

# STC50

## Environmental, Construction and Site Management Plan



Prepared for: Sydney Theatre Company  
Pier 4 Hickson Road  
Walsh Bay NSW 2000

Prepared by: Cadence Australia  
10 November 2016  
Revision B

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# 1. Introduction

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This preliminary Environmental, Construction and Site Management Plan (ECSMP) has been prepared by Cadence Australia Pty Ltd on behalf of Sydney Theatre Company (STC) to accompany the Environmental Impact Statement (EIS), for the refurbishment of internal areas of the Wharf Theatre at Wharf 4/5, Walsh Bay, to fulfil the Secretary Environmental Assessment Requirements for the State significant redevelopment.

This ECSMP addresses all construction issues for the aforementioned purpose. The intention of this document is to communicate that this development has been well considered, and will be undertaken in a manner that seeks to minimise disturbance and impact on the surrounding environment. Items contained in this ECSMP include:

- Outline of major works;
- Heritage consideration;
- Public amenity, safety, and pedestrian management;
- Materials handling;
- Traffic management including public transport interfaces;
- Environmental management including water and waste management;
- Impact on adjoining and surrounding properties; and
- Community consultation, notification and complaints handling.

STC are committed to engaging with the local community, the City of Sydney Council, Government Agencies and stakeholders as we plan and deliver STC50.

Whilst the construction scope is mainly internal and the construction methodology is encapsulated within the Wharf to mitigate impacts to the surrounding environment, the potential remains for possible temporary disruption to surrounding areas during the construction phase. However, STC and their Contractor will work closely with the concurrent development of WBAP including ongoing coordination with INSW and Arts NSW, the City of Sydney Council, neighbours, existing tenants, occupants, stakeholders and transport authorities to create plans that will ensure minimal impact and disruption to the surrounding area.

Consultation will continue to be a key priority throughout the construction process to ensure the community and stakeholders receive regular updates and have the opportunity to provide feedback.

The final version of this Plan will ensure all construction is properly facilitated, integrated and coordinated thus guaranteeing the Project's objectives are met.

It is intended that further detailed ECSMP's and works plans, for each phase of the project, as outlined in this plan, will be prepared and relevant approvals secured prior to construction commencement.

## 1.1 Overview

This ECSMP has been prepared for the purposes of responding to the Secretary's Environmental Assessment Requirement for the STC Wharf Theatre refurbishment. This

preliminary plan has been formulated from an SSDA for the Walsh Bay Arts Precinct and may require changes to meet stakeholder requirements, as detailed design progresses.

The scope of this report provides a holistic approach that:

- Advises how the project management team will comply with the requirements of the contract relating to construction;
- Defines the project objectives and targets of particular relevance to the construction phase;
- Describes constraints specific to the construction phase and the project in general;
- Describes the process for the identification and control of risks specific to the construction phase; and
- Details the proposed strategy for the construction phase, with particular regard to establishment resourcing, site organisation and construction controls.

## 2. Works Description

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### 2.1 The Site and surrounds

The site generally comprises of Ground Level, Mezzanine Level and Levels 1, 2 & 3 of Wharf 4/5, and associated shore sheds, forming part of the Walsh Bay Arts Precinct (WBAP). The site has a street frontage to Hickson Road. The site is shown in Figures 1 and 2. The site is part of the Walsh Bay area which is located adjacent to Sydney Harbour within the suburb of Dawes Point. Walsh Bay is strategically located to the north of Sydney's CBD in the vicinity of major tourist destinations including the Sydney Harbour Bridge, the historic areas of Millers Point and The Rocks, Circular Quay and the Sydney Opera House. The Barangaroo redevelopment precinct is located immediately to the south-west. The site is located within the City of Sydney Local Government Area.

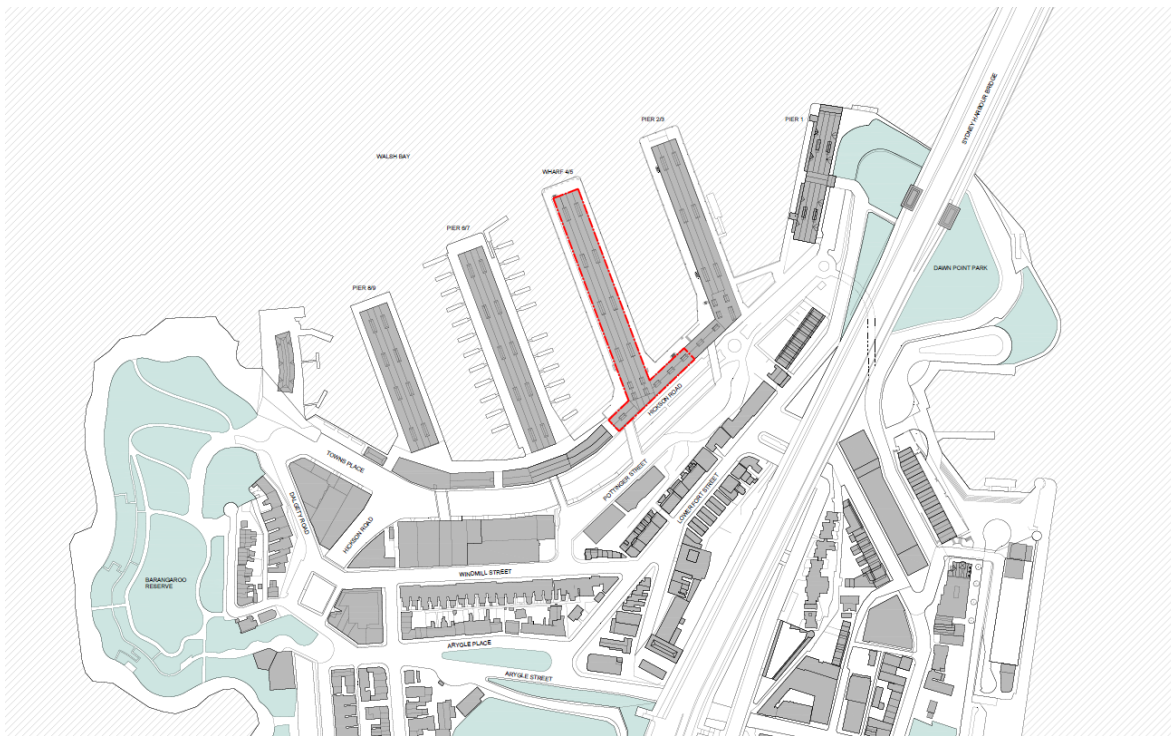


Figure 1: Site Location (Source: Hassell 2016)



**Figure 2: Aerial view** (Source: [www.nearmap.com](http://www.nearmap.com))

Wharf 4/5 is legally described as Lot 65 in DP 1048377. Wharf 4/5 is occupied under various long term lease arrangements with Arts NSW and Department of Justice, primarily for arts and cultural uses. The land owner of the entire WBAP site is the Roads and Maritime Services (RMS). RMS' land title Walsh Bay comprises ten berths constructed between 1908 and 1922 for international and interstate shipping. These are collectively known as the Walsh Bay Wharves. The Walsh Bay Wharves Precinct is listed as an item on the State Heritage Register.

