CONSTRUCTION FRAMEWORK ENVIRONMENTAL MANAGEMENT PLAN

STAGE 1B
REMEDIATION & CONSTRUCTION
BARANGAROO SOUTH

Revision of this CFEMP:

E	11/08/2016	Revised issue for project applications & Concept Plan Modification 8
D	14/06/2016	Revised issue for Stage 1B remediation & project applications
C	19/04/2016	Revised issue for Stage 1B remediation & project applications
B	30/10/2015	Revised issue for Stage 1B remediation & project applications
A	07/08/2015	Revised issue for Stage 1B remediation & project applications
-	-	Previously formed part of overall CFEMP – now Stage 1A only
Revision	*Date*	*Description of Change*

Approvals and Modifications included in this CFEMP:

SSD 6964	Residential Building R4A	-
SSD 6965	Residential Building R4B	-
SSD 6966	Residential Building R5	-
SSD 6960	Stage 1B Basement	-
SSD 6617	Hickson Road Remediation Works	-
SSD 6533	Block 5 Remediation of part of Barangaroo Central	-
SSD 5897	Block 4 Remediation & Land Forming Works	-
Approval no.	*Project*	*Modifications*

Table of Contents

Figures

Tables

Appendices

Appendix 1	**Project Environmental Policy**
Appendix 2A	**Environmental Requirements – MCOA**
Appendix 2B	**Environmental Requirements – Environmental Assessments**
Appendix 3	**Environmental Legislation Register**
Appendix 4	**Environmental Licences, Permits & Approvals Register**
Appendix 5	**Declaration Area Remediation Works**
Appendix 6	**Environmental Monitoring & Inspection Program**
Appendix 7	**Environmental Reporting Program**
Appendix 8	**Sustainability Commitments Checklist**

Acronyms and Glossary

BDA	Barangaroo Delivery Authority (formerly part of SHFA)
CFEMP	Construction Framework Environmental Management Plan (this plan)
DA	Development Application
DECCW	NSW Department of Environment, Climate Change and Water (now EPA)
DP&E	NSW Department of Planning & Environment
DPI Water	Department of Primary Industries (Office of Water)
EHS	Environment, Health and Safety
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environment Protection Authority
EPA Declaration Area	Remediation Site Declaration 21122
EPL	Environmental Protection Licence 13336 (issued by EPA)
GMRs	LLB Global Minimum Requirements
HHERA	Human Health & Environmental Risk Assessment
ISCO	In-situ Chemical Oxidation (remediation method)
LLMP	Lend Lease Millers Point
LLB	Lend Lease Building
MCOA	Minister's Conditions of Approval
NATA	National Association of Testing Authorities
RAP	Remedial Action Plan
RtS	Response to Submissions
SDS	Safety Data Sheet
Secretary	Secretary of the NSW Department of Planning & Environment, or nominee
Sensitive Receivers	Occupants of residential or institutional land uses that may be impacted by dust, noise or vibration
SHFA	Sydney Harbour Foreshore Authority
Source	LLB guide to management systems, including the Environmental Management System
SWMS	Safe Work Method Statement
TfNSW	Transport for NSW
VMP	Voluntary Management Proposal

1 INTRODUCTION

The Barangaroo South project involves the creation of a new commercial and residential precinct. The project is managed by Lend Lease Millers Point (LLMP). LLMP is contracted to the Barangaroo Delivery Authority (BDA) to undertake the Barangaroo South works at the southern end of the Barangaroo site.

In addition, LLMP is contracted by the BDA to complete remediation of NSW EPA Remediation Site 21122 at Millers Point, which includes part of Barangaroo South, part of Barangaroo Central, and part of the adjoining Hickson Rd. In turn, Lend Lease Building (LLB) is contracted to LLMP to undertake design and construction of the project.

1.1 CFEMP Purpose

This Construction Framework Environmental Management Plan (CFEMP) and associated sub-plans provide specific management measures to ensure that construction works have minimal environmental impact and risk, and where possible, enhanced environmental outcomes. The CFEMP and sub-plans:

- capture environmental issues and mitigation measures already identified and assessed through environmental impact assessments and conditions of approval relating to the project;
- incorporate these measures into a comprehensive framework under the Project EHS Plan to facilitate and ensure their appropriate management throughout the project;
- include management measures, procedures, monitoring, auditing and reporting and allocates responsibilities to manage environmental risks and opportunities;
- fulfils the requirements of SSD 5897 Condition B10 (and similar conditions in other consents) which states: '*Prior to the issue of the relevant Construction Certificate, the Applicant shall prepare an updated Construction Framework Environmental Management Plan (CFEMP) for Barangaroo South incorporating the development to be submitted to the EPA for review and submitted to the Certifying Authority*'.

1.2 CFEMP Scope

This plan addresses environmental issues and risks associated with design and construction of the Stage 1B and remediation projects, and impacts that are influenced by construction methodologies and staging. It covers all areas where physical works will occur, or areas that may be impacted by works, and is applicable over the full duration of the construction program. A separate Stage 1A CFEMP is maintained for those ongoing works.

This CFEMP and the environmental sub-plans will be staged according to each relevant stage of construction under various development consents from the Department of Planning and Environment (DP&E). Indicative staging of construction is shown in Table 1.

This plan forms part of Project Development Plans (PDPs) that are prepared for each work area. The PDPs sit under an overall Barangaroo South Stage 1B *Project EHS Plan* and 'Source', which sets out specific LLB Environmental Management System (EMS) requirements for the project.

Sub-plans to address specific significant environmental issues associated with the project, and specific conditions of approval, are discussed further in section 5.5.

All LLB staff and sub-contractors are required to operate fully under the auspices of this plan and sub-plans.

1.3 CFEMP Objectives

The objectives of this plan are that for Stage 1B and remediation works:

- all environmental requirements contained in statutory approvals, licences, agreements, and other controls relevant to LLB are clearly defined, and mechanisms for implementation specified;

- processes for resourcing and implementing this plan are set to provide certainty of delivery;
- processes for auditing, monitoring and reporting on performance and effectiveness of the CFEMP are defined; and
- other objectives identified within environmental documents are met.

Project environmental objectives and targets have been developed and are described in section 3.4 of the Stage 1B *Project EHS Plan*. These are based on environmental aspects, impacts and risk as identified in the EHS Impacts and Hazards Risk Assessment.

1.4 Preparation of this CFEMP and Sub-Plans

This plan has been designed to address authority expectations and requirements, and adequately address risks and stakeholder concerns. Consultation with the Environment Protection Authority (EPA) has been undertaken. Further consultation with other relevant authorities and stakeholders will be undertaken if needed for subsequent revisions of this plan and sub-plans.

Consultation with all stakeholders will continue as per requirements in each Minister's Conditions of Approval (MCOA). The requirements for consultation with these agencies, and incorporation of their reasonable requirements, are discussed in section 4.2.1.

All environmental management requirements specified as being the responsibility of LLB have been considered and addressed in preparing this plan, as have requirements of LLB's EMS (The Source), accredited to AS/NZS ISO14001.

This plan draws on the extensive knowledge of LLB acquired from successful environmental management of multiple and varied projects in a range of locations, including the Barangaroo South Stage 1A project.

1.5 Construction Stage EMP Structure

Construction environmental management plans are phased according to the planned construction stages. These stages are defined in section 2.2 of this plan.

Phasing of environmental plans allows preparation of plans according to the development of permanent and temporary works design, allows consultation over a longer timeframe, and reduces the number of plans for review and comment at any one time by stakeholders.

Figure 1 below shows the structure of the various environmental management plans.

1.6 Project Environmental Policy

The LLB Environmental Policy is included in Appendix 1. This policy has been formally approved by LLB, and will be revised throughout the project if needed.

1.7 Project Statutory Approval and EISs

This project is based on designs described in Environmental Impact Statements (EISs) prepared by SHFA, BDA and LLMP from 2007 to date. The NSW Minister for Planning granted concept approval for the Barangaroo redevelopment in February 2007, subject to a number of Minister's Conditions of Approval. This approval has been modified after applications from SHFA, BDA and LLMP from 2007 to date. A number of other approvals have been granted relating to Barangaroo South. These are outlined further in Section 3.1.

Conditions of Approval have been taken into account during preparation of this plan – Appendix 2A identifies where each condition has been addressed in this plan and sub-plans. Similarly, Appendix 2B identifies where Mitigation Measures in EISs and related documents have been addressed.

Where design and construction methods involve substantial changes to that described in EISs, modification applications will be prepared for approval by DP&E. Modification approvals will be added to this CFEMP when approved.

1.8 Interface with other Project Plans and Procedures

This plan forms part of an integrated set of management plans developed for all key areas of the project. The set of management plans is described in detail in the Project Management Plan, and is illustrated in the management plan structure in Figure 2.

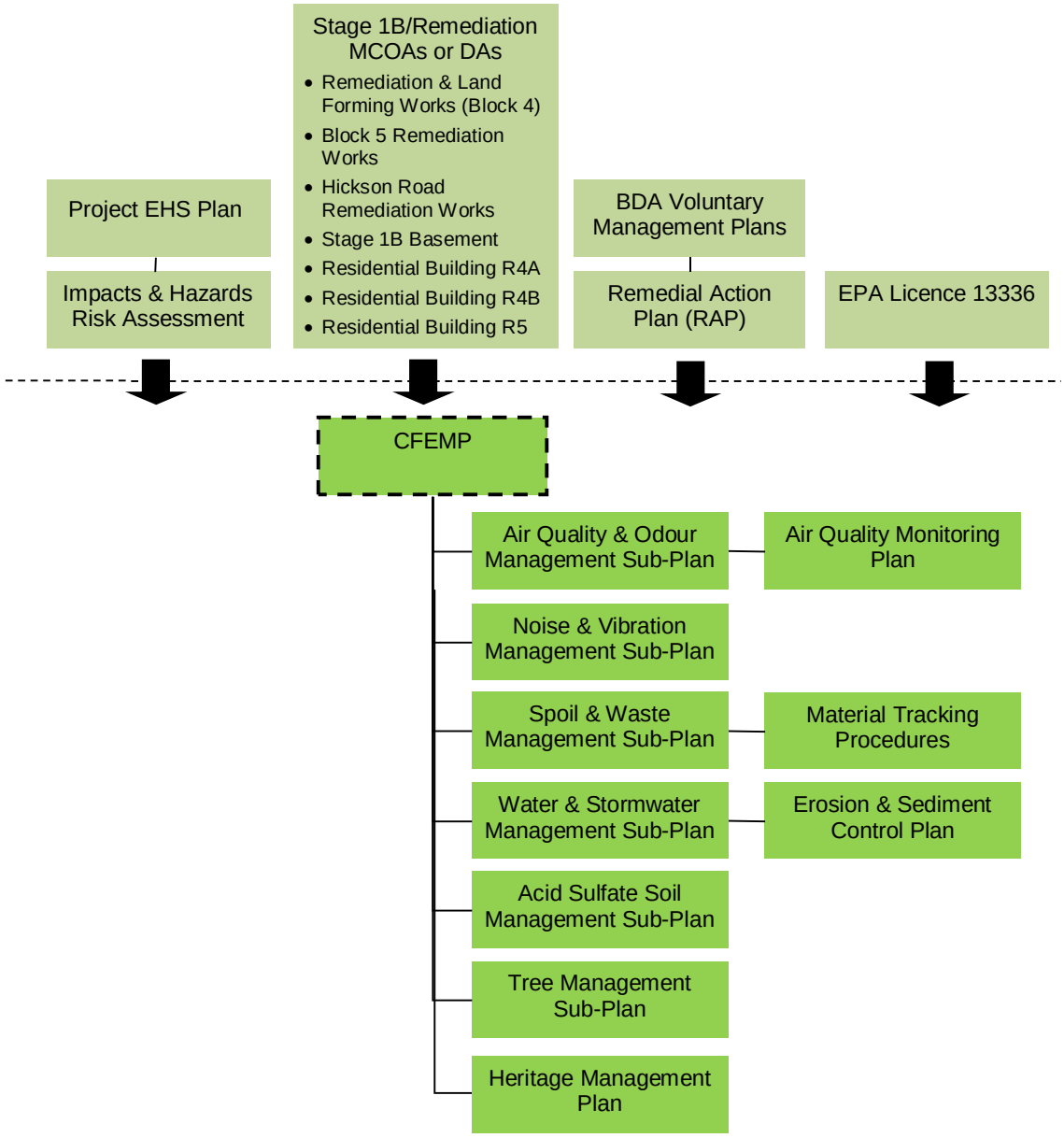


Figure 1: Environmental Management Plan Structure

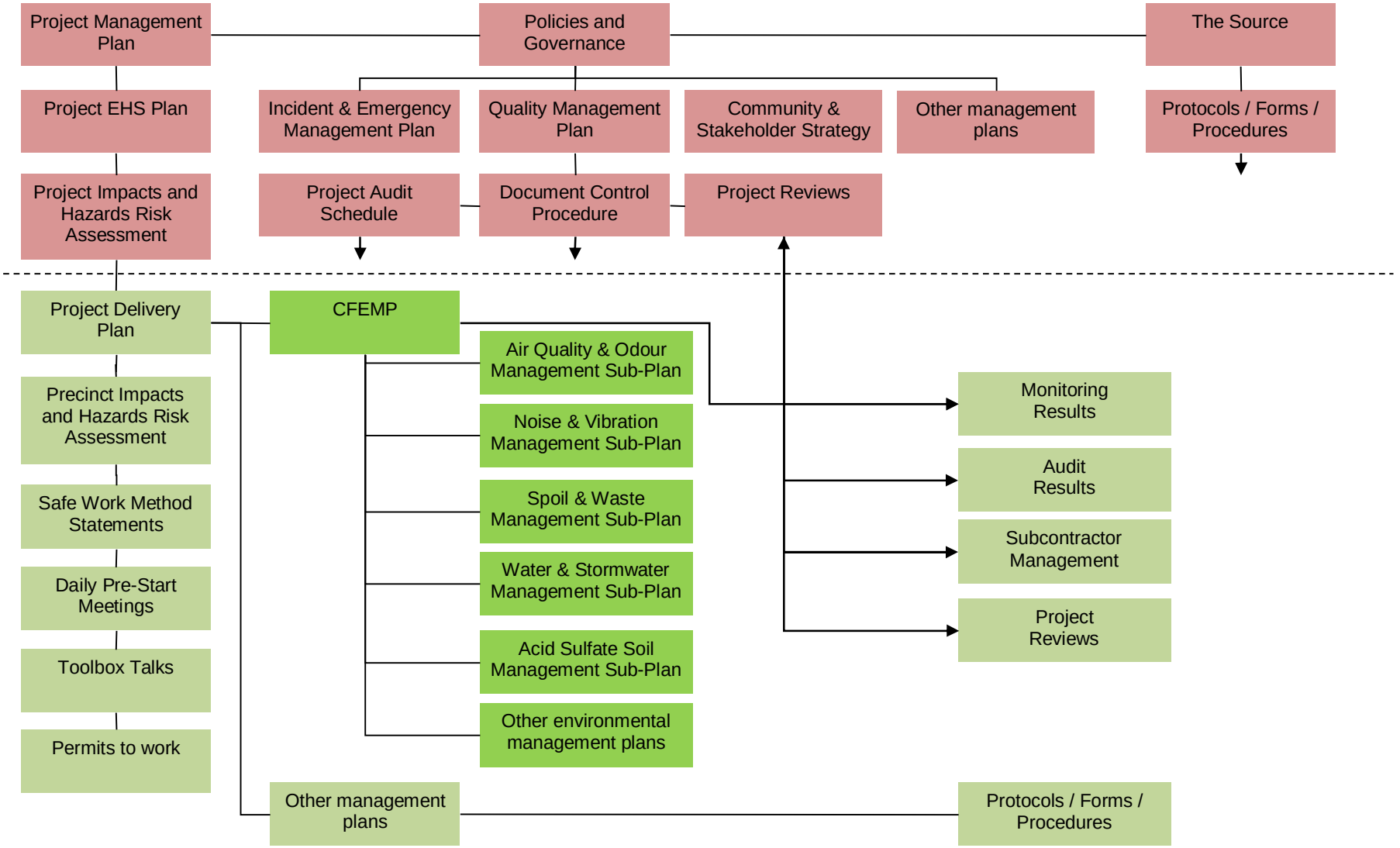


Figure 2: Outline Project Management Structure

2 PROJECT DESCRIPTION

2.1 Project Summary

Barangaroo is located on the north western edge of the Sydney Central Business District. The Barangaroo site is bounded by Sydney Harbour to the west and north, Millers Point and The Rocks to the east; and by a range of new commercial development to the south and east. The Barangaroo site has been divided into three distinct redevelopment areas:

- Barangaroo South.
- Barangaroo Central.
- Barangaroo Reserve.

LLMP was appointed by the BDA as the preferred proponent to develop Barangaroo South in 2009. LLMP has also been engaged by the BDA to undertake remediation of NSW Remediation Site 21122 (the 'EPA Declaration Area'), which includes part of Barangaroo South (Block 4), part of Barangaroo Central (Block 5) and part of the adjoining Hickson Road. Barangaroo Central and Barangaroo Reserve are being managed separately by the BDA.

The Barangaroo South works are broken down into Stage 1A, Stage 1B and Stage 1C 'precincts', which are based on project approvals. The indicative staging of construction based on these precincts is shown in Table 1.

This CFEMP covers construction of a building basement and residential buildings, collectively Stage 1B; and Remediation and Land Forming Works which includes Stage 1B and areas of Barangaroo Central and Hickson Road as part of the Declaration Area. Further information on Stage 1B (Block 4) Remediation and Land Forming Works, Block 5 Remediation Works, and Hickson Road Remediation Works are provided in Appendix 5. Separate Stage 1A and Stage 1C CFEMPs are maintained for ongoing works in those areas.

The CFEMP and other plans will be revised as needed to reflect the various phases of work as shown in Table 1, and Table 2. The Project Management Plan and Project EHS Plan cover all stages of the project.

Table 1: Indicative Construction Staging Summary

Plan	Stage 1B/Remediation Phase					
	Stage 1B (Block 4) Remediation & Land Forming	Block 5 Remediation Works	Hickson Road Remediation Works	Stage 1B Basement	Residential Buildings R4A, R4B, R5	Subsequent Stages (incl fitouts)
Project Management Plan	✓					
Project EHS Plan	✓					
Project Delivery Plan	✓	✓	✓	✓	✓	R
Construction Framework EMP (CFEMP)	✓	✓	✓	✓	✓	R
Acid Sulfate Soils Management Sub-Plan	✓	✓	R	R	R	R
Air Quality & Odour Management Sub-Plan	✓	✓	R	R	R	R
Noise & Vibration Management Sub-Plan	✓	✓	R	R	R	R
Spoil & Waste Management Sub-Plan	✓	✓	R	R	R	R
Water & Stormwater Management Sub-Plan	✓	✓	R	R	R	R
Tree Management Plan	✓	✓	R	R	-	-

Key: ✓ current version
R future revision

Table 2: Construction stages covered by current revision

Stage	Approval	Phase	Construction Activities
STAGE 1B / BLOCK 4	SSD 5897* Remediation & Land Forming Works – Block 4	Establishment	• Installation of environmental controls, including odour control and soil handling areas. • Demolition of existing in-ground structures, footings & slabs.
		Perimeter Retaining Wall (PRW)	• Construction of a temporary retention wall using bentonite/concrete. • Temporary stockpiling of excavated spoil, prior to classification, transport & treatment or disposal off-site. • Stormwater works in Hickson Road and Block 4.
		Bulk Excavation and Construction	• Install dewatering infrastructure. • Dewatering operations, including water treatment. • Bulk excavation of contaminated soils. Waste classification and off-site treatment, prior to off-site disposal to licensed landfill of Block 4 spoil. • Temporary use of the Barangaroo site for construction related storage and activity.
	SSD 6960 Stage 1B Basement	Bulk Excavation and Construction	• Dewatering operations, including water treatment. • Bulk sandstone excavation of the basement. • Classification and off-site reuse of spoil, or off-site disposal to licenced landfill of spoil unsuitable for re-use. • Concrete delivery. • Structural works, construction of foundations, basement levels, car parking, and associated elements. • Temporary use of the basement for construction storage/activity. • Piling for construction of foundations. • Construction of the building to ground floor
	SSD 6964 Residential Building R4A	Piling, Podium and Tower	• Piling for construction of foundations. • Construction of the podium. • Construction of the building and façade.
	SSD 6965 Residential Building R4B	Piling, Podium and Tower	• Piling for construction of foundations. • Construction of the podium. • Construction of the building and façade.
	SSD 6966 Residential Building R5	Piling, Podium and Tower	• Piling for construction of foundations. • Construction of the podium. • Construction of the building and façade.
BLOCK 5	SSD 6533* Block 5 Remediation Works	Establishment	• Installation of environmental controls, including odour control and soil handling areas. • Demolition of existing in-ground structures, footings & slabs.
		Perimeter Retaining Wall (PRW)	• Construction of a temporary retention wall at Block 5 using bentonite/concrete. • Temporary stockpiling of excavated spoil, prior to classification, transport & treatment or disposal off-site. • Stormwater works in Hickson Road and Block 5.
		Excavation and remediation	• Install dewatering infrastructure. • Dewatering operations, including water treatment. • Bulk excavation and waste classification of contaminated soils within Block 5. Off-site treatment, disposal to licenced landfill of Block 5 spoil. • Temporary use of the Barangaroo site for construction related storage and activity.
		Backfill and demobilise	• Backfill excavation with suitable fill material. • Decommission odour structures & dewatering infrastructure.
HICKSON ROAD	SSD 6617* Hickson Road **In-Situ** Remediation	Establishment	• Localised pruning of street trees where required. • Undertake temporary lane / traffic diversion as required during works. • Undertake local service diversion or protection as required • Maintain access to 30 and 38 The Bond driveways

	Works	Treatment systems	• Install remediation infrastructure (wells and piping) in Hickson Rd. • Install temporary remediation compound/staging area in Hickson Rd reserve. • Install boundary groundwater control walls where required.
		Remediation and validation	• Undertake in-situ chemical oxidation remediation through controlled injection and extraction. • Management of extracted fluids through either: limited storage/treatment within the Hickson Rd site; transfer to a temporary water treatment plant on the Barangaroo site, or tankering offsite. • If required, undertake localised excavation and off-site disposal (with appropriate odour control measures). • Undertake detailed environmental monitoring (air, noise, water).
		Demobilise	• Decommission (leave in-situ) sub-surface well/piping infrastructure. • Re-surface required areas of road/pavement.
	SSD 6617* Hickson Road **Ex-Situ** Remediation Works (only if required)	Establishment	• Localised pruning of street trees where required. • Undertake temporary lane / traffic diversion as required during works. • Undertake local service diversion or protection. • Maintain access to 30 and 38 The Bond driveways.
		Treatment systems	• Undertake remediation in two main stages (east and west): o Temporarily close one half and undertake remediation, while traffic is diverted to other half. o Following 1st stage, re-instate remediated half, and re-divert traffic to complete remaining stage. • Install boundary groundwater control walls, and walls to facilitate staged excavation, where required. • Install odour control structures over excavation area (stages as required).
		Excavation and remediation	• Excavate gasworks contamination in stages where required, from beneath road/footpath. • Excavate rock, if required, to facilitate access to deep contamination within annulus trench. • Transfer excavation water to a water treatment plant, for treatment • Transfer excavated material directly off-site to licensed facility for treatment/disposal. • Undertake detailed environmental monitoring (eg. air, noise).
		Backfill and demobilise	• Backfill excavations with suitable imported fill or suitable excavated material. • Decommission odour tents. • Re-surface road / pavement. • Plant new street trees to replace those removed.

* Further information is provided in Appendix 5.

Note that this CFEMP and related sub-plans do not cover the ISCO pilot trial (approved under MP10_0087), as environmental management issues are addressed in separate plans for the ISCO trial by relevant contractors.

The location of the construction works and EPA Declaration Area in relation to the remainder of the Barangaroo redevelopment area and the CBD is shown in Figure 3 below. The footprint of the proposed Stage 1B basement and residential buildings R4A, R4B and R5, are entirely within Barangaroo Stage 1B.

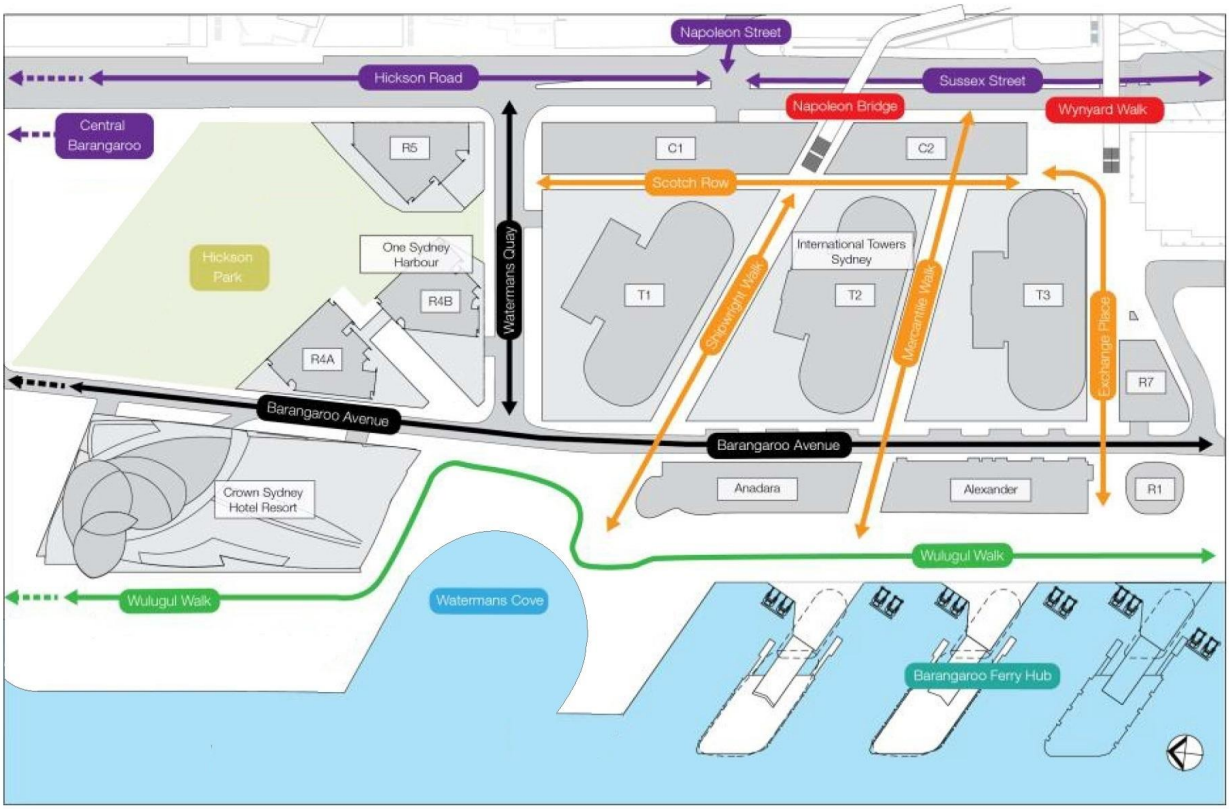


Figure 3: Barangaroo South Site Location

2.2 Schedule of Construction Activities

Table 3 below indicates the planned construction components, along with indicative commencement and completion dates for each component. Items in bold indicate the commencement and completion dates for each stage. Table 3 also indicates those stages of construction requiring on-going environmental management monitoring and reporting.

Table 3: Indicative Construction Schedule Summary

Stage	Work component	Planned start	Planned completion	Associated monitoring
Remediation & Land Forming Works – Block 4	Installation of environmental controls, including odour control and soil treatment works. Demolition of existing in-ground structures, footings & slabs, clearing and grubbing.	April 2016	June 2016	Noise, air, water
	Construction of the PRW around Block 4 using bentonite and concrete. Temporary stockpiling of excavated spoil, classification, transport for disposal or reuse off-site. Stormwater diversion works in Hickson Rd and Block 4.	May 2016	December 2016	Noise, air, water
	Dewatering operations, including water treatment. Bulk excavation of the basement within Block 4. Classification and off-site re-use of Block 4 spoil where possible. On-site or off-site treatment, waste classification and off-site disposal to licensed landfill of Block 4 spoil. Temporary use of the basement for construction related storage and activity.	December 2016	December 2019	Noise, air, water
Stage 1B Basement	Dewatering operations, including water treatment. Bulk sandstone excavation of the basement. Classification and off-site reuse of spoil, or off-site disposal to licenced landfill of spoil unsuitable for re-use.	June 2018	March 2021	Noise, air, water

Stage	Work component	Planned start	Planned completion	Associated monitoring
	Concrete delivery. Structural works, construction of foundations, basement levels, car parking, and associated elements. Temporary use of the basement for construction storage/activity. Construction of foundations of R4A, R4B & R5. Building structures for R4A, R4B & R5 to ground floor.			
Residential Building R4A	Construction of the building, façade and fitout.	December 2019	April 2022	Noise, air, water
Residential Building R4B	Construction of the building, façade and fitout.	January 2021	January 2023	Noise, air, water
Residential Building R5	Construction of the building, façade and fitout.	August 2021	July 2023	Noise, air, water
Block 5 Remediation Works	Installation of environmental controls. Temporary stormwater diversion in Hickson Rd and Block 5. Install retention system around excavation boundary.	May 2016	December 2016	Noise, air, water
	Install & commission odour control structures. Install dewatering infrastructure.	November 2016	December 2016	Noise, air, water
	Demolition of existing footings & slabs. Dewatering operations, including water treatment. Bulk excavation of contaminated soils and fill within Block 5. Classification and off-site re-use of Block 5 spoil where possible. On-site or off-site treatment, waste classification and off-site disposal to licensed landfill of Block 5 spoil.	December 2016	July 2017	Noise, air, water
	Backfill excavation with imported or site material. Decommission odour structures & dewatering infrastructure	July 2017	August 2017	Noise, air, water
Hickson Road Remediation Works – **In Situ**	Establishment	May 2016	June 2016	-
	Treatment systems	July 2016	August 2016	Noise, air, water
	Remediation	August 2016	November 2018	Noise, air, water
	Validation, and demobilisation	November 2018	April 2019	-

Note that the Hickson Road Remediation Works above are forecast for the preferred in-situ method (which will be determined following a pilot trial). If the alternate Hickson Road Remediation method (ex-situ) is selected following the trial, the CFEMP will be updated accordingly.

