health Management Plan and Asbestos Management Plan to ensure the health and safety of workers and any surrounding receptors is protected.

SafeWork NSW comments are addressed by the requirement to provide a Health Management Plan, which is to include a suitable occupational health monitoring program

With these conditions in place, the Department's assessment concludes that the potential health impacts associated with the remediation works would be effectively managed.

5.5 Water Quality Management

The EIS includes a Soil and Water Impact Assessment (SWIA) which assesses potential impacts on groundwater, stormwater, harbour water and marine ecology from the proposed remediation works, and specifically the migration of contaminants via the release of contaminated water.

The SWIA found that the potential for adverse impacts to local soil and groundwater systems can be managed through the application of suitable industry standard mitigation measures. Mitigation measures outlined include treatment of all waste water and contaminated water before release, the use of groundwater retention walls to manage groundwater flows during the works, implementation of on-site erosion and sedimentation controls and turbidity curtains within Darling Harbour. Potential impacts will also be monitored through water quality monitoring both prior to the release of the treated water and monitoring of the resultant water quality within Darling Harbour to ensure it meets the water quality objectives established.

On review, DPI Water and the EPA requested the following additional information:

- the preparation of a Groundwater Monitoring and Management Plan and obtaining relevant licences;
- the impact of dewatering on surrounding groundwater flows;
- the proposed methodology for identifying and treating heavy metals dissolved in contaminated water;
- in the event of unexpected failures, confirmation of the use of diverters and storage basins to prevent release of non-compliant waters into Darling Harbour;
- clarification of how water quality parameters will be measured to ensure compliance;
- confirmation that commissioning be extended to allow sufficient sampling and laboratory analysis to better understand treatment and chemical variabilities of the contaminated water on site; and
- the water treatment plant (WTP) must be configured to treat contaminated groundwater to EPL limits.

In response, the Applicant has updated the SWIA in the RTS to address the issues and concerns raised. The revised report notes:

- minimal impacts are anticipated on groundwater flows in the area during the works due to the use of groundwater retention walls. In addition, it is noted that previous retention walls and excavation work completed for the Stage 1A basement were not observed to have significant impacts on ground water quality or flows;
- confirmed that the WTP will be designed to include the treatment of heavy metals to appropriate levels (defined by the EPA Licence);
- that in the case of unexpected failures, in the first instance diverters and storage basins will be utilised to prevent discharge of untreated non-compliant waters. Dilution will only be used as a last resort to meet water quality guidelines;
- that site samples of water will be tested to ensure that the water quality parameters used to are an accurate indicator of overall water quality; and
- commissioning will be extended to a month to allow enough time to allow for analysis of lab results of water quality parameters to confirm appropriate treatment methods.

The EPA did not raise any further issues or concerns on review of the revised SWIA. The Department's review of the revised soil and water impact assessment accepts that the impacts identified are appropriately addressed through the mitigation measures proposed. The Department considers that water and groundwater monitoring and appropriate water quality 'triggers' that facilitate the early identification of any water quality issues is critical to maintaining water quality. As such, the Department has incorporated the mitigation measures proposed and the requirement to provide a Water and Groundwater Quality Monitoring Plan, including water quality 'triggers' and actions and response protocols as recommended conditions of consent. The Department's assessment concludes that, subject to conditions, the potential water quality impacts of the development can be effectively managed.

Overall, the Department's assessment notes that the removal of the sub-surface contaminated material will have a long term beneficial impact on the quality of water and specifically groundwater quality in the area. Further, the Department considers that upon completion, the remediation works have the potential to improve water quality in Darling Harbour resulting in positive impacts on local aquatic ecology.

5.6 Traffic, Parking and Access

The remediation works will increase traffic to and from the area which has the potential to impact on the surrounding road network. As such, a Traffic Impact Assessment (TIA) was prepared and included in the EIS. The Traffic Impact Assessment (TIA) was amended with the RTS to more accurately reflect the revised work schedule and potential cumulative impacts.

