

UNSW

**Health Translational Hub
(UNSW HTH)**

**SSDA Infrastructure Management
Plan**

278548-CS-RPT-0002

04 | 19 February 2021

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Job number 278548

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1 Project Overview

This report supports a State Significant Development Application (SSDA) for the proposed UNSW Health Translation Hub (UNSW HTH) at the Randwick Hospitals Campus (RHC), which is submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (the Act). Health Infrastructure on behalf of Health Administration Corporation (HAC) is the applicant for the UNSW HTH, which will be delivered with the University of New South Wales (UNSW).

The UNSW HTH forms an extension of the existing and proposed hospital facilities at the RHC, providing a specialist health-related research and education facility on the Campus.

1.1 Description of Proposed Development

The SSDA seeks approval for:

- Relevant site preparation, excavation and enabling works.
- Construction and use of a new, 15-storey (RL 124.80) building and link bridge accommodating research and education uses, comprising:
 - One basement level; and
 - A total GFA of 35,600sqm, including health-related research, education and administrative floor space.
 - Pedestrian link bridges connecting the UNSW Kensington campus to the Randwick Hospitals Campus, via the Wallace Wurth building to the UNSW HTH and through to the Sydney Children's Hospital Stage 1 and Children's Comprehensive Cancer Centre (SCH Stage 1 and CCCC)
- Landscaping and public domain works, including the creation of over 2,500m² of new publicly accessible open space within the eastern portion of the site, sitting between the UNSW HTH and the SCH Stage 1 and CCCC redevelopment.
- Services and utilities augmentation as required.

1.2 Operation and Function of the UNSW HTH

The UNSW HTH will be an expansion of the RHC to accommodate new health related education, research, and administrative facilities. It will include:

- Purpose-built spaces for health educators and researchers to work alongside clinicians.
- Floor plates for health translation research focused work with physical connections to the SCH Stage 1 and CCCC and wider Randwick Hospitals Campus.
- Dedicated facilities for the CCCC directly linking the UNSW HTH with the SCH Stage 1 and CCCC.

- An education hub, including education and training rooms allowing hospital staff to educate and train UNSW medical students.
- Facilities for education, training, research, seminars and industry events.
- Clinical schools for the Women's and Children's Health, Psychiatry and Prince of Wales Hospital.
- Ambulatory care clinics including in neurosciences, public and population health.
- Supporting facilities including retail premises.

1.3 Site Description and Location

The site is located approximately 6 kilometres (km) from the Sydney Central Business District (CBD), within the Randwick Local Government Area (LGA). It is located approximately 4km from Sydney Airport Figure 1 – Site context provides a regional context map of the site showing its location in relation to the Sydney CBD and surrounding centres.

This block sits in between the existing Randwick Hospitals Campus and the UNSW Kensington Campus, and directly adjacent to the CBD and South East Light Rail service which runs along High Street (Figure 2 – Site aerial). The site of the proposed UNSW HTH has an area of 8,897square metres (sqm).

The UNSW HTH site has been cleared and is devoid of any development or vegetation. It has been subject to some site preparation and early works associated with the broader development of the block. Adjacent to the site, along the High Street and Botany Road frontages, runs a 6-metre (m) wide stormwater and sewage easement.