2.3 Risks and Opportunities

An EHS Impacts & Hazards Risk Assessment has been prepared as part of the Project EHS Plan. The methodology for the preparation of the risk assessment and its use in project delivery are discussed in section 5.4.

Opportunities for enhanced environmental outcomes for the project have been identified and incorporated into the sustainability checklist attached in Appendix 8.

2.4 Sustainability and Resource Conservation Initiatives

As part of the agreement with the BDA, LLMP has identified initiatives that enhance the environmental outcomes of the construction phase of this project, or provide positive environmental offsets. These initiatives are listed in Appendix 8. The Sustainability Manager and EHS Manager (Environment) are responsible for implementation of these measures.

Further details relating to sustainability during the construction and operation phases of the project are described in the *Barangaroo South Climate Positive Work Plan*.

3 CFEMP INPUTS

3.1 Statutory Requirements

There are a number of statutory inputs to the project that are the responsibility of LLMP to implement. These are described further below.

3.1.1 Development Consents

There are a range of project applications and approvals under the *Environmental Planning & Assessment Act 1979* relating to Barangaroo South. Applications have been submitted by SHFA, BDA, LLMP, TfNSW and Crown Resorts. A summary of project applications and approvals to date relating to Barangaroo South are outlined in Table 4 below.

Requirements from relevant development consents and project applications are described below.

Demolition of pre-existing infrastructure and service alterations were undertaken between August 2010 and February 2011, under the project approval 07_0077 dated 15 November 2007.

Table 4: Stage 1B Development Consents and Submissions

Project Application	No.	Proponent	Approval Date
Concept Plan Barangaroo	06-0162	BDA	09/02/2007
• MOD 1	MP 06-0162 MOD 1	BDA	25/09/2007
• MOD 2 (Commercial Floorspace)	MP 06-0162 MOD 2	BDA	16/02/2009
• MOD 4 (Hotel Development, Additional GFA & Height)	MP06_0162 MOD 4	LLMP	16/12/2010
• MOD 6 (Block Boundaries & Built Form)	MP06_0162 MOD 6	LLMP	05/05/2013
• MOD 7 (Concrete Batch Plant)	MP06_0162 MOD 7	LLMP	11/04/2014
• MOD 8 (Hotel Development, Additional GFA & Height)	MP06_0162 MOD 8	LLMP	28/06/2016
• MOD 9 (Barangaroo Central)	MP06_0162 MOD 9	BDA	Preparation
SISCO Pilot Trial	MP10_0087	LLMP	03/03/2011
Remediation & Land Forming Works – Block 4	SSD 5897	LLMP	10/11/2014
Block 5 Remediation	SSD 6533	LLMP	18/12/2015
Remediation of Part of Hickson Road	SSD 6617	LLMP	Assessment
Stage 1B Basement	SSD 6960	LLMP	Assessment
Residential Building R4A	SSD 6964	LLMP	Preparation
Residential Building R4B	SSD 6965	LLMP	Preparation
Residential Building R5	SSD 6966	LLMP	Preparation
Stage 1C Remediation and Earthworks	SSD 6956	Crown	Assessment
Crown Sydney Hotel Resort	SSD 6957	Crown	28/06/2016

3.1.2 NSW Ministers Conditions of Approval

Minister's Conditions of Approval (MCOA) have been issued as part of the project approvals. These conditions specify a number of measures for implementation during design, construction and operation phases. Construction certification is required from a certifying authority prior to construction commencement and subsequent stages of construction.

Appendix 2A tabulates construction stage environment-related MCOA requirements, and shows where each requirement is addressed in this plan and related documents. This includes measures from the following documents:

- MCOA dated 10 November 2014 issued with the development consent SSD 5897 (Remediation & Land Forming Works – Block 4) under section 89E of the EP&A Act.
- MCOA dated 18 December 2015 issued with the development consent SSD 6533 (Remediation of part of Barangaroo Central – Block 5) under section 89E of the EP&A Act.

3.1.3 EISs and related documents

The approved Concept Plan, EIS documents and RtS documents, and subsequent modification submissions specify a number of 'Mitigation Measures' to be implemented during design and construction phases. Appendix 2B tabulates these commitments, where each is addressed in this plan and related environmental documents. This includes measures from the following documents:

- Environmental Impact Statement, Remediation & Land Forming Works – Block 4, dated November 2013, and subsequent Response to Submissions dated June 2014.
- Environmental Impact Statement, Remediation of part of Barangaroo Central – Block 5, dated September 2014, and subsequent Responses to Submissions dated July and October 2015.

3.2 Other Commitments and Requirements

3.2.1 Remedial Action Plans

A number of remedial action plans (RAPs) have been developed for the Barangaroo South site. These relate to distinct parts of the Barangaroo South site for Stage 1A (*Other Remediation Works South RAP*), Stage 1B (*Declaration Area RAP* and *Stage 1B Waterfront Public Domain RAP*). Crown Sydney has separately prepared a RAP for the proposed Crown Sydney Resort Hotel.

The RAP relating to the Declaration Area (AECOM, 2013) covers Block 4 Remediation, Block 5 Remediation and Hickson Road Remediation. An independent, EPA-accredited Site Auditor has been appointed to undertake review of proposed remediation works, and prepare statutory audit statements prior to and following completion of remediation.

The BDA have developed a remedial action plan for separate works at Barangaroo Central.

3.2.2 Stage 1 RFDP

LLMP provided sustainability commitments to the BDA as part of the *Request for Detailed Proposals*. Appendix 8 tabulates these commitments and where each is addressed in environmental plans.

3.2.3 NSW Government EMS Guidelines

The LLB EMS is accredited under the NSW Government's EMS Guidelines. Section 3.3 describes the project-based approach to the EMS for the project.

3.3 Environmental Management System

LLB has an ISO14001:2004 certified environmental management system, and the project will operate in compliance with this management system. LLB EMS policies and procedures are described in the 'Source'. The Source describes processes for LLB's integrated Environment, Health and Safety (EHS) management system.

LLB also operate under a set of Global Minimum Requirements (GMRs) in relation to EHS management, some of which relate to environmental management. These GMRs, and where they are addressed, are shown in Table 5 below. The *Workplace Delivery Code* has been developed in relation to the GMR's. Where these relate to environmental management they are included within measures specified in each environmental sub-plan.

3.4 Legislation

A register of environmental legislation and regulations relevant to the project is attached in Appendix 3. The register provides key requirements of relevant legislation and regulation, relevance to the project and

mechanisms for compliance. The register will be reviewed and updated during each CFEMP revision by the EHS Manager (Environment).

Table 5: Environmental GMRs

Plan	Workplace Delivery Code										
	Acid Sulfate Soils	Air Quality & Emissions	Biodiversity & Natural Habitats	Contaminated Soil & Groundwater	Hazardous Substances & Dangerous Goods	Heritage	Noise (Environmental)	Stormwater, Sediment & Erosion Control	Spoil Management	Vibration	Waste & Recycling
Acid Sulfate Soils Management Sub-Plan	✓										
Air Quality & Odour Management Sub-Plan		✓									
Noise & Vibration Management Sub-Plan							✓			✓	
Spoil & Waste Management Sub-Plan				✓					✓		✓
Water & Stormwater Management Sub-Plan				✓	✓			✓			
Tree Management Plan			✓								
Heritage Management Plan						✓					

3.5 Approvals, Permits, Licences

A number of approvals, permits and licences are required for the project. These are described in Table 6 below. Once licences and approvals shown in Table 6 are approved for the project, the *Environmental Licence, Approval and Permit Register* in Appendix 4 will be used. The EHS Manager (Environment) maintains this register, renewal and surrendering of licences and permits where relevant.

Table 6: Approvals, Licences, Permits

Approval/Licence/Permit	Relevant Authority	Details	Responsibility / Details
Protection of the Environment Operations Act	Environment Protection Authority (EPA)	Environmental Protection Licence 13336 issued 25 October 2010, as varied for construction activities at Barangaroo South.	BDA is the licence holder. LLB to provide supporting information to BDA where required.
Environmental Planning & Assessment Act	NSW Department of Planning & Environment (DP&E)	Additional approvals required for any altered or additional environmental impacts if any alternate designs are incorporated during design development, or construction methods are varied.	LLMP/LLB
Water Act 1912	DPI, Office of Water	For remediation and excavation dewatering.	LLB

3.6 Environmental Due Diligence

Environmental due diligence is the systematic identification of the environmental risks and liabilities associated with an organisation's sites and operations.

The principles of environmental due diligence have been applied throughout the preparation of this plan and related environmental documents. Due diligence principles are included in the development of all other environmental management procedures or changes to plans.

3.7 Standards

Relevant policies, guidelines, Australian Standards that relate to the project are specified in the 'References' section of relevant sub-plans.

4 ENVIRONMENTAL MANAGEMENT DELIVERY

4.1 Environmental Management Components

This plan is the key management tool and lead environmental management document in relation to the environmental performance during the design and construction phases. In addition to this plan, there are a number of other documents and sub-plans that provide more specific environmental management detail. Figure 4 outlines the key environmental management inputs, documents and processes.

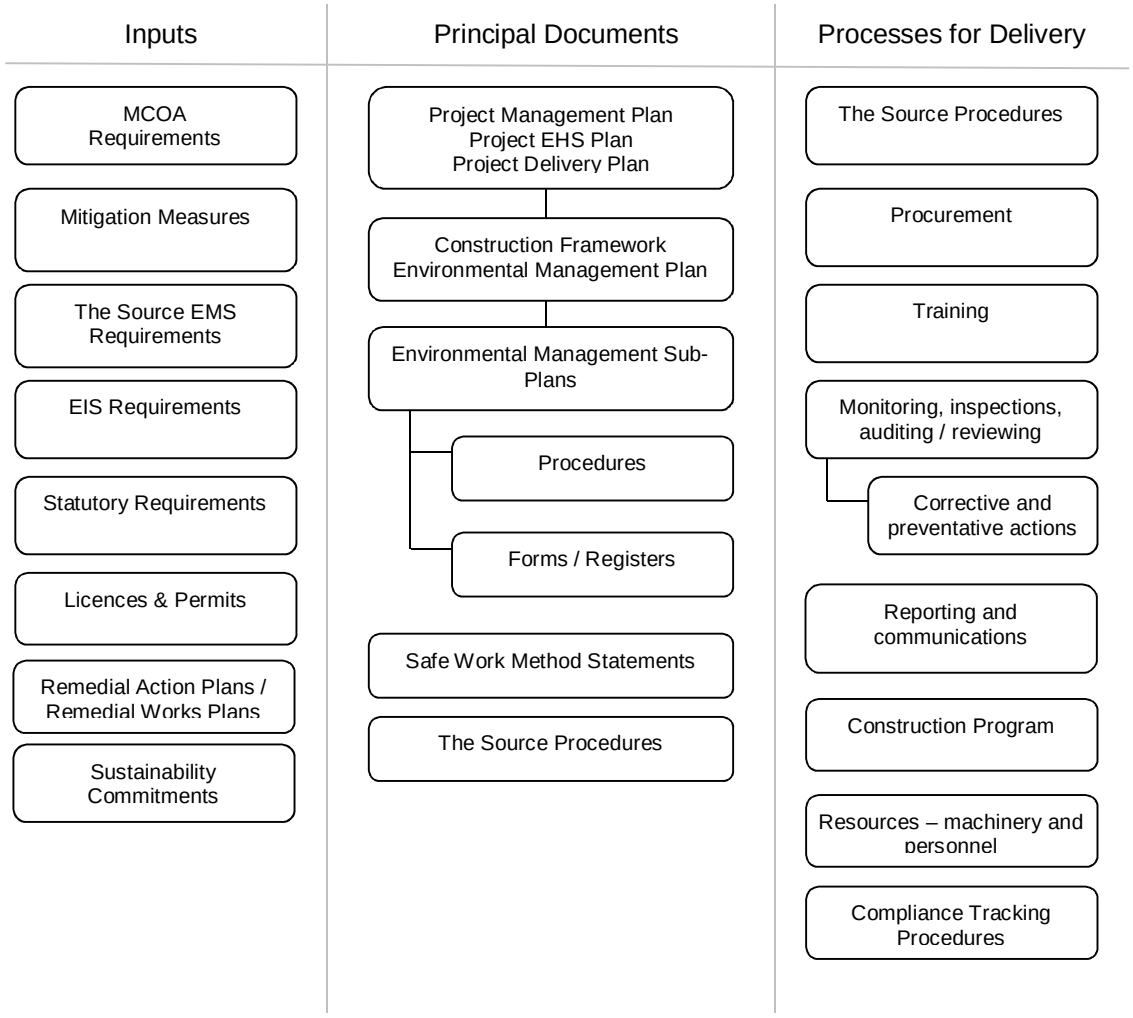


Figure 4: Environmental Management Components

Construction activities and associated impacts occur progressively and change over time as different works are carried out and different locations impacted. Due to the staged construction approach, environmental protection measures are progressively implemented. This plan identifies upfront the desired environmental outcomes and the systems and processes in place to achieve these outcomes. Sub-plans and method statements provide direction on implementation of measures to mitigate impacts. This plan therefore provides the strategic framework for managing environmental impacts associated with construction.

4.2 Consultation and Approval Requirements

4.2.1 CFEMP Consultation

This plan, and environmental sub-plans, have been designed to address authority expectations and requirements, and adequately address risks and stakeholder concerns.

The MCOAs for each project approval require consultation with specific authorities and stakeholders in the preparation of this plan and selected sub-plans. Table 7 indicates approval (A) and consultation (C) required by MCOAs for each environmental management plan. These stakeholders have been and will continue to be consulted during the finalisation/revision of this plan and related plans.

Table 7: Consultation required for the CFEMP and Environmental Sub-Plans

Plan	Primarily required by	Lend Lease	DP&E	EPA	DP&I Water	Council
Project EHS Plan	LLB EMS	**A**				
CFEMP	Block 4 Condition B10, Block 5 Condition B9 Blocks 4/5 & Hickson Road Remediation DAs Stage 1B Basement DA, R4A, R4B, R5 DAs	**A**	C	C		
Acid Sulfate Soils Management Sub-Plan	Blocks 4 & 5 Condition B21	**A**				
Air Quality and Odour Management Sub-Plan	Block 4 Condition B14, Block 5 Condition B12	**A**		C		
Noise & Vibration Management Sub-Plan	Block 4 Condition B11, Block 5 Condition B15	**A**		C		
Spoil & Waste Management Sub-Plan	Block 4 Condition B20, Block 5 Condition B10	**A**		C		
Tree Management Sub-Plan	Block 4 Condition B24, Block 5 Condition B23	**A**				C
Water & Stormwater Management Sub-Plan	Block 4 Condition B18, Block 5 Condition B19	**A**		C	C	
Heritage Management Plan	Block 4 Condition B23, Block 5 Condition B22	**A**				

4.2.2 CFEMP Submission

Revisions of this CFEMP will be submitted to the EPA for comment as needed. Revisions of relevant sub-plans will also be submitted to the EPA for comment as per section 4.2.1. The CFEMP and sub-plans will be updated to account for any comments. All updated plans will be sent to DP&E.

Relevant construction works will not commence until LLB has:

- received a variation to EPL 13336 from the EPA, if it is required;
- received a relevant Construction Certificate issued by the certifying authority.

The CFEMP and relevant sub-plans will be revised:

- in response to future development consents or modifications,
- in response to major changes in site conditions or work methods, and
- in support of development consents or licence variations as necessary.

4.3 Organisational Structure

EHS management during construction is the responsibility of each and every member of the Barangaroo South Stage 1B project team.

Management and supervisory personnel in senior management lead environmental management by example, through provision of suitable resources to implement and monitor environmental measures, identify and correct any non-conforming conditions or behaviours, and actively promote environmental awareness and individual environmental responsibility.

Underneath senior management, project teams work on individual precincts within Barangaroo South.

Personnel have clearly defined objectives as well as roles and responsibilities that are specified in the LLB's 'The Source'.

4.3.1 Organisational Structure

The Barangaroo South project organisation structure is outlined in the Project Management Plan, and is summarised in Figure 5 below.

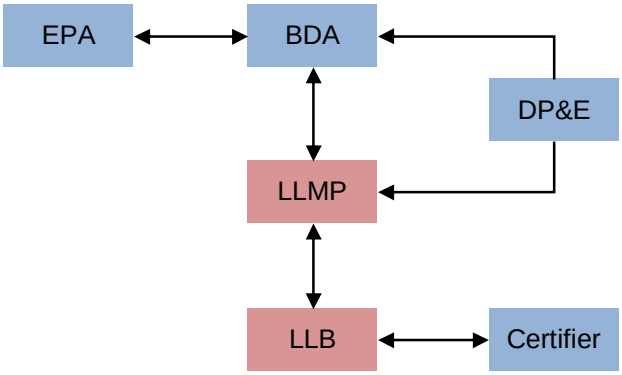


Figure 5: Barangaroo South Organisational Structure

The Barangaroo South EHS Manager is responsible for overall management of the Project EHS Plan and environmental sub-plans. EHS Managers and Co-ordinators work in individual precincts to assist in implementing and monitoring measures in the Project EHS Plan.

Additional support and specialist external assistance is provided through this team as needed.

Each project team is made up of a Construction Manager, Site Manager, Project Engineers, Site Engineers, Foremen and Leading Hands.

4.4 Roles and Responsibilities

The following roles and responsibilities relate to role descriptions in The Source procedure 10.01.03, and section 4.1 of the Project EHS Plan.

4.4.1 EHS Manager (Environment)

The EHS Manager (Environment) is full-time for the duration of the Stage 1B project to oversee environmental management of the Stage 1B project and be the main point of contact for all environmental issues. Responsibilities of the EHS Manager (Environment) include:

- establishing and updating the Project EHS Plan, sub-plans, procedures, and ensuring that they are in accordance with environmental requirements;
- being the primary contact point for the BDA, EPA and other external agencies in relation to environmental performance of construction phase;
- accountability for all management plans and monitoring programs required by the MCOA in relation to construction;
- considering and advising on matters specified in licences and approvals relating to environmental performance and impacts of construction;

- having authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and direct relevant actions to stop immediately should an adverse impact be likely to occur.
- integrating any relevant environmental requirements into detailed design;
- ensuring provision of adequate resources to achieve environmental objectives;
- discussing environmental issues with key stakeholders, and assisting the Community Relations Manager to resolve environment-related complaints and inquiries;
- identifying environmental issues as they arise, and proposing solutions;
- ensuring environmental risks and issues, and obligations and commitments, are identified and effectively communicated to project staff;
- participating in the environmental induction and training program;
- undertaking regular inspections of all works.
- maintaining an environmental audit program and undertaking audits in accordance with it;
- producing and submitting environmental reports.

4.4.2 EHS Co-ordinator

Responsibilities of the EHS Co-ordinators include:

- Undertaking daily assessments to assess compliance with relevant standards and LLB GMR's / Means and Methods.
- Support Construction Managers and Foremen in driving EHS performance on the project by identifying trends and compliance issues, and implementing initiatives designed to drive performance and prevent reoccurrence.
- Provide support and guidance to the construction team in adhering to the GMRs, Means and Methods and the Source EMS System.
- Assist in the monthly construction site inspections, including the close out of actions and communications resulting from the inspections.
- Assist the Construction Managers in investigating all incidents, ensuring that all root causes are identified. Ensure that the summary of these are reviewed immediately with the EHS Manager as required. Ensure that the timelines are followed in the Incident Management Flowchart.
- Ensure reporting on incidents meets required timeframes.
- Assist Construction Managers in ensuring implementation of the skills competency framework and safety passport including planning the facilitation of training and assessments for the project team.
- Regularly review the EHS plan with the Construction Manager.
- Assist the Construction Manager during quarterly audits on the EHS system and ensure non-conformances are closed out in a timely manner with a robust and relevant close out.
- Conduct regular reviews of work activities against SWMS and assist the Foreman and Construction Managers in identifying any shortfalls or changes required.
- Assist the Foremen in ensuring the safety committee is active and responsible.
- Review all registers regularly to ensure all items are captured including plant, hazardous material, etc.
- Ensure the project follows the EHS plan, and EHS procedures identified in the Source.
- Monitor the implementation of environmental and sustainability requirements for the project.
- Assist the EHS Managers with managing notifiable incidents.

4.4.3 Other Environmental Resources

All members of the Lend Lease project team have environmental responsibilities. In general, staff are required to:

- undertake all activities in accordance with the Source, agreed plans of management, procedures, and work methods;
- report any activity that has resulted, or has potential to result, in an environmental incident;
- ensure that they attend environmental induction and task-specific training provided.

4.4.3.1 Project Managers

Project Managers have the following environmental accountabilities:

- Ensure the correct application of LLB Safety Management System and GMRs across the project and ensure any significant risks or major non compliances are addressed.
- Apply / assist an effective consultant selection and evaluation procedure.
- Lead the Senior Safety Leadership Team in conjunction with the Construction Managers and ensure this forum adequately addresses issues raised. Raise and discuss safety and environment at forums, preconstruction, project and conversion reviews.
- Ensure cost planning takes into account necessary commitment and resourcing to ensure that the Global Minimum Requirements (GMRs) and Workplace Delivery Code are adhered to, through successfully managing the Risk and Opportunity at Design (ROAD) process.
- Where applicable, ensure that ROAD sessions are carried out at an early stage of the design process, are detailed and design out risk where possible. Manage risk items that are unable to be designed out throughout the project on a periodic basis.
- Ensure any residual risk from the ROAD is included in the project broad risk assessment.

4.4.3.2 Construction Managers

Construction Managers have the following environmental responsibilities:

- reviewing and endorsing environmental controls contained in the EHS Plan and sub-plans;
- ensuring all Project and Site Engineers are familiar with environmental plans and associated documents, and responsibilities within them;
- implementing, reviewing and ensuring compliance with environmental plans;
- allocating resources to implement the EHS Plan, this plan, sub-plans and method statements;
- ensuring that all personnel receive appropriate induction training, including details of the environmental and community requirements;
- participating and providing guidance in management review of the Project EHS Plan and associated documents;
- ensuring that complaints are promptly investigated to ensure effective resolution.

4.4.3.3 Project Engineers

Project Engineers are responsible to the Construction Manager for the environmental performance of the site(s) or construction activities for which they are in charge, including:

- ensuring that environmental requirements are incorporated into construction documents;
- ensuring that instructions are issued and adequate information provided to employees which relate to environmental risks on site;
- ensuring that works are carried out in accordance with this plan, sub-plans and method statements, including the implementation of all environmental controls;
- identifying resource requirements for implementation of this plan and related documents;

- ensuring that complaints relating to their sites or activities are investigated and resolved;
- maintaining all necessary records and reports;
- reporting any activity that has resulted, or has the potential to result, in an environmental incident to the Construction Manager or EHS Manager (Environment);
- communicating with all personnel and subcontractors regarding compliance with this plan and site specific environmental issues;
- undertaking site inspections and toolbox talks.

4.4.3.4 Site Supervisors

Site Supervisors have the following environmental responsibilities:

- undertaking any environmental duties as defined by Project or Site Engineers;
- co-ordinating implementation and maintenance of environmental protection measures;
- attending to any spills, environmental incidents or other incidents that may occur on site;
- reporting any activity that has resulted, or has the potential to result, in an environmental incident immediately to the site superintendent;
- where necessary, ensuring environmental monitoring or inspections are undertaken and any environmental records are filled in as defined by method statements and work instructions.

4.5 Specialist and Other Environmental Resources

Specialist consultants and subcontractors are engaged for environmental support roles, such as:

- Arborist to prepare the Tree Management Plan and manage trees throughout construction;
- Archaeologists for the non-indigenous archaeological investigation program, and to provide advice if heritage items are uncovered during excavations;
- Archaeologist for indigenous sub-surface testing, and to provide advice if heritage items are uncovered during excavations;
- Air quality specialists for establishment and maintenance of specialist monitoring equipment, and ongoing reporting and advice throughout construction;
- Contamination specialist for validation of the site according to the requirements of the RAP;
- Specialist sub-contractors to undertake remediation of gasworks waste associated with the Declaration Area;
- Noise specialist for noise modelling, establishment and maintenance of monitoring equipment, and ongoing reporting and advice throughout construction;
- Water quality specialist for establishment and maintenance of monitoring equipment, and ongoing reporting and advice throughout construction;
- NATA-certified laboratories for water quality and dust analysis;
- Database and other software as required during the course of the project;
- Environmental monitoring hardware; and
- Other resources as required during the course of the project.

4.6 Sub-contractors and Suppliers

All sub-contractors are engaged and managed in accordance with relevant procedures defined in Section 4.5 of the Project EHS Plan.

Sub-contractors are required to carry out their work in accordance with contract instructions and in an environmentally sound manner. All sub-contractors will have an EHS plan and risk assessment for their scope of work in place. These documents require approval from LLB prior to commencement on site.

All sub-contractor personnel are required to attend a project induction, which includes an environmental component, and task-specific training (if required) before they commence any work on any site.

4.7 Authorities and Stakeholders

4.7.1 Regulatory Authorities

Regulatory authorities that have a direct interest in environmental issues relating to the project's licences, permits and approvals are:

- DP&E
- EPA,
- Transport for NSW,
- DPI Water,
- NSW Heritage Office,
- BDA, and
- City of Sydney Council.

LLB and LLMP will maintain open communications with regulatory authorities identified, and meet their reasonable requirements.

4.7.2 Other External Stakeholders

Stakeholders and community groups with an interest in environmental issues relating to the project are listed in the *Community and Stakeholder Engagement Strategy*.

4.7.3 Ongoing Consultation

LLB and LLMP will meet with BDA, authorities and stakeholders throughout construction.

LLB meet regularly with BDA and EPA regarding environmental and planning issues, which will be continued throughout construction.

5 ENVIRONMENTAL ISSUES AND CONTROLS

5.1 Overview

Under the Stage 1B Project EHS Plan, sub-plans have been developed where an environmental issue requires complex and detailed environmental management, or to address specific significant environmental issues associated with the project as required by approvals, EISs, or design/construction issues.

A number of environmental management sub-plans and procedures support the Project EHS Plan. Construction-related safe work method statements (SWMS) are the means by which specific requirements are addressed at an operational level.

5.2 Environmental Aspects and Impacts

Environmental activities and their corresponding aspects and impacts have been developed according to Source procedures and are in the EHS Impacts and Hazards Risk Assessment. Refer to the Project EHS Plan for further information.

5.3 Construction Environmental Objectives and Targets

5.3.1 Objectives and Targets

Environmental objectives and targets are set out in section 3.4 of the Stage 1B Project EHS Plan, and have been developed based on:

- requirements in statutory approvals;
- legislative requirements (identified in Appendix 3);
- significant environmental aspects and impacts.

Project objectives and targets are consistent with the Environmental Policy in Appendix 1. Objectives and targets may be amended as a result of new or revised operations, activities, and/or regulations.

5.3.2 Compliance Management

Compliance during construction is managed through a system of monitoring, inspection, auditing and reporting, as set out in section 5.1 of the Stage 1B Project EHS Plan. Compliance with approvals, licence and permit, and Source requirements are managed using:

- site inspection reports;
- quarterly compliance tracking; and
- EHS audit and non-conformance reports.

The EHS Manager (Environment) is responsible for managing compliance tracking, which are based on registers in Appendix 2A.

5.4 EHS Risk Assessment and Control Identification

5.4.1 EHS Risk Assessment

the Stage 1B EHS Impacts and Hazards Risk Assessment is prepared using the EHS Impacts and Hazards Risk Assessment Guideline. The risk assessments form part of the Stage 1BProject EHS Plan. The objectives of the EHS Impacts and Hazards Risk Assessment are to:

- identify activities, aspects, events or outcomes that have the potential to adversely affect the local environment;
- qualitatively evaluate and categorise each risk item;
- assess whether risk issues can be managed by environmental protection measures.

Relevant risks and measures identified during the risk assessment have been included in each of the sub-plans. The EHS Impacts and Hazards Risk Assessment identifies environmental aspects, impacts and their associated risk or significance, and measures to reduce risk.

The EHS Impacts and Hazards Risk Assessment will be reviewed according to Source procedures. Risk assessment is undertaken for all major activities and new works and activities. The Construction Manager is responsible for facilitating risk assessment in consultation with construction teams and specific subcontractors.

5.4.2 Safe Work Method Statements

SWMSs are used to assess safety and environmental risks associated with a specific activity and provide measures to reduce risk and ensure ongoing environmental compliance. These statements are aimed specifically for use by foremen and construction workers.

SWMSs are reviewed by each member of the work team before they commence work. This review provides an opportunity for the work team to contribute to environmental controls and to ensure that the work team is trained in environmental methods. Changes to the SWMSs are documented and communicated to workers prior to commencing the changed methods.

5.5 Environmental Management Sub-Plans

Sub-plans take into account environmental measures identified in, or required by, the various MCOA or in reports submitted with planning applications for Remediation and Landforming Works (SSD5897), Block 5 Remediation Works (SSD6533) and Hickson Road Remediation Works (SSD6617).

The purpose of sub-plans is to guide construction in a concise manner, by specifying measures to manage environmental impact. These measures are developed from analysis of aspects and impacts in the EHS Impacts and Hazards Risk Assessment, the EISs and other statutory requirements as specified in section 3. Details of environmental monitoring are defined in sub-plans, to quantify any impact and measure compliance with environmental obligations.

Sub-plans required for Barangaroo South and the Declaration Area outside Barangaroo South are listed in Figure 1 and Table 7. In addition to these sub-plans, a number of MCOA and EIS requirements are included in other plans:

- Emergency Response Plan.
- Public Pollution Incident Response Management Plan.
- Community and Stakeholder Engagement Strategy.
- Traffic & Pedestrian Management Plan.

Sub-plans are in a tabular format to provide a concise and comprehensible document for construction personnel.