Traffic Generation

The revised TIA predicts that the remediation works will generate an additional 41 construction vehicles movements (resulting in 82 cumulative movements to and from the site per day), which calculates to approximately 8 movements every hour over the course of a typical day.

The amended TIA includes consideration of the cumulative traffic impacts of the proposed remediation works at Barangaroo and the cumulative traffic impacts associated with the occupation and operation of commercial buildings C2, C3, C4 and C5, residential buildings R1, R7, R8 and R9 and the operation of the Headland Park which would occur during the remediation works.

The TIA found that at peak traffic, anticipated to occur in August 2016, a cumulative worst-case of 300 vehicle movements would be generated during the AM peak hour. Of these only a small proportion (2% or 8 vehicle movements) are attributable to the Block 5 remediation works.

Using the predicted worst-case vehicle movements identified above, the TIA concludes that the construction traffic movements associated with the proposed development would not impact on the overall operation of the local road network, can be effectively managed and require no further works to accommodate the traffic levels anticipated.

On review of the traffic impact assessment, the Port Authority of NSW requested that they are consulted to ensure minimal impact on access for commercial vehicles servicing the Overseas Passenger Terminal.

TfNSW made no objection to the proposed development but requested that the Applicant prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) to manage impacts on traffic, public transport, pedestrian and cycle movements, and appropriately consider cumulative impacts at Barangaroo including the cumulative impacts of construction works associated with Wynyard Walk and the Barangaroo Ferry which are anticipated to occur in 2016. RMS requested that the CPTMP address any impacts associated with changes to traffic signals along Hickson Road.

TfNSW also noted that a Road Occupancy Licence will be required to enable the stormwater augmentation works to be undertaken on Hickson Road.

To ensure that traffic impacts can be managed and that issues raised by TfNSW, RMS and the Port Authority of NSW are addressed (**Section 4.2**), the Department has recommended a condition requiring the Applicant to prepare the CPTMP in consultation with Port Authority of NSW, RMS, the State Transit Authority (Sydney Buses) and TfNSW. The Plan is required to be endorsed by TfNSW as requested in their submission.

The Department has reviewed the revised TIA and with the above conditions in place has concluded that the surrounding road network can safely accommodate traffic generated by the proposed development.

Parking

No on-site parking is to be provided for construction workers consistent with other major CBD construction projects. It is expected that workers would travel to the site via public transport outside the morning and afternoon peak commuter periods. To encourage public transport use and other non-car travel options, the Applicant has committed to providing advice to construction workers

about public transport, pedestrian and cycling routes to the Barangaroo site during site induction through the preparation of a Green Travel Plan.

All trucks associated with the remediation works would be required to park on site, enter and leave the site in a forward direction and not queue on the public road network.

The Department concludes that proposed parking arrangements are appropriate for the remediation works noting that the arrangements are consistent with other major CBD construction projects. The Department has formalised the requirement for a CPTMP (incorporating a Green Travel Plan) that is prepared in consultation with Council, the State Transit Authority, the BDA, RMS and TfNSW into the recommended conditions of consent.

Access

The main site vehicle access would be via a gated entry and exit on Hickson Road, approximately 350m north of Sussex Street/Napoleon Street intersection.

The gate house at this access will be located approximately 40 m inset from Hickson Road to reduce trucks queuing along Hickson Road. Existing concrete hardstand areas would be utilised as internal haul roads where practical and traffic movements on site would be directed around the remediation works.

TfNSW requested that the Applicant consider potential construction impacts on emergency access and egress in the surrounding area.

The Department has reviewed the proposed access arrangements and concludes that the access would be appropriate for the remediation works. Notwithstanding this, to ensure that the specific concerns of TfNSW are addressed, the Department has formalised the requirement for a CPTMP that is prepared in consultation with relevant agencies into the recommended conditions of consent.