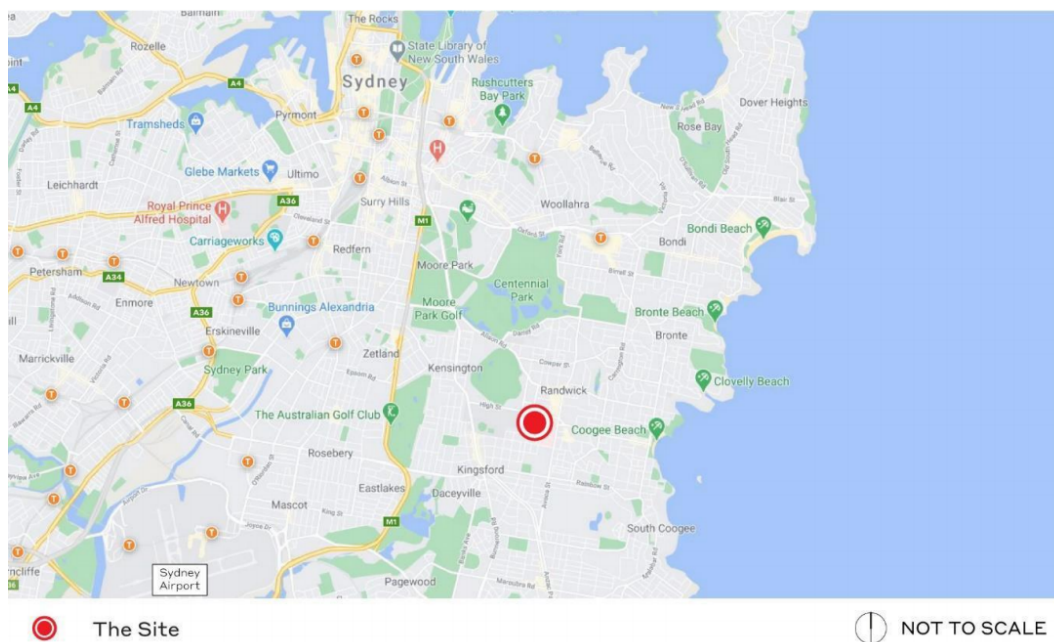


Figure 1 – Site context

Source: Google maps and Ethos Urban

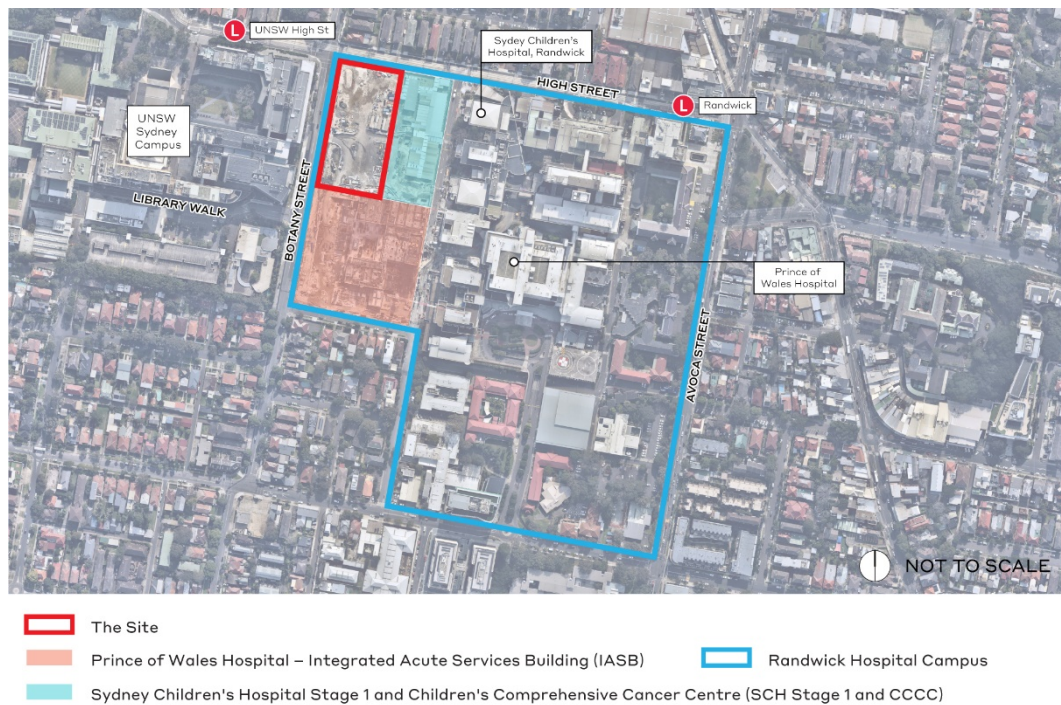


Figure 2 – Site aerial

Source: Nearmaps and Ethos Urban

1.4 Secretary's Environmental Assessment Requirements

Department of Planning, Industry and Environment (DPIE) has issued Secretary's Environmental Assessment Requirements (SEARs) for the proposed development. This report has been prepared having regard to the relevant SEARs as follows:

SEAR	Comment / Reference
SSD-10822510 UNSW HTH – Issued SEARs 14. Utilities	In consultation with relevant service providers: <ol style="list-style-type: none"> 1. assess of the impacts of the development on existing utility infrastructure and service provider assets surrounding the site 2. identify any infrastructure upgrades required off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained 3. provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.

1.5 Summary of Mitigation Measures

Based on the findings and recommendations of this report, the following measures are suggested to mitigate the identified impacts of the development:

Mitigation Measure
<ol style="list-style-type: none"> 1. Preliminary discussions have been undertaken with Utilities aligning with the current level of design resolution and project program. Known impacts on utility infrastructure surrounding the site are detailed within this report. 2. Preliminary discussions have been undertaken with Utilities aligning with the current level of design resolution and project program. Reinforcement of the utility networks is dependent upon other developments interfacing with the utility and will be reviewed with the utility at later design stages. The utilities will be consulted to ensure timely reinforcement of infrastructure if deemed required by the respective utility company. 3. Preliminary discussions have been undertaken with Utilities aligning with the current level of design resolution and project program. Infrastructure delivery and staging plans will be developed at later design stages through consultation with the utility company.

2 Introduction

This submission documents the Infrastructure and Management Plan for the development.

The report intends to document:

- Existing infrastructure across and adjacent to the site, it's capacity and redundancy
- New infrastructure and alterations required to support the development
- Authority consultations held to date

New utility connections will be required to support the development.

Details of the existing services at the perimeter of the site have been obtained from the 'dial before you dig' (DBYD) service, site investigations and initial discussions with the utility companies, which include:

1. Electricity Supply – Ausgrid
2. Communications Services – NBN Co, Optus, AARNet, Telstra, TPG and UECOMM
3. Hydraulic Services
4. Fire Services

Refer to the Appendices for the utilities services site plans for the electrical and communications services proposed works.

The status of discussions and applications made with the utility companies is also noted in this report.

There are two developments adjacent the UNSW HTH site: Prince of Wales Integrate Acute Services Building (IASB) and SCH Stage 1 and CCCC. The IASB is currently in construction and the SCH Stage 1 and the CCCC is currently in the Schematic Design phase.

3 Electrical Services

3.1 Existing Services

The existing UNSW HTH site does not have an existing utility electrical connection; the site has been cleared as part of the adjacent IASB works.

As part of the IASB works new dedicated Ausgrid chamber substations have been constructed, and new reticulation pathways and feeders were installed from Kingsford Zone Substation ZN35600. As part of these works Straight Through Joints were provided at the Magill Street / Botany Street area, and a conduit bank installed along Botany Street, to facilitate future developments on the Site.

The UNSW Randwick Campus to the West of Botany Street is supplied at 11kV. UNSW operate their own 11kV network across the Randwick Campus.

Existing services are drawn in Blue on Figure 3 and Figure 4.