Each sub-plan addresses management of their respective issues with the following minimum content:

- goals;
- legal & environmental obligations, guidelines and licence, permit and notification requirements;
- relevant environmental control measures, procedures and systems;
- responsibilities for implementation of measures;
- monitoring procedures and requirements.

5.6 Procurement Processes

All procurement for the project will be conducted in accordance with relevant Source purchasing procedures. The key purchasing requirements are:

- procurement and contract documentation include environmental management requirements as applicable to the product or service. Where relevant, product or service guarantees are obtained.
- products, suppliers and sub-contractors are evaluated as to their capability to meet specified environmental requirements for the project.

5.7 Communication

While community and stakeholder issues are addressed primarily in the *Community and Stakeholder Engagement Strategy*, the following summarises the approach adopted by the project.

5.7.1 Internal Communication

Internal communication within the project team is described in Source procedures, and in Section 4.3 of the Stage 1B Project EHS Plan.

5.7.2 Pro-active Community, Authority and Stakeholder Management

A number of community members, interest or action groups, stakeholders and the general public have been identified as key interested parties in relation to the construction phase. Communication objectives and methods for consulting with these groups are described in the *Barangaroo South Community and Stakeholder Engagement Strategy*.

This strategy is a central tool to guide consultation and engagement during the construction phase of the project. This strategy provides an overview of communications tools to be utilised, principles governing engagement, objectives driving consultation and key audiences being targeted. The strategy will remain 'active' throughout the life of the project, capturing changes to programme and will be updated as required to provide an accurate overview of consultation activities being carried out.

Key aspects of the plan relating to stakeholder management are:

- Using signage, newsletters, meetings, briefings and fact sheets at the commencement of new stages of construction;
- Meetings with authorities such as the BDA, City of Sydney Council, TfNSW and EPA;
- Meetings with specialist, action and interest groups;
- Letterbox drop notifications delivered to adjacent neighbourhoods.

5.7.3 Enquiries and Complaint Response

Reactive strategies for dealing with community issues are addressed in the Complaints Management Procedure. This procedure details the process for receipt, management, addressing and actioning the various forms of communication from stakeholders of the project. A chart showing how complaints are managed is shown in Figure 6, and timing of responses to complaints is shown in Table 8.

Table 8: Target Complaint Response Times

Communication method	Nature of enquiry and when received	Response time and nature of response
Phone calls or personal contact	Day time hours	An initial response will be provided within two business hours
	General – outside of construction hours	A professional Contact Centre is the initial point of contact and will escalate the matter to a Community Development team member if the matter relates to a construction related complaint or enquiry.
Written communication – email or letter	Any communication from a stakeholder.	Will be provided with a written response as soon as possible but within five business days unless otherwise discussed with stakeholder.

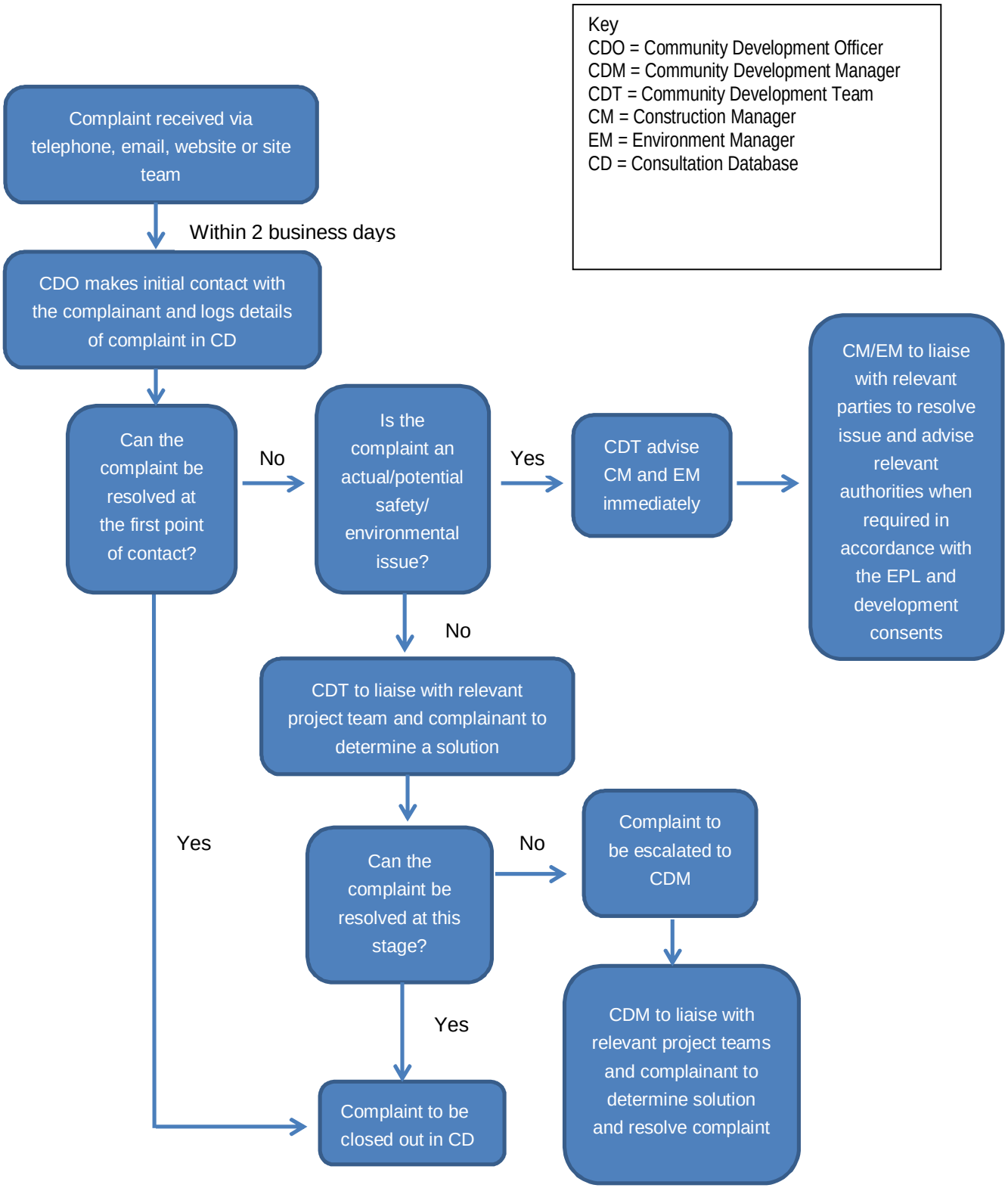


Figure 6: Complaints Management Procedure

As described in this procedure, all community enquiries will be registered in the Customer Relationship Management community consultation database. Information captured in the database includes:

- Name, address, contact telephone numbers (including mobiles);
- Time, date and type of contact (telephone, email or mail);
- Nature of the contact and issue;
- Nature of response, and comments as appropriate;
- Status of the contact (whether it has been resolved).

Enquiries, comments, compliments and complaints will be received through any one of the communication channels available, which include:

- The 24 hour 1300 Enquiry Line number and project email address that are widely advertised through communications such as the newsletter, site signage, notifications and advertising.
- The Barangaroo South website which includes a portal for community members to register their details and have a member of the project team contact them.

Any community member or stakeholder can approach 'public facing' workers on site (such as traffic controllers) or members of the roving security team within the precinct who have been trained on the protocol to provide a project "Community Card" which contains the details of the 1300 number and email address.

Between the hours of 8.30am and 5:00pm each day the 1300 Enquiry Line will be answered directly by Community Development staff. Outside of these hours, a professional Contact Centre has been engaged as the initial point of contact for this Enquiry Line.

A detailed after hours response process is in place which involves a member of the Community Development team being contacted by the Contact Centre if the matter is a construction related enquiry or complaint (as opposed to being expressions of interest from suppliers or enquiries about residential or commercial leasing). The community member will then be called back within a maximum of two hours to in order to address their issue or concern.

Mechanisms for complaint escalation are described in the Complaint Management Procedure.

Reports on all contacts and complaints can be generated through the Customer Relationship Management database on demand.

5.8 Project Induction and Training

Training will be undertaken as per Section 4.2 of the Project EHS Plan.

5.8.1 Project Induction

The project induction outlines key environmental issues. As per Section 4.2 of the Project EHS Plan, all personnel working on the project, including sub-contractors, are required to complete the induction prior to starting work, and will be provided with identification to show they have been inducted. The environmental induction will be periodically reviewed for adequacy.

The project induction includes the following environmental aspects:

- key issues relating to the project and existing environment;
- relevant environmental requirements and relevant conditions of development consents and environmental licences;
- environmental policy and EMS;
- site specific issues, such as:
  - remedial action plan,
  - water treatment plant,

  - waste management and minimisation,
  - washing, refuelling and maintenance of vehicles, plant and equipment,
  - efficient use of plant, equipment and materials,
  - minimising potential environmental impacts including noise, air and water quality,
- site-specific erosion and sedimentation controls, and use of spill kits to contain spills;
- environmental emergency plans, and incident reporting procedures for environmental harm/incidents.

5.8.2 Task-Specific Training

Task-specific training is required before staff and sub-contractors can commence high risk activities. The EHS Manager (Environment) determines activities and personnel required to have specific instruction, when this training will take place, how it will be delivered and if there is a need to retrain personnel.

The EHS Co-ordinator maintains a register of environmental training carried out including dates, names of people trained, and trainer details.

5.8.3 Toolbox Talks

Where deemed necessary, toolbox meetings and builders briefs are used to highlight specific environmental and community issues relevant to site personnel. A signoff sheet is completed by all personnel in attendance to acknowledge understanding of the information provided.

5.9 Incident Planning and Management

An incident is an uncontrolled event or violation with serious or potentially serious negative consequences to people, property, reputation or the environment.

Under Section 148 of the *Protection of the Environment Operations Act 1997* (POEO Act), Lend Lease has a duty to immediately report pollution incidents causing or threatening *material harm* to the environment. Material harm is defined in Section 147 of the POEO Act as:

> 'involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, and this loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment'.

Response to all incidents will be undertaken in accordance with the Emergency Response Plan and Public Pollution Incident Response Management Plan and related procedures. Further information is provided in these documents, as well as in Section 4.6 of the Stage 1b Project EHS Plan.

Key personnel to contact in the event of environmental incidents are contained in the Public Pollution Incident Response Management Plan. The incident reporting procedures and contact hierarchy in the Emergency Response Plan will be distributed all project personnel through a number of avenues.

6 MONITORING, INSPECTION & AUDITING ENVIRONMENTAL PERFORMANCE

6.1 Environmental Performance Monitoring

Project environmental performance is measured via environmental reviews. These are based on the requirements of relevant development consents. The reviews are undertaken:

- quarterly as required by development consents,
- in response to new or revised project approvals,
- in response to major changes in site conditions or work methods.

6.2 Physical Environment Monitoring

The EHS Manager (Environment) is responsible for implementing the environmental monitoring program outlined in Appendix 6. The monitoring program is amended and updated to reflect the sub-plans and to any changes to monitoring.

Monitoring locations are defined in relevant sub-plans, and are agreed with the EPA.

6.2.1 Monitoring Equipment & Testing Procedures

Water Quality Monitoring

Ambient water quality monitoring stations using multi-probe sensors will be used to continuously monitor turbidity at fixed locations throughout the construction period. The monitoring stations are stand-alone systems fixed to wharves, powered by solar panels. Water quality monitoring locations are shown in the *Water & Stormwater Management Sub-Plan*.

A correlation will be established between turbidity and total suspended solids (TSS) at a NATA-accredited laboratory. The correlation will be reviewed as needed throughout construction.

Readings from the stations are logged. Data is downloaded from the data logger to a computer, and combined with other parameters (current, depth, tide) to present the required information in the most suitable format for monthly reporting.

Sensors will be regularly maintained to prevent bio-fouling of probes, and repaired and calibrated whenever necessary to ensure a high degree of reliability of the system. In the event that the equipment is damaged, lost or must be retrieved for maintenance or repair, comparable equipment will be installed at the same location as a temporary replacement.

Turbidity monitoring is described further in the *Water & Stormwater Management Sub-Plan*.

Manual collection of samples and laboratory monitoring of treated water from the water treatment plant is required for parameters and frequencies specified in the EPA licence. Water quality monitoring is described in the *Water & Stormwater Management Sub-Plan*.

Environmental Noise Monitoring

Noise monitoring locations have been selected to be consistent with noise & vibration assessments, and to be representative of sensitive receivers. Noise monitoring locations are shown in the *Noise & Vibration Management Sub-Plan*. This Sub-Plan will be updated to incorporate monitoring as part of the remediation of the Declaration Area, as recommended in the Construction Noise and Vibration Assessments for:

- Remediation & Land Forming SSD5897 (Wilkinson Murray, 2014),
- Block 5 Remediation SSD6533 (Wilkinson Murray, 2015),
- Hickson Road Remediation SSD6617 (Wilkinson Murray, 2015),
- Residential Buildings R4A, R4B, R5 SSD 6964, 6965, 6966 (Wilkinson Murray, 2016),
- Stage 1B Basement SSD 6960 (Wilkinson Murray, 2016).

Background noise monitoring has been undertaken at the locations to determine the Rating Background Level (RBL). Construction noise goals and limits have then been determined based on requirements in EPA's Interim Construction Noise Guidelines (DECCW, 2009).

Continuous unattended noise monitoring will occur at fixed monitoring locations using a web-based monitoring system. Noise data and noise samples will be available in real-time, and data will be downloaded as needed for reporting purposes. Attended monitoring will be used to supplement this when required.

A calibrated sound level meter will also be available for attended noise measurements at other locations, or for certain situations.

Noise monitoring, and procedures for response to audible construction noise above criteria, is described in the *Noise & Vibration Management Sub-Plan*.

Air Quality Monitoring

Air quality monitoring will be undertaken for total dust, PM10, VOCs, metallic compounds, PAHs, and odour using instruments and equipment specified in the *Air Quality & Odour Management Sub-Plan*. These will be placed at monitoring locations surrounding the construction site, as shown in the Sub-Plan. PM10 dust levels will be monitored continuously. Weather data will be collected from an on-site weather station.

The *Air Quality & Odour Management Sub-Plan* will be updated to incorporate monitoring prior to the commencement of remediation of the Declaration Area, as recommended in the Air Quality Impact Assessments for:

- Remediation & Land Forming SSD5897 (AECOM, 2014),
- Block 5 Remediation SSD6533 (AECOM, 2015),
- Hickson Road Remediation SSD6617 (AECOM, 2015),
- Residential Buildings R4A, R4B, R5 SSD 6964, 6965, 6966 (AECOM, 2016),
- Stage 1B Basement SSD 6960 (AECOM, 2016).

This equipment will be operated by an air quality specialist, and overseen by the EHS Manager (Environment). Analysis of dust will be undertaken at a laboratory and reported back to the EHS Manager (Environment) for assessment, reporting and any action required.

Air quality monitoring is further described in the *Air Quality & Odour Management Sub-Plan*.

Acid Sulfate Soil Monitoring

Field screening of fill from locations identified as potentially containing acid sulfate soil will be undertaken using pH tests. Where field screening indicates possible acid sulfate soils, samples will be taken for laboratory testing at a NATA accredited laboratory. Depending on acid generation and buffering capacity results, spoil may classed as potential or actual acid sulfate soils. Where acid sulfate soils are found, they will be treated and managed appropriately.

Acid sulfate soil monitoring is further described in the *Acid Sulfate Soil Management Sub-Plan*.

Contamination Monitoring

LLMP and BDA/SHFA have previously undertaken situ soil and groundwater testing in the construction area to assist in preparation of Remedial Action Plans (RAPs) and Human Health and Environmental Risk Assessments (HHERAs).

In addition to in-situ soil and groundwater testing already undertaken, contaminant testing of soils will be undertaken as part of site validation and prior to any reuse/disposal off-site. Validation sampling and testing is further described in the Remedial Action Plan.

6.2.2 Monitoring Reporting Procedure

Monitoring reports required in Appendix 6 will be prepared after monitoring results are available, and are retained by the EHS Manager (Environment) for the duration of the project construction, and kept for five years after project completion. Monitoring reports indicate:

- date and time of monitoring;
- location of monitoring;
- equipment used and method of monitoring;
- results obtained;
- comparison of results with criteria in relevant sub-plan(s).

Environmental monitoring reports required by the EPL will be submitted to the BDA as the licence holder, for the BDA to submit to the EPA.

6.3 Environmental Inspections

The EHS Manager (Environment) is responsible for ensuring effective environmental inspections are carried out, in a format as specified in the Project EHS Plan.

6.4 Environmental Audits

Environmental audits will be conducted and reported in accordance with Section 5.1 of the Project EHS Plan and Source requirements.

6.5 Management Review

As per the Project EHS Plan, the project will be reviewed monthly. Project reviews assess the status/progress of the project and the plans, controls and tools being utilised to effectively progress the project. The Construction Manager is responsible for scheduling Project Reviews and the coordination and distribution of agendas, reports and minutes.

6.6 Non-Conformance, Corrective and Preventive Action

All corrective and preventative actions are undertaken in accordance with the Project EHS Plan and the Project Management Plan. Non-conformances and their rectification are recorded and communicated via Aconex, which is LLB's online document management system and collaborative communication tool.

6.7 Documentation and Record Control

6.7.1 Documentation

Revisions to this plan, sub-plans and related documents are made as required, in accordance with development consents and changes in the project.

6.7.2 Record Control

The EHS Manager (Environment) is responsible for maintaining legible environmental records to demonstrate compliance with Source requirements, including:

- monitoring and inspection reports;
- internal and external audit reports;
- reports of pollution incidents, environmental non-conformances and responses;
- records of monitoring of subcontractors.

Records are filed electronically on Aconex or the project's shared drive. Environmental records are held for at least five years after construction completion in Aconex, and are accessible on request to authorised EPA officers.

7 REPORTING

Reporting will be undertaken as per Section 4.3.3 of the Project EHS Plan.

The EHS Manager (Environment) is responsible for managing the environmental reporting program and arranging specialist consultants to prepare reports, as required.

The environmental reporting program is attached in Appendix 7.

This includes LLB 'EnableOn' and 'Insight' environment databases which provide the platform for sustainability and environment reporting. 'EnableOn' is also used for certain types of incident reporting, as described in the Emergency Response Plan.

Appendix 1

Policy

Environment Health and Safety

Building, Australia

Lendlease Building is part of the Lend Lease Corporation, a world leading integrated property and infrastructure group. Our national delivery capability and sector focused approach enables innovative and industry leading project management, design and construction services driven by
detailed sector knowledge and experience.

We are committed to a vision of Incident & Injury Free workplaces wherever we have a presence. Our vision is supported by an uncompromising culture which holds the safety of people and the protection of the environment as first in all our business reviews and decisions.

To achieve our vision we are committed to:

- Measurable objectives and targets to ensure continual improvement aimed at eliminating work related incidents or environmental aspects and impacts from our activities, products and services
- Complying with applicable statutory obligations and other requirements of codes of practice, compliance codes, standards and guidelines.
- Defining roles, responsibilities and accountability to achieve clarity and predictability across our work force.
- Promoting environmentally sound building techniques and practices that support our environmental aspects and impacts.

Key strategies to achieve our vision include:

- Documenting, implementing and maintaining an Environment, Health and Safety Management System.
- Integrating risk management principles in all core planning and delivery activities, including the prevention of pollution.
- Regular review of objectives and targets to promote continual improvement in performance outcomes.
- Strategic planning and regular review of systems, processes and policies to achieve continual improvement.
- Working with government and industry to promote leading practices and innovation.
- Reducing reliance on individual behaviours through planning and design delivery solutions.
- Ensuring incidents are investigated and the effectiveness of corrective and preventative actions are reviewed to prevent recurrence.
- Facilitating timely and effective injury management and rehabilitation for injured workers.
- Implementing timely environmental remediation strategies.
- Regular consultation with our workforce and key stakeholders to improve environment, health and safety outcomes.
- Communication of environment, health and safety information, including this policy, alerts and lessons learnt to employees, workers and interested parties.
- Implementing learning and development initiatives to develop environment, health and safety skills and competencies.
- Regular review of resources to ensure the effective management of environment, health and safety.
- Recognising, rewarding and sharing excellence in environment, health and safety.

I commit all of our project management, design and construction services across Australia to this policy and the achievement of our Incident & Injury.Free vision.

Dale Connor
Managing Director - Australia

Other Languages

Appendix 2

Appendix 2A: Environmental Requirements - MCOA

Barangaroo South – Minister's Conditions of Approval

1. SSD 5897 Remediation and Land Forming – Block 4 (environment-related conditions)

Condition	CFEMP Reference
B3 REMEDIAL ACTION PLAN ADDENDUM	
(1) If contaminated material is to be transported off-site for treatment, the Applicant must provide an addendum to the RAP, prior to the issue of the relevant Construction Certificate. The RAP addendum must: (a) be provided to the EPA for review and comment; (b) include a methodology for odour control for the transportation of untreated contaminated material off-site which: • demonstrates that the transportation of untreated contaminated material off-site would meet the minimum odour control requirements specified in the Block 4 Preliminary Air Quality and Odour Control Plan prepared by Lend Lease (dated 13 August 2014) in the RTS Addendum; • provides detailed design of the odour control measures to be implemented during vehicle loading and transport; • includes a suitable air quality and odour monitoring program to be implemented for this activity; and • is incorporated into the Air Quality and Odour Management Sub-Plan required under Condition B14. The RAP addendum must be approved by an EPA-accredited site auditor prior to the issue of the relevant Construction Certificate.	*RAP Addendum*
B4 DETAILED DESIGN – REMEDIATION/EXCAVATION ENCLOSURES	
Prior to the issue of the relevant Construction Certificate for excavation works, the Applicant shall submit final detailed design plans for each enclosure prepared by a suitably qualified and experienced person to the EPA for review and the Secretary for approval. The information submitted must include detailed design plans of each enclosure including information on: • final location and visual appearance including dimensions (bulk, height and scale), materials and finishes; • stormwater, erosion and sediment management/control devices; • nomination of all pollutant point source discharge parameters; • ventilation arrangements and emissions performance specifications for pollution control equipment for all compounds of interest; and • proposed monitoring program/s for the emissions control systems, including arrangements for monitoring of activated carbon breakthrough. The enclosures and associated air emissions control systems must operate under negative pressure, be designed in consultation with the EPA using best available control technology, comply with Environment Protection Licence number 13336 and meet any relevant requirements of the Protection of the Environment Operations (Clean Air) Regulation 2010. *Notes: a) A reference to enclosure is taken to be the excavation enclosure/s and/or remediation enclosure as described in the EIS.* *b) Condition B15 relates to works that would be undertaken outside an enclosure.*	Detailed design documentation
B10 CONSTRUCTION FRAMEWORK ENVIRONMENTAL MANAGEMENT PLAN	
(1) Prior to the issue of the relevant Construction Certificate, the Applicant shall prepare an updated Construction Framework Environmental Management Plan (CFEMP) for Barangaroo South incorporating the development to be submitted to the EPA for review and submitted to the Certifying Authority. The CFEMP must: (a) describe relevant stages and phases of construction including work program with relevant timeframes for each stage/ phase; (b) describe all activities to be undertaken on the site during site establishment and construction of the development; (c) clearly outline the stages/phases of construction that require ongoing environmental management monitoring and reporting; (d) detail statutory and other obligations required to fulfil during site establishment and construction, including approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies; (e) include specific consideration of measures to address any requirements of the EPA during site establishment and construction;	*CFEMP*

Condition	CFEMP Reference
(f) describe roles and responsibilities for all relevant employees involved in the site establishment and construction of the works; (g) detail how environmental performance of site preparation and construction works will be monitored, and what actions will be taken to address identified potential environmental impacts; (h) document and incorporate all sub environmental management plans (Sub-Plans), studies and monitoring programs required under this consent; and (i) include arrangements for community consultation and complaints handling procedures during construction. (2) In the event of any inconsistency between the consent and the CFEMP, the consent shall prevail. (3) The CFEMP and any associated Sub-Plans should be revised: at each key stage of the works; in response to future development consents; in response to major changes in site conditions or work methods; and in support of licence variations as necessary. (4) A copy of the final CFEMP is to be provided to the Secretary.	
B11 NOISE AND VIBRATION MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, an updated Construction Noise and Vibration Management Sub-Plan for Barangaroo South prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the Construction Noise and Vibration Assessment (dated February 2014) in Appendix C of the RTS and the RTS Addendum. The Sub-Plan must include a suitable real-time noise monitoring program, early warning system and reactive management procedure to ensure corrective actions are implemented prior to exceedences of the relevant construction noise criteria identified in Condition 06. The Sub-Plan must set out the community consultation procedures to be implemented including a community liaison (e.g. early notification procedures), complaints and response mechanism for critical stages of the works. The Sub-Plan must comply with Environment Protection Licence number 13336. A copy must be provided to the Secretary.	*Noise and Vibration Management Sub-Plan*
B12 NOISE MANAGEMENT - 'KU LANCE PRE-SCHOOL' CONSULTATION	
Prior to the issue of the relevant Construction Certificate, the Applicant must consult with the 'KU Lance' pre-school located at 37 High Street, Millers Point and provide information to them on how to minimise construction noise impacts associated with the development during noise intensive works. The Applicant must confirm that the pre-school has operable windows on several sides of the building and/or air conditioning to ensure that the building would be well ventilated in the event that some windows are required to be closed during works to achieve acceptable noise levels. The Applicant shall provide the pre-school with information on its complaint management procedure and 24 hour enquiry line telephone number. The outcomes of the above must be documented in the Construction Noise and Vibration Management Sub-Plan required under Condition B11.	Consultation and inclusion in the *Noise and Vibration Management Sub-Plan*
B13 AIR QUALITY VERIFICATION REPORT	
(1) Prior to the issue of the relevant Construction Certificate, an Air Quality Verification Report prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Report must: (a) be prepared by a suitably qualified & experienced expert in accordance with EPA's *Approved Methods for the Modelling & Assessment of Air Pollutants in NSW* (Approved Methods); (b) consider all key chemicals of potential concern (particularly contaminated areas and particulate matter); (c) be based on the final design of the development including the enclosures (refer to Condition B4) and information such as point source arrangement and emission performance specifications for proposed controls; (d) nominate relevant emission concentration limits that reflect proper and efficient operation and are protective of the health and amenity of the surrounding environment; and (e) make recommendations for all necessary mitigation measures necessary to demonstrate compliance with relevant impact assessment criteria as nominated in the Approved Methods. A copy must be provided to the Secretary.	*Air Quality Verification Report*
B14 AIR QUALITY AND ODOUR MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, an updated Air Quality and Odour Management Sub-Plan for Barangaroo South prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the Air Quality Impact Assessment (dated 18 February 2014) in Appendix B of the RTS, the Preliminary Air Quality and Odour Control Plan (dated 13 August 2014) in the RTS Addendum and the Air Quality Verification Report required under Condition B13 of this consent. The Sub-Plan must include a suitable real-time air monitoring program and comply with Environment Protection Licence number 13336. A copy must be provided to the Secretary.	*Air Quality and Odour Management Sub-Plan*
B15 DETAILED DESIGN – ODOUR CONTROL FOR EXTERNAL REMEDIATION WORKS	

Condition	CFEMP Reference
(1) Prior to the issue of the relevant Construction Certificate, the Applicant must provide a detailed methodology for odour control during the retention wall construction to the EPA for review and comment. The methodology must: (a) demonstrate that the retention wall construction works would meet the minimum requirements specified in the Block 4 Preliminary Air Quality and Odour Control Plan prepared by Lend Lease (dated 13 August 2014) in the RTS Addendum; (b) provide detailed design of the odour control measures to be implemented during the retention wall construction; (c) include a suitable air quality and odour monitoring program to be implemented for this activity; (d) be incorporated into the Air Quality and Odour Management Sub-Plan required under Condition B14.	Detailed design documentation
B16 TRAFFIC MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Traffic Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to the Barangaroo Delivery Authority, Transport for NSW and Council for review and submitted to the Certifying Authority. The Sub-Plan must include a Green Travel Plan for workers and detail the measures that would be implemented to: minimise the impact of the development on the safety and capacity of the surrounding road network; minimise truck movements to and from the site as far as practicable during the PM peak period; and ensure compliance with Condition D13 of this consent. A copy must be provided to the Secretary.	*Traffic Management Plan*
B17 HEALTH MANAGEMENT SUB-PLAN	
(1) Prior to the issue of the relevant Construction Certificate, a Health Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to NSW Health and WorkCover NSW for review and submitted to the Certifying Authority. The Sub-Plan must: (a) ensure the development complies with the relevant requirements of the Work, Health and Safety Regulation 2011; (b) detail all pollutant management measures and controls to be implemented during construction to minimise potential impacts on health for nearby sensitive receivers and workers on or adjacent to the site including engineering controls, safe work practices, safe work methods statements, hygiene & decontamination procedures, personal protective equipment requirements; (c) be consistent with and adopt all recommendations of the Health Impact Assessment prepared by AECOM *(*dated 1 October 2013*)* in Appendix M of the EIS; (d) ensure an induction process is in place for site workers & visitors regarding safe work practices and methods to be followed to minimise the potential for human exposure to pollutants; (e) include a suitable occupational health monitoring program that ensures potential and identified exceedences of the adopted health impact assessment criteria are linked to appropriate corrective work actions and the implementation of additional controls. A copy must be provided to the Secretary.	*Health Management Plan*
B18 WATER AND STORMWATER MANAGEMENT SUB PLAN	
Prior to the issue of a Construction Certificate, an updated Water and Stormwater Management Sub-Plan for Barangaroo South prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must ensure that any effluents/liquid waste streams associated with the development that are directed to the site Wastewater Treatment Plant (WTP) are treated sufficiently to ensure compliance with the relevant concentration limits required by Environment Protection Licence No. 13336 prior to discharge to Sydney Harbour. The Sub-Plan shall include a suitable short period intensive monitoring program to characterise key pollutants in liquid waste inflows to and discharges from the WTP associated with the development to ensure this waste is treated to an acceptable level. A copy must be provided to the Secretary.	*Water and Stormwater Management Sub-Plan*
B19 EROSION AND SEDIMENT CONTROL	
Soil erosion and sediment control measures shall be designed in accordance with the document *Managing Urban Stormwater – Soils & Construction Volume 1 (2004) by Landcom.* Details are to be submitted to the satisfaction of the Certifying Authority prior to the issue of the relevant Construction Certificate.	*Water and Stormwater Management Sub-Plan*
B20 SPOIL AND WASTE MANAGEMENT SUB-PLAN	
Prior to the issue of a Construction Certificate, an updated Spoil and Waste Management Sub-Plan for Barangaroo South prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the Waste Management Plan prepared by AECOM (dated 2 July 2014) in Appendix Y of the EIS. The Sub-Plan ensure that the development complies with the requirements of Condition D28(4) of this consent. The Sub-Plan must comply with Environment Protection Licence number 13336. A copy must be provided to the Secretary.	*Spoil and Waste Management Sub-Plan*
B21 ACID SULPHATE SOILS MANAGEMENT SUB-PLAN	