5.7 Other Issues

Issue
Heritage

European Heritage

- A Heritage Impact Statement (HIS) was undertaken as part of the EIS which concluded that although the site contains significant archaeological resources, the contamination makes it difficult to realise and record the remains. The area is not therefore considered to reach the State significance threshold. The site is of local significance.
- The HIS recommends that a methodology be developed by the Applicant for archaeological monitoring and recording of remains (where possible) that are removed during the remediation and stormwater diversion works.
- The Applicant has committed to the above recommendation and the Department has incorporated this requirement into the recommended conditions.

Indigenous Heritage

- An Indigenous Heritage Assessment (IHA) was also undertaken as part of the EIS. The assessment concluded that the site has no Aboriginal archaeological or cultural heritage potential and the development can proceed without any further Aboriginal archaeological assessment, excavation or testing.
- The IHA recommends that should any remains be uncovered during works that all works cease and further advice be sought from the Metropolitan Local Aboriginal Land Council.
- The Department has incorporated IHA recommendation into the conditions.

Visual Impact

- Temporary enclosures (tent like structures or similar) used to mitigate air emissions during excavation works would be up to 14m in height, of variable widths and would be clearly visible from higher elevations (such as from High Street).

- From ground level the visual impacts of the works would be largely screened from view by the use of 2.4m high hoardings with further screening afforded by the mature fig trees along Hickson Street.
- The applicant has stated that night time lighting will be of low levels and will be consistent with Australian Standard AS1680 Lighting and the Visual Environment.
- The Department is satisfied that the visual impacts of the development would be minimal. The works are temporary and the visual nature of the works (including the bulk, height and scale of enclosures and construction activities) would be largely indistinguishable from existing and concurrent construction works at Barangaroo.
- Recommended conditions require detailed design plans of the proposed excavation enclosures to be submitted to the Secretary for approval, prior to the issue a Construction Certificate to ensure the structures will not result in adverse visual impacts.

Tree Removal

- There are ten trees located along the eastern site boundary adjacent to Hickson Road.
- The EIS includes a Tree Health and Assessment report and associated Tree Management Plan (TMP) which identifies the removal of three low quality Beach Hibiscus trees (5 m to 6 m high) located on the eastern side of the site adjacent to Hickson Road.
- The remaining Hills Fig trees (11 m to 16 m) will be retained. While some crown pruning will be required to the Fig trees, appropriate tree protection measures are recommended in the TMP to ensure there is no significant impact on the condition of retained trees.
- The Applicant has committed to appointing a project arborist to monitor all tree removal and tree health and preservation works in accordance with the TMP.
- The Department's assessment concludes that tree removal and crown pruning would be effectively managed. The Department has formalised the requirement for the Applicant to undertake all tree removal works in accordance with the TMP in the recommended conditions.

Ecology

- A series of human health and ecological risk assessments were carried out as part of the Remedial Action Plan to address the EPA Declaration. As part of these assessments relevant ecological receptors (terrestrial and aquatic) were identified along with marine water quality criteria to ensure the protection of aquatic ecological receptors. Appropriate parameters have therefore been established and will be implemented via the Declaration Area RAP to ensure minimal impacts on ecological receptors.
- In addition, it is noted that the works are set back from and separated via perimeter retention walls from the closest aquatic ecological receptors (in Darling Harbour). As such, the risk of contaminants moving through groundwater to Darling Harbour is considered to be low.
- No marine vegetation (i.e. sea grasses) was observed during marine ecological studies directly adjacent to the site.
- The Department's assessment concludes that the proposal would result in minimal impacts to marine ecology. It is noted that the remediation works have the potential to improve water quality in the area potentially resulting in improvements to nearby aquatic habitats

Stormwater and Waste Water Infrastructure

- The EIS includes a Stormwater Diversion Plan prepared by Cardno to facilitate the diversion of an existing Sydney Water stormwater pipeline currently running through Block 5 to Hickson Road around the remediation area (Section 2.1).
- SWC made no objection in principal to the proposed stormwater diversion works but require further application to SWC to ensure suitable protection of SWC assets, including the preparation of relevant supporting documentation (environmental management, structural and geotechnical assessments) and noted that the Applicant should continue to liaise with SWC prior to carrying out the works to ensure that the proposed work methods are acceptable. Access to Sydney Water assets should also be maintained at all times.
- The Department is confident that the Applicant would be required to work closely with SWC so that the impacts of the development on stormwater infrastructure are effectively managed. The Department has formalised requirements for the Applicant to obtain a Section 73 Certificate from SWC for the proposed stormwater works into the recommended conditions.