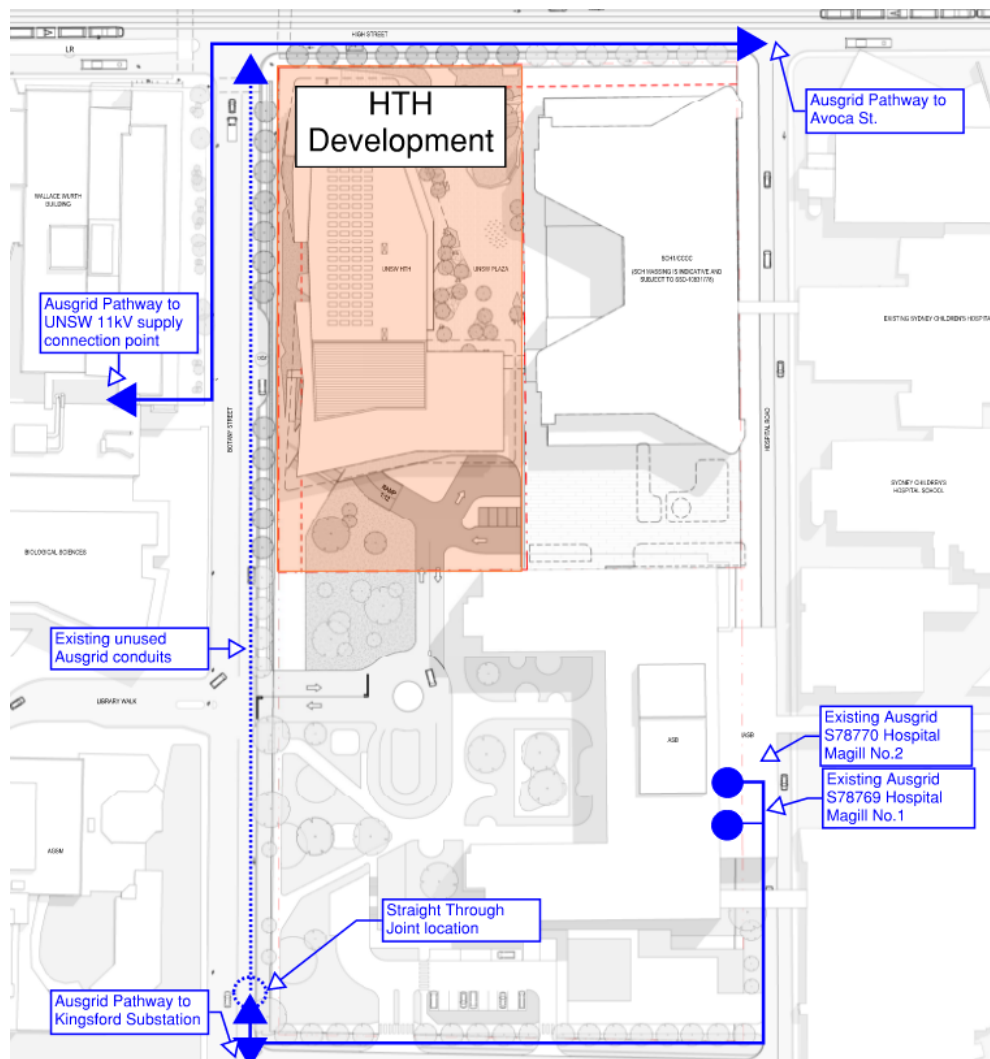


Figure 3 – Existing Electricity Services

3.2 Required Alterations

The UNSW HTH development will be supported by Ausgrid infrastructure.

A preliminary load assessment has been undertaken. The electrical maximum demand of the proposed UNSW HTH building indicates the requirement for 2 No Ausgrid substations to be located within the UNSW HTH development. The building will operate as an LV customer, with 400V connections being made from the utility substations located within the building footprint, to the main switchrooms to the building.