The Walsh Bay Wharves comprise the following:

- Pier One which contains the Sebel Pier One Sydney Hotel;
- Pier 2/3 is the last remaining undeveloped pier (has previously received approval for cultural uses, temporary arts events and some commercial events);
- Wharf 4/5 which is occupied by the Sydney Dance Company (SDC), the Sydney Theatre Company (STC), Australian Theatre for Youth Program (ATYP), Bangarra Dance Theatre and other arts organisations;
- Pier 6/7 which has been redeveloped for residential apartments and associated boat marina;
- Pier 8/9 which has been redeveloped for office uses; and
- Shore sheds aligning Hickson Road which hosts a range of commercial activities, including Choir and other Arts tenants, restaurants, bars, shops and offices.

## **2.2 The Project**

The NSW Government is currently developing plans to refurbish the surrounding WBAP, including Pier 2/3, lower levels of Wharf 4/5, and adjacent shore sheds, along with construction of a waterfront square. STC aim to collaborate with Arts NSW and Infrastructure NSW (INSW) to deliver STC50 in conjunction with the WBAP project.

The STC50 internal fit-out works form Part 2 of the redevelopment, following Part 1; INSW led external works to upgrade the Wharf 4/5 structure and external fabric (façade, roof, load bearing structure).

STC50 will provide a much needed refurbishment of the STC facilities, of which have not been updated since the STC space was established at Wharf 4/5 over 30 years ago. The refurbishment will address out-dated accessibility conditions and the inadequate existing acoustic treatment in theatre and rehearsal spaces.

## **2.3 The Principal Contractor**

The STC appointed Principal Contractor will likely be the same as for the WBAP to ensure an integrated construction approach is developed and co-ordinated. On the alternative, the Principal Contractor for the Part 2 works will need to comply and organize its works in line with the overall WBAP Contractor programme and requirements to deliver a cohesive and efficient construction programme. This ECSMP has been developed in concert with the ECSMP for WBAP.

## **2.4 Major Works**

### WBAP Works (to be carried out by INSW)

Improved street entry at Hickson Road involving relocation of the stairs to allow for an improved landing and point of arrival to the STC;

- New 'gantry' balconies, stairs and lifts mid-wharf and at the end of the wharf to provide for improved accessibility and compliance with fire engineering solutions;
- Minor amendments to the existing façade to accommodate new entries and exits along the wharf;
- Roof penetrations and reinstallation of existing photovoltaic panels where applicable;
- Facade cladding modifications and repairs, and
- 'Popping' of the roof to increase head height for theatre set construction.

### STC Works (Internal Fit-out STC)

The proposed internal upgrade of the Sydney Theatre Company's facilities at Wharf 4/5 Walsh Bay will comprise internal alterations and reconfiguration of spaces and uses as outlined below:

#### Ground Level

- New box office / ticketing area at southern end of wharf and administration / staff areas

#### Mezzanine

- Additional offices at southern end of wharf

### Level 1 (Main Floor)

The co-location of Wharf 1 and 2 Theatres to create two distinct performance spaces that are flexible in seating configuration and use. The new theatres will comprise:

- A new multi-format flexible studio space (Wharf 1 Theatre) with seating for 350 – 450 and additional height over the seating and stage areas for the rigging of technical equipment.
- A new studio theatre space (Wharf 2 Theatre auditorium) with retractable or removable seat with a capacity of 150-200 seats in various configurations.
- New public display space and formal meeting area to south of Theatre 2 mid wharf with an atrium over.
- Upgrade to existing restaurant and bar area at northern end of wharf and terrace balcony including back of house areas.
- Improved rehearsal and dressing room spaces and introduction of more flexible spaces including:
  - co-located rehearsal spaces with shared back of house area
  - provision for two set up floors at the southern end of the wharf with back of house area to allow transportation of sets to the theatres
  - administration, costume and props areas within the shore sheds

### Level 2 (mezzanine)

- Administration area and meeting rooms
- provision of a new multi-purpose function room with balcony with capacity for 120 persons at the northern end of the wharf overlooking the restaurant and the harbour
- Level 5 (under roof)
- Lighting bridge and technical area
- Administration