Hazard Management

- NSW Fire and Rescue raised a concern in their submission that the proposal does not specifically address unplanned incidents that may pose a risk to responders and members of the public. The issue of response management was also raised as an issue of concern in a public submission. Should an incident occur on site it is important that appropriate information is readily available on the chemicals on site, the potential risks to health and appropriate control measures.
- NSW Fire and Rescue recommended conditions of consent to ensure that appropriate emergency procedures are developed in consultation with NSWFR.
- The Applicant has noted no objection to NSWFR comments and the Department will formalise the recommendations as conditions of consent.

5.8 Public Interest

The application is considered to be in the public interest as it will provide the following key public benefits:

- address the significant risk of harm to human health and the environment identified by the EPA's Declaration (no. 21122) within Block 5;
- indirectly facilitate the development of the Barangaroo site which is identified as an important opportunity to extend Sydney's CBD, provide commercial space, increase transport links and deliver world class open space in *A Plan for Growing Sydney*; and
- potentially improve the long-term water quality in Darling Harbour therefore enhancing Sydney Harbour and its environs which is consistent with *A Plan for Growing Sydney's* goal to provide a sustainable and resilient city that protects the natural environment.

6. CONCLUSION

The Department has assessed the merits of the development having regard to the objects of the EP&A Act and the principles of ecologically sustainable development. The Department has reviewed the EIS and duly considered advice from public authorities, as well as issues raised in public submissions in accordance with section 75(2) of the EP&A Act.

The key issues relating to the assessment of the remediation works include potential contamination and waste management, construction (air quality, noise and vibration, water quality, traffic, parking and access) and health impacts.

All key issues associated with the proposal have been assessed, and appropriate conditions recommended, where necessary. This assessment has concluded that the application is generally consistent with the Barangaroo Concept Plan, and that with the implementation of the recommended conditions of consent, the impacts of the development can be mitigated and/or managed to ensure an acceptable level of environmental performance.

Consequently, the Department considers that the development is in the public interest and should be approved, subject to conditions.

7. RECOMMENDATION

It is recommended that the Acting Executive Director, Key Sites and Industry Assessments:

- **consider** all relevant matters prescribed under section 79C of the EP&A Act, as contained in the findings and recommendations of the assessment report and appended documentation;
- **grant consent** to the development application, subject to conditions, under section 89E of the EP&A Act, having considered all relevant matters in accordance with the above; and
- **sign** the attached instrument of consent at **Appendix A**.

Prepared by: M Nettlefold

Endorsed by:



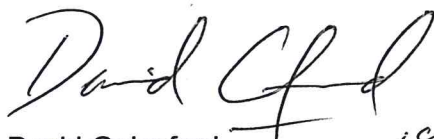
Cameron Sargent
Team Leader
Key Sites Assessments

Endorsed by:



Ben Lusher
Director
Key Sites Assessments

Approved by:



David Gainsford 18/12/15
Acting Executive Director
Key Sites and Industry Assessments

APPENDIX A RECOMMENDED CONDITIONS

APPENDIX B BARANGAROO CONCEPT PLAN – PLANNING HISTORY

Barangaroo Concept Plan MP 06_0162

The then Minister for Planning approved the Barangaroo Concept Plan (MP 06_0162) on 9 February 2007.