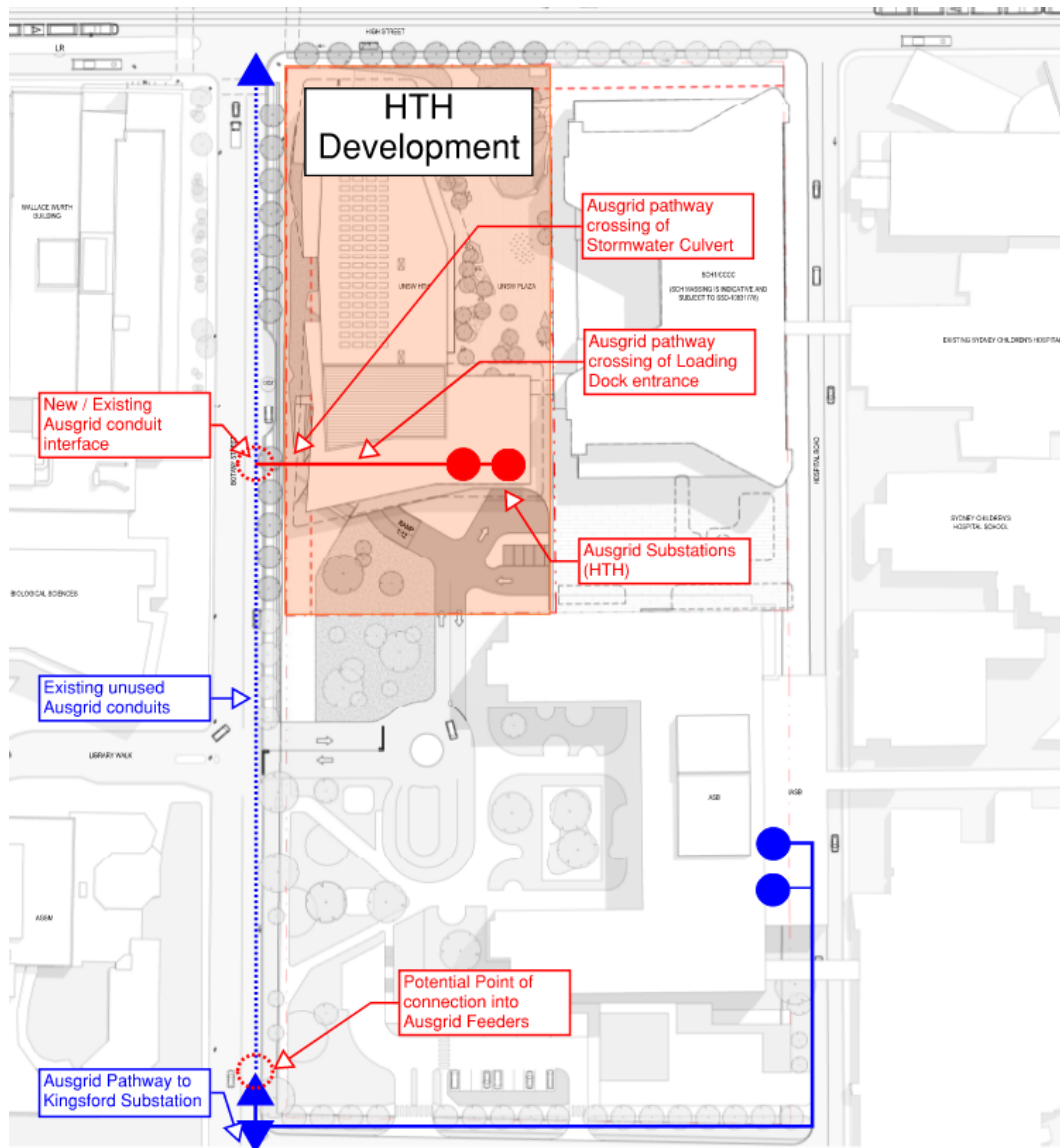


Figure 4 – Altered Electricity Services

New incoming 11kV feeders will be reticulated inground from the existing conduits running in-ground North/South along Botany Street. (New infrastructure highlighting in Red within Figure 4) The incoming conduits will reticulate across the UNSW HTH basement loading dock area to supply 2 No. Ausgrid substations.

Incoming conduits will need to pass over the existing Stormwater Culvert which reticulates in parallel and on the East side of the existing Ausgrid conduits. Where only a reduced cover arrangement is possible steel plates will be provided to protect the Ausgrid assets in accordance with utility standards.

All existing Ausgrid infrastructure around the perimeter of the site will be retained.

All Ausgrid infrastructure across the development will attract an Easement and/or Right of Way in favour of Ausgrid.

Each substation will contain 2No. 1.5MVA transformers as a maximum and have consumer main connections of up to 2No. 3000A per substation at 400V. The combined draw of the 2No. feeders will be limited to the substation firm capacity of 2900A (circa 2MVA – allowing 1No. Transformer to be out for emergency short term conditions). The site will therefore have a total firm capacity of 4MVA.

Each Ausgrid substation will be a “Firm” supply arrangement, reducing UNSW HTH building downtime during Ausgrid’s routine maintenance.

Large equipment access to the Ausgrid substation will be via the UNSW HTH Loading Dock. Heavy Duty Vehicular access is provided from Botany Street to the UNSW HTH Loading Dock area. This arrangement requires dispensation from Ausgrid standards.

Personnel access to the substations will be from the Southern external façade. This unimpeded person access can be realised from High Street via the UNSW Plaza and from the Botany Street IASB entrance.

The substations will be naturally ventilated. The ventilation is subject to further design and negotiation with Ausgrid and will either have louvers across the External Southern face of the substation at the Loading Dock level, or a ducted solution with Supply and Exhaust air openings at Ground Level.

Tenant power supplies will be provided via the UNSW electrical infrastructure and not direct Ausgrid supplies.

3.3 Authority Consultations

A Level 3 Accredited Service Provider has been appointed and has documented and submitted a preliminary enquiry to Ausgrid to seek approval for the method of Personnel and Large Equipment access to the proposed substation locations to ensure a dispensation can be secured for the proposed arrangements. Access proposals have been included within the appendix of this document. A written response from this enquiry approving the strategy is pending.

An application for connection has not yet been submitted to Ausgrid. The resulting Design Information Pack allowing the augmentation of their network across the site to be designed is timebound, and therefore not appropriate to apply for at this time and will be undertaken early at the next design stage.

4.1 Existing Services

Existing AARNET services are shown in Pink and UNSW ICT infrastructure is shown in Purple in Figure 5.