Condition	CFEMP Reference
Prior to the issue of a Construction Certificate, an updated Acid Sulphate Soil Management Sub-Plan for Barangaroo South shall be prepared by a suitably qualified person in accordance with the *Acid Sulphate Soil Assessment Guidelines* (Acid Sulphate Soil Management Advisory Committee, 1998) and submitted to the Certifying Authority.	*Acid Sulphate Soil Management Sub-Plan*
B22 ASBESTOS MANAGEMENT SUB-PLAN	
(1) Prior to the issue of a Construction Certificate, an Asbestos Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to the EPA, NSW Health and WorkCover NSW for review and submitted to the Certifying Authority. The Sub-Plan must: (a) be consistent with Safe Work Australia's codes of practice *How to Safely Remove Asbestos 2011* and *How to Manage and Control Asbestos in the Workplace 2011*; (b) identify any known or potential areas of concern on site for asbestos containing materials; (c) outline the procedures for identification, handling, disposal and/or re-use of asbestos containing materials; (d) ensure that all asbestos would be handled and disposed of by a suitably licensed asbestos removalist in accordance with the relevant guidelines and legislation; (e) ensure an induction process is in place for site workers and visitors regarding identification of asbestos and formal procedures to be followed in event that asbestos is identified on site; (f) ensure that the development would comply with the requirements of Condition D28 of this consent; (g) include a suitable airborne asbestos fibre monitoring program for all asbestos removal works areas; and (h) outline the procedures for soil validation and inspection following the completion of asbestos removal works and issuing of asbestos clearance certificates. A copy must be provided to the Secretary.	*Asbestos Management Sub-Plan*
B23 HERITAGE MANAGEMENT SUB-PLAN	
Prior to the issue of a Construction Certificate, a Heritage Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the non-Indigenous Heritage Impact Statement prepared by Casey and Lowe (dated August 2013) in Appendix S of the EIS (particularly with regards to the development and implementation of an archaeological monitoring program) and the Indigenous Heritage Impact Statement prepared by Comber Consultants (dated August 2013) in Appendix T of the EIS. A copy must be provided to the Secretary.	*Heritage Management Sub-Plan*
B24 TREE MANAGEMENT SUB-PLAN	
Prior to the issue of a Construction Certificate, an updated Tree Management Sub-Plan for Barangaroo South prepared by a suitably qualified person shall be submitted to Council for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the Arboricultural Impact Assessment prepared by True Wise Men Australia (dated September 2013) in Appendix U of the EIS. A copy must be provided to the Secretary.	*Tree Management Sub-Plan*
B25 FIRE SAFETY STUDY AND FINAL HAZARDS ANALYSIS	
If ex-situ chemical oxidation treatment methods are proposed to be used for excavated soil (Le. Requiring Dangerous Goods storage), prior to the issue of the relevant Construction Certificate, the Applicant shall prepare the studies set out under subsections (a) to (b) (the pre-construction studies). Construction, other than of preliminary works that are outside the scope of the hazard studies, shall not commence until study recommendations have been considered and, where appropriate, acted upon. The Applicant shall submit the studies to Secretary no later than one month prior to the commencement of construction of the proposed development (other than preliminary works), or within such further period as the Secretary may agree. **(a) FIRE SAFETY STUDY** A fit for purpose Fire Safety Study for the proposed development. This study shall cover the relevant aspects of the DP&E *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'* and NSW Govt's *'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'*. The study shall meet the requirements of Fire and Rescue NSW. **(b) FINAL HAZARD ANALYSIS** A Final Hazard Analysis (PHA) of the proposed development, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'*. The FHA shall include updated and detailed information on the types of Dangerous Goods (DG), their quantities, and storage locations on site. A site layout plan showing the location of all DG depots shall be included in the report. An update on the implementation status of the Preliminary Hazards Analysis report (refer to Condition A2) recommendations should also be incorporated in the FHA. As the proposal is located in the Sydney central business district, and due to the unavailability of DG transportation details at the time of preparation of the PHA, a DG transportation screening (as per *Applying SEPP 33 2008*) shall form part of the FHA. If the proposal is found to be potentially hazardous with respect to transportation, a route evaluation should be completed in accordance with the *Department's HIPAP11, 'Route Selection'*, and included in the FHA report. Suitable routes identified in the evaluation shall be used, except where departures are necessary for local deliveries or emergencies. *Note: The above studies/plans shall be undertaken by the Applicant and submitted to the Secretary for review, without a requirement for formal approval.*	*Fire Safety Study* *Final Hazard Analysis*

Condition	CFEMP Reference
C1 ENVIRONMENTAL PROTECTION LICENCE	
Prior to the commencement of works, the Applicant must ensure that the existing Environmental Protection Licence (EPL) issued to the Barangaroo Delivery Authority is varied, where required, to reflect and permit the works conducted on site. All works undertaken on site must be done in a manner which ensures compliance with EPL conditions at all times	*EPL 13336*
C8 APPROVAL OF ENCLOSURES	
Prior to the commencement of works, the Applicant must ensure that it has obtained the Secretary's approval for each enclosure associated with the development in accordance with Condition B3. No remediation works shall commence until these approvals have been obtained.	*Air Quality and Odour Management Sub-Plan*
C9 EMERGENCY PLAN	
Prior to the commencement of construction works, the Applicant shall develop and implement a comprehensive Emergency Plan and detailed emergency procedures for the proposed development. This plan shall also include detailed procedures for the safety of all people outside of the development who may be at risk from the project. The plan shall be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'*. The Applicant shall submit to the Secretary documentation describing the Emergency Plan no later than two months prior to the commencement of commissioning of the proposed project, or within such further period as the Secretary may agree. *Note: The above studies/plans shall be undertaken by the Applicant and submitted to the Secretary for review, without a requirement for formal approval.*	*Incident & Emergency Management Plan*
D1 HOURS OF WORK	
(1) The hours of construction, including the delivery of materials to and from the site, shall be restricted as follows: (a) between 7am and 6pm, Mondays to Fridays inclusive; (b) between 7am and 5pm, Saturdays; and (c) no work on Sundays and public holidays. (2) Works outside these hours are not permitted except as explicitly specified below or in other conditions and include: (a) the delivery of materials which is required outside these hours as requested by Police or other authorities for safety reasons; (b) emergency work to avoid the loss of lives, damage to property and/or to prevent environmental harm; (c) operation of the enclosures required under Condition D11 of this consent to ensure odour is effectively controlled outside the approved hours of construction, including operation of the ventilation and air emissions control systems; (d) operation of the Wastewater Treatment Plant require under Condition D21 of this consent, including dewatering to prevent flooding, treatment systems and discharge; and (e) other works expressly approved by the Secretary.	*Noise and Vibration Management Sub-Plan*
D2 CONSTRUCTION FRAMEWORK ENVIRONMENTAL MANAGEMENT PLAN	
(1) The Applicant must undertake all works in accordance with the requirements of the Construction Framework Environmental Management Plan approved under Condition B10. The CFEMP must document and incorporate all Sub-Plans required under this consent.	*CFEMP*
D3 REMEDIAL ACTION PLAN (RAP) AND HUMAN HEALTH ECOLOGICAL RISK ASSESSMENTS (HHERA)	
(1) All remediation works are to be undertaken in accordance with the following approved Remedial Action Plan (RAP), Human Health Ecological Risk Assessments (HHERAs) and accompanying documents: (a) *'Human Health and Ecological Risk Assessment, Declaration Site (Development Works) Remediation Works Area – Barangaroo'*, prepared by AECOM Australia Pty Limited and dated 9 June 2011;	*RAP* *RAP Addendum*

Condition	CFEMP Reference
(b) *'Human Health and Ecological Risk Assessment, VMP Remediation Works (Addressing the NSW EPA Declaration 21122, Millers Point)'*, prepared by AECOM Australia Pty Limited and dated 25 October 2012; (c) *'Remedial Action Plan, NSW EPA Declared Remediation Site 21122 and Block 4 (Stage 1b) Development Works, Barangaroo, Millers Point, NSW'*, prepared by AECOM Australia Pty Limited and dated 24 July 2013; (d) *'Site Audit Report - Remedial Action Plan, Declaration Area and Block 4, Barangaroo'*, prepared by ENVIRON Australia Pty Ltd and dated July 2013'; and (e) *Site Audit Statements (No. GN 447A and No. GN 439B-3)*, approved by Mr. Graeme Nyland (EPA accredited Site Auditor) and dated 31 July 2013. (2) If contaminated material is to be transported off-site for treatment. all remediation works are to be undertaken in accordance with the RAP, as modified by the RAP addendum approved in accordance with Condition B3.	
D4 NOISE AND VIBRATION MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Construction Noise and Vibration Management Sub-Plan approved under Condition B11. This Plan must be consistent with all of the relevant requirements of the Environment Protection Licence number 13336.	*Noise and Vibration Management Sub-Plan*
D5 RESTRICTED HOURS OF WORK – HIGH NOISE IMPACT ACTIVTIES	
(1) The Applicant must ensure that any work generating high noise impact (e.g. rock hammering) must only be undertaken: (a) between the hours of 8:00am and 6:00pm Monday to Friday; (b) between the hours of 8:00am and 1:00pm Saturday; and (c) in continuous blocks of no more than 3 hours, with at least a 1 hour respite between each block of work generating high noise impact, where the location of the work is likely to impact the same receivers. For the purposes of this condition 'continuous' includes any period during which there is less than a 1 hour respite between ceasing and recommencing any of the work the subject of this condition.	*Noise and Vibration Management Sub-Plan*
D6 CONSTRUCTION NOISE CRITERIA	
The Applicant must ensure that noise generated by the development does not exceed 75 dB(A) LAeq(15 minute) at any affected sensitive receiver during the day. *Note:* • *To identify the receiver locations refer to the Construction Noise and Vibration Assessment in the RTS (Appendix C); and* • *Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*	*Noise and Vibration Management Sub-Plan*
D7 VIBRATION CRITERIA	
(1) Vibration caused by construction at any residence or structure outside the subject site must be limited to: (a) for structural damage vibration to buildings (excluding heritage buildings), British Standard BS 7385 Part 2-1993 Evaluation and Measurement for Vibration in Buildings; (b) for structural damage vibration to heritage buildings. German Standard DIN 4150 Part 3 Structural Vibration in Buildings Effects on Structure; and (c) for human exposure to vibration, the evaluation criteria presented in British Standard BS 6472-Guide to Evaluate Human Exposure to Vibration in Buildings (III: to 80 Hz) for low probability of adverse comment. (2) These limits apply unless otherwise approved in the Construction Noise and Vibration Management Plan Sub-Plan.	*Noise and Vibration Management Sub-Plan*
D8 VIBRATION MANAGEMENT	

Condition	CFEMP Reference
(1) Vibratory compactors must not be used closer than 30m from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified above. (2) The Applicant must undertake trial testing of vibration intensive equipment that is identified as having the potential to exceed the vibration criteria identified in Condition D7 to ensure it is not exceeded at any residence or structure outside the subject site.	
D9 AIR QUALITY AND ODOUR MANAGEMENT SUB PLAN	
The Applicant must undertake all works in accordance with the requirements of the Air Quality and Odour Management Sub-Plan approved under Condition B14. This Plan must be consistent with all of the relevant requirements of the Environment Protection Licence number 13336.	*Air Quality and Odour Management Sub-Plan*
D10 AIR MITIGATION - CONTINGENCY MEASURES	
The applicant must implement additional air controls in consultation with the EPA to the satisfaction of the Secretary if the development is found to be causing unacceptable air and/or odour impacts to sensitive receivers.	*Air Quality and Odour Management Sub-Plan*
D11 REMEDIATION / EXCAVATION ENCLOSURES	
Unless otherwise agreed in writing by the EPA, the Applicant must ensure that all remediation works (other than those associated with the retention wall construction works) are undertaken in an enclosure approved by the Secretary in accordance with Condition B4.	*Air Quality and Odour Management Sub-Plan*
D12 DUST CONTROL MEASURES	
(1) Adequate measures shall be taken to prevent dust from affecting the amenity of the neighbourhood during construction. In particular, the following measures should be adopted: (a) physical barriers shall be erected at right angles to the prevailing wind direction or shall be placed around or over dust sources to prevent wind or activity from generating dust emissions; (b) earthworks and scheduling activities shall be managed to coincide with the next stage of development to minimise the amount of time the site is left cut or exposed; (c) all materials shall be stored or stockpiled at suitable locations; (d) the surface should be dampened slightly to prevent dust from becoming airborne but should not be wet to the extent that run-off occurs; (e) all vehicles carrying spoil or rubble to or from the site shall at all times be covered to prevent the escape of dust or other material; (f) all equipment wheels shall be washed before exiting site using manual or automated sprayers and drive-through washing bays; (g) gates shall be closed between vehicle movements and shall be fitted with shade cloth; and (h) cleaning of footpaths and roadways shall be carried out regularly.	*Air Quality and Odour Management Sub-Plan*
D13 CONSTRUCTION TRAFFIC MANAGEMENT SUB-PLAN	
(1) The Applicant must undertake all works in accordance with the requirements of the Traffic Management Sub-Plan approved under Condition B16, except where modified below. The Applicant must undertake all works in accordance with the requirements of the Traffic Management Sub-Plan approved under Condition B16, except where modified below. (a) under the current legislation the use of lengthy vehicles in the CBD is prohibited within certain time frames. All lengthy vehicles must comply with this regulation as stipulated in the NSW Road Rules. A map indicating the prohibited area and definitions of lengthy vehicles are included in the Road Rules; (b) personnel using stop/slow signage are not permitted in Hickson Road or Sussex Street on weekdays between the hours of 7am and 9am and 4pm and 7pm. However, personnel using stop/slow signage will be permitted on Hickson Road. north of the intersection of Hickson Road and Napoleon Street. when it is required to ensure safe truck access at designated site access points, provided that vehicle queue lengths generated as a result of the traffic control do not exceed more than six vehicles in either direction; (c) truck movements should be staged and coordinated to prevent trucks circling CBD streets whilst awaiting access to the site. There should be holding areas outside the CBD on the fringes or sufficient space within the site to store trucks and heavy vehicles; (d) to minimise impacts on public transport. trucks should avoid where possible York Street to access the development site between 6am and 10am and 2pm and 8pm Monday to Friday;	*Traffic Management Plan*

Condition	CFEMP Reference
(e) truck movements to and from the site associated with the development must be minimised as far as practicable during the PM peak period; (f) where possible. trucks must avoid driving over areas of the site that have already been excavated, validated or re-instated to prevent cross contamination; (g) unless otherwise agreed in writing by the EPA, all loading of trucks with contaminated material (excluding material associated with the retention wall construction works) must be undertaken in an enclosure approved by the Secretary in accordance with Condition B4 of this consent; (h) all trucks associated with the development must have their loads covered to ensure trucks do not track material onto the public road network; and (i) all trucks must be decontaminated in the wheel wash areas before exiting the site.	
D14 HEALTH MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Health Management Sub-Plan approved under Condition B17.	*Health Management Plan*
D15 WORK, HEALTH AND SAFETY REQUIREMENTS	
The Applicant must ensure that all works are carried out in accordance with the relevant requirements of the *Work, Health and Safety Regulation 2011*.	*Health Management Plan*
D16 WATER AND STORMWATER MANAGEMENT	
The Applicant must undertake all works in accordance with the requirements of the Water and Stormwater Management Sub-Plan approved under Condition B18.	*Water and Stormwater Management Sub-Plan*
D17 EROSION AND SEDIMENT CONTROL	
All erosion and sediment control measures, as designed in accordance with Condition B4 and B19, are to be effectively implemented and maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works has been stabilised and rehabilitated so that it no longer acts as a source of sediment.	*Water and Stormwater Management Sub-Plan*
D18 STOCKPILE MANAGEMENT	
(1) The Applicant must ensure that: (a) unless otherwise agreed in writing by the EPA, all excavated material is stockpiled within the an enclosure approved by the Secretary in accordance with Condition B4 of this consent; (b) stockpiles of excavated material do not exceed 4 metres in height; (c) stockpiles of excavated material are constructed and maintained to prevent cross contamination; and (d) suitable erosion and sediment controls are in place for stockpiles.	*Spoil and Waste Management Sub-Plan*
D19 DISPOSAL OF SEEPAGE AND RAINWATER	
Any seepage or rainwater collected on-site during construction shall be managed in accordance with the Water and Stormwater Management Sub Plan prepared under Condition B18.	*Water and Stormwater Management Sub-Plan*
D20 WATER QUALITY	
(1) All works should be undertaken in a manner that ensures the protection of the water quality objectives and environmental values for Sydney Harbour estuarine waters in accordance with the following guideline documents: (a) *NSW Water Quality Objectives*; and (b) *The Australian and New Zealand Guidelines for Fresh and Marine water Quality (2000)* for the environmental values under the ANZECC guidelines.	*Water and Stormwater Management Sub-Plan*
D21 CONTAMINATED AND TREATED WATER	

Condition	CFEMP Reference
(1) Any effluents/liquid waste streams associated with the development that are directed to the site Wastewater Treatment Plant (WTP) are sufficiently treated to ensure: (a) compliance with the relevant concentration limits required by Environment Protection Licence No. 13336 prior to discharge to Sydney Harbour; and/or (b) compliance with the relevant requirements of an executed Trade Waste Agreement with Sydney Water Corporation prior to discharge to sewer. (2) No contaminated or treated site waters (surface, collected groundwater or contaminated construction waters) are permitted to be discharged into Sydney Harbour unless in accordance with the conditions attached to Environmental Protection Licence No. 13336, unless otherwise agreed to in writing by the EPA. (3) No contaminated or treated site waters (surface, collected groundwater or contaminated construction waters) are permitted to be discharged to sewer unless in accordance with the conditions of an executed Trade Waste Agreement with Sydney Water Corporation.	*Water and Stormwater Management Sub-Plan*
D22 BUNDING	
The Applicant shall store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant *Australian Standards*, EPL requirements and/or *EPA's Storing and Handling Liquids: Environmental Protection – Participants Handbook*.	*Water and Stormwater Management Sub-Plan*
D23 SPOIL AND WASTE MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Spoil and Waste Management Sub-Plan approved under Condition B20.	*Spoil and Waste Management Sub-Plan*
D24 ACID SULPHATE SOILS MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Acid Sulphate Soils Management Sub-Plan approved under Condition B21.	*Acid Sulphate Soil Management Sub-Plan*
D25 WASTE CLASSIFICATION AND DISPOSAL	
(1) The Applicant must ensure that all waste generated by the development is classified and disposed of in accordance with the EPA's *Waste Classification Guidelines 2009*. (2) The Applicant must ensure that all waste generated by the development is treated and/or disposed of at a facility that has sufficient capacity to and may lawfully accept that waste.	*Spoil and Waste Management Sub-Plan*
D26 GASWORKS WASTE IMMOBILISATION	
The Applicant must ensure that the chemical treatment and/or fixation of gas works waste that has been classified as restricted or hazardous waste is managed in accordance with the EPA's Specific Immobilisation Approval - *EPA Waste Classification Guidelines Part 2: Immobilisation of Waste 2008*, or is transported to a facility suitably licenced to receive, treat and dispose of the gas works waste under other EPA immobilisation or treatment permits.	*Spoil and Waste Management Sub-Plan*
D27 ASBESTOS WASTE MANAGEMENT	
(1) The Applicant must undertake all works in accordance with the requirements of the Asbestos Management Sub-Plan approved under Condition B22. (2) All excavation works involving the removal and disposal of asbestos must only be undertaken by contractors who hold a current WorkCover Asbestos or "Demolition Licence" and a current WorkCover "Class 2 (Restricted) Asbestos Licence and removal must be carried out in accordance with Safe Work Australia's *NOHSC: Code of Practice for the Safe Removal of Asbestos 2005*. (3) An asbestos clearance certificate (or certificates) prepared by a suitably licenced asbestos removalist shall be provided to the Department and the Principal Certifying Authority upon completion of all asbestos removal works. The Applicant shall ensure that the asbestos removal works comply with the relevant requirements of the *Work, Health and Safety Regulation 2011.* (4) The Applicant must ensure that any asbestos contained in excavated material that is proposed for re-use on site meets the requirements of the EPA and the fill validation requirements outlined in the report prepared by Associate Professor Tim Driscoll entitled *The Use of Asbestos-Contaminated Soils on Barangaroo, Final Report, Report to the Environment Protection Authority 2013.*	*Asbestos Management Sub-Plan*

Condition	CFEMP Reference
D28 HERITAGE MANAGEMENT	
The Applicant must undertake all works in accordance with the requirements of the Heritage Management Sub-Plan approved under Condition B23.	*Heritage Management Sub-Plan*
D29 IMPACTS OF BELOW GROUND (SUB SURFACE) WORKS – NON-ABORIGINAL OBJECTS	
If during the course of construction the Applicant becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales shall be notified immediately in accordance with section 146 of the *Heritage Act 1977*. Relevant works shall not recommence until written authorisation from the Heritage Council of NSW is received by the Applicant.	*Heritage Management Sub-Plan*
D30 IMPACTS OF BELOW GROUND (SUB SURFACE) WORKS – ABORIGINAL OBJECTS	
If during the course of construction the Applicant becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the Office of Environment and Heritage informed in accordance with section 89A of the *National Parks and Wildlife Act 1974*. Relevant works shall not recommence until written authorisation from Office of Environment and Heritage is received by the Applicant.	*Heritage Management Sub-Plan*
D31 TREE REMOVAL	
The Applicant must undertake all works in accordance with the requirements of the Tree Management Sub-Plan approved under Condition B24.	*Tree Management Sub-Plan*
D32 GENERAL	
The Applicant must in general, carry out the development in line with the information contained in the Preliminary Hazards Analysis (refer to Condition A2 of this consent), including the implementation of the recommendations raised within the report. In the case of a Preliminary Hazards Analysis report recommendation being considered but not implemented, then adequate justification should be provided in the Final Hazards Analysis (refer to Condition B25 of this consent). *Note: The above studies/plans shall be undertaken by the Applicant and submitted to the Secretary for review, without a requirement for formal approval.*	*Final Hazard Analysis*
E1 SITE VALIDATION	
(1) Within 6 months of the completion of the remediation works on site, and prior to the commencement of any construction/site works at and/or above ground level not approved under this consent, the Applicant shall submit a detailed Site Audit Summary report and Site Audit Statement and Validation Report to the EPA, the Secretary, the Certifying Authority, and the Council. (2) The site audit must be prepared in accordance with the *Contaminated Land Management Act 1997* and completed by a site auditor accredited by the EPA to issue site audit statements. The site audit must verify that the land is suitable for the proposed uses. (3) The site auditor must also verify that any excavated material re-used on site or disposed off-site, has been appropriately classified, validated, managed and the relevant approvals obtained in accordance with the relevant legislation and any relevant approved materials management plan/s. (4) On completion of remediation works, the relevant requirements of Clauses 17 and 18 of *SEPP 55 - Remediation of Land*, being notification to the Council, shall be complied with.	Final Validation Report for SAS B regarding remediation of the Declaration Area
E2 REMOVAL OF REMEDIATION/EXCAVATION ENCLOSURES	
Unless otherwise approved in writing by the Secretary, the Applicant must ensure that all enclosures approved by the Secretary in accordance with Condition B3 of this consent are dismantled and removed from the site within 3 months of the completion of the remediation works.	*Air Quality and Odour Management Sub-Plan*

2. SSD 6533 Remediation of Part of Barangaroo central – Block 5 (environment-related conditions)

Condition	CFEMP Reference
B3 DETAILED DESIGN – REMEDIATION/EXCAVATION ENCLOSURES AND EMISSION CONTROL SYSTEM	
Prior to the issue of the relevant Construction Certificate for bulk excavation works, the Applicant shall submit final detailed design plans for each enclosure and emission control system prepared by a suitably qualified and experienced person to the EPA for review and the Secretary for approval. The information submitted must include detailed design plans of each enclosure including information on: (a) final location and visual appearance including dimensions (bulk, height and scale), materials and finishes; (b) stormwater, erosion and sediment management/control devices; (c) nomination of all point source discharge parameters; (d) ventilation arrangements, including location details and emissions performance specifications for pollution control equipment for all compounds of interest; and (e) proposed monitoring program/s for the emissions control systems, including arrangements for monitoring of activated carbon breakthrough. The enclosures and associated air emissions control systems must operate under negative pressure, be designed in consultation with the EPA using appropriate available control technology, comply with Environment Protection Licence number 13336 and meet any relevant requirements of the Protection of the Environment Operations (Clean Air) Regulation 2010. Notes: a) A reference to enclosure is taken to be the excavation enclosure(s) and or remediation enclosure as described in the EIS. b) A reference to the emission control system includes the odour control system and odour control structures.	Detailed design documentation
B9 CONSTRUCTION FRAMEWORK ENVIRONMENTAL MANAGEMENT PLAN	
(1) Prior to the issue of the relevant Construction Certificate, the Applicant shall prepare a Construction Framework Environmental Management Plan (CFEMP) for the development incorporating the development to be submitted to the EPA for review and submitted to the Certifying Authority. The CFEMP must: (f) describe the relevant stages and phases of construction including the work program outlining relevant timeframes for each stage/phase; (g) describe all activities to be undertaken on the site during site establishment and construction of the development; (h) clearly outline the stages/phases of construction that require ongoing environmental management monitoring and reporting; (i) detail statutory and other obligations that the Applicant is required to fulfil during site establishment and construction, including approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies; (j) include specific consideration of measures to address any requirements of the EPA during site establishment and construction; (k) describe the roles and responsibilities for all relevant employees involved in the site establishment and construction of the works; (l) detail how the environmental performance of site preparation & construction works will be monitored, and what actions will be taken to address identified potential environmental impacts; (m) document and incorporate all sub environmental management plans (Sub-Plans), studies and monitoring programs required under this consent; and (n) include arrangements for community consultation and complaints handling procedures during construction. (2) In the event of any inconsistency between the consent and the CFEMP, the consent shall prevail. (3) The CFEMP and any associated Sub-Plans should be revised: (o) at each key stage of the works; (p) in response to future development consents; (q) in response to major changes in site conditions or work methods; and (r) in support of licence variations as necessary. (4) A copy of the final CFEMP is to be provided to the Secretary.	*CFEMP*
B10 SPOIL AND WASTE MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Spoil and Waste Management Sub Plan for the development shall be prepared by a suitably qualified person and shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the amended Waste Management Plan prepared by AECOM dated 4 March 2015 in Appendix G of the RTS, the Remedial Action Plan prepared by AECOM dated 24 July 2013 and Addendum to the Remedial Action Plan	*Spoil and Waste Management Sub-Plan*

Condition	CFEMP Reference
prepared by AECOM dated 15 October 2015. The Spoil and Waste Management Sub-Plan must: (1) Detail waste treatment and disposal: (a) provide names and details of treatment and disposal facilities for all anticipated waste streams from Barangaroo; (b) outline how current industry best practise to treat and dispose of contaminated spoil materials was considered in the selection of appropriate treatment and disposal facilities; (c) detail the hazardous waste treatment technologies to be utilised; (d) detail procedures for the classification of hazardous and non-hazardous waste in accordance with the Protection of the Environment Operations (Waste) Regulation 2014, including sampling methodology; and (e) provide the details of all required EPA approvals and or licences to facilitate the appropriate handling and treatment of spoil material, such as general immobilisation or treatment permits for the transport and disposal of waste. (2) Detail a spoil management plan: (a) detail the stockpiling of contaminated spoil and non-contaminated spoil material. Contaminated spoil must be stockpiled separately and the designated area clearly marked and labelled (on plans and on site); (b) detail how contaminated spoil will be kept separate from non-contaminated spoil and cross contamination avoided; (c) provide the maximum heights and volumes for each spoil stockpile to reduce the potential for dust and odour and provide detail on stockpile stabilisation, covering or storage to minimise odour and vapour emissions. (3) Provide details for the transport of spoil material around the site (on-site) and from the site, including (at a minimum): (a) a plan showing transport routes within the site; (b) method for locating stockpiles at each stage as they migrate within the site; (c) training and awareness of operators and drivers; (d) procedures for moving waste around the site and loading to minimise double handling and emissions; (e) a commitment to retain waste transport details for the life of the project to demonstrate compliance with the Protection of the Environment Operations Act 1997; and (f) detail the proposed transport routes for all waste streams, methods to mitigate potential emissions and appropriate response measures should transport be affected due to traffic or accidents. (4) Monitoring and management including record keeping of all waste management forms, audit regime and response to non-compliance; (5) A contingency and emergency plan for any event that may affect the handling of contaminated spoil at the site, including storage options should material not be able to be transported and treated off-site. The plan must be consistent with the Environment Protection Licence number 13336. A copy must be provided to the Secretary.	
B11 AIR QUALITY VERIFICATION REPORT	
Prior to the issue of the relevant Construction Certificate, an Air Quality Verification Report prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Report must: (a) be prepared by a suitably qualified & experienced expert in accordance with EPA's Approved Methods for Modelling and Assessment of Air Pollutants in NSW (the Approved Methods); (b) consider all key chemicals of potential concern in relation to the development (particularly contaminated areas and particulate matter); (c) be based on the final design of the development including the enclosures (refer to Condition B3) and information such as point source arrangement and emission performance specifications for proposed controls; (d) incorporate emission performance specifications for generators should they be proposed for use; (e) nominate relevant emission concentration limits that reflect proper and efficient operation and are protective of the health and amenity of the surrounding environment; and (f) make recommendations for all necessary mitigation measures necessary to demonstrate compliance with the relevant impact assessment criteria as nominated in the Approved Methods. A copy must be provided to the Secretary.	*Air Quality Verification Report*
B12 AIR QUALITY AND ODOUR MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, an Air Quality and Odour Management Sub-Plan for the development prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the Air Quality Impact Assessment (AQIA) prepared	*Air Quality and Odour Management Sub-Plan*