The Concept Plan approval allowed for:

- mixed use development involving a maximum of 388,300 sqm of gross floor area (GFA) contained within eight blocks on a total site area of 22 hectares (ha);
- approximately 11 ha of new public open space/public domain, including a 1.4 kilometre (km) public foreshore promenade;
- a maximum of 8,500 sqm GFA for a passenger terminal and a maximum of 3,000 sqm GFA for active uses that support the public domain within the public recreation zone;
- built form design principles, maximum building heights and maximum GFA for each development block within the mixed use zone;
- alteration of the existing seawalls and creation of a partial new shoreline to the Harbour;
- retention of the existing Sydney Ports Corporation Port Safety Operations and Harbour Tower Control Operations including employee parking; and
- an underground car park beneath the northern headland park, containing approximately 300 car parking spaces.

The capital investment value (CIV) of the approved Concept Plan was \$1.5 billion with up to 16,000 operational jobs

The following outlines the subsequent 7 modification approvals to the Concept Plan:

MP 06_0162 MOD 1

On 25 September 2007, the Executive Director, Strategic Sites and Urban Renewal, as delegate of the Minister for Planning, approved a minor modification to the approved Concept Plan to correct minor typographical errors and re-wording of the design excellence terms. This modification did not alter the maximum GFA or mix of uses.

MP 06_0162 MOD 2

On 16 February 2009, the then Minister for Planning approved a second modification to the Concept Plan to increase the GFA of commercial uses by 120,000 sqm in Blocks 2, 3, 4 and 5, to a total overall GFA of 438,000 sqm. The modification increased the total maximum GFA for Barangaroo to 508,300 m² (an increase of 120,000 sqm or 31 per cent over the whole site).

MP 06_0162 MOD 3

On 11 November 2009, the then Minister for Planning approved a third modification to the Concept Plan, generally meeting the requirements of the Concept Plan approval relating to the northern headland and northern cove, with other changes as follows:

- the reinstatement of a headland at the northern end of the site with a naturalised shape and form including a build up of height and a landscaped connection to physically link Clyne Reserve to allow direct pedestrian access from Argyle Place;
 - an enlargement of the northern cove to achieve a greater naturalised shape, form and edges (note this modification and the one above were required modifications in the terms of the original Concept Plan, contained in Modification B1 and B2, and following
-

recommendations made in the jury report regarding the original winning competition scheme);

- the consequential re-alignment of Globe Street to turn right towards Hickson Road immediately south of the enlarged cove, rather than continuing north around the headland;
- the consequential removal of development Block 8 and part of Block 7 and redistribution of the associated land use mix;
- the demolition of three heritage items being the Sandstone Seawall; the Sydney Ports Harbour Control Tower; and the MWS & DB Sewage Pumping Station; and
- amendments to the Statement of Commitments relating to the preparation of relevant plans and strategies so that work can commence in stages.

This modification slightly reduced the approved GFA and mix of uses, with a resulting total GFA of 501,000 m² (comprising 489,500 m² of mixed uses and 11,500 m² for the passenger terminal and active uses in the open space zone).

MP 06_0162 MOD 4

On 16 December 2010, the then Minister for Planning approved a fourth modification to the Concept Plan. The modified Concept Plan provides for the following:

- a maximum of 563,965 sqm mixed uses GFA, including residential, commercial and retail uses which includes:
 - a maximum of 128,763 sqm of residential uses
 - a maximum of 50,000 sqm of tourist uses GFA; and
 - a maximum of 39,000 sqm of retail GFA.
- a maximum of 4,500 sqm of active uses GFA (3,000 sqm of which will be in Barangaroo South);
- a minimum of 12,000 sqm of community uses GFA (10,000 sqm 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 space serving separate recreational functions and includes a 2.2 km public foreshore 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.

In order to accommodate the changes made to the Concept Plan, Schedule 3 of Part 12 of the Major Development SEPP was concurrently amended. The amendment rezoned parts of the Barangaroo site and the adjoining areas from 'RE1 Public Recreation' and 'W1 Maritime Waters and Transport' to 'B4 Mixed Use' and 'RE1 Public Recreation'. Modifications to the distribution of GFA and building heights were also included in the amendment.