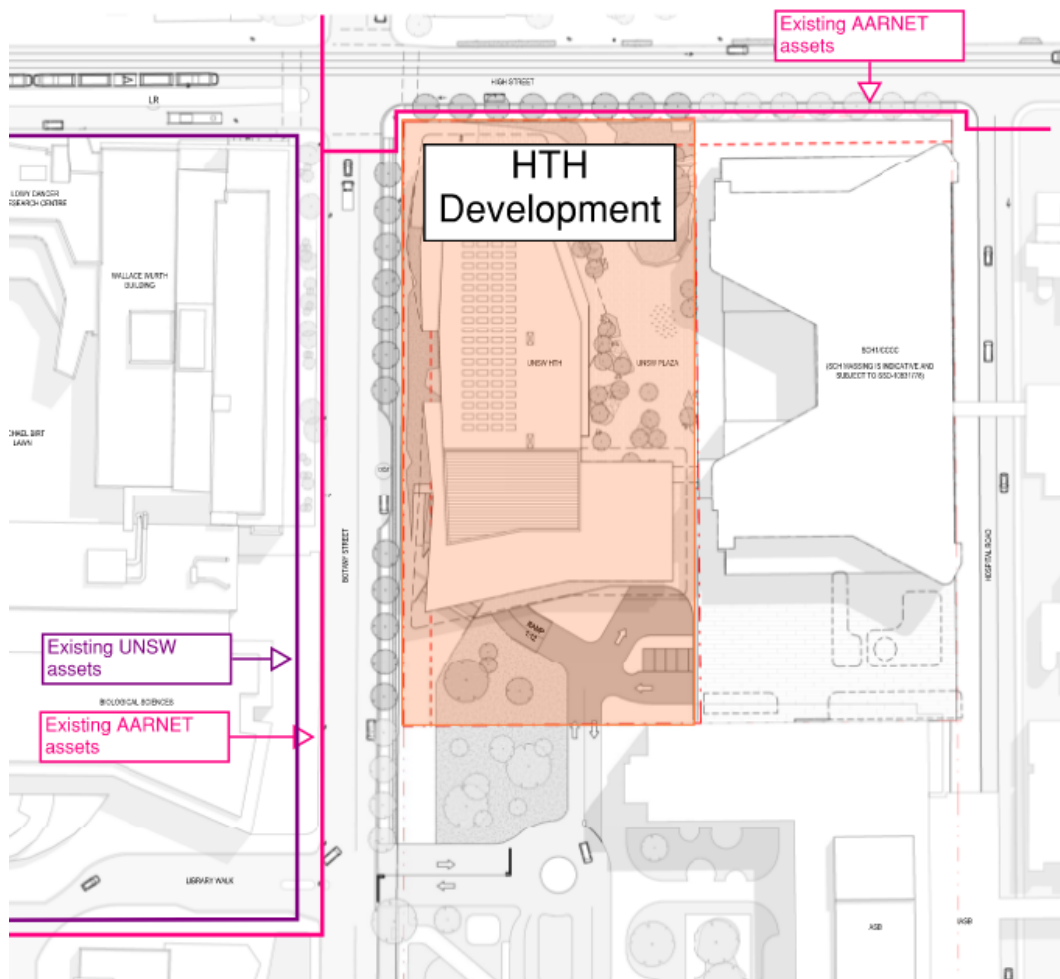


Figure 5 – Existing ICT Services

4.2 Required Alterations

4.2.1 Overview

The UNSW HTH development will be supported by the existing UNSW campus ICT infrastructure.

UNSW ICT services from the existing UNSW Randwick campus will be extended to the UNSW HTH building (New infrastructure is highlighted in Red on Figure 6).

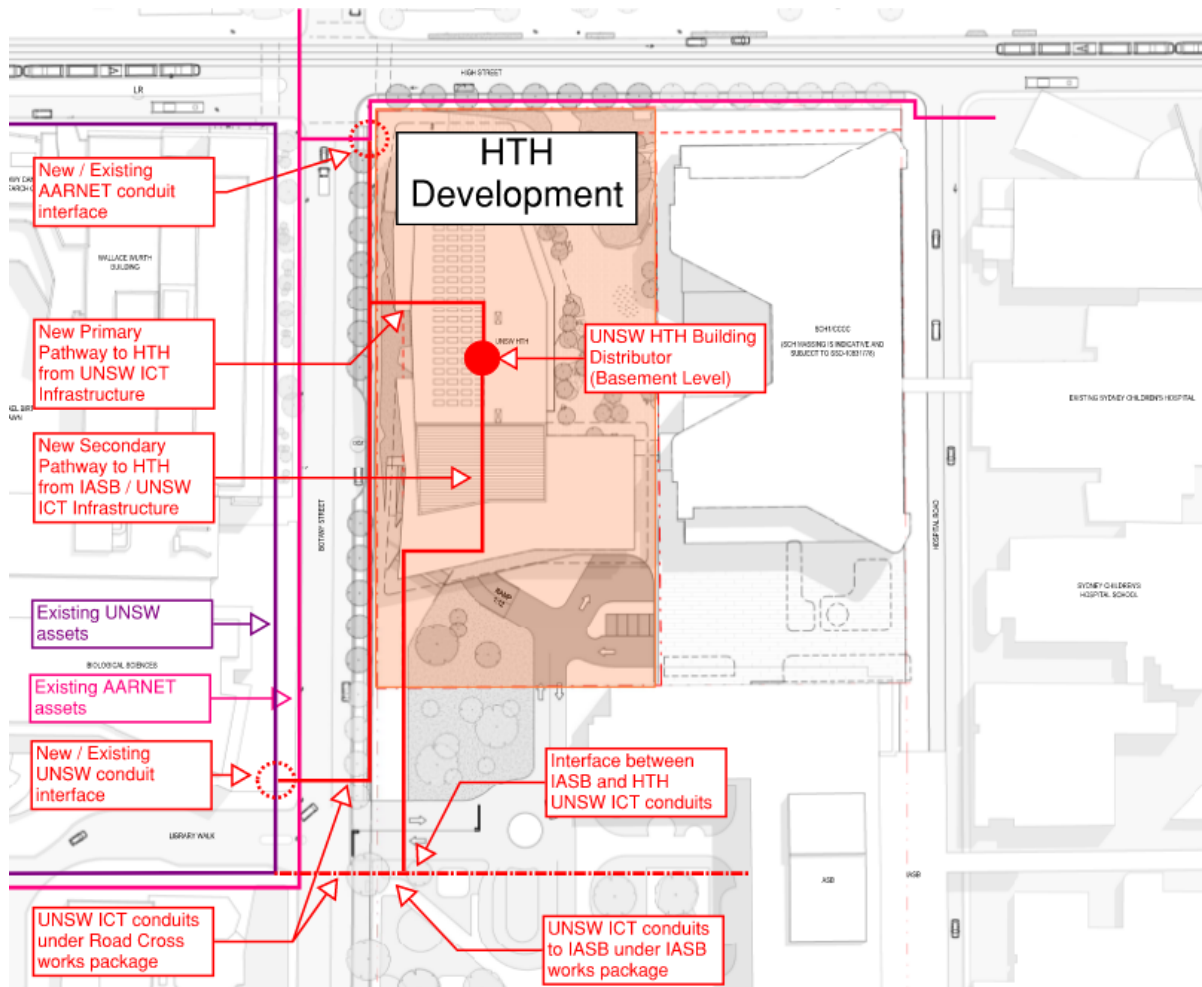


Figure 6 – Altered ICT Services

New dual reticulation pathways via in-road conduits will be provided from the UNSW campus across to the east side of Botany Street. These works will be provided during the traffic signal installation / intersection works. The inground pit and pipe routes from the pits on the east side of Botany Street will then continue to the UNSW HTH building.

