Sydney Theatre Company

STC 50

SEARs - Utilities Infrastructure Report

Infrastructure Report

Issue 2 | 4 November 2016

Job number 250601

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Executive Summary

This report has been produced in response to the Secretary's Environmental Assessment Requirements (SEARs) Application Number SSD 7561 on behalf of The Sydney Theatre Company in support of the State Significant Development Application.

This report assesses environmental impacts of the proposed works, which will input into the Environmental Impact Statement (EIS).

Furthermore, it addresses issues particular to a SEARs application for a SSD and specifically responds to dot point 17 of the Plans and Documents section of the Secretary's Environmental Assessment Requirements, which reads:

- Utilities and Services Statement

Conclusion

The infrastructure loads for the redevelopment of the wharf have been assessed and summarised in section four. The analysis shows that the water supply, gas and sewer utility services are capable of supporting the development. Power load assessments have identified a need to increase the existing two feeders to the wharf from 400A and 250A to two 630A supplies.

Negotiations are ongoing with Ausgrid regarding the above modifications to the feeders.

1 Introduction

Project Overview

Since the repurposing of Wharf 4/5 (The Wharf) for STC more than 30 years ago, there has not been a significant refurbishment and consequently the existing STC facilities are at the end of their useful life. The lack of proper acoustic treatment in theatre and rehearsal spaces is inadequate for contemporary theatre operations and the outdated approach to accessibility and workplace conditions do not meet modern day community expectations for public buildings. In summary the original fit out has not kept pace with the Company's changing operations over the past 30 years and accordingly is in need of significant change.

The key aims and objectives of the proposed STC internal fit out and refurbishment works are to meet STC's current operational needs and strategic goals and to future proof the company by:

- Creating new, distinctive and flexible theatre spaces commensurate with the Company's position as one of the world's leading theatre companies
- Increasing public space, improve access and visitor amenities
- Increasing saleable seating inventory and revenue earning capacity for long term sustainability
- Reducing running costs
- Improving the staff and user experience
- Improving back of house and technical facilities by providing modern workspaces which are fit for purpose, safe and efficient
- Respecting and enhancing the heritage and architectural value, and
- Creating a world class set of facilities for Australia.

To achieve these objectives the subject works will be undertaken in conjunction with the STC external works which form part of the Walsh Bay Arts Precinct SSDA (SSD 7689).

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:

<u>Ground level</u>

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

<u>Mezzanine</u>

- 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 Wharf 2 Theatre 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 3 (under roof)

- Lighting bridge and technical area

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 and 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.

Works are as illustrated in detail on the architectural plans prepared by HASSELL.

2 Infrastructure Provider Consultations

The team have reviewed “dial before you dig” information for each of the utilities present within Hickson Rd. The desire of the STC is to provide an enhanced user experience and this will require modification to the engineering systems throughout. However, the refurbishment remains primarily with the same functionality as the existing wharf with no expected significant alterations to sewer, gas and water performance. The refurbishment will however see an increase in electrical load.

The current 250A and 400A supplies will be increased to provide two 630A supplies to the wharf. Negotiations are ongoing with Ausgrid.

3 SEARs Issues Addressed

Furthermore, it addresses issues particular to a SEARs application for a SSD and specifically responds to dot point 17 of the Plans and Documents section of the Secretary's Environmental Assessment Requirements, which reads:

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4 Building Loads

In order to assess the capabilities of the surrounding hydraulic services infrastructure Arup have undertaken a preliminary load take down assessment for the development.

Our estimates of the demands imposed upon different existing utilities by the STC project are as follows:

4.1 STC Infrastructure Loads

STC Loads		
Utility Service	**Load Estimate STC Only**	**Load Estimate Wharf Total**
Potable Water Supply	2.8 L/s	4.5 L/s
Gas	2950 MJ/hr	-
Sewer	7.5 L/s	11.3 L/s
General Stormwater;	Roofs 1:100 year ARI to be piped (270 mm/hr approx.) Roads and Plaza 1:10 year ARI to be piped	-
Power	2 no. 630 A Supply	-

Table 1: STC Load estimates for utility services

5 Utilities Services

The development is a refurbishment of the existing theatres at Wharf 4/5. The function of the development remains substantially unchanged and the loads above are close to those expected within the buildings current operation. The following provides an outline of the existing infrastructure serving the development.