### Other works

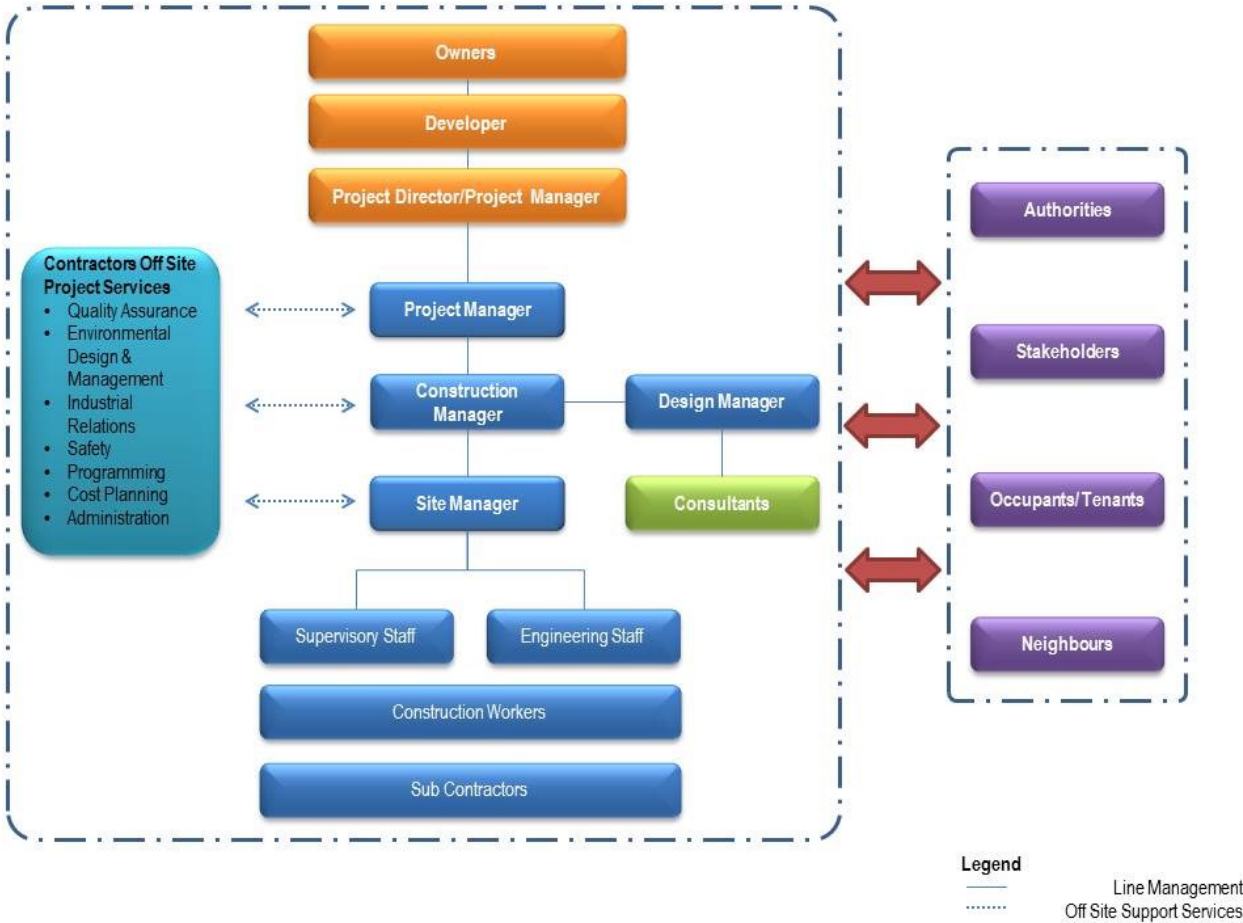
- The removal of the existing fire tunnel within the building and associated reconfiguration of the space into the new layout as above plus addition of new fire stairs
- Improvements to acoustics, amenities, back of house and plant areas / facilities,
- Relocation, reconfiguration and improvements to administration areas centrally within the wharf
- Upgrade of services and infrastructure; and
- New loading and access arrangements to improve movement arrangements between technical and production areas.

The proposal provides for an increase in theatre capacity from existing 550 persons to a maximum of 650 persons in the combined Wharf 1 and 2 theatres. It also provides for a new multi-purpose public/event space with combined capacity for 200 persons over and above the existing Theatre Bar capacity of 500 persons. Accommodation for administrative staff will also increase from existing to a maximum of 200.

Refer to Architectural Drawings as prepared by Hassell.

**2.5 Site Management**

STC intends to appoint a Principal Contractor for the construction management of the STC50 project works. An indicative organisational and responsibilities chart is shown below.



**Figure 3: Organisational and Responsibility Chart**

### **3. Physical Constraints of the Site**

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An understanding has been developed of the physical constraints that impact on the STC50 site. A summary of these physical constraints follows.

#### **3.1 Transport and Accessibility**

The STC50 site is located within close proximity to many transport modes including private vehicles (both land and seaside), ferries and buses.

Works on the STC50 project will be carefully coordinated to ensure there will be minimal affect to traffic arterials, other transport modes within the vicinity or pedestrian movements around the site.

The Contractor will liaise with council & transport authorities throughout the period of construction and keep all stakeholders informed of any changes to existing conditions.

#### **3.2 Heritage Context**

The subject site, Wharf 4/5, is part of the Walsh Bay Wharves precinct which is listed as an item on the State Heritage Register. Wharf 4/5 was constructed in 1922 as a Federation style, two-level wharf structure. It consists mainly of timber structure with regular grid layout, altered in the early 1980s to accommodate the Sydney Dance Company, Sydney Theatre Company, Bangarra Dance Theatre and Australian Theatre for Young People.

Wharf 4/5 is recognised as a highly successful adaptive reuse of a redundant finger wharf and important heritage item. Its redevelopment 30 years ago was the subject of numerous architectural and design awards.

The design, procurement process, staging and methods of construction have been developed with a sensitive attention to these constraints and these details are covered in Section 5 of the ECSMP.

#### **3.3 Adjoining and Neighbouring Properties**

The STC is situated in the midst of a number of neighbouring properties of varying usages, predominantly surrounded by commercial and residential properties. This section highlights the adjoining properties which may be impacted during the construction period.

Refer to the plan in Appendix 1.

##### **Pier 1**

This area contains a mixture of commercial (hotel accommodation) and restaurants, approximately 60 metres in distance from Pier 2/3.

##### **Pier 2/3**

This area contains Commercial Events/Arts Spaces on Ground Level and Level 1, with ATYP, Bell Shakespeare and the Australian Chamber Orchestra located on the upper levels.

##### **Wharf 4/5**

This area accommodates the Sydney Dance Company and Bangarra Dance Theatre on Ground Level and Level 1, and The Sydney Theatre Company on the upper levels. The

Ground Level of the Shore Shed towards the East also accommodates three Choirs and ATYP.

Adjoining Pier 2/3 and Pier 4/5 is a commercial property owned by RMS

**Pier 6/7**

Approximately 80 metres in distance from Wharf 4/5 is a residential area consisting of 140 apartments on the pier, in addition to 45 apartments and ground level commercial properties on the shore shed.

Behind the site and along Hickson road is a mixture of commercial and residential properties. The residential properties are approximately 70 metres in distance from Pier 2/3, whilst the commercial properties are approximately 50m in distance from Wharf 4/5.

## **4. Site Layout, Logistics and Materials Handling**

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The methodology has been driven by the objective to mitigate impacts to neighbours and existing tenants and this has been achieved by:

- Concentrating all materials handling within the piers and not external to the piers to avoid impact to neighbours
- Concentrating site shed and establishment within structure of the piers; and
- Using existing main entries and creating main construction access away from operating tenants and residents.

### **4.1 Materials Deliveries**

The Principal Contractor will confirm the final details of the planned materials handling and materials delivery logistics.

It is anticipated that all material will be delivered to the site via the Pottinger Street access.

The adjacent harbour will also be utilised for deliveries and other options including mobile and static crane usage if deemed appropriate by the Principal Contractor.