MP 06_0162 MOD 5

This modification was lodged in February 2011, and proposed modifications to clarify the outcomes with respect to the distribution of community uses GFA across the Barangaroo site, and to correct a number of minor typographical errors. This application was subsequently withdrawn on 22 March 2011.

MP06_0162 MOD 6

This modification application proposed to modify the Barangaroo Concept Plan for Barangaroo South. The proposed modifications, as publicly exhibited, sought approval for the following:

- the realignment of the development block boundaries for Blocks 3, 4A and 4B;
- revisions to the Urban Design Controls to reflect the changes to the Block boundaries for Blocks 3, 4A and 4B;
- change the requirement for a 'minimum' of 12,000 sqm of community uses gross floor area (GFA) to be delivered to a 'maximum';
- allow architectural roof elements and building management units to be excluded from the maximum height limit definition; and
- specify the car parking rates for 'other' uses thus removing the requirement to comply with City of Sydney Council's current car parking rates.

On 25 March 2014, the Planning Assessment Commission approved the application.

MP06_0162 MOD 7

On 11 April 2014, the then Minister for Planning and Infrastructure approved a seventh modification to the Concept Plan to allow the construction, operation and maintenance of a concrete batching plant to supply concrete for the construction of future development under this Concept Plan at Barangaroo South.

APPENDIX C ENVIRONMENTAL IMPACT STATEMENT

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6533

APPENDIX D CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (State and Regional Development) 2011

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

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

State Environmental Planning Policy (Major Development) 2005

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

The proposed development is considered to be consistent with the MD SEPP as it will enable the future development of Stage 1 of the Barangaroo site in accordance with the approved Barangaroo Concept Plan (as modified).

State Environmental Planning Policy No. 55 – Remediation of Land

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

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

As the proposed development requires consent under the provisions of clause 3 of Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*, the proposed works are classified as 'Category 1' works under clause 9 of SEPP 55 and the Applicant must obtain consent before undertaking the remedial works.

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

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

In addition, where remedial works are required, Clause 17 of the SEPP requires all remedial works to be undertaken in accordance with the EP&A Act, any guidelines drafted under the *Contaminated Land Management Act 1997*, and a remedial action plan (if works are 'Category 1' works), prepared in accordance with the *Contaminated Land Planning Guidelines*. Clause 18 also requires the Applicant to notify the relevant Council within 30 days of the completion of remedial works.

In May 2009, the EPA declared part of Millers Point to be a remediation site (no. 21122) under Section 9 of the *Contaminated Land Management Act 1997* (CLM Act). The site to which the

declaration relates (the 'EPA Declaration Area') encompasses Block 5 of the approved Barangaroo Concept Plan (as modified) which is the subject of this application. The EPA considered that the Declaration Area was contaminated in such a way as to present a significant risk of harm to human health and the environment.

As such, a site specific *NSW Declared Remediation Site No. 21122 Remedial Action Plan* (Declaration Area RAP) has been prepared by AECOM for the proposed remediation and included in the EIS. The proposed remediation works will be undertaken in conformance with the abovementioned Declaration Area RAP and the supporting detailed Human Health and Ecological Risk Assessments (HHERAs). The Declaration Area RAP has been prepared and approved by an independent EPA-accredited Site Auditor (Mr. Graeme Nyland) consistent with the Barangaroo Development Authority's EPA-approved Voluntary Management Proposal (VMP). The Site Auditor has issued Section B Site Audit Statements verifying that the nature and extent of the contamination has been appropriately determined and the Declaration Area RAP is appropriate to achieve the desired outcomes.

It is noted that the objective of the proposed works is to remediate the land to facilitate the revocation of the EPA Declaration under the current land use. No further development or amendment to the current land use is proposed. Future development applications that proposed specific uses and/or development consistent with the Barangaroo concept plan will consider if additional remediation work is required to make the land suitable for the specific use and/or development proposed.