5.1 Water, Sewer and Stormwater

The Arup design team have reviewed the DBYD information for the precinct and have identified the differing utility infrastructure around the precinct.

5.1.1 Existing Services

Utility services are present around the precinct. These existing services are described as follows and are detailed in the Figures below.

Cold water

Existing water mains are available running along Hickson Rd as follows as follows:

- 200 mm polyvinylchloride water main within a cast iron cement lined main.

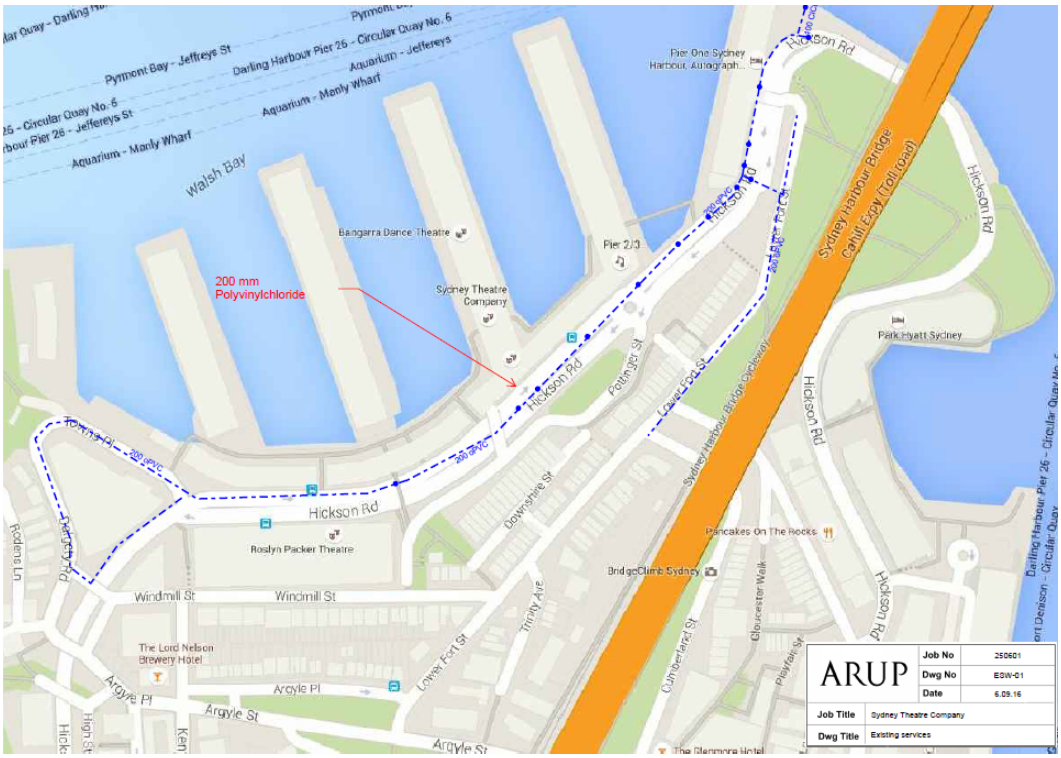

Figure 1 – Water Supply

The water supply infrastructure within the Sydney CBD is considered a critical asset by Sydney Water. The mains are heavily interconnected and served from multiple reservoirs. The mains therefore are very reliable and are maintained to a high degree by Sydney Water commensurate with their critical asset status. Sydney Water has management plans in place to redirect supplies should failures occur resulting in a high degree of security for the developments served from this infrastructure.

In general, the size of the town mains in Hickson Rd can easily support this development based on the flow rates identified in section 3. The design is progressing with the existing water main connection entering from Hickson Rd.

Sewer

Existing sewer mains are available running along Hickson Rd as follows:

- 225 mm cast iron main
- 150 mm vitrified clay main

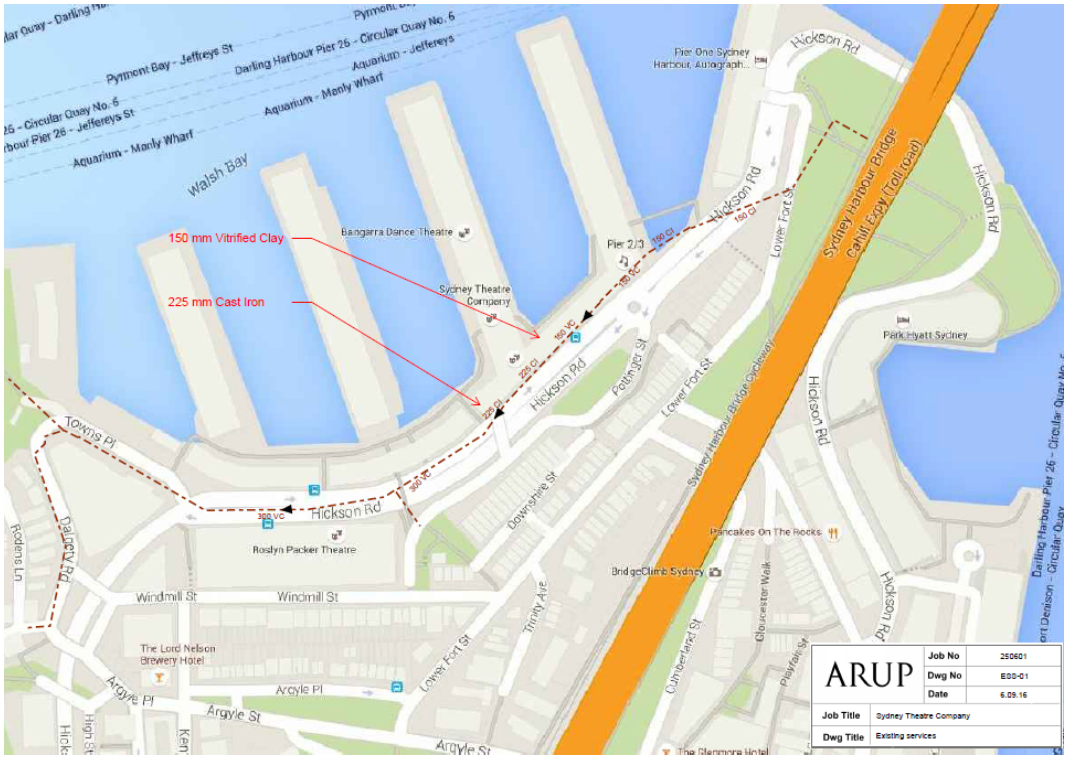

Figure 2 - Sewer

Sewer lines will drop to below wharf and gravitate to sewer. Where this is not possible wastes will be pumped into the gravity lines from underslung pump out pits.

Stormwater

The existing roof drainage will be adjusted to cater for the raised roof sections and new valley gutters.

These roofs will be configured to connect into the existing external down pipes. The roof area remains unchanged and all runoff will connect to the existing infrastructure.

5.1.2 Required Alterations

Cold water

At present, we anticipate only a marginal increase in cold water demand over and above the existing site supplies. The supply will be maintained from the existing infrastructure.

Sewer

At present, we anticipate marginal increases in sewer discharge over and above the existing site capacity. The supply will be maintained by the existing infrastructure.

Stormwater

The existing systems will be maintained and new gutters and roofs will be provided where they are raised.

5.2 Natural gas

The site is currently served by a dedicated external meter from Hickson Rd.

5.2.1 Existing Services

The existing gas services are described as follows.

- 7 kPa 160 mm Polyethylene main
- 7 kPa 110 mm Nylon inserted into 9” NB cast iron main