Pathways will be provided with 100% spare capacity. The minimum size inground conduit will be 100mm.

An inground reticulation pathways will also be provided AARNET services. An existing AARNET pit on the corner of High Street and Botany Street will be extended into the UNSW HTH Building.

The internal ICT infrastructure will consist of new UNSW Building Distributor, UNSW Floor Distributors, Communication Risers, and cable reticulation infrastructure within the building.

Installation of campus backbone, building backbone and HSRN fibre infrastructure will be provided as required.

Tenant ICT connections will be provided via the existing UNSW Randwick Campus ICT infrastructure and lead-ins and not direct lead-ins.

4.2.2 Botany Street Intersection Works

As part of an enabling works package, new dual path inground communications conduit routes are to be installed at the proposed traffic signal intersection at Library Street / Botany Street intersection. The installation of the traffic signals at this intersection will enable access into both UNSW and the Randwick Hospitals Campus. The construction programme for the traffic signal installation is unknown at this stage however through discussions, the works are expected to be carried out mid-late 2021.

To minimize any road disruptions and to take advantage of any excavation works, the following inground conduits are to be installed across Botany Street. This will enable the later installation of UNSW Fibre optic backbone cables for both IASB and UNSW HTH:

- A Primary route (2 x 100mm conduits) north side of Library Street / Botany Street intersection is to be installed across Botany Street. The conduits will connect to a UNSW pit on the Health Precinct side and an existing UNSW pit alongside.
- A Secondary route (2 x 100mm conduits) south side of traffic signals is to be installed from an existing UNSW pit at Library Street to a new UNSW pit on the Health Precinct side of Botany Street. This pit is expected to be installed as part of the IASB works. This route will enable a redundant path / connection for IASB and UNSW HTH.

Refer to appendix for layout of interfaces.

4.2.3 UNSW Campus ICT Pathway Infrastructure

New inground conduit routes will be required to provide two physically diverse routes into the BEP of the UNSW HTH building. Dual path inground pits and conduits are to be installed from the proposed UNSW pits on the Randwick Hospitals Campus side entering the UNSW HTH basement from both the west and the south sides.

Depending on the project scope of the Library Street / Botany Street intersection traffic signal intersection works, the conduits installed across Botany Street are

required to connect to an existing communications pit on the eastern side of E26 and pit located on the footpath directly in front of AGSM.

Refer to appendix for layout of interfaces.

4.2.4 AARNET Pathway Infrastructure

As AARNET currently has an existing pit on the corner of Botany and High streets, a new 1 x 100mm conduit is to be installed from the proposed UNSW pit on the western side of HTH to within 1m of the AARNET pit. This will enable AARNET to connect their pit to the proposed UNSW inground pit and pipe system.

4.3 Authority Consultations

No ICT utility consultations have been undertaken to date as works are interfacing with private UNSW ICT assets.

AARNET will be engaged to complete their connections if they would like to.

5 Hydraulic & Fire Services

5.1 Existing Services

5.1.1 Potable Water

The following existing water mains are available to service the site:

Sydney Water Assets:

- a. High Street:
 - 150mm cast iron cement lined (CICL) main
- b. Botany Street:
 - 150mm cast iron cement lined (CICL) main
 - 750mm steel cement lined internal bitumen lined (SCL IBL) main

We note that the 750mm steel cement lined internal bitumen lined (SCL IBL) water main forms part of Sydney Water's trunk main network. Typically, Sydney Water do not accept connections to their trunk mains.

The current proposal is to connect the domestic water to the 150mm water main in High Street, however we also have the option of supplying water from the Botany Street water main if needed.

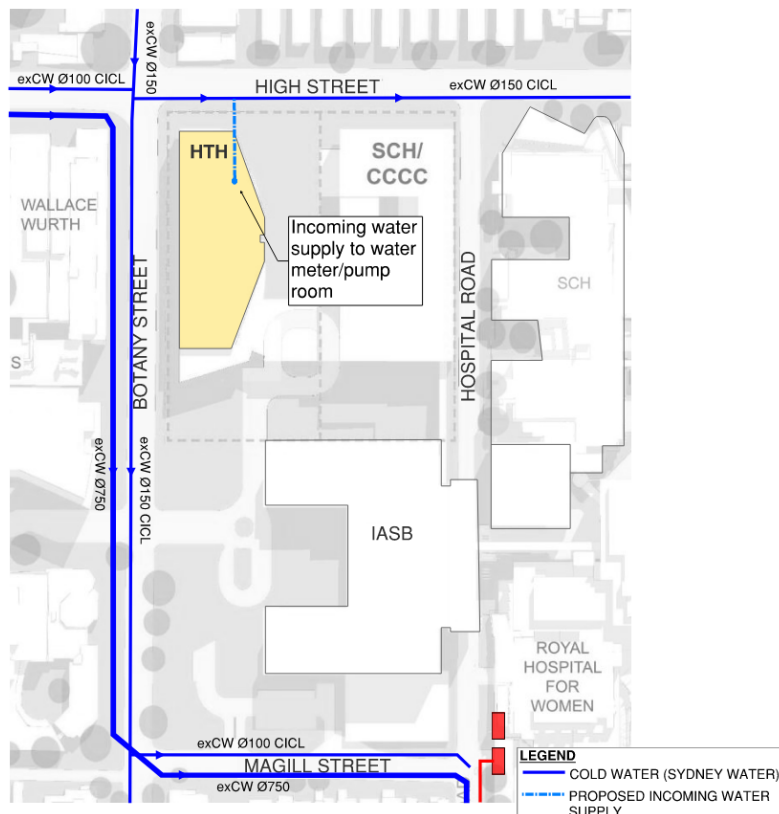


Figure 7 – Authorities Water Mains

5.1.2 Natural Gas

The following existing Jemena gas mains surrounding the site are as follows:

- a. High Street:
 - 75mm 210kPa distribution main and 150mm high pressure 1050kPa secondary main
- b. Botany Street:
 - 75mm 210kPa distribution main and 150mm high pressure 1050kPa secondary main

The current proposal is to connect the 210kPa gas main in High Street.