### **4.2 Site Access**

The establishment of designated access paths will provide for safe access for pedestrians adjacent to the work zones. A Traffic Management Plan will be developed by the Principal Contractor for the safe coordination of construction vehicles and pedestrian traffic to areas affected by construction activity.

Vehicles entering and exiting the site will do so in a controlled and planned manner with minimal disruption to local vehicular and pedestrian traffic. To sustain this focus the Contractor will manage construction, pedestrian and vehicular interactions on all public roads with traffic and pedestrian control. At all times the Contractor will be mindful of any work being undertaken by local authorities adjacent to and/or surrounding our site.

Refer to attached plan Appendix 2

The area that will facilitate access for personnel and materials to and from the site is via the overhead roadway to level 3.

#### **4.2.1 Site Access to Existing Levels 2, 3, 4 and Roof**

Vehicles that have been approved to access the existing floors will enter from level 3 for demolition and construction works for levels 3, level 4 and roof. Demolition Bins and recycling will be located on the roadway adjacent to the entry. This is necessary due to the restricted loading capacity of the existing structure. There will be no parking on the overhead roadway. Examples of site machinery are provided below. All machinery will be subject to structural engineer sign-off.

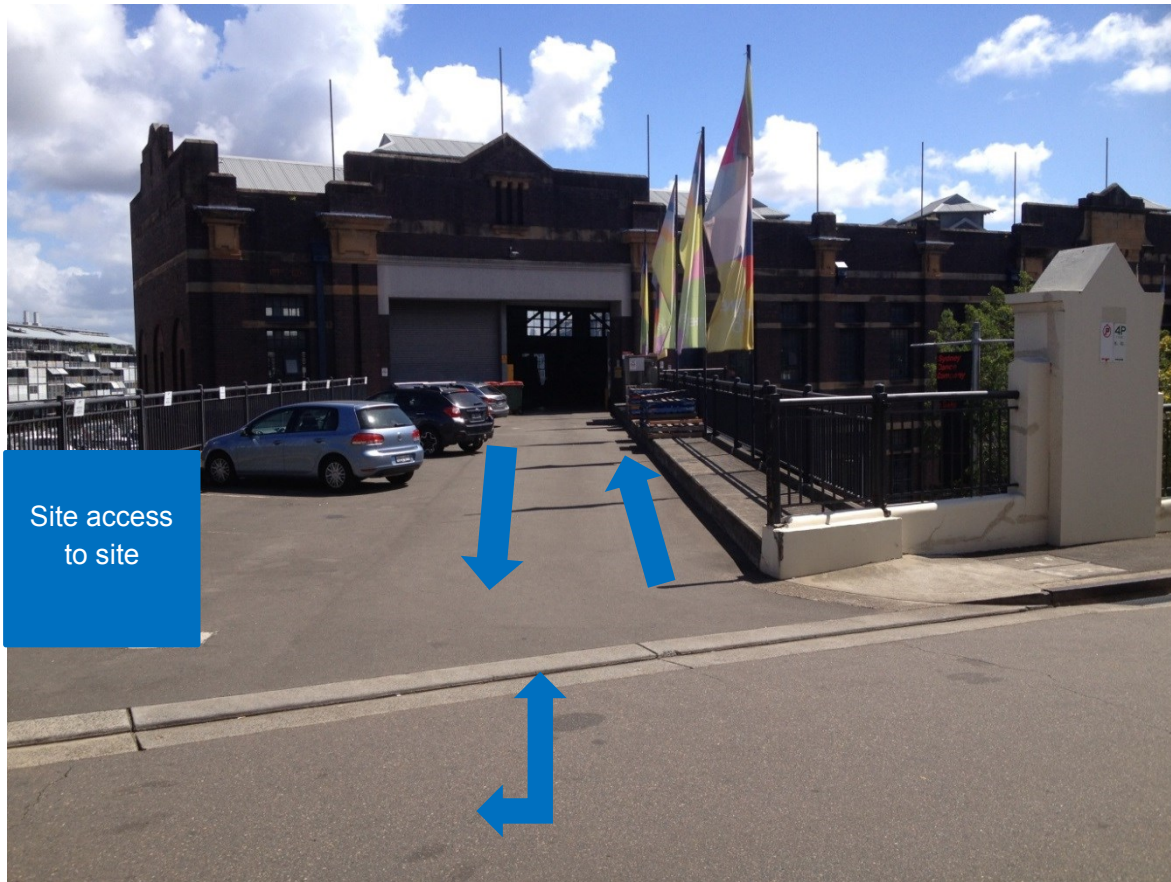


Figure 5 – Access to Level 3 via overhead roadway (Pottinger Street). A number of machines and vehicles will be required to access the site during the demolition process.

#### 4.2.2 Access to Existing Level 1

Access to the existing level 1 area will be again by the Potting Street access. Demolished Material will be placed into bins and transported to level 2 for removal.

#### 4.2.3 Demolition Machinery

A combination of excavator with pneumatic hammer, crushing and saw cutting will be used in the demolition of the concrete structures.



Figure 6 a) Small Front End Loader



b) Small Excavator for Demolition



Figure 7 a) Manitou



b) Small truck for transporting Demolition Waste



Figure 8 a) Maeda Crane



b) Excavator with Pneumatic Hammer



Figure 9 a) Remote Control Excavator

b) Bob Cat with Demolition Shears  
with Demolition Shears

#### 4.3 Hoardings and Overhead Protection

Hoardings will be installed to establish a secure barrier between the construction site and the general public.

Prior to the installation of hoardings onsite, the following will take place:

- Services, particularly essential services and life safety systems will be protected or relocated where necessary;

- Access provisions for emergency and routine maintenance will be facilitated by the contractor as necessary;
- The Principal Contractor will provide a plan that details the location and hoarding type at each location. An indicative layout is provided on the attached plan; and
- Disruption and service shutdown procedures will be developed and agreed between the various stakeholders prior to commencement.

Refer to attached plan Appendix 2.

The types of hoardings and fences will include:

### **Hoardings**

Hoardings may be erected to segregate the construction area from the public areas. The hoarding construction may include timber frame and plywood, or metal ATF type temporary fencing compliant with the relevant authorities. Hoardings will be supplemented with concrete barriers for additional support and maintained/inspected regularly.

Refer to attached plan Appendix 2

### **Internal Site Hoardings**

Internal hoardings will be installed taking into consideration;

- Aesthetic suitability;
- Acoustic, vibration and dust nuisance;
- Operational requirements;
- Construction access for out of hours work;
- Customer and tenant access pathways;
- Existing structural capacities;
- Effect on surveillance;
- Compliance with BCA and fire engineering requirements; and
- Temporary waterproofing from external and internal conditions.