Condition	CFEMP Reference
by AECOM dated 12 October 2015 in Appendix C of the second RTS and the Air Quality Verification Report required under Condition B11 of this consent. The Sub-Plan must include: (a) comprehensive proactive and reactive air quality and odour management strategies for all pollutant emission sources to ensure that the assessment criteria are met during the works; (b) key performance indicators for emission controls; (c) real time air monitoring program and monitoring methods including location frequency and duration; (d) response mechanisms; (e) record keeping; (f) compliance reporting; and (g) management and monitoring strategies and associated responsibilities (for contractors and employees). The Sub-Plan must comply with Environment Protection Licence number 13336. A copy must be provided to the Secretary	
B13 DETAILED DESIGN – ODOUR AND EMISSION CONTROL FOR PERIMETER RENTENTION WALL CONSTRUCTION OUTSIDE OF REMEDIATION/EXCAVATION ENCLOSURES	
Prior to the issue of the relevant Construction Certificate, the Applicant must ensure that the detailed methodology provided in the Preliminary Odour Control Plan prepared by AECOM (12/03/15) and included as Appendix A within the amended AQIA dated 15 October 2015, is incorporated into the Air Quality & Odour Management Sub-Plan required under Condition B12.	*Air Quality and Odour Management Sub-Plan*
B14 DETAILED DESIGN – ODOUR AND EMISSION CONTROL FOR OFF-SITE TRANSPORT, TREATMENT AND DISPOSAL	
Prior to the issue of the relevant Construction Certificate, the Applicant must ensure that the methodology and environmental controls provided in the Addendum to the Remedial Action Plan in Appendix E of the second RTS prepared by AECOM and dated 15 October 2015 be incorporated into the Air Quality & Odour Management Sub-Plan required under Condition B12.	*Air Quality and Odour Management Sub-Plan*
B15 NOISE AND VIBRATION MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Construction Noise and Vibration Management Sub-Plan for the development prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations and detail all reasonable and feasible mitigation measures as identified in the Construction Noise and Vibration Assessment (dated October 2015 – Version D) in Appendix G of the second RTS and include (at a minimum): (a) a process to ensure that wherever feasible power is to be supplied by the grid; (b) detail the localised treatments to be utilised to reduce noise from fixed plant; (c) suitable real-time noise monitoring program, early warning system(s) and reactive management procedure(s) to ensure corrective actions are implemented prior to exceedences of the relevant construction noise criteria identified in Condition D9; (d) suitable community consultation procedures to be implemented including a community liaison (e.g. early notification procedures), complaints and response mechanism for critical stages of the works including procedures for ensuring effective action for complaints received out of hours;. (e) Detail the methodology for the trial vibration monitoring to determine least impact work distances and equipment to meet vibration criteria identified in Condition D10. The Sub-Plan must comply with Environment Protection Licence number 13336. A copy must be provided to the Secretary.	*Noise and Vibration Management Sub-Plan*
B16 CONSTRUCTION PEDESTRIAN AND TRAFFIC MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Construction, Pedestrian and Traffic Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to the State Transit Authority, RMS and Transport for NSW for review and submitted to the Certifying Authority. The Sub-Plan must detail measures to: (a) minimise the impact of the development on the safety and capacity of the surrounding road network, bus operation, pedestrian and cyclist safety; specifically considering multiple construction projects at Barangaroo and Wynyard and including the construction of Wynyard Walk and Barangaroo Ferry Wharf; (b) minimise truck movements to and from the site as far as practicable during peak periods; (c) ensure traffic, public transport, pedestrian, cyclist facilities are accessible at all times or alternatives are proposed where facilities cannot be made accessible during construction; (d) ensure appropriate accessibility for emergency access and egress; (e) ensure impacts from the new signalised intersection of Sussex, Hickson and Napoleon along with any new signals on Hickson Road are appropriately managed; (f) ensure compliance with Condition D14 of this consent. The Construction and Traffic Management Plan shall include a Green Travel Plan which describes the public transport, pedestrian and cycling routes to Barangaroo and outlines how the plan will be communicated to workers. The final CPTMP shall be endorsed by the CBD Coordination Office within TfNSW and a copy must be provided to the Secretary.	*Traffic Management Plan*

Condition	CFEMP Reference
B17 HEALTH MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Health Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to NSW Health and SafeWork NSW for review and submitted to the Certifying Authority. The Sub-Plan must: (a) ensure the development complies with the relevant requirements of the Work, Health and Safety Regulation 2011; (b) detail all pollutant management measures and controls to be implemented during construction to minimise potential impacts on health for nearby sensitive receivers and workers on or adjacent to site including engineering controls, safe work practices, safe work methods statements, hygiene & decontamination procedures and personal protective equipment requirements; (c) include all management measures and controls to minimise potential health impacts during the loading and transport of contaminated materials for treatment and disposal; (d) be consistent with and adopt all recommendations of the amended Health Impact Assessment prepared by AECOM (dated 21 October 2015) in Appendix D of the second RTS; (e) ensure an induction process is in place for site workers and visitors regarding safe work practices and methods to be followed to minimise potential for human exposure to pollutants; and (f) include a suitable occupational health monitoring program that ensures potential and identified exceedences of the adopted health impact assessment criteria are linked to appropriate corrective work actions and the implementation of additional controls. A copy must be provided to the Secretary.	*Health Management Plan*
B18 ASBESTOS MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, an Asbestos Management Sub-Plan prepared by a suitably qualified person for the development shall be submitted to the EPA and SafeWork NSW for review and submitted to the Certifying Authority. The Sub-Plan must: (a) be consistent with Safe Work Australia's codes of practice How to Safely Remove Asbestos 2011 and How to Manage and Control Asbestos in the Workplace 2011; (b) identify any known or potential areas of concern on site for asbestos containing materials; (c) outline the procedures for identification, handling, disposal and/or re-use of asbestos containing materials; (d) ensure that all asbestos would be handled and disposed of by a suitably licensed asbestos removalist in accordance with the relevant guidelines and legislation; (e) ensure an induction process is in place for site workers and visitors regarding the identification of asbestos and the formal procedures to be followed in the event that asbestos is identified on site; (f) ensure that the development would comply with the requirements of Condition D24 of this consent; (g) include a suitable airborne asbestos fibre monitoring program for all asbestos removal works areas; and (h) outline the procedures for soil validation and inspection following the completion of asbestos removal works and issuing of asbestos clearance certificates. A copy must be provided to the Secretary.	*Asbestos Management Sub-Plan*
B19 WATER QUALITY MANAGEMENT SUB PLAN	
Prior to the issue of the relevant Construction Certificate, a Water Quality Management Sub Plan for the development prepared by a suitably qualified person shall be submitted to the EPA for review and submitted to the Certifying Authority. The Sub-Plan must ensure that effluents/liquid waste streams associated with the development that are directed to the site Wastewater Treatment Plant (WTP) would be sufficiently treated to ensure: (a) compliance with relevant concentration limits required by Environment Protection Licence 13336 prior to discharge to Sydney Harbour; and/or (b) compliance with relevant requirements of an executed Trade Waste Agreement with Sydney Water Corporation prior to discharge to sewer. The Sub plan must be consistent with and adopt all recommendations of the Soil and Water Impact Assessment Report (dated 9 March 2015) and include (at a minimum): (c) a detailed groundwater monitoring plan prepared in consultation with DPI Water, including a site surface infrastructure settlements effects survey; (d) details of the de-watering process, including the specifications for any on-site water treatment plant. (e) final water quality parameters, including water quality parameters ('triggers') to be utilised to enact response procedures; (f) monitoring and testing program including the recording and auditing procedures to be implemented (for ground water and surface water); (g) detail actions where non-compliance is identified; and (h) detail emergency response protocols. The Sub-Plan shall include a minimum period of one month for commissioning to enable an intensive monitoring program to characterise key pollutants in liquid waste inflows to and discharges from the WTP associated with the development to ensure this waste is treated to an acceptable level. A copy must be provided to the Secretary.	*Water and Stormwater Management Sub-Plan*

Condition	CFEMP Reference
B20 EROSION AND SEDIMENT CONTROL	
Soil erosion and sediment control measures shall be designed in accordance with the document Managing Urban Stormwater – Soils & Construction Volume 1 (2004) by Landcom. Details are to be submitted to the satisfaction of the Certifying Authority prior to the issue of the relevant Construction Certificate.	*Water and Stormwater Management Sub-Plan*
B21 ACID SULPHATE SOILS MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, an Acid Sulphate Soil Management Sub-Plan for the development shall be prepared by a suitably qualified person in accordance with the Acid Sulphate Soil Assessment Guidelines (Acid Sulphate Soil Management Advisory Committee, 1998) and submitted to the Certifying Authority.	*Acid Sulphate Soil Management Sub-Plan*
B22 HERITAGE MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Heritage Management Sub-Plan prepared by a suitably qualified person shall be submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the non-Indigenous Heritage Impact Statement prepared by Casey and Lowe (dated June 2014) in Appendix S of the EIS (particularly with regards to the development and implementation of an archaeological monitoring program) and the Indigenous Heritage Impact Statement prepared by Comber Consultants (dated June 2014) in Appendix T of the EIS. A copy must be provided to the Secretary.	*Heritage Management Sub-Plan*
B23 TREE MANAGEMENT SUB-PLAN	
Prior to the issue of the relevant Construction Certificate, a Tree Management Sub-Plan for the development prepared by a suitably qualified person shall be submitted to Council for review and submitted to the Certifying Authority. The Sub-Plan must be consistent with and adopt all recommendations of the Arboricultural Impact Assessment prepared by Tree Wise Men Australia (dated June 2014) in Appendix U of the EIS. A copy must be provided to the Secretary.	*Tree Management Sub-Plan*
B24 EMERGENCY RESPONSE - HAZARD AND RISK MANAGEMENT PLAN	
Prior to the issue of the relevant Construction Certificate, appropriate emergency procedures be prepared by a suitably qualified person and shall be submitted to NSWFS for review. The emergency procedures shall address and mitigate, as far as reasonably practicable, the consequences of fire and hazmat incidents and the potential health risks to firefighters undertaking emergency operations in relation to foreseeable fire and hazmat scenarios. A copy must be provided to the Secretary.	*Incident & Emergency Management Plan*
C1 ENVIRONMENTAL PROTECTION LICENCE	
Prior to the commencement of works, the Applicant must ensure that the existing Environmental Protection Licence (EPL) issued to the Barangaroo Delivery Authority is varied, where required, to reflect and permit the works conducted on site. All works undertaken on site must be done in a manner which ensures compliance with EPL conditions at all times.	*EPL 13336*
C9 APPROVAL OF EXCAVATION ENCLOSURES	
Prior to the commencement of works, the Applicant must ensure that it has obtained the Secretary's approval for each enclosure associated with the development in accordance with Condition B3. No remediation works (other than those associated with the perimeter wall construction works) shall commence until these approvals have been obtained.	*Air Quality and Odour Management Sub-Plan*
D1 HOURS OF WORK	
(1) The hours of construction, including the delivery of materials to and from the site, shall be restricted as follows: (a) between 7am and 6pm, Mondays to Fridays inclusive; (b) between 7am and 5pm, Saturdays; and (c) no work on Sundays and public holidays. (2) Works outside these hours are not permitted except as explicitly specified below or in other conditions and include: (a) the delivery of equipment and materials which is required outside these hours as requested by Police or other authorities for safety reasons; (b) emergency work to avoid the loss of lives, damage to property and/or to prevent environmental harm; (c) operation of enclosures under Condition D4 to ensure odour is effectively controlled outside approved hours of construction, incl. operation of ventilation & air emissions control systems; (d) operation of the Wastewater Treatment Plant required under Condition D21 of this consent, including dewatering to prevent flooding, treatment systems and discharge; and (e) other works expressly approved by the Secretary.	*Noise and Vibration Management Sub-Plan*

Condition	CFEMP Reference
D2 CONSTRUCTION FRAMEWORK ENVIRONMENTAL MANAGEMENT PLAN	
The Applicant must undertake all works in accordance with the requirements of the Construction Framework Environmental Management Plan prepared under Condition B9. The CFEMP must document and incorporate all Sub-Plans required under this consent.	*CFEMP*
D3 REMEDIAL ACTION PLAN (RAP), ADDENDUM TO THE RAP AND HUMAN HEALTH ECOLOGICAL RISK ASSESSMENTS (HHERA)	
All remediation works are to be undertaken in accordance with the following approved Remedial Action Plan (RAP), Addendum to the Remedial Action Plan, Human Health Ecological Risk Assessments (HHERAs) and accompanying documents: (a) 'Human Health and Ecological Risk Assessment, VMP Remediation Works (Addressing the NSW EPA Declaration 21122, Millers Point)', b AECOM Australia 25 October 2012; (b) 'Remedial Action Plan, NSW EPA Declared Remediation Site 21122 and Block 4 (Stage 1b) Development Works, Barangaroo, Millers Point, NSW', AECOM Australia 24 July 2013; (c) 'Site Audit Report - Remedial Action Plan, Declaration Area and Block 4, Barangaroo', prepared by ENVIRON Australia dated July 2013'; (d) Site Audit Statement No. GN 447A, approved by Mr. Graeme Nyland (EPA accredited Site Auditor) and dated 31 July 2013; (e) Addendum to the Remedial Action Plan, NSW EPA Declared Remediation Site 21122 and Block 4 (Stage 1b) Development Works, Barangaroo, Millers Point, NSW – Off-site Treatment/Transport of Contaminated Material, prepared by AECOM and dated 15 October 2015; and (f) Site Auditor review in letter dated 20 October 2015 prepared by Accredited Site Auditor Graeme Nyland of Ramboll Environ.	*RAP* *RAP Addendum* *HHERAs*
D4 REMEDIATION/EXCAVATION ENCLOSURES	
Unless otherwise agreed in writing by the EPA, the Applicant must ensure that all remediation works (other than works associated with the perimeter retention wall) are undertaken within an enclosure with suitable emission control systems in accordance with Condition B3. Works associated with the perimeter retention wall shall be undertaken in accordance with the amended AQIA in Appendix A of the second RTS and titled Preliminary Odour Control Plan prepared by AECOM dated 12 March 2015.	*Air Quality and Odour Management Sub-Plan*
D5 SPOIL AND WASTE MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Spoil and Waste Management Sub-Plan prepared under Condition B10, including: (a) the Applicant must ensure that all waste generated by the development is classified and disposed of in accordance with the EPA's Waste Classification Guidelines 2014; (b) the Applicant must ensure that the facilities treating waste classified as restricted or hazardous waste are suitably licenced to receive, treat and dispose of the waste under EPA immobilisation or treatment permits; and (c) the Applicant must ensure that all waste generated is handled and transported in accordance with the methodology and environmental controls provided in the Addendum to the Remedial Action Plan prepared by AECOM and dated 15 October 2015 and is treated or disposed of at a facility that has sufficient capacity and may lawfully accept that waste.	*Spoil and Waste Management Sub-Plan*
D6 ACID SULPHATE SOILS MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Acid Sulphate Soils Management Sub-Plan prepared under Condition B21.	*Acid Sulphate Soil Management Sub-Plan*
D7 NOISE AND VIBRATION MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Construction Noise and Vibration Management Sub-Plan prepared under Condition B15.	*Noise & Vibration Management Sub-Plan*
D8 RESTRICTED HOURS OF WORK – HIGH NOISE IMPACT ACTIVTIES	
(1) The Applicant must ensure that any work generating high noise impact (e.g. rock hammering) must only be undertaken: (a) between the hours of 8am and 6pm Monday to Friday; (b) between the hours of 8am and 1pm Saturday; and (c) in continuous blocks of no more than 3 hours, with at least a 1 hour respite between each block of work generating high noise impact, where the location of the work is likely to impact the same receivers. For the purposes of this condition 'continuous' includes any period during which there is less than a 1 hour respite between ceasing and recommencing any of the work the subject of this condition.	*Noise and Vibration Management Sub-Plan*

Condition	CFEMP Reference
D9 CONSTRUCTION NOISE CRITERIA	
The Applicant must ensure that noise generated by the development does not exceed 75 dB(A) at any affected sensitive receiver during the day. Note: · To identify the receiver locations refer to the Construction Noise and Vibration Assessment in the second RTS (Appendix G); and · Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.	*Noise and Vibration Management Sub-Plan*
D10 VIBRATION CRITERIA	
(1) Vibration caused by construction at any residence or structure outside the subject site must be limited to: (a) for structural damage vibration to buildings (excluding heritage buildings), British Standard BS 7385 Part 2-1993 Evaluation and Measurement for Vibration in Buildings; (b) for structural damage vibration to heritage buildings, German Standard DIN 4150 Part 3 Structural Vibration in Buildings Effects on Structure; and (c) for human exposure to vibration, evaluation criteria in BS 6472-2008 Guide to Evaluate Human Exposure to Vibration in Buildings (1Hz to 80 Hz) for low probability of adverse comment. (2) These limits apply unless otherwise agreed in the Construction Noise and Vibration Management Plan Sub-Plan.	*Noise and Vibration Management Sub-Plan*
D11 VIBRATION MANAGEMENT	
(1) Vibratory compactors must not be used closer than 30m from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified above. (2) The Applicant must undertake trial testing of vibration intensive equipment that is identified as having the potential to exceed the vibration criteria identified in Condition D10 to ensure it is not exceeded at any residence or structure outside the subject site.	*Noise and Vibration Management Sub-Plan*
D12 AIR QUALITY AND ODOUR MANAGEMENT SUB PLAN	
The Applicant must undertake all works in accordance with the requirements of the Air Quality and Odour Management Sub-Plan prepared under Condition B12.	*Air Quality and Odour Management Sub-Plan*
D13 DUST CONTROL MEASURES	
Adequate measures shall be taken to prevent dust from affecting the amenity of the neighbourhood during construction. In particular, the following measures should be adopted: (a) physical barriers shall be erected at right angles to prevailing wind direction or placed around or over dust sources to prevent wind or activity from generating dust emissions; (b) earthworks and scheduling activities shall be managed to coincide with the next stage of development to minimise the amount of time the site is left cut or exposed; (c) all materials shall be stored or stockpiled at suitable locations; (d) the surface should be dampened slightly to prevent dust from becoming airborne but should not be wet to the extent that run-off occurs; (e) all vehicles carrying spoil or rubble to or from the site shall at all times be covered to prevent the escape of dust or other material; (f) all equipment wheels shall be washed before exiting the site using manual or automated sprayers and drive-through washing bays; (g) gates shall be closed between vehicle movements and shall be fitted with shade cloth; (h) cleaning of footpaths and roadways shall be carried out regularly.	*Air Quality and Odour Management Sub-Plan*
D14 CONSTRUCTION TRAFFIC MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Construction, Pedestrian and Traffic Management Sub-Plan prepared under Condition B16, except where modified below. (a) under the current legislation the use of lengthy vehicles in the CBD is prohibited within certain time frames. All lengthy vehicles must comply with this regulation as stipulated in the NSW Road Rules. A map indicating the prohibited area and definitions of lengthy vehicles are included in the Road Rules; (b) personnel using stop/slow signage are not permitted in Hickson Road or Sussex Street on weekdays between the hours of 7am and 9am and 4pm and 7pm. However, personnel using stop/slow signage will be permitted on Hickson Road, north of the intersection of Hickson Road and Napoleon Street, when it is required to ensure safe truck access at designated site access points, provided that vehicle queue lengths generated as a result of the traffic control do not exceed more than six vehicles in either direction; (c) truck movements should be staged and coordinated to prevent trucks circling CBD streets whilst awaiting access to the site. There should be holding areas outside the CBD on the fringes or sufficient space within the site to store trucks and heavy vehicles; (d) to minimise impacts on public transport, trucks should avoid where possible the use of York Street to access the development site between 6am & 10am and 2pm & 8pm Mon-Fri;	*Traffic Management Plan*

Condition	CFEMP Reference
(e) truck movements to and from the site associated with the development must be minimised as far as practicable during the peak AM and PM periods; (f) where possible, trucks must avoid driving over areas of the site that have already been excavated, validated or re-instated to prevent cross contamination; (g) unless otherwise agreed in writing by the EPA, all loading of trucks with contaminated material must be undertaken in an enclosure approved by the Secretary in accordance with Condition B3 of this consent; (h) all trucks associated with the development must have their loads covered and appropriately sealed to ensure trucks do not track material onto the public road network. Where trucks are carrying restricted or hazardous waste the relevant controls outlined in the Remedial Action Plan Addendum by AECOM dated 15 October 2015 must be implemented; and (i) all trucks must be decontaminated in the wheel wash areas before exiting the site.	
D15 HEALTH MANAGEMENT SUB-PLAN	
The Applicant must undertake all works in accordance with the requirements of the Health Management Sub-Plan prepared under Condition B17 and NSW Health's Environmental Health Risk Assessment: guidelines for assessing human health risks from environmental hazards 2012.	*Health Management Plan*
D16 WORK, HEALTH AND SAFETY REQUIREMENTS	
The Applicant must ensure that all works are carried out in accordance with the relevant requirements of the Work, Health and Safety Regulation 2011.	*Health Management Plan*
D17 WATER AND STORMWATER MANAGEMENT	
The Applicant must undertake all works in accordance with the requirements of the Water Quality Management Sub-Plan prepared under Condition B19.	*Water and Stormwater Management Sub-Plan*
D18 EROSION AND SEDIMENT CONTROL	
All erosion and sediment control measures, as designed in accordance with Condition B20, are to be effectively implemented and maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works has been stabilised and rehabilitated so that it no longer acts as a source of sediment.	*Water and Stormwater Management Sub-Plan*
D19 DISPOSAL OF SEEPAGE AND RAINWATER	
Any seepage or rainwater collected on-site during construction shall be managed in accordance with the Water Quality Management Sub-Plan prepared under Condition B19.	*Water and Stormwater Management Sub-Plan*
D20 WATER QUALITY	
All works should be undertaken in a manner that ensures the protection of the water quality objectives and environmental values for Sydney Harbour estuarine waters in accordance with the following guideline documents: (a) NSW Water Quality Objectives; and (b) The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) for the environmental values under the ANZECC guidelines.	*Water and Stormwater Management Sub-Plan*
D21 CONTAMINATED AND TREATED WATER	
(1) Any effluents/liquid waste streams associated with the development that are directed to the site Wastewater Treatment Plant (WTP) are sufficiently treated to ensure: (a) compliance with the relevant concentration limits required by Environment Protection Licence No. 13336 prior to discharge to Sydney Harbour; and/or (b) compliance with the relevant requirements of an executed Trade Waste Agreement with Sydney Water Corporation prior to discharge to sewer. (2) No contaminated or treated site waters (surface, collected groundwater or contaminated construction waters) are permitted to be discharged into Sydney Harbour unless in accordance with the conditions attached to Environmental Protection Licence No. 13336, unless otherwise agreed to in writing by the EPA. (3) No contaminated or treated site waters (surface, collected groundwater or contaminated construction waters) are permitted to be discharged to sewer unless in accordance with the conditions of an executed Trade Waste Agreement with Sydney Water Corporation.	*Water and Stormwater Management Sub-Plan*
D22 BUNDING	

Condition	CFEMP Reference
The Applicant shall store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, EPL requirements and/or EPA's Storing and Handling Liquids: Environmental Protection – Participants Handbook.	*Water and Stormwater Management Sub-Plan*
D23 ASBESTOS WASTE MANAGEMENT	
(1) The Applicant must undertake all works in accordance with the requirements of the Asbestos Management Sub-Plan approved under Condition B18. (2) All excavation works involving removal and disposal of asbestos must only be undertaken by contractors who hold a current WorkCover Asbestos or "Demolition Licence" and a current WorkCover "Class 2 (Restricted) Asbestos Licence and removal must be carried out as per NOHSC: Code of Practice for the Safe Removal of Asbestos 2005. (3) An asbestos clearance certificate (or certificates) prepared by a suitably licenced asbestos removalist shall be provided to the Department and Principal Certifying Authority upon completion of all asbestos removal works. The Applicant shall ensure that asbestos removal works comply with relevant requirements of the Work, Health and Safety Regulation 2011. (4) The Applicant must ensure that any asbestos contained in excavated material that is proposed for re-use on site meets the requirements of the EPA and the fill validation requirements outlined in the report prepared by Associate Professor Tim Driscoll entitled The Use of Asbestos-Contaminated Soils on Barangaroo, Final Report, Report to EPA 2013.	*Asbestos Management Sub-Plan*
D24 HERITAGE MANAGEMENT	
The Applicant must undertake all works in accordance with the requirements of the Heritage Management Sub-Plan prepared under Condition B22.	*Heritage Management Sub-Plan*
D25 IMPACTS OF BELOW GROUND (SUB SURFACE) WORKS – NON-ABORIGINAL OBJECTS	
If during the course of construction the Applicant becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales shall be notified immediately in accordance with section 146 of the Heritage Act 1977. Relevant works shall not recommence until written authorisation from the Heritage Council of NSW is received by the Applicant.	*Heritage Management Sub-Plan*
D26 IMPACTS OF BELOW GROUND (SUB SURFACE) WORKS – ABORIGINAL OBJECTS	
If during the course of construction the Applicant becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the Office of Environment and Heritage informed in accordance with section 89A of the National Parks and Wildlife Act 1974. Relevant works shall not recommence until written authorisation from Office of Environment and Heritage is received by the Applicant.	*Heritage Management Sub-Plan*
D27 TREE REMOVAL AND MANAGEMENT	
The Applicant must undertake all works in accordance with the requirements of the Tree Management Sub-Plan prepared under Condition B23.	*Tree Management Sub-Plan*
D29 HAZARD MANAGEMENT	
The Applicant must undertake all works in accordance with the requirements of the Emergency Response – Hazard and Risk Management Plan prepared under Condition B24.	*Incident & Emergency Management Plan*
D33 COMPLIANCE REPORT	
The Applicant, or any party acting upon this consent, shall, for the duration of the construction period, submit to the Department a three monthly report addressing compliance with all relevant conditions of this Part.	*Compliance Reports*
E1 SITE VALIDATION	
(1) Within 6 months of completion of remediation works on site, and prior to issue of any Occupation Certificate, the Applicant shall submit a detailed Site Audit Summary report and Site Audit Statement and Validation Report to the EPA, the Secretary, the Certifying Authority, and the Council. The validation and audit process may occur progressively to the satisfaction of the site auditor. (2) The site audit must be prepared in accordance with Contaminated Land Management Act 1997 and completed by a site auditor accredited by the EPA to issue Site Audit Statements.	Final Validation Report for SAS B regarding remediation of the Declaration Area

Condition	CFEMP Reference
(3) The site auditor must also verify that any excavated material disposed off-site, has been appropriately classified, validated, managed and the relevant approvals obtained in accordance with the relevant legislation and any relevant approved materials management plan/s. (4) On completion of remediation works, the Council shall be notified in accordance with the relevant requirements of Clauses 17 and 18 of SEPP 55 - Remediation of Land.	
E2 REMOVAL OF REMEDIATION/EXCAVATION ENCLOSURES	
Unless otherwise approved in writing by the Secretary, the Applicant must ensure that all enclosures approved by the Secretary in accordance with Condition B3 of this consent are dismantled and removed from the site within 3 months of the completion of the remediation works.	*Air Quality and Odour Management Sub-Plan*
E3 FURTHER REQUIREMENTS	
The Applicant shall comply with all reasonable requirements of the Secretary in respect of the implementation of any measures arising from the reports submitted in respect of Condition B25 and Condition D34, within such time as the Secretary may agree.	As required

Appendix 2B: Mitigation Measures - EISs

Table 1. Statement of Commitments – MP06_0162 Concept Approval - Barangaroo (including modifications 1-7)