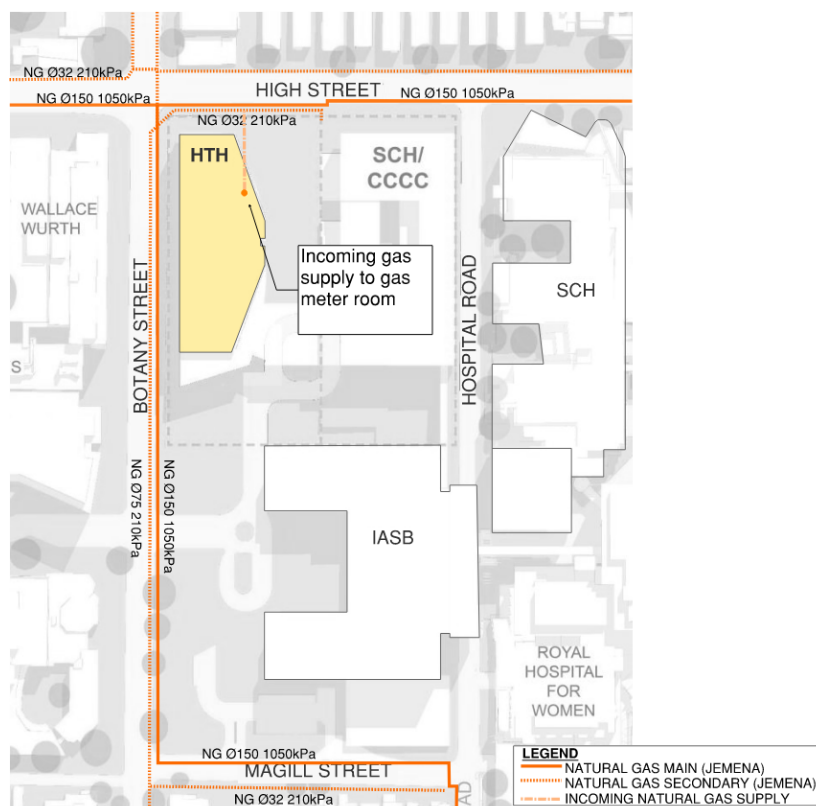


Figure 8 – Authorities Gas Mains

5.1.3 Sanitary Drainage

There is an existing Sydney Water 375mm glass reinforced plastic (GRP) sewer main extending through the site. This main was installed approximately 12 months ago as part of diversion works associated with the IASB project.

A sewer sideline was provided for as a future connection for UNSW HTH and SCH Stage 1 and the CCCC Buildings as part of the works.

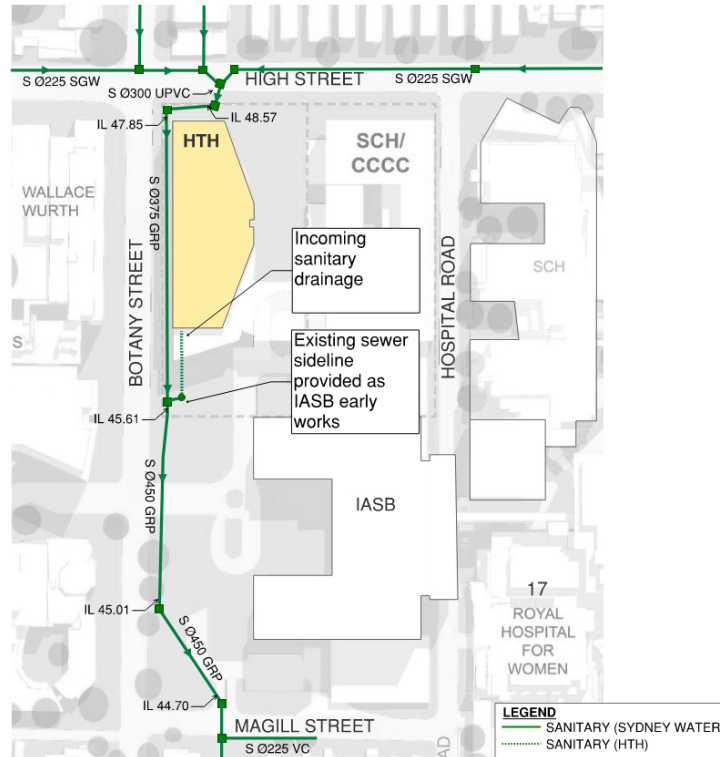


Figure 9 – Authorities Sewer Mains

5.1.4 Fire Services

The following existing water mains are available to service the site fire demands:

Sydney Water Assets:

- c. High Street:
 - 150mm cast iron cement lined (CICL) main
- d. Botany Street:
 - 150mm cast iron cement lined (CICL) main

The current proposal is to connect the domestic water to the 150mm water main in Botany Street near the proposed fire booster location.