Internal hoardings of various types will typically be used in:

- Public street frontages;
- Street level Construction Zones;
- Separation between trades on specific levels where required; and
- Protection of Heritage fabric.

Refer to attached plan Appendix 2.

### **Scaffold and Screens**

Scaffolds will be erected to provide access to the faces of the buildings for demolition and refurbishment. Where access to the upper level is required to individual or isolated areas scissor and boom lifts may be used to complete the works.

#### 4.4 Crane, Hoists and Loading Platforms

Man and materials hoists will be used to transport materials from the ground floor to the upper levels. The hoists will generally be located on northern pier apron or internally as deemed appropriate by the Principal Contractor.

Where required, loading platforms will be temporarily positioned projecting from the existing structure to receive materials that will otherwise not fit inside the man and materials hoists. The site Manitou will hoist materials up to the loading platforms. Any platforms will require a back propping design and sign off by structural engineer prior to installation.



**Figure 10 a) Manitou**

**b) Loading Hoist**

Electric (quiet) Scissor lifts with working heights to 14M above ground level. These versatile machines can be used to access the internal high level services and ceilings. The scissor lift can work in unison with the small crawler crane noted above.



**Figure 11 – Scissor Lift**

#### 4.5 Site Accommodation

Site accommodation and facilities will be provided in accordance with the relevant legislation. The planned location for site accommodation for site personnel is in the existing metal work area on the left hand side of the entry roller shutter on the upper level. Refer below figure and attached plan in Appendix 2.

The final configuration will be determined by the Principal Contractor. Some staging of accommodation may be necessary to allow the various works to be completed. The new areas on existing level 1 following demolition may be established for site accommodation pending appointment of the Principal Contractor.

Construction personal access will generally be via the Pottinger Street Access.



**Figure 12 – Site Accommodation Plan**

#### 4.6 Site Induction

The Contractor will prepare a site specific induction for all employees working on the project. Specific works inductions will be completed by individual trades contractors detailing the risks and corrective measures required to mitigate those risks. This induction will be a requirement under the Occupational Health & Safety Plan to be formulated for the project by the Principal Contractor and subsequent OHS plans developed by the individual sub-contractors. The site induction sessions will be held on a regular basis and where possible subcontractors will be requested to attend the week prior to the date they are due to start.

The site induction will include specific commentary on the Disruption Shutdown Application (DSA) and Permit to Work (PTW) processes, as well as house rules and emergency procedures relevant to the site.

#### 4.7 Site Security

The Principal Contractor will be responsible for the security of the site. This may include traffic marshals the control vehicular and pedestrian traffic. It may also include security access stations to the site. The final details and extent of site security will be developed further by the Principal Contractor.

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## 5. Protection of Heritage Items and Surrounding Development

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Construction works and general access will be directed away from areas of heritage significance as much as possible. Wherever required, heritage components will be protected with appropriate panelling, barriers and fencing. In general, heritage items that are to remain and/or be refurbished will be identified and protected. Details of the refurbishment will be developed in conjunction with trade experts, the Heritage Architect and the Conservation Management Plan.

Mitigation measures will be implemented as per the STC50 Masterplan Heritage Impact Statement Assessment Report prepared by Tropman & Tropman Architects:

- All original and early fabric to be appropriately protected during construction and subsequently maintained;
- New fixings to be minimised and located into non-significant fabric where possible;
- Columns to be removed will be securely stored for later reinstatement, holes in the floor to be covered with similar flooring but not mimic the original to allow for interpretation and new patches to be clearly identifiable as new repairs;
- Ironbark floorboards to be repaired in areas where gaps exceed 5mm or where raised edges exceed 3mm, to ensure a more even surface for OHS and equitable access requirements;
- All works must allow for the maximum retention of heritage fabric;
- The dismantling of any existing fabric is to be undertaken carefully and is to provide for the salvage and reuse of fabric on site; and
- Wherever possible, new services are to be located in areas of lower significance.

As the site is of State Heritage Significance, it is a legal requirement not to remove or damage any part of the building unless it is documented; this includes tagging and logging any removed materials. The Contractor is to ensure that it complies with the Heritage Act 1977 whilst undertaking construction activities.

Site inductions and tool box talks will be held by the Contractor to inform site personnel and visitors of the location of heritage items and the requirements for their protection. Work method statements will be developed specifically for works in close proximity to heritage items.

This document is to be read in conjunction with all heritage reports prepared for Phase 2 documentation. Please refer to STC50 Masterplan Heritage Impact Statement Assessment Report prepared by Tropman & Tropman Architects.

### 5.1 Dilapidation Survey

Prior to commencing work onsite, a full Pre-Construction Dilapidation Report will be completed by a Dilapidation Survey Consultant for adjoining buildings as highlighted in Attachment 2 and listed below. This detailed survey will encompass current structural, architectural, services and heritage conditions of the existing adjacent neighbouring properties, onsite heritage buildings, construction zones, infrastructure and roads. The dilapidation report will cover all areas where construction works are occurring and to which the construction certificate applies. These surveys will be issued to all adjoining neighbours and a post completion survey will also be compiled for comparison.

## 5.2 Adjoining and Adjacent Neighbours

Careful site management, which will minimise disruption and inconvenience to neighbouring buildings and their occupants, is of the highest importance. The Contractor will liaise with the Community Liaison Officer to work with neighbours, understand their needs and requirements, and, where possible, adjust construction works methodologies accordingly. The adjoining properties and neighbours specifically identified for consultation are outlined in Appendix 1.

As construction progresses, protection of neighbouring buildings may be required. The method of protection will vary and will be resolved with direct communication with each neighbour on an as required basis.

Prior to commencement of works, the Contractor will undertake a communication meeting with the stakeholders and surrounding tenants. This briefing will involve an outline of the construction sequence, together with an overview of the staging and timing of the works. This initial meeting will provide an opportunity for input from the stakeholders and tenant before finalising methodology.

To ensure ease of communication between all parties, a protocol will be established to:

- Define lines of communication and appoint a single point of contact for neighbours;
- Times for site inspections within the leased premises;
- Specific dates for regular communication meetings;
- Clarify the escalation process; and
- Implement the Disruption Shutdown Application (DSA).

It is essential that the stakeholder team is aware of current and future activities within the premises and how these could impact on tenants and customers.