No.	Condition	Description	CFEMP Reference
62	Heritage	A Conservation Management Strategy (CMS) will be prepared by an appropriately experienced and qualified heritage practitioner for the Moreton's Hotel in accordance with the NSW Heritage Office's guidelines and in consultation with the NSW Heritage Office. The CMS will provide specific guidelines and conservation policies for the implementation and construction of any pedestrian walkway running through (with owner's consent) or alongside the Hotel, but will not address the whole Moreton's Hotel site.	Not relevant to this stage of construction
68	Archaeology	All affected potential historical archaeological sites or 'relics' of Local and State significance are to be subject to professional Archaeological Assessment in accordance with Heritage Council guidelines. The assessment must address both terrestrial and maritime archaeological resources and must be prepared by a practitioner (or practitioners) with both terrestrial and maritime experience. The Assessment must consider the desirability and staging of any proposed archaeological excavation and/or recording before construction works commence and also other mitigation strategies such as archaeological monitoring (or watching brief) during construction works.	Archaeological Research Design and Management Strategy
69	Archaeology	A Research Design including an Archaeological Excavation Methodology will be prepared in accordance with the Heritage Council's guidelines for each site which is impacted by the proposal. Those documents will be prepared for the approval of the Director of the Heritage Branch, Department of Planning. The archaeological Excavation Director will be a qualified archaeologist, and will meet the current Excavation Director Criteria for State significant sites as published by the NSW Heritage Council.	Archaeological Research Design and Management Strategy
70	Archaeology	After archaeological works are undertaken, a copy of final excavation report(s) will be prepared and lodged with the Heritage Branch, Department of Planning, to the State Library of NSW and also to the Local Studies Library in the City of Sydney. The information within the final excavation report will be in accordance with Heritage Branch requirements.	Archaeological Research Design and Management Strategy
72	Archaeology	An appropriately experienced and qualified heritage practitioner specialist consultants in heritage, landscape, interpretation, historical archaeology and maritime archaeology are to be appointed	Archaeological Research Design & Mgmt Strategy
75	Archaeology	Photographic and archival recording of all affected heritage items, as identified in the specialist reports prepared as part of the Environmental Assessment for the project, will be undertaken prior to the commencement of any construction activity. Recording will be completed in accordance with the Guidelines issued by the Heritage Council of NSW. Copies of these photographic recordings will be made available to the Heritage Branch, Department of Planning, to the State Library of NSW and also to the Local Studies Library in the City of Sydney.	Archaeological Research Design and Management Strategy
76	Archaeology	Specialist consultants in heritage, landscape, interpretation, historical archaeology and maritime archaeology will be nominated for the Barangaroo project. The consultants will have appropriate qualifications and experience commensurate with the scope of works. The name and experience of the consultant/s will be submitted to the Director of the Heritage Branch, DoP, for approval prior to commencement of works. The heritage consultant/s will advise on detailed design resolution of new heritage related works, undertake site inductions, and inspect design and installation of services involving heritage items and fabric (to minimise impacts on significant fabric and views) and manage the implementation of the conditions of approval for the project. A report by the principal heritage consultant (illustrated by works photographs) will be submitted to Director of the Heritage Branch, Department of Planning for approval, advice and comment within 6 months of the completion of works, any impacts/damage and corrective works carried out.	Archaeological Research Design and Management Strategy
77	Archaeology	The Director of the Heritage Branch, Department of Planning is to be notified in writing within 14 days of the demolition of any heritage item listed on a Section 170 Register by the relevant government agency responsible for that Register.	Archaeological Research Design & Mgmt Strategy
121	Construction	An Environmental and Construction Management Plan will be required as part of any future development on the site.	CFEMP
122		All construction contractors, subcontractors and personnel to be inducted and informed by the nominated heritage consultant/s prior to commencing work on site.	CFEMP
123		Significant heritage items and built elements that are retained to be adequately protected during the works.	Archaeological Research Design & Mgmt Strategy

Table 2. Mitigation Measures – SSD 5897 Remediation & Land Forming Works (Block 4)

No.	Condition	Description	CFEMP Reference
-	EIS Section 9 Contamination	• The Block 4 Remediation and Landforming works the subject of this SSD DA will be carried out in accordance with the Remedial Action Plan provided in Appendix E. • At the completion of the Block 4 VMP Remediation Works (i.e. to address the EPA Declaration), a Section A Site Audit Statement will be obtained from a NSW EPA Accredited Site Auditor, to confirm successful completion of works to address the EPA Declaration at Block 4. • At the completion of Block 4 Development Remediation Works, a Section A Site Audit Statement will be obtained from a NSW EPA Accredited Site Auditor, to confirm successful completion of works to render the Block 4 area suitable for the proposed use. • Remediation may be undertaken progressively in stages across the Site, with separate Site Audit Statements prepared for each area as relevant.	*RAP & RAP Addendum*
-	EIS Section 9 Health Risk Management	Source controls for remediation activities will include measures to control emission of particulates and controls for emission of gases from exposed contaminated soils and water, including: • Enclosure (where practicable) of remediation excavation and treatment activities and filtration of exhaust streams to manage pollutants of potential concern that may be produced/released during the soil excavation and remediation processes. • Prompt removal, covering and managing of heavily contaminated materials exposed and are identified to have caused the emissions. • Dust suppression, including sweeping and wetting of exposed surfaces including haul roads. • Excavation and treatment of materials with temporary remediation and soil treatment enclosures, with filtration of exhaust streams. • Odours from volatilisation will be monitored and a soil vapour extraction system will be put in place. • Managing groundwater removal and drawdown, where practicable, such that material excavated is retained in a moist state. • Minimising haul road lengths, implementing of site speed limits and covering haul loads. • Solid perimeter hoarding adjacent to sensitive receptors. • Surface stabilisation to minimise dust generation, and covering surfaces where appropriate. • Prompt removal, covering and managing of heavily contaminated materials that have been exposed.	*Air & Odour Management Sub-Plan*
-	EIS Section 9 Acid Sulfate Soils	The ASSMP includes a range of management measures that will be followed to handle, treat and dispose of ASS if required, including: • PASS materials will be kept separate from non-PASS materials at all times. • Water collected from PASS treatment/storage areas will be directed to water treatment plant and treated to a prescribed discharge water quality. • A truck wash down area will be constructed so that truck wash down water can be collected for treatment. • Treated water will only be discharged in accordance with the relevant criteria in the EPL or any future Sydney Water Corporation's Trade Waste Agreement. A water quality monitoring program will be implemented. • Neutralisation of the ASS will be undertaken on or off-site by application of calcium carbonate (Aglime) in a designated bunded treatment area and thoroughly mixed with the soil. The treatment area is to be provided with a guard layer of neutralising agent (i.e. Aglime). • During treatment soil pH will be measured regularly as a measure of the effectiveness of neutralisation. • Treated materials will be monitored regularly at a rate of one sample per 500 m3. • Treated material will be reused or disposed of in accordance with its classification under the Waste Classification Guidelines. The ASSMP will be updated following confirmation of the responsible contractor.	*Acid Sulfate Soil Management Sub-Plan*

No.	Condition	Description	CFEMP Reference
-	EIS Section 9 Water	• Clean stormwater will be diverted away from the Site. • All contaminated water (including stormwater collected in disturbed contaminated areas, and groundwater form disturbed contaminated areas) will be collected for treatment on-site prior to discharge. No contaminated or treated water will be discharged into Sydney Harbour or any sewers without being compliant with EPL 13336 or any future Sydney Water Corporation's Trade Waste Agreement (as may be applicable, in each case). • Water from hardstand work areas will be managed in accordance with Volume 1 of Managing Urban Stormwater: Soils and Construction, Landcom, 2004 (the Blue Book); • Erosion and sediment controls will be applied in accordance with Appendix O. • A Water Quality Monitoring Program will be put in place to ensure the remediation works are not having an adverse impact on water quality conditions in the Harbour. • A Groundwater Monitoring Plan will be prepare and implemented to measure the effectiveness of the remedial works that have been undertaken (specifically source removal and subsequent groundwater quality improvement) with respect to groundwater quality migrating from the Declaration Area boundary and the associated risk to aquatic ecosystems (i.e. ultimately groundwater migrating to Darling Harbour).	*Water & Stormwater Management Sub-Plan*
-	EIS Section 9 Air Quality	An Air Quality Management Plan will be prepared prior to commencement of works, and issued to the NSW EPA for comment. The AQMP will include mitigation measures and work practices to be implemented at the Site to minimise pollutant emissions including: • Undertake all soil excavation and treatment within Odour Control Enclosures with appropriate emissions control, to the extent practical. Design details of the odour control enclosures and emissions control will be provided to the NSW EPA for comment, prior to implementation. • Continue the dust, VOC and meteorological monitoring program, extend the program to include additional sites along Hickson Road close to the remediation activities. • Use mains power where available and suitable. • Turn vehicle engines off while parked on site, appropriately tune, modify or maintain equipment, plant and machinery to minimise visible smoke and emissions. • Maintain the Odour Control Enclosures to their design specifications. • Undertake regular checking and maintenance of air filtration systems. • Vent generator emissions through the Odour Control Enclosure stacks. • Confine vehicular access to designated access roads. Implement site speed limits, minimise haul road lengths. • Reduce exposed areas as much as practical. • Cover loads during transport. • Undertake good housekeeping practices to minimise dust on hardstand areas. • Immediately clean up spills. • Maintain the complaints management system. • Adjust work practices (as required) based on wind observations and real time monitoring results. • Use water sprays and/or surfactants wherever and whenever necessary. • Erect windbreak barriers at the site boundary. • Water exposed surfaces and roads.	*Air & Odour Management Sub-Plan*

No.	Condition	Description	CFEMP Reference
		• All monitoring of vent stacks will be undertaken as per Approved Methods for Sampling & Analysis of Air Pollutants in NSW (DEC, 2005b). • Final design details in relation to odour and emissions control will be addressed in consultation with the EPA during preparation of the Air Quality and Odour Management Sub-Plan required by the Air Quality Impact Assessment for the development, and amendment of the existing EPL13336. Implement the reactive management plan, based on a three-stage approach for PM10 and VOCs,: • Investigate: Identification of likely reasons for the elevated pollutant concentration and formulation of a contingency response for the action stage; • Action: Implementation of the measures formulated in the investigative stage and review of their effectiveness; and • Stop Work: All works should stop at this stage until the measured pollutant levels are below the action level to avoid an exceedence of the pollutant criterion. Trigger levels have been established for PM10.	
-	EIS Section 9 Noise and Vibration	A Construction Noise and Vibration Management Plan has been prepared by Lend Lease for the Barangaroo South Site in its entirety. This plan would be updated to take into account of the project specific noise and vibration management measures as follows: • Where practicable, installing attenuators on the exhaust fans, filtration and air handling plant associated with the odour control enclosures within Block 4 remediation area and the remediation treatment enclosure by “stepping down” the plant settings out of construction hours where able. • Localised treatment such as barriers, shrouds and the like around fixed plant such as pumps, crusher, screens, generators and groundwater extraction plant and by “stepping down” the plant settings out of construction hours where able. The detailed design of acoustic treatments will be undertaken during the detailed design phase. • Audit plant to select equipment that generates the lowest practical commercially available noise levels. A review of the soil treatment area is recommended at detailed design and selection stage. • Plan the construction activities so that respite is provide to residences when noise activities occur. This is particularly important during extended Saturday hours (7.00am – 5.00pm). • Continue to implement an effective complaints and community consultation program, which informs the construction manager about appropriate mitigation measures to protect the acoustic amenity of surrounding residences; • Conduct trial testing of vibration levels prior to use where proposed equipment is identified as having potential to exceed human comfort criteria.	*Noise & Vibration Management Sub-Plan*
-	EIS Section 9 European Heritage	An archaeological methodology will be developed to allow for some limited recording of the remains to be removed by ex-situ remediation, bulk earthworks and stormwater diversion works. A detailed framework for archaeological methodology and recording will be established following initial sampling trenches to determine extent to which the potential archaeological remains within the site may survive and be accessible for archaeological investigation and recording. The preliminary framework for archaeological recording as a result of detailed sampling trenches is as follows: • Where contamination is at depth and the upper layers are uncontaminated, the upper layers could potentially be archaeologically excavated, with restriction as required for OHS management of works. • Where the archaeology is completely covered with contamination and therefore inaccessible for normal archaeological recording methodologies, other alternative techniques may be tested to determine if recording is possible. Then it may be possible to record some major gasworks features but only if they offer a research outcome. • It is likely that opportunities may be extremely limited in what can be recorded. In the end there may be no ability to record remains prior to the ex-situ remediation. Archaeological sampling/testing will examine the potential for archaeological evidence associated with Henry Bass’ shipyard and other potential archaeology to the south of the gasworks site but within the Block 4 remediation area.	*Heritage Management Plan*

No.	Condition	Description	CFEMP Reference
-	EIS Section 9 Indigenous Heritage	If, during the course of the remediation project, any unexpected Aboriginal "objects", artefacts or sites are uncovered, work must cease in the vicinity of that object, artefact or site and further advice sought from the consultant and the Metropolitan Local Aboriginal Land Council.	*Heritage Management Plan*
-	EIS Section 9 Arboriculture	Carry out the remediation in accordance with the Tree Management Plan. Tree protection measures include: • Appointment of an arborist to oversee the works, observe/monitor all works within the Tree Protection Zones of trees to be retained, oversee the removal of trees to be removed, and to monitor the condition and protection of trees to be retained. • The extent to which root spread of Trees 19-25 has been confined by the existing boundary wall is to be established prior to works. • Where possible, ensure that the TPZ is fenced for protection (and clearly signed as Tree Protection Fencing). Install trunk, branch and ground protection where fencing cannot be installed. • Prevent stockpiling, storage or preparation of materials, parking of machinery and machinery trenching in the TPZ for a tree to be retained. Any trenching in the TPZ should be by hand excavation, or directional boring (trenchless) and under specific instructions of the on-site project arborist • Selection of piling equipment that is as short as possible so as to minimise the need for overhead crown pruning. • Any trenching within the Structural Root Zone should be undertaken by hand and under the specific instructions of the on-site project arborist. • Retain the existing road and footpath pavements intact where possible within the TPZ to minimise impacts to the underlying roots from works. • All traffic diversions to include adequate root zone protections. • All crown pruning works to be approved and monitored by the on-site project arborist and are to be undertaken by a suitably qualified arborist (AQF Level 3 Certificate) in compliance with AS 4373-007 Pruning of Amenity Trees.	*Tree Management Plan*
-	EIS Section 9 Waste Management	The management of wastes will be in accordance with the Waste Management Plan provided in Appendix Y. The WMP includes that: • The on-site waste management system to be established at the Site will aim to maximise waste avoidance through reuse on-site or at off-site locations under a waste exemption approved by the EPA and/or the Barangaroo Site, where possible • Materials separation and segregation will be promoted on the Site, to facilitate reuse and recycling as a priority of the waste management system. • All wastes generated as a result of the project will be classified in accordance with the EPA Waste Classification Guidelines. • Details of waste types, volumes and destinations will be recorded on Waste Management Forms, including a Monthly Recycling and Waste Management form. This information will be collated for record keeping and appropriate communication to relevant authorities, where required. Wastes to be disposed (or recycled) off-site will be transported to a facility (for disposal or recycling) that can lawfully receive the waste. Storage and handling of such wastes will be subject to the following measures: • Liquid wastes will be stored in appropriate containers in bunded areas until they can be appropriately disposed of. Bunded areas will have the capacity to hold 110% of the volume of the largest container. • Hazardous wastes (comprising small quantities of printer cartridges and e-waste) will be managed in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985. • Any on-site treatment of soil (classified as hazardous waste) would be undertaken using stabilisation or chemical oxidation and in accordance with applicable NSW EPA guidelines and approvals. Any off-site treatment of hazardous waste would be undertaken at facilities licensed to accept and treat the waste. • All other recyclables and non-recyclables will be stored in appropriate receptacles in appropriate locations and covered where required.	*Spoil & Waste Management Sub-Plan*

No.	Condition	Description	CFEMP Reference
-	RtS Section 3	A minimum of two granular activated carbon (GAC) filters will be installed in series for each emission stack in the odour control structures (OCSs) as per the modelling assumptions. The GACs chosen will be suitable for the contaminants being treated. Prior to commencement of the relevant stage of works where OCSs will be used, a detailed design plan of the structures, the air discharge point and emission control system, will be submitted to the EPA for review and comment. The detailed design plan will include the following information: Performance specifications, including particle and VOC control efficiency for the proposed technology; Proposed monitoring to confirm the performance of the proposed VOC control technology; and The proposed methodology to detect carbon bed breakthrough. The stack heights, pollutant concentrations and minimum velocities assumed in the modelling will be achieved. These key modelling assumptions are: – Stack height for OCSs 4m (on top of the tent height of 14m). – Stack height for treatment tent 4m (on top of the tent height of 15m). – Minimum emission velocity of 25m/s for emission stacks associated with treatment tent and odour control structures. – Filtration unit efficiencies of 75% pollutant reduction for NOx, 98% for PM10 and particulates, and 99.8% for VOCs and odour. Stacks will be located a minimum of 60 metres from Hickson Road as assumed in the modelling. If off site treatment is undertaken, all trucks transporting spoil will be sealed, and receivers of spoil will be appropriately licensed to receive material. Alternate odour control measures will be used during retention wall works, such as covering exposed soil or using odour suppressants and foam.	*Air & Odour Management Sub-Plan*

Table 3. Mitigation Measures – SSD 6653 Remediation of Barangaroo Central (Block 5)

No.	Condition	Description	CFEMP Reference
-	SOC Contamination	• The Remediation Works will be carried out in accordance with the Remedial Action Plan (RAP) that forms part of the DA. • At the completion of VMP Remediation Works (i.e. to address the EPA Declaration), a Section B Site Audit Statement will be obtained from a NSW EPA Accredited Site Auditor, to confirm successful completion of works • At the completion of the Project, an interim Audit Advice will be obtained from a NSW EPA Accredited Site Auditor, to confirm successful completion of the Block 5 works as per the RAP. • At the completion of all Remediation Works to address EPA Remediation Site 21122 (Le. Block 4, Block 5 and Hickson Rd), a Section A Site Audit Statement will be obtained from a NSW EPA Accredited Site Auditor, to confirm successful completion of works.	*RAP & RAP Addendum*
-	SOC Health Risk Management	Source controls for the Project will include measures to control emission of particulates and controls for emission of gases from exposed contaminated soils and water, including: • Enclosure (where practicable) of excavation and filtration of exhaust streams to manage pollutants of potential concern that may be produced/released during the soil excavation and remediation processes. • Prompt removal, covering and managing of heavily contaminated materials that have been exposed and are identified to have caused emissions. • Dust suppression, including sweeping and wetting of exposed surfaces including haul roads. • Excavation of materials within temporary remediation and soil treatment enclosures, with filtration of exhaust streams. • Odours from volatilisation will be monitored and a soil vapour extraction system will be put in place. • Managing groundwater removal and drawdown, where practicable, such that material excavated is retained in a moist state. • Minimising haul road lengths, implementing of site speed limits and covering haul loads. • Solid perimeter hoarding adjacent to sensitive receptors. • Surface stabilisation to minimise dust generation, and covering surfaces where appropriate. • Prompt removal, covering and managing of heavily contaminated materials that have been exposed. The following source controls will be implemented for contaminated water: • Installation of ground water control and retention walls as practicable around the excavation area to minimise the infiltration of groundwater from the remediation area into the less contaminated excavation area. • Treatment of contaminated surface water to enable safe discharge in accordance with site regulatory requirements. • Use of surface bunds and drainage diversions to divert clean water away from contaminated areas. • Silt fences to prevent cross-contamination between disturbed areas and undisturbed areas. In addition to source controls, risks to on—site workers will be minimised by: • Engineering controls and safe work practices and effective hygiene procedures (such as hand washing). • Use of appropriate personal protective equipment. Prior to commencement of works, a detailed Health Management Plan will be prepared, which will include a suitable occupational health monitoring program.	*Health Management Plan*

No.	Condition	Description	CFEMP Reference
-	SOC Offsite Transportation of Contaminated Materials	• Materials will be loaded into trucks within excavation enclosures. • Once the truck trailer has been loaded, the exposed surface of the untreated contaminated soil will be sprayed with a suitable foam agent, such as Rusmar AC-645 (or equivalent) to minimise the release of fugitive emissions during transportation. The intent of the foam agent is to form a barrier • that provides adequate odour control for the duration of transport. The foam agent will be required to meet the following criteria: - must be non-hazardous and bio-degradable; - must be able to be quickly applied to truck loads shortly after the truck is loaded to rapidly mitigate generation of fugitive emissions/odours; - must form a seal across the surface of the soil and effectively bind surface dust particles; and - upon drying, must form a cover which is flexible and capable of resisting degradation during transportation of the materials to the licensed offsite facility. • A suitable work area (for example a raised platform) will be constructed within the excavation enclosure to allow a thorough application of the foam agent (or equivalent) across the surface of each truck load containing untreated odorous soil; • Trucks carrying excavated materials will be covered and decontaminated in the wheel wash facility before exiting the excavation enclosure (as applicable) and exiting the Site; • Trucks carrying contaminated materials will be covered prior to exiting the Site and will remain covered until authorised to unload at the destination; • Trucks will be fitted with seals to ensure that the movement of potentially saturated materials is undertaken appropriately; • Trucks will not wait in the streets surrounding the Site or within the CBD; • Trucks will exit the Site through predetermined exit points on Hickson Road and will follow a predetermined transport route to the destination (landfill or other) via Sussex Street, Anzac Bridge and the City West Link or across the Harbour Bridge; • Truck trailers will also be covered with a waterproof tarpaulin to mitigate the potential ingress of rainwater during transportation and to assist in protecting the integrity of the foaming agent; • The truck will be inspected prior to leaving Site to ensure that the mitigation measures described above have been appropriately implemented; • Where possible, the selected transport route(s) will avoid travel through residential areas; • Contingency measures will be developed and implemented to manage potential risks associated with breakdowns, accidents or other emergency circumstances. This will include monitoring of trucks using Global Positioning System (GPS) and development of actions to respond to breakdowns and accidents and to ensure soil transport is accomplished in accordance with the mitigation measured described above; and • Photographs will be taken regularly to confirm that the above works have been conducted appropriately.	*Spoil & Waste Management Sub-Plan*
-	SOC Acid Sulfate Soils	The ASSMP includes a range of management measures that will be followed to handle, treat and dispose of ASS if required, including: • PASS materials will be kept separate from non-PASS materials at all times. • Water collected from PASS treatment/storage areas will be directed to the wastewater treatment plant and treated to a prescribed discharge water quality. • A truck wash down area will be constructed so that truck wash down water can be collected for treatment. • Treated water will only be discharged in accordance with the relevant criteria in the EPL. A water quality monitoring program will be implemented. • Neutralisation of the ASS will be undertaken by application of calcium carbonate (Aglime) in a designated bunded treatment area and thoroughly	*Acid Sulfate Soil Management Sub-Plan*

No.	Condition	Description	CFEMP Reference
		mixed with the soil. The treatment area is to be provided with a guard layer of neutralising agent (i.e. Aglime). • During treatment soil pH will be measured regularly as a measure of the effectiveness of neutralisation. • Treated materials will be monitored regularly at a rate of one sample per 500 m3. • Treated material will be reused or disposed of in accordance with its classification under the Waste Classification Guidelines. The ASSMP will be updated following confirmation of the responsible contractor.	
-	SOC Water	• Clean stormwater will be diverted away from the site. • All contaminated water (including stormwater collected in disturbed contaminated areas and works areas, and groundwater form disturbed contaminated areas) will be collected for treatment on-site prior to discharge. No contaminated or treated water will be discharged into Sydney Harbour or any sewers without being compliant with EPL 13336 or any future Sydney Water Corporation Trade Waste Agreement. • A Water Quality Monitoring Program will be put in place to ensure the remediation works are not having an adverse impact on water quality conditions in the Harbour. • A Groundwater Monitoring Plan will be prepared and implemented to measure the effectiveness of the remedial works that have been undertaken (specifically source removal and subsequent groundwater quality improvement) with respect to groundwater quality migrating from the EPA Declaration Area boundary and the associated risk to aquatic ecosystems (i.e. ultimately groundwater migrating to Darling Harbour).	*Water & Stormwater Management Sub-Plan*
-	SOC Air Quality	An Air Quality Management Plan will be prepared. The AQMP will include mitigation measures and work practices to be implemented at the site to minimise pollutant emissions including: Continue the dust, VOC and meteorological monitoring program, and add NOx monitoring; extend the program to include additional sites along Hickson Road close to the remediation activities. • Use mains power where available and suitable. • Turn vehicle engines off while parked on site. • Confine vehicular access to designated access roads. • Appropriately tune, modify or maintain equipment, plant and machinery to minimise visible smoke and emissions. • Undertake all excavation, materials handling and treatment within Odour Control Structures (OCS), to the extent practical. • Maintain the OCSs to their design specifications. • Undertake regular checking and maintenance of OCS/SVE filtration systems. • implement site speed limits. • Vent generator emissions through the OCS stacks. • Minimise haul road lengths. • Reduce exposed areas as much as practical. • Cover loads during transport. • Undertake good housekeeping practices to minimise dust on hardstand areas. • Immediately clean up spills. • Maintain the complaints management system.	*Air Quality & Odour Management Sub-Plan*

No.	Condition	Description	CFEMP Reference
		• Adjust work practices (as required) based on wind observations and real time monitoring results. • Use water sprays and/or surfactants wherever and whenever necessary. • Erect windbreak barriers at the site boundary. • Water exposed surfaces and roads.' • the implementation of best available control technology and best environmental practice to ensure emissions are being reduced to the maximum extent achievable for all air pollutant generating activities; • an ambient air monitoring program and reactive management strategy, including real-time meteorological monitoring, continuous particulate and VOC monitoring for management purposes, fit for purpose odour monitoring, and the implementation of appropriate triggers to further develop the reactive management strategy for air pollution mitigation; • details of all proposed air quality emission control measures including: - timeframe for implementation of all identified emission controls; - key performance indicator(s) for emission controls; - monitoring method(s) including location, frequency and duration; - response mechanisms; - responsibilities for demonstrating and reporting achievement of key performance indicator(s); - record keeping and complaints response register; and - compliance reporting.	
-		Implement the reactive management plan, based on a three-stage approach for PM"):	
-		• Investigate: identification of the likely reasons for the elevated pollutant concentration and formulation of a contingency response for the action stage;	
-		• Action: Implementation of the measures formulated in the investigative stage and review of their effectiveness; and	
-		• Stop Work: All works should stop at this stage until the measured pollutant levels are below the action level to avoid an exceedence of the pollutant criterion.	
-		Trigger levels have been established for PM1o and VOCs and are provided in Appendix C of the Response to Submission dated October 2015. Trigger levels for N02 would be developed and implemented as part of the Air Quality Management Plan for the Remediation Area.	
-		The following measures relate to ensuring that the proposed works are carried out in a manner consistent with the air quality modelling assumptions as follows:	
-		• A minimum of two granular activated carbon (GAC) filters will be installed in series for each emission stack in the odour control structures (OCSs) as per the modelling assumptions. The GACs chosen will be suitable for the contaminants being treated.	
-		• Prior to commencement of the relevant stage of works where OCSs will be used, a detailed design plan of the structures, the air discharge point and emission control system, will be submitted to the EPA for review and comment. The detailed design plan will include the following information: - Performance specifications, including particle and VOC control efficiency for the proposed technology; - Proposed monitoring to confirm the performance of the proposed VOC control technology; and	
-			

No.	Condition	Description	CFEMP Reference
		- The proposed methodology to detect carbon bed breakthrough. • The stack heights, pollutant concentrations and minimum velocities assumed in the modelling will be achieved. These key modelling assumptions are: - Stack height for OCSs - 4m above ground level. - Minimum emission velocity of 25m/s for emission stacks associated with odour control structures. - Filtration unit efficiencies of 75% pollutant reduction for NOx, 98% pollutant reduction for PM10 and particulates, and 99.8% pollutant reduction for VOCs and odour. - Stacks will be located a minimum of 60 metres from Hickson Road as assumed in the modelling. • All trucks transporting the spoil will be sealed, including use of odour suppressant foam or similar, and receivers of the spoil will be appropriately licensed to receive the material. • Alternate odour control measures will be used during retention wall works, such as covering exposed soil or using odour suppressants and foam. During the construction of retention walls the following air quality/odour control measures are proposed (to the extent practical), at locations where tar is anticipated to minimise the quantity of free tar exposed during works, to minimise odour generation / air emissions. • Where sheet pile method is used, conduct works under a bentonite slurry to minimise exposed excavation faces and free tar, and subsequent odour generation / air quality impacts. • Where piling method is used, limit the extent of open excavation at any one time to a discrete hole (generally up to 1200mm diameter). Drill each hole using a rotary auger and then fill with a concrete slurry. This method would limit the amount of tar exposed at any one time, thereby minimising odour generation / air quality impacts. During the construction of retention walls the following air quality/odour control measures are proposed (to the extent practical), at locations where tar is anticipated to control the impact of odours that are generated from the works: • Use a dedicated labour resource to manage odours in work area. • Install vertical barriers around the work area and adequately sealed, to help minimise risk of odour off-site. • Use odour suppressants (e.g. BioSolve) or misting sprays in or around the work area. • Spray odorous spoil / drill arisings with foaming agents (eg. Rusmar) once brought to the surface. • Cover stockpiles with tarps, non-odorous material or foaming agents, or place into sealed drums. • Dispose of stockpiles off-site as soon as practicable. • Use water spray on excavated or stockpiled material to mitigate particulate emissions. • Cover open excavations overnight. • Collect and treat run-off water, or promptly store in sealed containers. • Load material promptly and with care to reduce loading times and spillage. • Use sealed trucks to control potential for spilling material through the site or off-site. • Cover loads prior to leaving loading zones, with odour suppressant foam and automatic tarps. • Immediately clean truck and loading areas upon loading.	