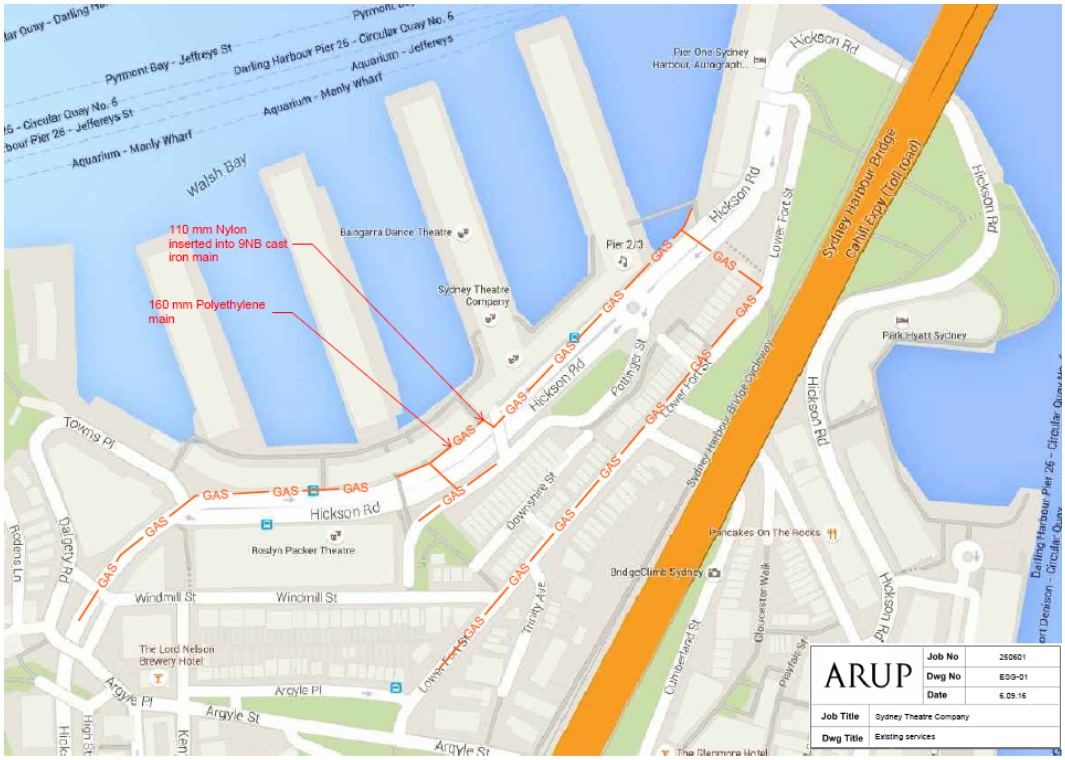

Figure 3 - Gas

5.2.2 Required Alterations

No increase in gas demand is anticipated and the existing meter is able to support the development.

5.3 Power Supply

The Sydney Theatre Company is supplied from the local Ausgrid network. The existing incoming supply arrangements have been confirmed though site inspections and documentation received from Sydney Theatre Company.

The Ausgrid substations supporting the Sydney Theatre Company are located adjacent to the site on the south side of the Hickson Road. Incoming consumer mains reticulate though an underground network of conduits and cable pits from the supplying substation, beneath Hickson Road, and entry switchrooms from below.

Wharf 4/5 Sydney Theatre Company Existing Supplies

The existing electrical supply for the Sydney Theatre Company is fed from:

- Wharf 4/5 Main Switchboard 1 sub-circuits namely:
  - A/C Solar DB-A 125A supply
  - A/C Solar DB-B 125A supply
  - Sydney Theatre Company Mechanical Services 250A
  - Sydney Theatre Company Main Switchboard 2 400A

- STC Main Switchboard 2, supplies;

- Sydney Theatre Company Safety Services
  - Hydrant pump, tunnel pressure and smoke fans
- Sydney Theatre Company Services
  - DB1 – DB12
  - Dimmer boards
  - Archives
  - A/C Solar DB-C to E 125A supply

The two existing Main Switchboard 1 &2 are located within the Wharf 4/5 Main Switchrooms, supplying the Shore Sheds (West) and Wharf 4/5.

Wharf 4/5 Main Switchboard 1 and Wharf 4/5 Main Switchboard 2 each receive a 400A, 3-Phase connection from the "Walsh Bay Precinct Substation" S.4807. These two connections have been confirmed as being feeders #7 and #8.

5.3.1 Future Loads

The STC functionality remains substantially unchanged with theatres and facilities shuffling to afford an enhanced operational and production function. Included in this, is an enhancement to the air conditioning and stage lighting yielding an increase in electrical demand. This increase in demand will see the current 650A of supply increase to close to a 1260A requirement.

This increase will be afforded with changes to the incoming sub main supplies to 630A each.

5.4 Communications

Wharf 4/5 each has an existing MDF, which are located within the Main Switchroom.

New lead-in cable routes will be provided for multiple service providers. Lead in conduits will go to the new Building Distributor Rooms situated in Wharf 4/5. Methods of reticulation need to be further developed in discussion with communication service provider with regards to complexities of trenching and water ingress, but existing service routing will be utilised where possible.

Fibre optic lead-in cables from communication services provider will be provided depending on agreement with the respective carriers.

6 Conclusion

The infrastructure loads for the redevelopment of the wharf have been assessed and summarised in section four. The analysis shows that the water supply, gas and sewer utility services are capable of supporting the development. Power load assessments have identified a need to increase the existing two feeders to the wharf from 400A and 250A to two 630A supplies.

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