Points of contact between the Contractor's project team and stakeholders will be agreed for various scenarios, with stakeholders provided with 24 hour contact numbers.

Weekly and/or daily inspections of areas that interface with the tenant and customers will be organised so potential issues can be identified early and addressed.

Key personnel from the Contractor's project team will be available to attend stakeholder internal briefings if required to communicate details of the proposed works to their respective team members.

## 5.3 Services Interruptions

Prior to any services being disrupted or work being carried out within an active operational environment a Disruption Shutdown Application (DSA) will be made. This process will be implemented on the project to provide advance agreement for specific work activities to be carried out. DSA's will typically be made a number of weeks in advance of proposed work and in line with the agreed project notification durations. Depending on the risk profile of the proposed work, the agreed notification durations may be required months in advance.

The DSA process will be of particular value on the project in relation to the following elements:

- Works within a tenant area;
- Works that may affect the services to a tenant area;
- Activities in the general public realm;

- Works that may affect local traffic flow;
- Works within the basement carpark area;
- Works that may exceed the agreed noise and vibration criteria; and
- Major services changeovers or shutdowns.

The benefits to all parties of the DSA process include:

- Proposed works are planned in detail;
- Stakeholders are briefed on the proposal;
- Stakeholders are empowered and become active participants in the project;
- Early dissemination of this information effectively to relevant team members; and
- Works are undertaken in a more controlled and diligent manner.

#### **5.4 Complaints Response**

The complaints response process for the STC50 project will be outlined in the Stakeholder Consultation and Communication Plan when it is developed. This Plan will describe the Contractor's approach and procedures for communication with internal and external stakeholders, necessary territory authorities, and the public.

#### **5.5 Emergency Contact**

The initial point of contact for the Project for complaints will be the Project Manager and the Site Manager.

Project Manager: TBC

Site Manager: TBC

As other key personnel commence onsite, further names and contact numbers will be issued and displayed prominently on sign boards.

## **6. Public Amenity, Safety and Pedestrian Management**

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### **6.1 Hours of Work**

General demolition and construction works will be undertaken within the hours permitted under the development approval. In some cases after-hours permits will be sought from the relevant authorities where special requirements exist, for example oversized deliveries.

### **6.2 Noise & Vibration Management**

Particular care will need to be taken during the construction of each phase of the project to control noise and vibration. Work methodologies and plant selection for demolition and construction will be reviewed to determine the most practical and programme-effective solutions for these works. This active approach will mitigate the potential for human discomfort and noise and vibration disruptions to surrounding key stakeholders.

Noise and vibration transfer from the construction process could potentially have an impact upon adjacent building tenants, and since the work is all internal, to a lesser extent, the public and surrounding premises. Vibration could also potentially affect the heritage fabric of the pier structure. Prior to the commencement of any works onsite, a noise and vibration management plan will be developed by the Contractor in consultation with expert consultants and the Stakeholders to develop strategies for the mitigation of noise and vibration generated by the works. These measures will comply with the requirements of the ARUP Noise and Vibration Report (October 2016), including but not limited to:

- Appointing a named member of the site staff who will act as the Responsible Person with respect to noise and vibration;
- Ensuring that the Responsible Person keeps the precinct (and local community) advised on expected activities;
- Ensuring that the Responsible Person checks the conditions of the powered equipment used on site daily to ensure plant is properly maintained and that noise is kept as low as practicable;
- Managing and monitoring the noise and vibration logging equipment installed around the site. Ensuring that the Responsible Person controls the working hours on site to ensure that work is only done during the acceptable periods as defined in the Interim Construction Noise Guideline for NSW (7am to 6pm weekdays and 8am to 1pm on Saturdays. No work on Sundays);
- The impact of noise from construction activity on the precinct may be mitigated by working outside precinct opening hours, provided there are no significant adverse impacts on residential receivers nearby;
- Ensuring that noise levels are kept as low as is reasonably practicable and providing all “feasible and reasonable” noise mitigation methods following the procedures of the NSW Interim Construction Noise guideline, and reference to relevant standards including AS2436-2010 and BS5228-2009 Code of practice; and
- Maintaining appropriate records of complaints.

In order to help meet the noise and vibration requirements of the site, baseline testing will be carried out and existing operational levels identified. Early identification of baseline levels will enable subcontractor methodologies to be specifically tailored to ensure the benchmarks are not exceeded.

Vibration and noise generating activities will be coordinated and undertaken in consultation with the appropriate parties and carried out during the subsequent agreed periods.

Work practices that minimise noise and vibration will be used wherever possible. These include but are not limited to the following:

- Operation would be limited to occur within the approved hours, truck movements to be limited to daytime periods only;
- Vehicle movements to take place on the side of the Wharf building furthest from other neighbouring wharf residences where possible;
- Works to be completed internally, using the existing building envelope to dampen noise distribution, along with erection of temporary screens to encapsulate dust and noise;
- Site offices to be accommodated internally;
- Hand tools for façade works to be used where possible;
- Plant and equipment selection to reduce noise where possible, especially machinery required for concrete removal work;
- Location of major plant such as cranes away from noise and vibration sensitive areas where possible. Plant known to emit noise strongly in one direction would, where possible, be orientated so that noise is directed away from noise sensitive areas;
- Stationary and mobile equipment including offsite vehicles would be maintained regularly;
- Continuous training through inductions and on-going meetings would be provided for operators, labourers, subcontractors and supervisors, to keep minimal noise impacts on local residents and businesses top of mind;
- Notifications of particularly noisy works would be undertaken prior to any planned works commencing. This would include either personal or community meetings with adjoining properties owners and/or tenants;
- All complaints in relation to noise would be monitored and recorded; and
- An onsite person would be identified as the contact point in the event of noise complaints with contact details provided within the Construction Management Plan.

### **6.2.1 Vibration Monitoring**

Vibration monitoring during the construction will be undertaken if deemed appropriate and/or necessary by the Acoustic Consultant in order to monitor potential human discomfort and potential structural / heritage damage in and around the existing buildings.

Refer to SEARS Noise and Vibration Report as prepared by Arup.

### **6.3 Public Safety**

Works will be undertaken with public safety as a significant consideration. Class A and B type hoardings will generally be erected around the site perimeter, where required, and where construction is occurring over or adjacent to public thoroughfares.

General safety measures will be undertaken as standard practice such as scaffolding around demolition works, adequate lighting, safety signage, provision of site security, flashing lights at vehicle cross overs, physical barriers between construction works areas, and public access areas.