No.	Condition	Description	CFEMP Reference
- -		• Use truck and wheel wash facilities prior to leaving the site. • Undertake detailed odour monitoring on and off-site to allow works/controls to be modified as required. • Undertake weather monitoring and modify works based on weather conditions, if required. As per Appendix Y of the EIS dated August 2014, confirmed the proposed implementation of the Block 5 Perimeter Retention Wall — Preliminary Odour Plan, which sets out the odour control methodology during works where a working within an excavation enclosure is not practicable (provided as Attachment 1 of the amended AQIA (see Appendix C of the Response to Submissions Report dated July 2015).	
-	SOC Noise and Vibration	A Construction Noise and Vibration Management Plan has been prepared by Lend Lease for the Barangaroo South Site in its entirety. This plan should be updated to take into account the project specific noise and vibration management measures as follows: • Where practicable, installing attenuators on the exhaust fans, filtration and air handling plant associated with the odour control structures within the Site by "stepping down" the plant settings out of construction hours where able. • Localised treatment such as barriers, shrouds and the like around fixed plant such as pumps, crusher, screens, generators and groundwater extraction plant and by "stepping down" the plant settings out of construction hours where able. The detailed design of acoustic treatments will be undertaken during the detailed design phase. • Audit plant to select equipment that generates the lowest practical commercially available noise levels. A review of the soil treatment area is recommended at detailed design and selection stage. • Plan the construction activities so that respite is provided to residences when noise activities occur. This is particularly important during extended Saturday hours (7am-5pm). • Continue to implement an effective complaints and community consultation program, which informs the construction manager about appropriate mitigation measures to protect the acoustic amenity of surrounding residences; • The use of non-vibratory compaction techniques where feasible or smaller vibratory rollers. Vibration management to minimise the impact of high-vibratory activities, where equipment is identified as having the potential to exceed the human comfort criteria, consisting of: • Trial Vibration Monitoring to determine appropriate work distances and equipment types; • Notification of occupants adjacent to the site of when these activities occur; and • Utilise the smallest practicable size of vibratory roller.	*Noise & Vibration Management Sub-Plan*
-	SOC Traffic	The following traffic management measures will be implemented in accordance with the Construction Traffic Management Plan in Appendix L of the Response to Submissions dated 22 July 2015: • In accordance with existing restrictions for Barangaroo South, trucks would not be able to use be York Street between 2pm and 8pm, or York Street or Clarence Street in the AM peak between 6am and 10am. • Appropriate holding areas which can be accessed easily from the major arterial routes will be identified off-site outside the CBD area, with trucks to be called up when needed via an on-site central logistics centre. Once called, there will be room for trucks to be queued on-site, with no queuing on CDB roads to occur as a result of the remediation works. • The gatehouse at the access to the site is to be located approximately 40 metres inset from Hickson Road to prevent any queuing on Hickson Road by trucks entering the site. Any truck queuing will occur on site and all vehicles will enter the site in a forwards direction. The gatehouse will be centred on the access road to prevent trucks parking along the kerbside to enquire about directions on site. • The site traffic control recommendations for each worksite gate entry or exit point (including all appropriate signage) will be determined by means of a Traffic Site Control Plan to be prepared by an RTA accredited contractor closer to construction commencement. Detailed traffic control plans	*Traffic & Pedestrian Management Sub-Plan*

No.	Condition	Description	CFEMP Reference
		for the temporary lane closures required on Hickson Road will also be prepared prior to the commencement of works on site. Entries will be clearly signposted for the benefit of all approaching site traffic, in particular emergency services vehicles. • Preparation and implementation of a Green Travel Plan to provide travel information and advice to construction workers about public transport, walking and cycling routes to the site and providing information about public transport availability and fare costs compared with on and off street parking costs.	
-	SOC European Heritage	• Where contamination is at depth and the upper layers are uncontaminated, the upper layers could potentially be archaeologically excavated, with restriction as required for OHS management of works. • Where the archaeology is completely covered with contamination and therefore inaccessible for normal archaeological recording methodologies, other alternative techniques may be tested to determine if recording is possible. Then it may be possible to record some major gasworks features but only if they offer a research outcome. • It is likely that opportunities may be extremely limited in what can be recorded. in the end there may be no ability to record remains prior to the remediation.	*Heritage Management Sub-Plan*
-	SOC Indigenous Heritage	• If, during the course of the remediation project, any unexpected Aboriginal "objects", artefacts or sites are uncovered, work must cease in the vicinity of that object, artefact or site and further advice sought from the consultant and the Metropolitan Local Aboriginal Land Council.	*Heritage Management Sub-Plan*
-	SOC Arboriculture	Carry out the remediation in accordance with the relevant Tree Management Plan for the remediation option selected. Tree protection measures include: • Appointment of an arborist to oversee the works, observe/monitor all works within the Tree Protection Zones of trees to be retained, oversee the removal of trees to be removed, and to monitor the condition and protection of trees to be retained. • Where possible, ensure that the TPZ is fenced for protection (and clearly signed as Tree Protection Fencing). Install trunk, branch and ground protection where fencing cannot be installed. • Prevent stockpiling, storage or preparation of materials, parking of machinery and machinery trenching in the TPZ for a tree to be retained. Any trenching in the TPZ should be by hand excavation, or directional boring (trenchless) and under the specific instructions of the on-site project arborist. • Selection of piling equipment that is as short as possible so as to minimise the need for overhead crown pruning. • Any trenching within the Structural Root Zone should be undertaken by hand and under the specific instructions of the on-site project arborist. • Retain the existing road and footpath pavements intact where possible within the TPZ to minimise impacts to the underlying roots from works. • All traffic diversions to include adequate root zone protections. • All crown pruning works to be approved and monitored by the on-site project arborist and are to be undertaken by a suitably qualified arborist (AQF Level 3 Certificate) in compliance with AS 4373-007 Pruning of Amenity Trees.	*Tree Management Plan*
-	SOC Infrastructure	• Further assessment of the potential for damage to utilities will be carried out during the detailed design phase, and dilapidations surveys will be carried out prior to commencing excavation.	*Dilapidation Surveys*
-	SOC Visual Amenity	• Night time lighting will be consistent with Australian Standard A81680, Lighting and the Visual Environment. No other visual impact mitigation is considered necessary, over and above the hoardings already proposed.	*Detailed design*
-	SOC ESD	In order to maximise the sustainability and ESD benefits of the project the following key initiatives will be implemented: • Provide centralised recycling areas in all construction (remediation) site buildings and waste bins for remediation worker use which provide for	*Environmental management sub-plans*

No.	Condition	Description	CFEMP Reference
		waste separation where appropriate. • Provide site workers with public transport options during their induction. • Reuse groundwater or collected storrnwater (where possible) for dust suppression and wash down to reduce potable supply use where appropriate. • Remediation worker accommodation to incorporate ESD initiatives. • Fit pollution control measures on remediation equipment (including diesels oxidation catalysts and diesel particulate matter filters) where practicable. • Minimise the impacts to the local community by maximising internal haul routes within the Barangaroo site where possible.	
-	SOC Waste Management	The management of wastes will be in accordance with the Waste Management Plan provided in Appendix G of the Response to Submissions dated July 2015. The WMP includes that: • The on-site waste management system to be established at the Site will aim to maximise waste avoidance through reuse on—site or at off-site locations under a waste exemption approved by the EPA and/or the Barangaroo Site, where possible • Materials separation and segregation will be promoted on the Site, to facilitate reuse and recycling as a priority of the waste management system. • All wastes generated as a result of the project will be classified in accordance with the EPA Waste Classification Guidelines. • Details of waste types, volumes and destinations will be recorded on Waste Management Forms, including a Monthly Recycling and Waste Management Statistics form. This information will be collated for record keeping and appropriate communication to any relevant authorities, where required. Wastes to be disposed (or recycled) off-site will be transported to a facility (for disposal or recycling) that can lawfully receive the waste. Storage and handling of such wastes will be subject to the following measures: • Liquid wastes will be stored in appropriate containers in bunded areas until they can be appropriately disposed of. Bunded areas will have the capacity to hold 110% of the volume of the largest container. • Hazardous wastes (comprising small quantities of printer cartridges and e-waste) will be managed in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985. • All other recyclables and non-recyclables will be stored in appropriate receptacles in appropriate locations and covered where required.	*Spoil & Waste Management Sub-Plan*

Appendix 3

Appendix 3 – Environmental Legislation Register

Legislation	Key Requirements	Relevance to the Project	Mechanism for Evaluating Compliance
Contaminated Land Management Act 1997	The main objective of this Act is to establish a process for investigating and remediating land areas where contamination presents a significant risk of harm to human health or some other aspect of the environment. Under this act EPA has the power to: • Declare an investigation site and order and investigation • Declare a remediation site and order remediation to take place • Agree to a voluntary proposal to investigate or remediate a site	Some soils are contaminated as a result of historical activities. Where contaminated material is found, storage, remediation and disposal procedures are to comply with the *Contaminated Land Management Act 1997*.	Measures for testing, handling and reusing/disposing of contaminated spoil are in the Remediation Action Plan. Testing is used to ensure compliance.
Contaminated Land Management Regulation 2013	This Regulation prescribes a number of matters for the purposes of the *Contaminated Land Management Act 1997*, including: • the form to be used when reporting contamination; and • the amount which the EPA may recover for its costs incurred in relation to investigation and remediation orders.	No relevance.	-
Environmentally Hazardous Chemicals Act 1985	The purpose of this Act is to control chemicals that are environmentally hazardous. EPA may make chemical control orders (CCOs) with respect to assessed chemicals or declared chemical wastes. The CCOs may regulate the manufacture, processing, conveying, buying, selling or disposal of chemical or declared waste. A CCO may prohibit activities in relation to declared chemical wastes, except under the authority of a licence issued by EPA.	Certain chemicals used or generated may be subject to handling and disposal requirements in this Act.	Measures for handling, identification, disposal of hazardous wastes are in the Spoil & Waste Management Sub-Plan.
Environmentally Hazardous Chemicals Regulation 2008	This Regulation: • sets various fees in relation to assessments of technology and prescribed activities by the EPA and in relation to licences to carry on prescribed activities; • specifies the matters to be included in applications for assessment of prescribed activities, in EPA notices about assessments of chemicals, and applications for licences and transfers of licences; • prescribes the information to be included in registers under the Act.	No relevance.	-
Environmental Planning and Assessment Act 1979 (EP&A Act)	The main objective of the EP&A Act is to ensure that proper management and development of land is undertaken incorporating the ecologically sustainable development principles. To achieve this the EP&A Act: • Ensures that development consent is obtained prior to construction; • Ensures compliance with planning consents and conditions associated with the consent; • Ensures environmental assessment is undertaken prior to development consent; • Has provision for penalties to be issued should development conditions be breached.	Lend Lease has satisfied the requirements of the Act to date and has obtained approval for the project.	Conditions to the development approval (Minister's Conditions of Approval) are tracked via CFEMP Appendix 2A.

Legislation	Key Requirements	Relevance to the Project	Mechanism for Evaluating Compliance
Environmental Planning and Assessment Regulation2000	The regulation provides included practical guidance on items such as preparation of Local Environmental Plans (LEPs), development contributions, BASIX Certificates, certification and relevant fees associated with applications.	Stages of construction require certification prior to commencement.	Conditions to the development approval (Minister's Conditions of Approval) are tracked via CFEMP Appendix 2A.
Heritage Act 1977	Items listed on the State Heritage Register are subject to the provisions of the *Heritage Act 1977*, which protects items of State heritage significance. Items 50 years or older are also considered heritage items and need to be managed as such. The Act prohibits the demolition, damage or development of or around any heritage item without approval from the Office of Environment and Heritage (OEH).	A program of non-indigenous archaeology is scheduled at the commencement of construction.	Monitoring contained within the Spoil & Waste Management Sub-Plan and Archaeological Research Design and Management Strategy.
National Parks and Wildlife Act 1974	Under this Act, NPWS is responsible for the care, control and management of all national parks, historic sites, nature reserves, reserves, Aboriginal areas and state game reserves. The Act governs various activities including: • Protection of flora and fauna, and Aboriginal heritage; • Licences and approvals to modify or destroy flora, fauna or Aboriginal heritage; • Penalties for breaches of the Act.	Relates to any Aboriginal heritage or relics. No Aboriginal heritage is anticipated in the project area due to previous reclamation. A program of Aboriginal archaeology is scheduled at the commencement of construction.	Aboriginal heritage measures are in the Spoil & Waste Management Sub-Plan and the Aboriginal Archaeological Management Plan and Research Design.
Native Vegetation Act 2003	This Act regulates the clearing of native vegetation on all land in NSW except for National Parks, State Forests and reserves and urban areas. Native vegetation is any species of vegetation that existed in NSW before European settlement. Penalties exist for breaches of the Act.	Sydney City LGA is an excluded urban area for the purposes of the Act.	N/A
Protection of the Environment Operations Act 1997 (POEO Act)	The POEO Act is the key piece of environment protection legislation, and is administered by the EPA. The objective of the Act is to protect, restore and enhance the quality of the environment in NSW with a need to maintain ecologically sustainable development. To achieve this the following are employed: • Integrated environment protection licencing; • Regulation of scheduled and non-scheduled activities; • Environmental protection offences and penalties; • Environmental protection notices; • Establishment of a general duty to notify of environmental harm; • Powers for authorised officers to investigate actual or potential pollution events. Schedule 1 of the POEO Act lists activities that are subject to environmental licencing. In addition to the main objective, the POEO Act assists in achieving the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.	Construction works involve activities that are required to be licenced. Environmental protection offences and penalties, and a duty to notify of environmental harm, apply to all personnel working on the project. Definitions of air, water and noise pollution offences.	Specific requirements for compliance are in the CFEMP and sub-plans. Training on POEO Act offences and penalties, and duty to notify, are included in induction processes.

Legislation	Key Requirements	Relevance to the Project	Mechanism for Evaluating Compliance
POEO (General) Regulation 2009	The Regulation: • sets out how to calculate fees for environment protection licences, environment protection notices and noise control notices, and makes provision for adjustment or refunds of those fees; • makes provisions for load reduction agreements (load reduction agreements allow for fee rebates in return for measures taken to reduce pollution in the future); • sets out matters to be included by the EPA for the grant or refusal of a licence application; • makes it an offence to provide false or misleading information in relation to a licence application; • requires licencees to retain records used to calculate licence fees; • prescribes certain matter when placed into water to be water pollution, and the methodology for testing matter in waters; • exempts certain water pollution from the water pollution offence under the *Protection of the Environment Operations Act 1997*; • prescribes certain forms to be used with respect to warrants relating to noise abatement directions; • declares certain bodies to be the appropriate regulatory authority in relation to certain activities for the purposes of the *Protection of the Environment Operations Act 1997*;	Construction activities require an environmental protection licence.	Specific requirements for compliance are in the CFEMP and sub-plans.
POEO (Noise Control) Regulation 2008	This Regulation covers the following issues: • the sounding of sirens and similar devices and the use of sound systems on vessels, • the emission of noise from the engines or exhausts of motor vehicles and vessels, • the maintenance of noise control equipment on motor vehicles and vessels, • the issue of defective vehicle notices and defective vessel notices, • the times during which it is not permissible to use certain articles if they emit noise that can be heard in any residential premises, • the inspection and testing procedures for the purpose of determining noise emission levels of certain motor vehicles, motor vehicle accessories, vessels, articles or equipment.	Noise emissions from machinery and shipping vessels.	Measures for reducing noise are in the Noise & Vibration Management Sub-Plan.
POEO (Waste) Regulation 2014	Parts 4 to 7, and Schedule 1 of this Regulation set out the types of waste to which waste tracking requirements apply. This includes asbestos waste. Part 10 of this Regulation applies to classification of waste containing immobilised contaminants.	Certain types of waste generated may be subject to tracking and immobilisation requirements.	Measures for tracking hazardous wastes are in the Spoil & Waste Management Sub-Plan.
POEO (Clean Air) Regulation 2010	This Regulation covers the following issues: • emissions from activities and plant, • the control of volatile organic liquids, • the offences under this Regulation that may be dealt with by way of a penalty notice.	Air emissions from machinery and plant.	Changes made by this regulation have been included in the Air Quality & Odour Management Sub-Plan.

Legislation	Key Requirements	Relevance to the Project	Mechanism for Evaluating Compliance
Waste Avoidance and Resource Recovery Act 2001	This Act promotes waste avoidance and resource recovery by: • Encouraging efficient use of resources in accord with ecologically sustainable principles; • Promoting the "Avoid, reuse, recycle, dispose" hierarchy; • Ensuring industry has a responsibility for reducing and dealing with waste; • Providing penalties for breaches of this Act.	Waste is generated during construction. The principles of the Act are applied to all aspects of construction to reduce impacts from waste.	Measures for minimising, handling, recycling and disposal of wastes are in the Spoil & Waste Management Sub-Plan.
Water Act 1912	An Act consolidating water rights, water and drainage and artesian wells. Provisions include a licence requirement to sink or alter an artesian bore, not to waste water taken from dams, lakes, artesian wells and bores, and not to unlawfully interfere with sub-surface water or obstruct its flow.	Dewatering Bore Licence from NSW Office of Water required for dewatering activities.	Licence conditions included in Water & Stormwater Management Sub-Plan.
Water Management Act 2000 and *Water Management (General) Regulation 2011*	The *Water Management Act 2000* is the main piece of water legislation in NSW and governs: • Extraction of water from waterways and bores • The construction of water storage and supply structures • Development or building within the proximity of waterways • Licencing to regulate usage of water resources • Works involving the removal of obstructions from the improvement of rivers and foreshores and the prevention of erosion of lands by tidal and non-tidal waters Permits are required to excavate protected land, remove material from protected land or do anything to detrimentally affect the flow of waters.	Approvals under this Act are not required due to the original project approval under Part 3A of the EP&A Act.	N/A

Appendix 4

Appendix 4: Environmental Licence, Approval and Permit Register

Note: Details of approvals, licences and permits will be added as they are obtained. This register is maintained by the EHS Manager (Environment).

Licence/Permit/Approval	Ref. No.	Issuing Authority	Holder	Start Date	Expiry Date	Document Reference
Environmental Protection Licence	13336	EPA	BDA	25 October 2010	N/A	Air Quality & Odour Management Sub-Plan Noise & Vibration Management Sub-Plan Water & Stormwater Management Sub-Plan Spoil & Waste Management Sub-Plan

Appendix 5

Appendix 5: Declaration Area Remediation Works

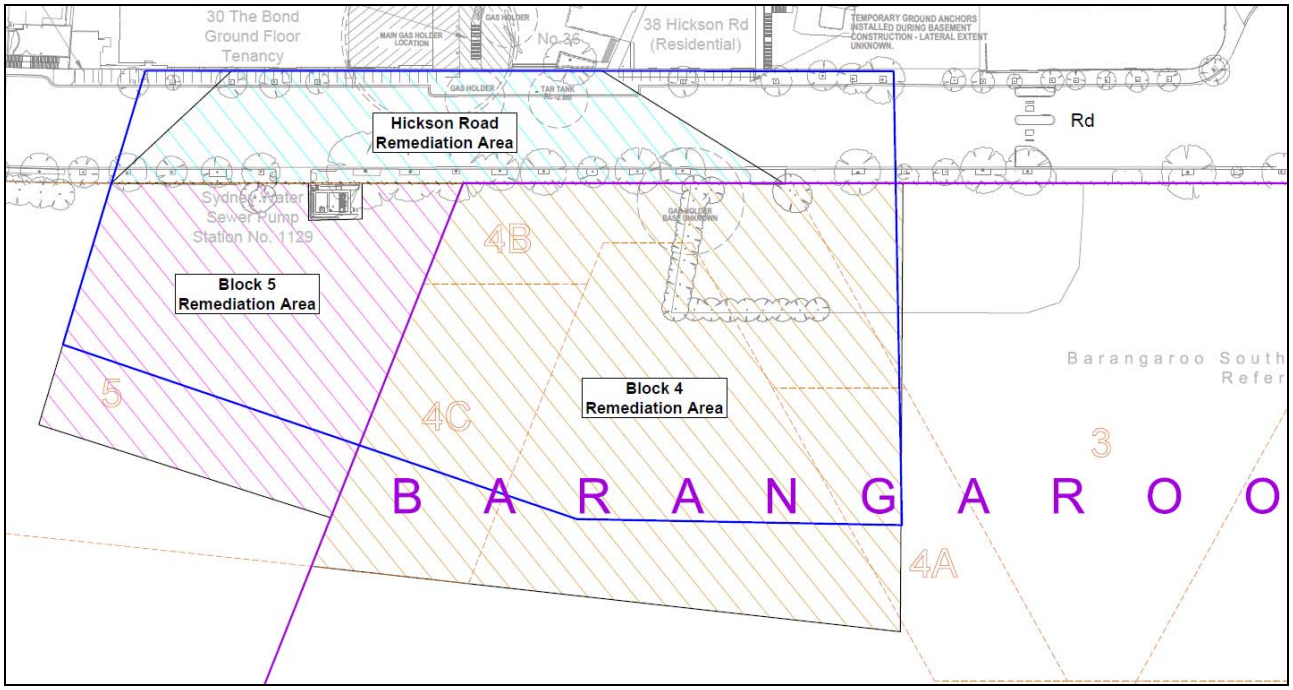
INTRODUCTION

The proposed remediation for the Block 4, Block 5 and Hickson Road parts of the Declaration Area and Stage 1b site are detailed in the Remedial Action Plan (RAP) (AECOM, 2013) for the site.

The RAP details remediation works required to achieve remediation objectives, including the extent of remediation required, and validation monitoring to confirm completion of remediation works.

The Site includes Block 4, Block 5 and Hickson Road in the area of Remediation Site Declaration 21122, and some adjoining land to the west and south to be remediated to address the Declaration, or facilitate development for the future Stage 1b basement area. The site comprises the following area:

- Block 4 – the part of the Site on Barangaroo South;
- Block 5 – the part of the Site on Barangaroo Central;
- Hickson Road - Hickson Road adjacent to 30-34 Hickson Road, 36 Hickson Road, and 38 Hickson Road.



The proposed remediation indicative timeframes are:

- ex-situ remediation of Block 4 – 28 months;
- ex-situ remediation of Block 5 – 22 months;
- in-situ remediation of Hickson Road – 22 months;
- ex-situ remediation of Hickson Road – 18 months.

Further details of these remediation works are provided in the Construction Methodology sections below.

ENVIRONMENTAL MANAGEMENT

The environment-related planning application studies that relate to the Block 4 remediation and land forming works are:

- AECOM, **Acid Sulfate Soil Management Plan**, Remediation and Landforming Works, SSD 5897.
- AECOM, **Air Quality Impact Assessment**, Remediation and Landforming Works, SSD 5897.
- AECOM, **Health Impact Assessment**, Remediation and Landforming Works, SSD 5897.
- AECOM, **Remedial Action Plan**, NSW EPA Declared Remediation Area and Block 4 (Stage 1b)
- AECOM, **Waste Management Plan**, Remediation and Landforming Works, SSD 5897.
- Arup, Barangaroo South – Remediation and Land Forming Works, SSD 5897: **Construction Traffic Management Plan**.
- Casey & Lowe, **Non-Indigenous Archaeological Impact Statement**, Remediation & Landforming Works, SSD 5897.
- Comber Associates, **Aboriginal Archaeological and Cultural Heritage Assessment**, Remediation and Landforming Works, SSD 5897.
- Wilkinson Murray, Remediation & Land Forming Works, SSD 5897, **Construction Noise & Vibration Assessment**.
- Worley Parsons, **ESD and Climate Change Assessment Report** to accompany Remediation and Land Forming Works, SSD 5897.
- Worley Parsons, **Ex situ Soil and Water Impact Assessment** to accompany Remediation and Land Forming Works, SSD 5897.

The environment-related planning application studies that relate to the Block 5 remediation works are:

- AECOM, **Acid Sulfate Soil Management Plan**, Block 5 Remediation, SSD 6533.
- AECOM, **Air Quality Impact Assessment**, Block 5 Remediation Area: Remediation & Landforming Works, SSD 6533.
- AECOM, **Health Impact Assessment**, Block 5 Remediation Area: Remediation & Landforming Works, SSD 6533.
- AECOM, Remedial Action Plan, NSW EPA Declared Remediation Area and Block 4 (Stage 1b)
- AECOM, **Waste Management Plan**, Block 5 Remediation Area: Remediation and Landforming Works, SSD 6533.
- Arup, Block 5 Remediation Area: SSD 6533: **Construction Traffic Management Plan**.
- Casey & Lowe, **Non-Indigenous Archaeological Impact Statement**, Block 5 Remediation Area, SSD 6533.
- Comber Associates, **Aboriginal Archaeological and Cultural Heritage Assessment**, Block 5 Remediation Area: SSD 6533.
- Wilkinson Murray, Block 5 Remediation Area: SSD 6533**, Construction Noise & Vibration Assessment**.
- Worley Parsons, Block 5 Remediation Area: **ESD and Climate Change Assessment Report to accompany Remediation and Land Forming Works**, SSD 6533.
- Worley Parsons, Block 5 Remediation Area: **Ex situ Soil and Water Impact Assessment to accompany Remediation and Land Forming Works**, SSD 6533.

The environment-related planning application studies that relate to Hickson Road remediation works are:

- AECOM, **Acid Sulfate Soil Management Plan**, Barangaroo Hickson Road, SSD 6617.
- AECOM, **Air Quality Impact Assessment**, Barangaroo Hickson Road, SSD 6617.

- AECOM, **Health Impact Assessment**, Barangaroo Hickson Road, SSD 6617.
- AECOM, **In-situ Soil and Water Impact Assessment**, Barangaroo Hickson Road, SSD 6617.
- AECOM, Remedial Action Plan, NSW EPA Declared Remediation Area and Block 4 (Stage 1b).
- AECOM, **Waste Management Plan**, Barangaroo Hickson Road, SSD 6617.
- Arup, Barangaroo Hickson Road Remediation: SSD 6617: **Traffic Impact Assessment**.
- Casey & Lowe, **Non-Indigenous Archaeological Impact Statement**, Barangaroo Hickson Road, SSD 6617.
- Comber Associates, **Aboriginal Archaeological and Cultural Heritage Assessment**, Barangaroo Hickson Road: SSD 6617.
- Tree Wise Men, Ar**boricultural Impact Assessment for SSD6617-2014 Remediation at EPA Declaration Area No 21122 Hickson Road, Millers Point**.
- Wilkinson Murray, Barangaroo Hickson Road: SSD 6617**, Construction Noise & Vibration Assessment**.
- Worley Parsons, Hickson Road Remediation Area: **Ex situ Soil and Water Impact Assessment to accompany Remediation and Land Forming Works**, SSD 6617.

Specific environment related construction measures required by these reports, and any additional conditions of approval, would be incorporated in the CFEMP and associated sub-plans.

The CFEMP outlines the following sub-plans:

- Air Quality & Odour Management Sub-Plan;
- Noise & Vibration Management Sub-Plan;
- Spoil & Waste Management Sub-Plan;
- Water & Stormwater Management Sub-Plan;
- Acid Sulfate Soil Management Sub-Plan;
- Tree Management Plan.

Prior to commencement of works, these sub-plans would be prepared and issued to the EPA for review and comment. Sub-plans would first be prepared for the initial works phase (eg. Block 4 retaining walls) then updated as required for future works stages as detailed design is progressed.

CONSTRUCTION METHODOLOGY - BLOCK 4 REMEDIATION AREA

Construction methods for Block 4 remediation are outlined below.

Overview - Installation of perimeter retaining wall, excavation of fill materials under odour enclosure, on-site soil treatment and off-site landfill disposal (or beneficial re-use, if applicable).

1 Licences/Approvals

- Obtain all licences/approvals, including variation to existing EPL, any waste approvals (eg. Immobilisation Approval), conditions of planning approval, etc.

2 Site Establishment

- Install hoarding to Hickson Rd boundary.
- Install site fencing/exclusion zones and decontamination areas.
- Removal of site trees, local protection/pruning of Hickson Rd trees, where required for adjacent hoarding and perimeter wall construction.
- Capping/diversion of any existing site services.
- Install environmental controls for excavation and stockpiling works (eg. bunding, sediment controls).

3 Perimeter Retaining Wall

- Construct diaphragm wall or similar on north, west, south and east (Hickson Rd) boundaries of Block 4 (Stage 1b) or to the extent of excavation required to address the Declaration, keyed into bedrock.
- Temporary shoring as required to facilitate excavation of contamination to the south of the perimeter retaining wall.
- Removed spoil to be classified and disposed off-site to landfill, reused off-site under exemptions or licences, or used on-site (where suitable).
- Detailed odour management procedures to be in place for spoil and excavation face for each panel, particularly for east and north walls.

4 Stormwater Diversion & Augmentation

- Decommission existing pipes, and construct new pipe to divert existing stormwater in Hickson Road to existing stormwater west of Block 4.
- Removed spoil to be classified and disposed off-site to landfill, reused off-site under exemptions or licences, or used on-site (where suitable).
- Detailed odour management procedures to be in place for spoil and excavation face.

5 Establish Soil Treatment Area

- If on-site soil treatment of excavated soil is proposed, establish soil treatment area including construction of odour control structure. Odour control structure to be constructed to enable negative pressure maintained, with air exhaust and emissions control system to treat and discharge air.
- Implement sediment controls/water management (bunding, etc) for area.
- Mobilise plant including pug mill.

6 Dewatering and water treatment

- Using temporary Water Treatment Plant (WTP), dewater area, transfer water to WTP, treat water and discharge per EPL requirements.

7 Construct Excavation Odour Control Structures

- Install support piles where required to facilitate future excavation beneath structure. Pile requirements to be based on final structure design.
- Odour control may comprise multiple structures side-by-side to achieve coverage of the remediation area, and appropriate individual span of each structure. Structures to be supported on retaining wall or support piles, as required.
- Structures to be installed to ensure negative pressure maintained. Air exhaust system and associated emissions control, air filters/treatment and stack. Odour control structures may include closable doors and an air lock system at the entrance/exit to minimise odour emissions. Final structures to be subject to future detailed design.

8 Excavation of Block 4

- Excavate contaminated soil per the Remedial Action Plan.
- If approval for a future basement is obtained, excavate remaining fill materials required to create the basement for future development.
- Backfill areas as required outside the future basement (eg. area to the south of proposed retaining wall).
- Excavation of rock not proposed for remediation purposes, except limited excavation (if required) to remove tar seeps to the extent practical.
- Odour control structure to be operated to manage and treat exhausted air.
- Transfer of material to the Soil Treatment Area for stockpiling, waste classification and/or treatment. Transport to be via sealed trucks.
- Water from excavation to be transferred to the WTP for treatment and licensed discharge. Where required, highly contaminated liquids may be pumped by licensed liquid waste contractors (vacuum truck) and disposed offsite.
- Vehicles/plant to be decontaminated in wheel wash/cleaning area, prior to moving to other areas of site or off-site. Waste water transferred to water treatment plant.
- Conduct detailed monitoring (air, noise, water) throughout works.
- Decommission Block 4 excavation odour control structures following excavation.

9 Spoil Treatment / Disposal

- Non-hazardous waste to be classified and transported off-site in covered trucks for landfill disposal, reuse off-site (if available and reused under exemptions or licences) or use on-site (if suitable).
- Hazardous classified material to be treated via soil stabilisation or chemical oxidation (pugmill operation) in the Soil Treatment Area. Alternatively, hazardous classified material could be transported off-site to a licensed treatment facility for treatment.
- Treated spoil to be transported to landfill for off-site disposal.
- Following completion of treatment / spoil management, decommission soil treatment plant.

10 Block 4 Area Validation

- Validate excavation per RAP – inspections and sampling/testing.

CONSTRUCTION METHODOLOGY - BLOCK 5 REMEDIATION AREA

Construction methods for Block 5 remediation are outlined below.

Overview - Temporary stormwater diversion, installation of temporary retention structures, dewatering/water treatment, excavation of contaminated fill under odour enclosure and off-site treatment/disposal. Backfilling to existing grade.