The Department's assessment concludes that that the approved HHERAs and Declaration Area RAP can be relied upon to ensure that the land would be remediated in accordance with the requirements of SEPP 55 to enable the revocation of the EPA Declaration (**Section 5.1**). In order to ensure this occurs, the Department has recommended the imposition of conditions requiring:

- all remediation works to be undertaken in accordance with the approved HHERAs and the Declaration Area RAP and the RAP Addendum;
- the Applicant to submit a detailed site audit summary report, site audit statement and validation report verifying that the land has been remediated in accordance with the Declaration Area RAP and RAP Addendum to the EPA, the Secretary, the Certifying Authority, and the Council within six months of the completion of remediation works; and
- the Applicant to notify the Council that remediation works have been completed, as per the requirements of Clauses 17 and 18 of SEPP 55.

The Department's assessment therefore concludes that the proposal is consistent with the relevant provisions of SEPP 55.

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

Consideration of the relevant clauses in SEPP (Miscellaneous Consent Provisions) 2007 are addressed in Table 1 below:

Table 1: Consideration of the facilitate provisions of SEPP (Miscellaneous Consent Provisions) 2007

SEPP 64	Criteria	Department Assessment	Comment /	Complies
Part 1, clause 3 Aims, objectives	<ul style="list-style-type: none"> • This policy aims to ensure suitable provision is made to ensure the safety of patrons and the protection of the environment in relation to temporary structures. 	<ul style="list-style-type: none"> • Recommended conditions of consent require the Applicant to provide the Certifying Authority with documentation from a suitably qualified structural engineer certifying that all structures (including temporary structures) 		YES

		comply with the State's building laws (i.e. the Building Code of Australia), and ensure the facility will not have a detrimental impact on the environment.	
<p>Part 2, clause 12</p> <p>Matters for consideration</p>	<ul style="list-style-type: none"> • Whether number of persons should be restricted. • Adverse noise impacts. • Limitation on hours of operation • Parking impacts • Principles for minimising crime risk • Satisfactory location • Toilets • Whether it is located on land that comprises a State heritage item, an item of environmental heritage (Aboriginal objects etc) or is in a heritage conservation area or a place of significant 	<ul style="list-style-type: none"> • Not Applicable • Conditions of consent will ensure noise impacts are controlled whilst the remediation works are undertaken. • The Department has carefully considered the appropriateness of the proposed hours of construction/remediation in Section 5 of this report. • No parking is proposed on site for construction workers who would use public transport consistent with other major CBD construction projects. A Green Travel Plan would be prepared by the Applicant to encourage public transport use and other non-car travel options and reduce construction traffic. • The application includes signage, fenced access pathways, night-time lighting and security hoardings. These measures are expected to minimise the risk of crime. • Recommended conditions require the Applicant to submit final detailed design drawings of all structures to the Secretary for approval, prior to issue of the relevant Construction Certificate. This will enable the Department to ensure the final design and location of these structures is satisfactory. • Amenities will be provided in accordance with BCA requirements. • There are no listed local or State heritage items located on the site. Notwithstanding, conditions are recommended that would ensure there is archaeological monitoring 	<p>YES</p>

	<p>Aboriginal significance.</p> <ul style="list-style-type: none"> • Duration of consent • Conditions relating to dismantling or removal of structures. 	<p>and recording of some non-Aboriginal heritage remains to be removed during the remediation.</p> <ul style="list-style-type: none"> • Development consent will be limited to 5 years. • Recommended conditions of consent require temporary structures to be dismantled and removed from the site within 3 months of the completion of the remediation works. 	
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Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