The various methods and extent of the public and tenant access protection has been considered. Key elements of protection access provided to comply with the City of Sydney Hoarding Policy guidelines are:

- Erection of an “A” class hoarding of standard plywood type construction; and
- Installation of overhead protection to areas where public are exposed to risk.

#### **6.4 Pedestrian Management**

To allow for continuous public access, materials handling and management of pedestrian safety, some diversions from existing pedestrian routes will be required for large periods of the work. The installation of way finding signage and lighting will be professionally managed to ensure clear pedestrian understanding and preservation of safety and amenity.

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## 7. Traffic Management

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The Contractor will develop a site specific Traffic Management Plan for the STC50 project works to ensure vehicle movements to, around and from the site do not affect traffic arterials within the vicinity of the project or pedestrian movements around it. The contractor will manage traffic associated with the site to minimise the impact on the local area. Measures to mitigate the impact of construction traffic will include:

- All construction traffic for the STC upgrade will be restricted to accessing the site via Pottinger Street bridge, which is currently used by heavy vehicles for deliveries under current operations;
- Pedestrian and cyclist access to the site will be separated from the Pottinger Street bridge to maintain the safety of vulnerable road users;
- For isolated circumstances when construction traffic is required to access Wharf 4/5 from Hickson Road, vehicles will access under traffic control, outside of peak pedestrian and cyclist periods; and
- The proposed construction program for the STC upgrade will be coordinated with the Walsh Bay Arts Precinct development such that the cumulative impacts minimise traffic disruption to local road users.

The Traffic Management Plan will be incorporated in Contractor agreements and the key points communicated to the workforce through the site induction procedures.

Traffic will generally be managed in the following way:

- Designated transport routes will be communicated to all personal, and enforced;
- Designated peak hour and non-peak hour delivery vehicle waiting areas;
- Strict scheduling of vehicle movement will occur to minimise off site waiting times;
- On-site parking will not be provided, and site workers will utilise public transport and car sharing wherever possible;
- Vehicle movements will be compliant with the Consent and broader road-use regulations, particularly with regard to hours of work, materials loading and unloading, and over size deliveries and installation;
- Stakeholder feedback;
- Where possible deliveries will be marshalled directly to the site destination via the access of Pottinger Street;

Refer to Appendix 2 for the Site Establishment and Access Plan.

Refer to the Sydney Theatre Company, Walsh Bay Transport Impact Assessment as prepared by GTA Consultants.

### 7.1 Site Access

Primary access to the Site will be via Pottinger Street access and, on an as needed basis, via the Hickson Road access.

Oversized loads and long loads including trusses and major structural steel components may be delivered to site via the adjacent harbour utilising barges, tugs and barge cranes (if required). Onsite traffic management will be finalised by the Contractor prior to the

commencement of the works, as deemed appropriate. Ongoing liaison with the relevant authorities will occur throughout the delivery of the STC Project.

## 8. Environmental Management

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### 8.1 Occupational Health & Safety

The Contractor will be the nominated “Principal Contractor” as required under the OH&S Act. This role will require the careful and controlled management of worker and public safety. Detailed methodologies are yet to be developed, however typical approaches include job training, toolbox talks, and implementation of emergency management plans, safe work method statements, weekly OH & S meetings and audits to confirm compliance.

The Contractor will be required to report on OH&S on a regular basis.

### 8.2 Site Remediation and Hazardous Materials

Consultant survey works have already been carried out to establish existing site conditions and to identify any remediation works that may be required. These survey works are to be confirmed by the Contractor to ensure all hazardous materials have been identified, including:

- Hazardous material (Hazmat) survey of the existing structures;
- Any additional requirements for soil classification, sampling and analysis works for the piping spoil; and
- Community liaison plan to be established and contact made with relevant authorities.

As hazardous materials have already been identified procedures and principles have been developed. These procedures and principles will be consistent for expected and unexpected hazardous materials. They are outlined below:

- Notification to the superintendent who will notify the client and project stakeholders;
- Isolate and restrict access to the areas as advised by the hygienist; and
- The site hygienist will be contacted to provide advice regarding the most appropriate action to be taken.
- Hazardous material will be capped and contained, or removed in accordance with site hygienist advise and superintendent’s direction,

In consultation with the hygienist, the contractor will advise of the most appropriate method of dealing with the particular contaminant.

The following outlines the mitigation measures for a selection of potential hazardous materials to be identified on site:

- Asbestos Materials
  - Consider labelling all asbestos containing materials to warn of the dangers of disturbing these materials;
  - Schedule period reassessment of the asbestos containing material remaining on-site to monitor their adding / deterioration; and
  - When demolition or refurbishment works are required in those areas where suspected asbestos – containing materials were identified, these materials should be sampled and if they contain asbestos, licensed asbestos personnel should remove these materials prior to such works.
- Synthetic Mineral Fibre (SMF)
  - Confirmed SMF materials should be maintained in good condition and removed under controlled conditions prior to refurbishment works.

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- Lead Containing Paint
    - If refurbishment works are likely to involve the disturbance of confirmed lead-containing paint, dust suppression techniques should be utilised and a Lead Paint Removal plan should be developed by a suitably experienced consultant.

### **8.3 Hazardous Substances**

A hazardous materials register will be maintained on site by the Principal Contractor. This will include all chemical type materials and other materials that require specific handling and disposal procedures accompanied by a current Material Safety Data Sheet (MSDS). All hazardous substances will be registered, correctly stored, decanted, used and disposed in accordance with the MSDS and regulatory requirements. Employees will be trained in the Safe Work Method Statement (SWMS) based on the MSDS and provided with the appropriate Personal Protective Equipment.

### **8.4 Site Discharge**

The existing stormwater provision to collect and divert stormwater to the council mains will be maintained at all times during construction. The existing surface pits and grated drains will be protected from any silt or construction debris entering the system. The protective measures may include filter fabric, hay bales and temporary diversion gutters and drains. During placement of concrete the areas adjacent to the pumping equipment will be assessed for risk of concreting material entering the harbour. The risk mitigating measures may include local silt fences along the edge of the pier, temporary hay bales to catch any cement slurry runoff, temporary plastic sheeting to catch any concrete spills. The contractor will have within its standard procedures, the requirement of spill kits for hazardous materials also including environmental audits that review the usage and storage of hazardous materials onsite.

### **8.5 Truck Wash Facilities**

As the project consists of redevelopment of the existing premises, with trucks being confined within the construction zones and hardstand areas a truck wash facility will not be required onsite.