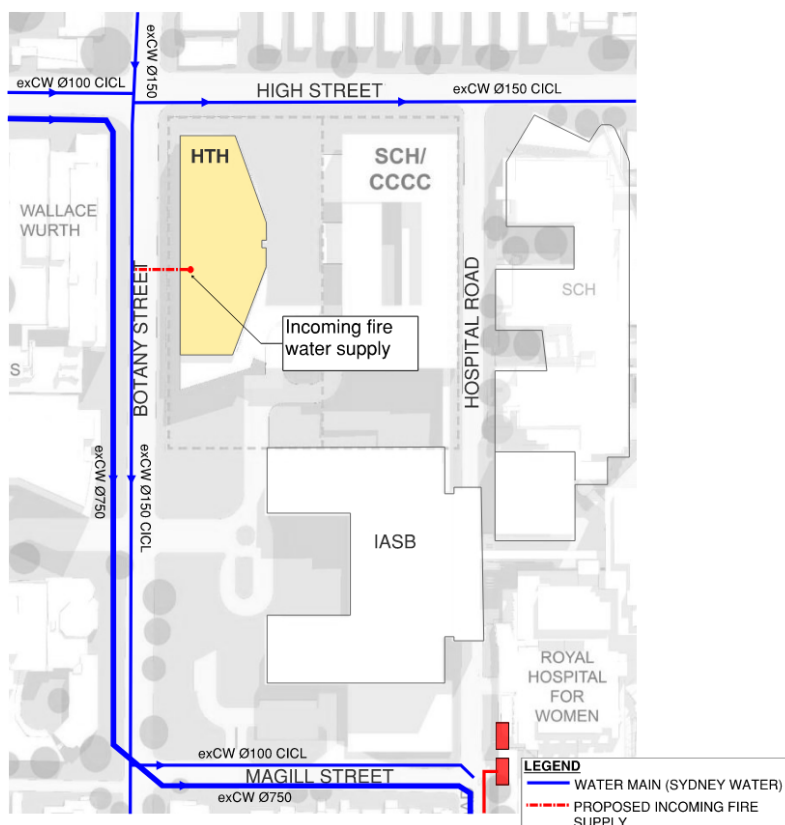


Figure 10 – Authorities Water Mains – Proposed Fire Connection

5.2 Required Alterations

While the existing water mains in High and Botany Street appear to be adequate to service the site, preliminary discussions with Sydney Water have revealed that they have some concerns regarding the age and reliability of some of the sections of the water mains in and around the site. There is a possibility that an upgrade of the water main in High Street (from Clara St to High Street) may be required. This will be fully confirmed once the Water Services Coordinator (WSC) has been engaged and a formal feasibility application has been submitted Sydney Water.

We generally expect the existing surrounding Jemena infrastructure to be of sufficient size and capacity to be able to support the natural gas loads for this development.

The sewer main has been recently installed and sized to cater for the proposed UNSW HTH & SCH Stage 1/CCCC developments and therefore no upgrades are expected.

5.3 Authority Consultations

A Section 73/Feasibility Application to verify services connection points has not been submitted with Sydney Water (via an approved Water Services Coordinator) at this stage.

6 Conclusion

The infrastructure loads for the UNSW HTH development have been assessed and the proposed utility services connections outlined within this report.

The requirement for new incoming utility connections are required with no existing services across the site due to site cleared during the health precinct early enabling works packages.

Existing utility services at the perimeter of the site will be retained and augmented as far as possible to support the development.

7 Appendix

7.1 Substation Access Proposals

[illegible]

Technical drawing of a building section showing the transformer landing area and loading dock. The drawing includes the following labels and dimensions:

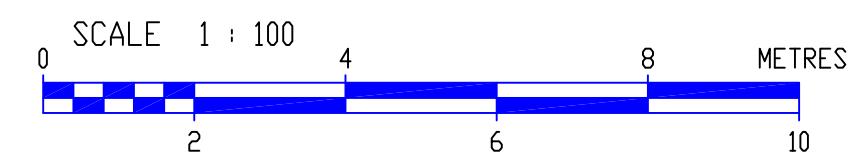
- ACCESS CHAMBER**: Located on the left side of the section.
- TRANSFORMER LANDING AREA**: A central area with a height dimension of **4000**.
- LOADING DOCK**: Located on the right side, with a height dimension of **5280**.
- Ground Level**: Indicated by a red line and the elevation **50.000**.
- Transformer Landing Area Level**: Indicated by a red line and the elevation **51.610**.
- Loading Dock Level**: Indicated by a red line and the elevation **52.490**.
- Transformer Landing Area Level (Lower)**: Indicated by a red line and the elevation **50.210**.

The drawing shows a crane lifting a transformer from the loading dock area into the transformer landing area.

Architectural section drawing of a building. The drawing shows a cross-section with a substation and a loading dock. The total height is 1000. The substation height is 800. The loading dock height is 50,000. The substation is labeled 'SUBSTATION' and the loading dock is labeled 'LOADING DOCK'. The drawing also shows a 'CLUTTER PANEL' and a 'SUBSTATION'.

The site plan illustrates the layout of the E01 Substation. Key features include:

- E01 SUBSTATION 1:** Located in the lower-left quadrant, containing a transformer landing area (at sub FFL), a transformer, a switch, and a fire door.
- E01 SUBSTATION 2:** Located in the lower-right quadrant, containing a transformer, a switch, and a fire door.
- LOADING BAY:** A large open area in the upper-left quadrant, featuring two loading docks and a fire door.
- TRANSFORMER LANDING AREA (AT SUB FFL):** Two areas, one near the loading bay and one near the substation buildings.
- DIESEL TANK:** Located in the upper-right quadrant, adjacent to the loading bay.
- PUMP:** Located in the upper-right quadrant, adjacent to the diesel tank.
- RAMP:** A ramp with a 1:12 slope is shown on the left side of the plan.
- Other Equipment:** Various pieces of equipment are labeled, including transformers (E01, E02), switches (E01, E02), and fire doors.



7.2 UNSW ICT interface Proposals

Document prepared by UNSW ICTS

UNSW IT Infrastructure Projects
Communications Services - 21/07/20
Prepared by: Joe Repici
Road crossing traffic light works.