1 Licences/Approvals

- Obtain all licenses/approvals, including variation to existing Environment Protection License, any waste approvals, conditions of planning approval, etc.

2 Site Establishment

- Install site fencing/exclusion zones and decontamination areas.
- Removal of site trees.
- Local protection/pruning of Hickson Rd trees, where required for retention wall construction.
- Install general environmental controls for excavation works (eg. bunding, sediment controls).
- Establish plant/equipment.

3 Services Diversion

- Temporary diversion of existing stormwater service.
- Capping any remaining site services.

4 Perimeter Retaining Wall

- Construct temporary retention wall (eg. sheet piles in bentonite slurry/ secant piles) to facilitate excavation, on north, east and west boundaries. Final construction subject to future detailed design.
- Temporary ground anchors or associated support structures.

5 Dewatering and water treatment

- Use on-site Water Treatment Plant (WTP) for managing groundwater during excavation.
- Installation of dewatering infrastructure, groundwater extraction, transfer water to WTP, treat water and discharge per EPL requirements.

6 Construct Excavation Odour Control Structures

- Install temporary odour control structure(s) over proposed excavation areas. This may include installation of temporary ground structures (eg. piles/capping beam) and/or perimeter weights as required to provide support.
- Odour control may comprise multiple structures side-by-side to achieve coverage of the remediation area, and appropriate individual span of each structure.
- Structures to be installed to ensure all odours are contained. Air exhaust system and associated emissions control, air filters/treatment and stack.
- Odour control structures may include retractable doors and an air lock system at the entrance/exit to minimise odour emissions.
- Final structures to be subject to future detailed design.

7 Excavation

- Excavate contaminated soil from Block 5, per the AECOM Remedial Action Plan - Indicative excavation volume ~ 40,000m^3.

- Excavation of rock not proposed for remediation purposes, except limited excavation (if required) to remove tar seeps to the extent practical.
- Temporary odour control structure to be operated to manage and treat exhausted air. Include all associated maintenance & consumables.
- Water from excavation to be transferred to onsite water treatment plant for treatment and licensed discharge. Where required, highly contaminated liquid waste may be pumped by licensed liquid waste contractors (vacuum truck) and disposed offsite.
- Vehicles/plant to be decontaminated in wheel wash/cleaning area, prior to moving to other areas of site or off-site. Waste water transferred to water treatment plant.
- Conduct detailed monitoring (air, noise, water) throughout works.

8 Soil Treatment / Disposal

- Excavated contaminated material to be transported directly off-site for disposal in accordance with NSW EPA requirements and waste guidelines, following in-situ waste classification.
- Non-hazardous waste to be classified and transported off-site in covered trucks for landfill disposal.
- Hazardous classified material to be transported off-site to a licensed treatment facility for treatment, prior to landfill disposal.

9 Block 5 Area Validation

- Validate excavation per RAP – inspections and sampling/testing.

10 Backfilling and Decommissioning

- Decommission excavation temporary odour control structures following excavation.
- Backfill and compact excavations with suitable fill (either imported to site, or won from site, provided it satisfies HHERA criteria for the area).
- Remove temporary sheetpiles & temporary ground anchors.

CONSTRUCTION METHODOLOGY – HICKSON ROAD REMEDIATION AREA: IN-SITU METHOD

Construction methods for the **in-situ (preferred)** method of Hickson Road remediation are outlined below.

Install below ground wells and piping in Hickson Road, and install above ground, temporary compound in road reserve. Install groundwater control to part 36 Hickson Rd boundary.

Undertake in-situ chemical oxidation remediation of Hickson Rd, comprising a combination of injection and extraction of fluids from groundwater wells.

1 Licences/Approvals

- Obtain all licences/approvals, including variation to existing Environment Protection Licence (EPL), any waste approvals, conditions of planning approval, road authority etc.

2 Site Establishment

- Implement temporary traffic diversion as required (incl. temporary removal of street parking)
- Implement pedestrian diversions, where required.
- Local protection/pruning of Hickson Rd trees, where required for well installation.
- Install general environmental controls for works (eg. bunding, sediment controls).

3 Well and Piping Installation – Hickson Rd

- Undertake installation generally in two stages – west half and then east half of road. Localised traffic diversion and management on Hickson Rd and footpath
- Install groundwater injection or monitoring wells per Preliminary ISCO Remediation Workplan (AECOM 2014) and any modifications as required following the Pilot Trial.
- Anticipated to be approximately 60 wells (50mm diameter) – final quantity subject to selected contractor design.
- Install Soil Vapour Points per the Preliminary ISCO Remediation Workplan (AECOM 2014) and any modifications as required following the Pilot Trial. Anticipated to be approximately 30 soil vapour points. Final quantity subject to selected contractor design.
- Cut pavement and excavate shallow trenches to install required piping to connect wells to central compound area in the Hickson Rd reserve.
- Where required, wells and pavement to be re-instated, or road plates as applicable, to allow continued trafficking over. Some temporary traffic diversion may remain around some wells, as required for access and monitoring during works.
- Spoil generated to be transferred off-site for treatment or disposal, following classification
- Excess water to be collected, sampled and transferred for treatment, as required, and disposed accordingly.

4 Perimeter Retention Wall

- Install groundwater control wall (eg. secant piles) to gasworks structures at 36 Hickson Rd boundary.
- Implement odour control per the Preliminary Hickson Rd PRW Odour Control Plan.

5 In-situ Remediation Compound Set-up

- For each remediation stage – east half and then west half –temporary compounds to be set-up in road reserve.
- The temporary compound area within road reserve to be hoarded and fully secured to prevent unauthorised access.

- Appropriate traffic diversions to be in place per the Traffic Impact Assessment and any subsequent, approved Traffic Control Plans.
- Vehicle and pedestrian access to be maintained to 38 Hickson Rd, and Sewer Pumping Station 1129.
- Establish plant/equipment, Site accommodation incl. after-hours deliveries for over-sized loads or to minimise peak hour traffic impact.
- Chemical storage, deliveries and use within compound area to be per the Preliminary ISCO Workplan, future detailed contractor design and Dangerous Goods Storage requirements.
- Chemical or extracted liquid storage to be fully bunded as required.
- Soil Vapour extraction system set-up with carbon filters and emissions stack per Environment Protection License requirements.

6 In-situ Remediation Operation

- Undertake remediation in 2 stages;
  - 1st stage - east half of road/footpath (with traffic diverted to west)
  - 2nd stage – west half of road/footpath (with traffic diverted to east)
- Traffic diversions to maintain vehicle and pedestrian movement along Hickson Rd.
- Undertake injection and extraction in required areas, per the AECOM Remedial Action Plan, Preliminary ISCO Workplan, and future detailed contractor design.
- Chemical/materials deliveries to site as required during works.
- Collection of waste soil/material for classification, treatment & disposal off-site
- Management of extracted groundwater through either: (a) limited storage/treatment within the Hickson Rd compound area; (b) transfer to a temporary water treatment plant on the Barangaroo site, or (c) tankering off-site by licenced liquid waste contractors. Treated wastewater may be disposed to harbour per the Environment Protection Licence, or to sewer under an appropriate trade waste agreement.
- Detailed monitoring for the duration of works.

7 Localised Excavation (if required)

- If required, undertake localised contamination excavation, to supplement in-situ remediation process.
- Odour control enclosures would be used for significant excavation works, with alternative suitable odour controls applied for minor excavation works. Alternative controls would include limiting exposed excavations, use of foams, covers and odour suppressants.
- All excavated material to be loaded into sealed trucks, and transported off-site to a licensed facility for treatment/disposal.

8 Hickson Rd Validation

- Validate remediation areas per RAP. Includes detailed soil and groundwater sampling.

9 Remediation Area Decommissioning

- Remove all above ground infrastructure and plant
- Cap all below ground wells/piping and leave in-situ
- Temporary restoration of Hickson Rd pavement and footpath where required around wells/piping.
- Remove traffic diversions, and restore regular traffic.

CONSTRUCTION METHODOLOGY – HICKSON ROAD REMEDIATION AREA: EX-SITU METHOD

Construction methods for the **ex-situ** method of Hickson Road remediation are outlined below.

Undertake ex-situ remediation through excavation of required contamination beneath odour enclosures, and off-site treatment disposal of excavated material. Includes traffic diversion, groundwater control walls, dewatering, water treatment, backfilling and temporary road restoration.

1 Licences/Approvals

- Obtain all licences/approvals, including variation to existing Environment Protection Licence (EPL), any waste approvals, conditions of planning approval, road authority etc.

2 Site Establishment

- Implement traffic diversions to establish temporary work zones, where remediation and works staging required. Maintain through traffic on Hickson Rd at all times.
- Implement pedestrian diversions, as required.
- Undertake remediation in 2 main stages (east and west):
  - 1st stage - Temporarily close one half and undertake remediation, backfilling and re-surfacing, while traffic is diverted to other half.
  - 2nd stage - Following 1st stage (including re-instatement), re-divert traffic and complete remaining stage.
- Install site hoarding/exclusion zones and decontamination areas
- Local protection, pruning or removal of site trees as required, per Arboricultural Impact Assessment
- Install general environmental controls for excavation works (eg. bunding, sediment controls).
- Establish plant/equipment, Site accommodation incl. after-hours deliveries for over-sized loads or to minimise peak hour traffic impact.

3 Services Diversion

- Temporary diversions or protection of existing services, as required.

4 Perimeter Retaining Walls

- Install groundwater control wall (eg. secant piles) to gasworks structures at 36 Hickson Rd boundary.
- Construct retention walls (eg. secant piles) within Hickson Rd to facilitate excavation in controlled stages, as required.
- Implement odour control per the Preliminary Hickson Rd PRW Odour Control Plan.
- Temporary ground anchors or associated support structures.

5 Dewatering and water treatment

- Installation of dewatering infrastructure and piping, to transfer dewatered groundwater to a temporary Water Treatment Plant (WTP) on Barangaroo. Include trenching across road (and appropriately restored to allow continued trafficking over).
- Undertake groundwater extraction, transfer water to the WTP, treat water and discharge per EPL requirements.
- Where required, highly contaminated liquid waste may be pumped by licensed liquid waste contractors (vacuum truck) and disposed off-site.

6 Construct Excavation Odour Control Structures

- Install temporary odour control structure(s) over required excavation areas, in stages. This may include installation of temporary ground structures (eg. piles/capping beam) and/or perimeter weights as required to provide support.
- Structures to be installed to ensure all odours are contained. Air exhaust system and associated emissions control, air filters/treatment and stack.
- Odour control structures may include retractable doors and an air lock system at the entrance/exit to minimise odour emissions.
- Final structures to be subject to future detailed design.

7 Excavation

- Excavate contaminated soil from Hickson Rd, per the AECOM Remedial Action Plan - indicative excavation volume ~ 16,000m3.
- Undertake excavation of east & west halves of Hickson Rd in stages. All excavation to be undertaken beneath odour control structures.
- Excavation of rock where required to facilitate contamination excavation from historic gasworks structures.
- Temporary odour control structures to be operated to manage and treat exhausted air.
- Vehicles/plant to be decontaminated in wheel wash/cleaning area, prior to moving off-site.
- Conduct detailed monitoring (air, noise, water) through-out works.

8 Soil Treatment / Disposal

- Excavated contaminated material to be transported directly off-site for treatment or disposal in accordance with NSW EPA requirements and waste guidelines. Allowance for temporary stockpiling, as required, to classify or inspect material.
- All material to be transferred in sealed trucks (with odour suppressant foam or similar as required) to mitigate potential odours.
- Hazardous classified material to be transported off-site to a licensed treatment facility for treatment, prior to landfill disposal.

9 Hickson Rd Area Validation

- Validate excavations per RAP – inspections and sampling/testing.

10 Backfilling and Decommissioning

- Following each excavation stage, decommission temporary odour control structures.
- Backfill and compact excavations with suitable imported fill or suitable excavated soil.
- Temporary restoration of road/pavements as required, to match existing.
- Following works, plant new street trees to replace those removed (unless new landscaping requirements are approved generally for Hickson Rd, under separate DA/approvals).

Appendix 6

Appendix 6 – Environmental Monitoring and Inspection

Table 1 – Ambient air quality monitoring

Parameter	Equipment	Frequency	Method	EPL point(s)	EPA Criteria	Reactive Trigger	Reactive Response
TSP	HVAS	24 hours every 6 days	AM-15 AS 3580.9.3:2015	4, 6	90 µg/m^3 as an annual average	-	-
PM_{10}	TEOM	Continuous	AM-22 AS 3580.9.8-2008	4	50 µg/m^3 24 hour average[1] 30 µg/m^3 annual average	See trigger table	See trigger table
PM_{10}	Aeroqual Dust Sentry	Continuous	Aeroqual method	5, 6	50 µg/m^3 24 hour average[1] 30 µg/m^3 annual average	See trigger table	See trigger table
Heavy Metals	HVAS	24 hours every 6 days	AM-15 AS 3580.9.3:2015	4, 6	DEC (2005)[3]	-	-
PAH (speciated)	HVAS	24 hours every 6 days	AM-15 AS 3580.9.3:2015	4, 6	N/A	-	-
VOCs (total)	PID	Daily	PID method	4, 5, 6	N/A	10 ppm[2]	Corrective actions to mitigate fugitive emissions. If fugitive emissions remain, speciated monitoring to inform potential exposure.
VOC (speciated)	Summa	Initially over 3 days, then as per VOC reactive response	USEPA TO-15	As needed	DEC (2005)[3]	-	-
Odour	Field Olfactometer	Morning, followed by afternoon if odour exceeds trigger level	Nasal Ranger Operational Manual V6.2	Odour locations	N/A	≥ 2 D/T with a mothball-type character associated with works on two consecutive events	Corrective actions to mitigate fugitive emissions.
Met station	-	Continuous	AM-4 AS3580.14 - 2014	4	Site complies with *Approved Methods*	N/A	N/A

Notes:

[1] 24 hour average of a calendar day defined as midnight to midnight.

[2] Trigger level to be revised if required depending on initial monitoring results.

[3] Too many criteria to list; criteria based on DEC (2005)

Table 2 – Water quality monitoring

Detail	Frequency	Parameters & Standards	Reporting	Responsibility
Water Treatment Plant monitoring in accordance with the requirements of EPL 13336, including: • Water quality monitoring of discharge from water treatment plant. • Discharge volumes from the water treatment plant. • Recycled water volumes from the water treatment plant. Located at Discharge Point 9.	As set out in EPL 13336: • Once prior to discharge during batch operation, up to 36 hours duration; • Once daily during intermittent continuous operation, up to 72 hours duration; • Once daily for the first fourteen days of continuous operation, then weekly	EPL 13336 requirements, as set out in Water & Stormwater Management Sub-Plan Appendix E.	Selected data to EPA as part of the monthly WTP Performance Report.	EHS Manager (Environment) Specialist Contractor
Ambient water quality monitoring in Darling Harbour utilising two continuous monitoring stations adjacent to the site, measuring temperature, electrical conductivity, pH, and turbidity. Located at ambient monitoring locations 10 and 11.	Continuous	EPL 13336 requirements 63 NTU turbidity	Selected data to EPA as part of the monthly Ambient Water Quality Monitoring Report.	EHS Manager (Environment) Specialist Contractor
Reactive ambient water quality monitoring of receiving waters in response to plumes, incidents, audits and other compliance programs.	As required	EPL 13336 requirements	Selected data to EPA as part of the monthly Ambient Water Quality Monitoring Report.	EHS Manager (Environment) Specialist Contractor
Inspection of the construction site and stormwater discharge outlets	Weekly and daily after rainfall	-	Weekly EHS Checklist. If areas require cleaning or maintenance, the relevant Site Manager or Foreman will be requested to undertake relevant actions.	EHS Co-ordinator Site Manager

Table 3 – Noise & vibration monitoring

Detail	Frequency	Standards	Reporting	Action if non-complying	Responsibility
Continuous unattended noise monitoring at locations shown in Appendix 1, both L_{Aeq} and $L_{Aeq(>1000Hz)}$ (the web-based monitoring system used for Barangaroo South is shown in Appendix 4).	Real-time monitoring using a web-based system.	NMLs as per Noise & Vibration Management Sub-Plan.	Monthly	Follow noise response table. Seek professional acoustic input if required.	EHS Manager (Environment) Noise Specialist
Construction equipment monitoring (noise audit) to assess compliance with expected noise levels, and to allow any increase in noise levels to be detected and addressed.	If equipment is perceived as being noisy or noisier than other similar equipment, or in response to complaints.	Typical Plant & Equipment Noise Levels as per Noise & Vibration Management Sub-Plan, AS 2012	N/A	Assess equipment and undertake remedial action such as repair, noise-proofing, redeployment or removal.	Subcontractors Noise Specialist
Attended noise monitoring: • in response to complaints, • to refine construction methods to minimise noise, • to differentiate between construction noise sources and other sources (eg. road traffic or Crown works), • to assess internal construction noise levels at commercial premises, if needed, or • as needed during site establishment.	As required.	NMLs as per Noise & Vibration Management Sub-Plan. AS 1055	As required Monthly	Follow noise response table. Seek professional acoustic input if required.	EHS Manager (Environment) Noise Specialist
Attended vibration monitoring: Trial testing where equipment identified as having potential to exceed human comfort criteria is proposed	As required for changes in works or complaints.	EPA guidelines BS6472 DIN4150 Part 3	Monthly	Cease relevant activities, and/or implement additional measures.	EHS Manager (Environment) Vibration Specialist
Integrity of site hoarding.	Weekly.	Hoarding intact.	Weekly Site Checklist	Construction Manager to repair or replace	Foreman

Table 4 – Environmental Inspections

Type	Location(s)	Parameter(s)	Frequency	Technique	Reporting	Responsibility	Duration
EHS (Environment) Manager Inspections	All	See example weekly site inspection checklist below	Weekly, or as required based on risk level	Observation	Immediate if observed	EHS (Environment) Manager	All construction phase

Example EHS Site Assessment Checklist

Project Name: ..... Assessment Date: .....

Assessor Name: Signature:

N/A		Satisfactory Yes	Satisfactory No	Action Priority 1	Action Priority 2	Action Priority 3	Brief description of Action if required	Close out (Sign and date)
	Air quality							
☐	Stock piled materials protected	☐	☐	☐	☐	☐		
☐	Site roads (adequate surface)	☐	☐	☐	☐	☐		
☐	Emissions	☐	☐	☐	☐	☐		
	Noise							
☐	Machinery & equipment	☐	☐	☐	☐	☐		
☐	Hours of operation	☐	☐	☐	☐	☐		
☐	Management of adjoining neighbours	☐	☐	☐	☐	☐		
☐	Vibration/blasting controls	☐	☐	☐	☐	☐		
	Stormwater Run off/Discharge							
☐	Silt curtain and fencing	☐	☐	☐	☐	☐		
☐	Water treatment plant	☐	☐	☐	☐	☐		
☐	Stormwater inlet protection	☐	☐	☐	☐	☐		
☐	Protection of water bodies	☐	☐	☐	☐	☐		
☐	Erosion control measures	☐	☐	☐	☐	☐		
☐	All weather site measures	☐	☐	☐	☐	☐		
	Vegetation							
☐	Fencing of retained trees	☐	☐	☐	☐	☐		
☐	Stockpile of topsoil	☐	☐	☐	☐	☐		
☐	Maintenance of drainage to vegetation	☐	☐	☐	☐	☐		
☐	Protection from dust	☐	☐	☐	☐	☐		
☐	Stockpiling material/machinery around tree bases	☐	☐	☐	☐	☐		
	Waste Management							
☐	Project Waste Reduction Plan	☐	☐	☐	☐	☐		
☐	Subcontractor involvement	☐	☐	☐	☐	☐		
☐	Demolition Plan	☐	☐	☐	☐	☐		
☐	Waste Contractor involvement	☐	☐	☐	☐	☐		
☐	Record keeping	☐	☐	☐	☐	☐		
☐	Paint disposal	☐	☐	☐	☐	☐		
☐	Site litter	☐	☐	☐	☐	☐		
☐	Contaminated soil/waste	☐	☐	☐	☐	☐		
	Hazardous Materials							
☐	Bunded storage	☐	☐	☐	☐	☐		
☐	Handling/transport	☐	☐	☐	☐	☐		
☐	Identification	☐	☐	☐	☐	☐		
☐	Refuelling of machinery	☐	☐	☐	☐	☐		
☐	Records	☐	☐	☐	☐	☐		
☐	Site entry/exit	☐	☐	☐	☐	☐		
☐	Wheel wash-down	☐	☐	☐	☐	☐		
☐	Concrete equipment wash-down	☐	☐	☐	☐	☐		
☐	All weather surfaces	☐	☐	☐	☐	☐		
☐	Adequate drainage	☐	☐	☐	☐	☐		
☐	Public road condition (mud/dirt)	☐	☐	☐	☐	☐		
	Risk Assessment							
☐	MSDS/Codes of Practice/Quality	☐	☐	☐	☐	☐		
☐	Design Risk Assessment Available	☐	☐	☐	☐	☐		

☐	All activities covered?	☐	☐	☐	☐	☐		
☐	Close out	☐	☐	☐	☐	☐		
	Statutory Licences/Notices							
☐	Compliance	☐	☐	☐	☐	☐		
☐	Records	☐	☐	☐	☐	☐		
	Housekeeping							
☐	Materials stacked	☐	☐	☐	☐	☐		
☐	Work area lit	☐	☐	☐	☐	☐		
☐	Bins available & used	☐	☐	☐	☐	☐		
☐	Barricading in place	☐	☐	☐	☐	☐		
☐	Signage in place	☐	☐	☐	☐	☐		
☐	Leads suspended	☐	☐	☐	☐	☐		
☐	Access walkway & stairs clear	☐	☐	☐	☐	☐		
☐	Over/under	☐	☐	☐	☐	☐		
	Personal Protective Equipment							
☐	Availability/condition	☐	☐	☐	☐	☐		
☐	Appropriate	☐	☐	☐	☐	☐		
☐	Correct use	☐	☐	☐	☐	☐		
	Plant & Equipment							
☐	Plant Register up to date	☐	☐	☐	☐	☐		
☐	Records of Maintenance	☐	☐	☐	☐	☐		
☐	Pre-use sign-off	☐	☐	☐	☐	☐		
☐	Daily checklist	☐	☐	☐	☐	☐		
☐	Manufacturer's recommendation	☐	☐	☐	☐	☐		
☐	No excessive emissions from exhaust >10 seconds	☐	☐	☐	☐	☐		
☐	Operator competency	☐	☐	☐	☐	☐		
	Electrical							
☐	Temporary boards	☐	☐	☐	☐	☐		
☐	Register of tagging	☐	☐	☐	☐	☐		
☐	Leads & tools tagged	☐	☐	☐	☐	☐		
☐	Earth Leakage protection functional	☐	☐	☐	☐	☐		
	First Aid/Emergency Procedures							
☐	First Aid facilities	☐	☐	☐	☐	☐		
☐	First Aider	☐	☐	☐	☐	☐		
☐	Evacuation procedure	☐	☐	☐	☐	☐		
☐	Emergency numbers	☐	☐	☐	☐	☐		
☐	Fire protection	☐	☐	☐	☐	☐		
	Reporting – Incidents/Accidents							
☐	Records & P1's	☐	☐	☐	☐	☐		
☐	First Aid book	☐	☐	☐	☐	☐		
☐	Third Party notification	☐	☐	☐	☐	☐		
☐	Investigation	☐	☐	☐	☐	☐		
	Public Protection							
☐	Site security	☐	☐	☐	☐	☐		
☐	Overhead protection	☐	☐	☐	☐	☐		
☐	Segregation of workplace from public	☐	☐	☐	☐	☐		
	Training							
☐	Provided for risk assessment	☐	☐	☐	☐	☐		
☐	MESH	☐	☐	☐	☐	☐		
☐	Environmental awareness	☐	☐	☐	☐	☐		
	Inductions							
☐	Record of induction – safety & environment	☐	☐	☐	☐	☐		
☐	Subcontractor inductions	☐	☐	☐	☐	☐		
☐	Documented induction material (Quality)	☐	☐	☐	☐	☐		
	Working at Height							
☐	Perimeter protection	☐	☐	☐	☐	☐		

☐	Handrails in place	☐	☐	☐	☐	☐				
☐	Penetrations Covered	☐	☐	☐	☐	☐				
☐	Catenary Systems	☐	☐	☐	☐	☐				
	Manual Handling									
☐	Training	☐	☐	☐	☐	☐				
☐	Work Methods appropriate	☐	☐	☐	☐	☐				
Action:	**1. Immediate**	**2. Within 24 Hours**		**Within 7 Days**						

Appendix 7

Appendix 7 – Environmental Reporting Program

Table 1: Regular Reporting

Report title	Required by	Frequency	Prepared	Approved	Submit to	Scope
Monthly project report - environmental aspects	LLB	Monthly	Construction Manager / EHS (Environment) Manager	Construction Manager	LLMP	As per the 'GMR Self Assessment Checklist'. Environmental monitoring results.
Air Emissions Monitoring Report	EPL	Monthly	EHS (Environment) Manager	Environment Manager	BDA/EPA	Reporting: • review all air monitoring data collected in compliance with the EPL and Air Quality Monitoring Plan. • provide an interpretation of those results and any relevant site management responses.
WTP Performance Report	EPL	Monthly	EHS (Environment) Manager	Environment Manager	BDA/EPA	Reporting: • review and compare the performance of the WTP against EPL requirements, including concentration limits, discharge volumes, recycled water quantities and quality. • circumstances which triggers additional monitoring arrangements. • details about incidents and responses. • results of visual inspections of water quality controls including silt curtains. • any remedial action undertaken to ensure compliance with licence conditions.
Ambient Water Quality Monitoring Report	EPL	Monthly	EHS (Environment) Manager	Environment Manager	BDA/EPA	Reporting: • all results for ambient water quality monitoring around the site, • an interpretation of those results • any relevant site management responses.
Environmental Monitoring Summary Reports	POEO Act section 66(6)	Monthly	EHS (Environment) Manager	Environment Manager	BDA for website	Reporting: • Results of monitoring required by a EPL condition.
EPL Annual Return	EPL Section R1	Annually, 12 months after issue of licence.	EHS (Environment) Manager	General Manager	BDA/EPA	Reporting: • Statement of compliance; • Monitoring and complaints summary (water quality and turbidity; and noise and vibration).
'EnableOn' reporting	LLB	Weekly	Project Engineer	Project Manager	LLB	EHS statistics.
NGERS reporting	LLB	Monthly	Project Engineer	Project Manager	LLB	NGERs requirements.
Quarterly Compliance Report	Planning approvals	Quarterly	EHS (Environment) Manager	Project Manager	DP&E	Compliance with all relevant conditions of Part D of each of the planning approvals.

Table 2: Irregular Reporting

Report title	Required by	Frequency	Prepared	Approved	Submit to	Scope
WTP Commissioning Report	EPL	Once, 60 days after commissioning. Updated as works progress	Contractor/ EHS (Environment) Manager	Environment Manager	BDA/EPA	• details about plant performance when treating a representative range of influents during the initial stage of works - establishment works and installation of the perimeter retaining wall. • update as works progress and as other influents are encountered at the site and directed to the WTP for treatment (for example contaminated groundwater, clean storm-water/surface water; contaminated storm-water/surface water; stockpile leachate, etc).
Environmental Incident Report	EPL Sections R2 and R3	As required	EHS (Environment) Manager	Project Manager	BDA/EPA Harbour Master	Immediately notify BDA/EPA as per established reporting procedures in the *Incident Management Chart*.
Dewatering information	Dewatering Licence	Within two months of completion	EHS (Environment) Manager	EHS (Environment) Manager	NSW Office of Water	(a) details of the work as set out in form "a" (must be completed by a driller licenced in NSW). (b) a plan showing the location of work in relation to portion and property boundaries, (c) details of any pumping tests carried out, (d) details of any water analysis; All raw monitoring data for pumping authorised by the licence in an electronic format that is compatible with Microsoft Office and Adobe Acrobat software.

Appendix 8

Appendix 8: Sustainability Measures

Measure	Source			How has it been addressed?	Where addressed
	Green Star	EIS/RtS	RFDP		
Environmental Management Plan (EMP) as per NSW guidelines	✓	✓		Preparation & implementation of a Project EHS Plan	Project EHS Plan
Certified Environmental Management System (EMS), which includes sub-contractors	✓	✓		Implementation of the LLB 'Source' EMS system	LLB Source
Waste Management Plan, waste records and reports	✓	✓		Preparation & implementation of a Spoil & Waste Management Sub-Plan	Spoil & Waste Management Sub-Plan
> 90% reduction of C&D waste to landfill (by weight)	✓	✓			Spoil & Waste Management Sub-Plan
> 97% recycling of C&D waste to landfill (by weight)			✓	Overall Barangaroo target, for Stage 1A/1B C&D waste	Spoil & Waste Management Sub-Plan
60% reduction in greenhouse gas emissions compared to business as usual waste disposal		✓			Barangaroo South Climate Positive Work Plan
Remediation	✓	✓		Remediation of soils	Remedial Action Plan, Remedial Works Plans
Landscaping/habitat improvement	Option				Concept Plan
Innovation	✓				Barangaroo South Climate Positive Work Plan
Exceeding Green Star, and implementing a measure outside criteria for Green Star	Option				Barangaroo South Climate Positive Work Plan
Supply chain transformation			✓		Barangaroo South Climate Positive Work Plan
Barangaroo Green Skills Exchange			✓		Barangaroo South Climate Positive Work Plan
LLPMC sustainability training, including sub-contractors			✓		Barangaroo South Climate Positive Work Plan
LLPMC Sustainability Core Skills Program			✓		Barangaroo South Climate Positive Work Plan
Community engagement			✓		Community and Stakeholder Engagement Strategy
Materials reuse and selection			✓		Barangaroo South Climate Positive Work Plan
Transport management			✓		Barangaroo South Climate Positive Work Plan
Sustainable site facilities			✓		Barangaroo South Climate Positive Work Plan
Groundwater treatment and reuse			✓		Water & Stormwater Management Sub-Plan