Construction zones will be kept clean at all times to ensure tyres of trucks and vehicles exit in the same condition that they have entered.

### **8.6 Dust Control**

Dust control and management will be the responsibility of the Principal Contractor. The contractor will be required to implement a management plans that addresses the generation of dust.

Dust control measures may include wetting down areas prior to and during demolition of masonry elements. This includes concrete, brick and block walls vacuuming of dust and debris following completion of demolition and upon completion of construction activity.

### **8.7 Waste Management during Construction**

It will be part of the Contractor's philosophy that a tidy site is a safe site, and this principle will be maintained throughout the construction duration. Rubbish bins / skips will be provided at strategic positions around the site, where all subcontractors will be required to clear their rubbish as it accumulates. These bins will be brought down the pier in the construction hoists / builders lifts and loaded via forklift into the large skips for removal from site.

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A specific Waste Minimisation Plan will be developed by the Principal Contractor in accordance with the Contractor's Environmental Management System to ensure optimum waste management initiatives are implemented.

In addition, all subcontractors are responsible for removing their own packaging and other reusable items such as pallets from site. Adopting this policy:

- Promotes recycling by subcontractors and suppliers;
- Removes unnecessary packaging at the source rather than at site; and
- Reduces the amount of rubbish being sent to land fill.

Waste generation and management during excavation and construction phases will be the responsibility of the Principal Contractor and is to be handled in accordance with the approved Construction Waste Minimisation Plan, when developed, as it will relate to materials procurement, handling, storage, and use.

Waste generated during construction will be reused and recycled as a priority, and only disposed to landfill when unavoidable.

During construction, suitable areas on site will be allocated which provide adequate space and access for:

- Storage of building materials,
- Storage of construction waste,
- Sorting of construction waste, and
- Removal of construction waste for recycling, re-use or landfill.
- Interim storage of fill materials as required

Construction waste management will be performed to meet the following specific goals of the project sustainability requirements:

Implement a Construction Minimisation Plan (CWMP);

- Target 90% of demolition and construction to be reused or recycled in alignment with the NSW WARR Strategy.
- Retain waste reports (quarterly) to ensure targets are met.

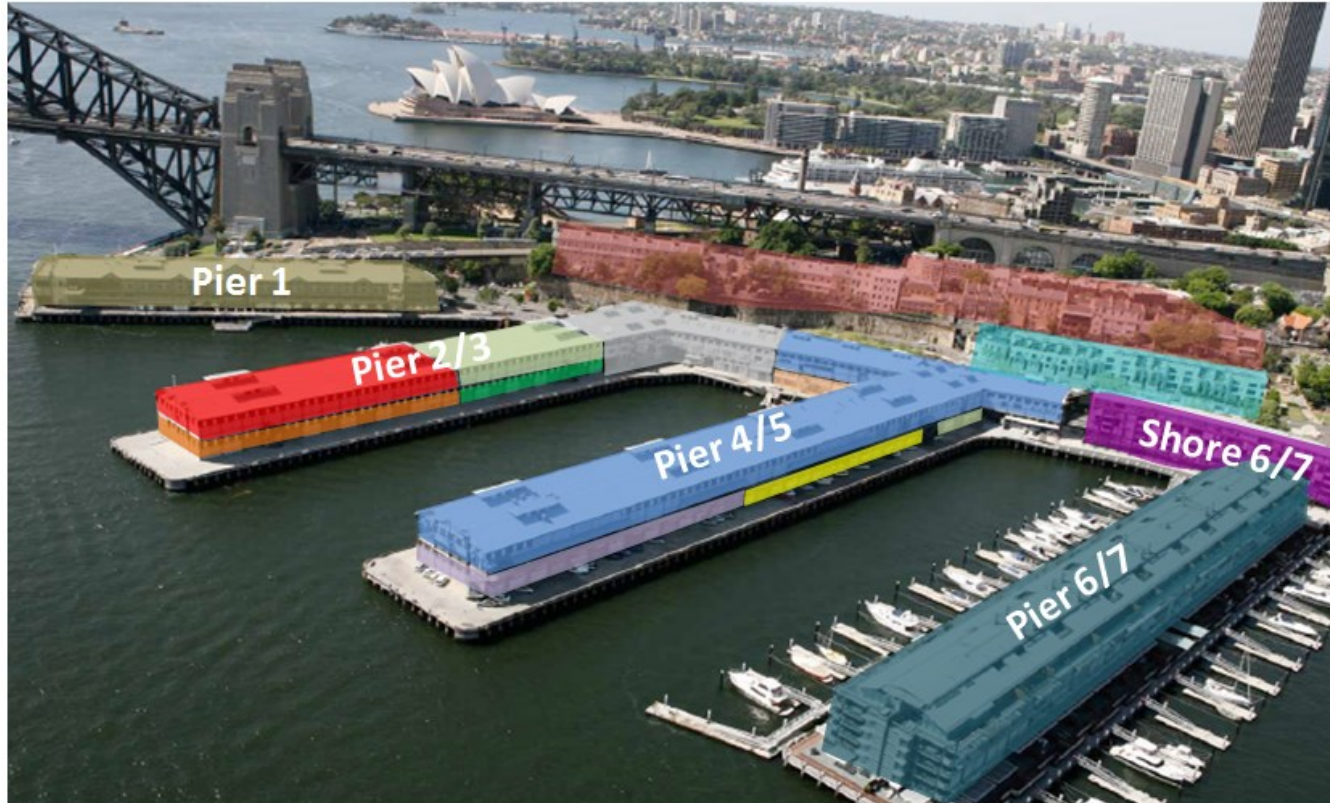
Waste that is unable to be reused or recycled will be disposed of offsite at an EPA-approved waste management facility following classification.

The estimated volumes of construction waste will be in the order of 200m<sup>3</sup>.

Prior to transporting waste materials to offsite facilities, it will be verified that the transporter and facility is licensed to handle the material it is designated to carry.

Demolition and construction waste tracking sheets are to be completed by the Principal Contractor, as provided in the CoS Waste Guidelines 2014.

## Appendix 1 - Adjoining and Neighbouring Properties



Commercial (RMS)
Bell
Arts Events Space
ACO
ATYP
Shore 4/5 Choirs
Bangarra
Sydney Dance Company
Sydney Theatre Company
Pier 6/7 Residential – 140 Apartments + operational piers (private)
Shore 6/7 Residential – 45 Apartments + Ground Level Commercial
Pier 1 –Hotel, Commercial
Residential
Commercial

## Appendix 2 – Site Plan