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

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

SREP	Criteria	Department Assessment	Comment /	Complies
Part 3, clause 17 Zoning W1 Maritime Waters				Not Applicable
Part 3, clause 18 Development control				Not Applicable
Part 3, clause 20 Matters for Consideration	<ul style="list-style-type: none"> • The matters referred to in Division 3 must be considered by the consent authority. 	<ul style="list-style-type: none"> • The Department has considered the relevant matters below. 		YES
Part 3, clause 21 Biodiversity, ecology & environmental protection	<ul style="list-style-type: none"> • The consent authority must take into consideration biodiversity, ecology and environmental protection matters that are outlined in this clause. 	<ul style="list-style-type: none"> • The proposed development is likely to have a positive effect on water quality in Darling Harbour as it will prevent contaminated groundwater migrating west from the EPA Declaration Area into the water body. This is likely to have a positive effect on marine ecology. 		YES
Part 3, clause 22 Public access to, and use of, foreshores and waterways	<ul style="list-style-type: none"> • The consent authority must take into consideration measures to maintain public access to foreshores and waterways. 	<ul style="list-style-type: none"> • Public access is provided along the foreshore and along Hickson Road. 		YES
Part 3, clause 23 Maintenance of a working harbour	<ul style="list-style-type: none"> • The consent authority must take into consideration measures to maintain maintenance of a working harbour. 	<ul style="list-style-type: none"> • The application will not impact on the ability of the site to maintain a working harbour. 		YES

Part 3, clause 24 Interrelationship of waterway and foreshore uses	<ul style="list-style-type: none"> The consent authority must take into consideration the interrelationship of waterway and foreshore uses. 	<ul style="list-style-type: none"> The development does not propose any works in the waterway and public access along the foreshore would be maintained. 	YES
Part 3, clause 25 Foreshore and waterways scenic quality	<ul style="list-style-type: none"> The consent authority must take into consideration measures to maintain or enhance the scenic quality of foreshores and waterways. 	<ul style="list-style-type: none"> The works are considered to be consistent with the overall visual character of on-going extensive construction works at Barangaroo South. Therefore, the scenic quality of foreshores and waterways would be maintained. Further, the remediation works and associated enclosures would be temporary and would be removed following the completion of the works. 	YES
Part 3, clause 26 Maintenance, protection and enhancement of views	<ul style="list-style-type: none"> The consent authority must take into consideration measures to maintain or enhance views. 	<ul style="list-style-type: none"> Public views of the remediation works would be screened by hoardings and mature fig trees present along Hickson Road. The remediation works and enclosures would be temporary and would be removed following the completion of the works. 	YES
Part 3, clause 27 Boat storage facilities			Not Applicable
Part 3, clause 29 Foreshores & Waterways Development Advisory Committee			Not Applicable

Sydney Harbour Foreshores and Waterways DCP 2005

Consideration of the relevant clauses in Sydney Harbour Foreshores and Waterways Development Control Plan (DCP) 2005 are addressed in Table 3 below.

Table 3: Summary of Compliance with the relevant provisions of the Sydney Harbour Foreshores and Waterways DCP

DCP	Key controls	Department's Comment / Assessment	Complies
Ecological assessment (Part 2)		The site contains no terrestrial or aquatic ecological communities as identified in the DCP.	Not Applicable
Landscape assessment (Part 3)		The site contains no landscape characters as identified in the DCP.	Not Applicable
Design Guidelines (General & Land/Water based – Part 5)	<ul style="list-style-type: none"> • Foreshore access (5.2) • Signage (5.5) • Waterfront Industry (5.8) 	<ul style="list-style-type: none"> • Public access is provided along the foreshore and along Hickson Road. • Temporary site identification signage is proposed. The Department is confident that the signage would be consistent with the requirements of Section 5.5. • The Department has considered the relevant provisions of Section 5.8 of the DCP in Section 5 of this report and considers that the development would not adversely impact on the waterway. 	<p>YES</p> <p>YES</p> <p>YES</p>

APPENDIX E SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6533

APPENDIX F RESPONSE TO SUBMISSIONS (RTS) AND SECOND RTS

See the Department's website at:

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