NSW Health Infrastructure Hospital Road Upgrade

Infrastructure Report Hydraulic and Fire Services

Rev 05 | 19 February 2021

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 274797-00

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1 Introduction

The intent of this Report is to provide a services summary that supports the Review of Environmental Factors (REF) for the proposed Hospital Road upgrade works.

The Randwick Health and Education Precinct (RHEP) is one of the most comprehensive health innovation districts in Australia. While health care at RHEP has been evolving for over 160 years, the last five years has seen a strengthening of collaboration amongst a wide range of organisations in the precinct, including with government, universities and community.

Hospital Road is an important campus road that supports the precinct and provides access to existing buildings such as the Sydney Children's Hospital (SCH) and Royal Hospital for Women (RHW). Hospital Road provides access to the campus logistical hub located on Delivery Drive. Additionally, Hospital Road will become a key link for vehicles and pedestrians enabling the integration of the existing campus with the future Integrated Acute Services Building (IASB) and Sydney Children's Hospital Stage 1/ Children's Comprehensive Cancer Centre (CCCC).

1.1 Hospital Road

Hospital Road provides access to Delivery Drive and is currently accessed by vehicles and pedestrians from Magill Street to the South and High Street to the North. The figure below shows the area of Hospital Road that this report addresses and illustrates the scope of works.



The proposed scope of works on Hospital Road will include the following key elements:

- Hospital Road North services diversions
- Remediation of Hospital Road North
- Retention piling north-south on Hospital Road
- Retention piling east-west along the High Street boundary
- Excavation of Hospital Road North

The works detailed above on Hospital Road are pivotal in allowing for the development of an interlinked campus and removing the interface between pedestrians and vehicles to provide for a safe and interconnected campus link. To achieve this, key service infrastructure assets that are currently located in Hospital Road will need to be diverted. Additionally, remediation, piling works, and excavation will need to be undertaken.

This report will summarise the existing infrastructure that will be affected by future works. Specifically, the Report will look to address the following key elements:

- 1. The location of existing major Hydraulics and Fire infrastructure services in Hospital Road.
- 2. The key service infrastructure works required in Hospital Road as part of the REF.

All analysis undertaken has been done so with an understanding that a high level of seamless integration with all precinct elements is necessary.

Potential impacts and risks for the existing services is subject to negotiation and approvals by each affected authority. Liaison with each authority is to be undertaken as part of the design process.

Existing Infrastructure & Impact 1

Hospital Road is understood to be owned and operated by the Prince of Wales Hospital as part of an overarching property arrangement for the hospital.

Existing hydraulic and fire services are located along the section of the roadway affected by the proposed civil works as follows:

- A 225mm authority sewer main, owned by Sydney Water. •
- A section of the private 150mm cold water ring main (existing Hospital • owned asset).
- A section of the 150mm fire hydrant ring main (existing Hospital owned ٠ asset).
- Existing fire boosters. •

1.2 **Authority Sewer Infrastructure**

The Dial Before You Dig (DBYD) survey indicates that there is an existing 225mm Sydney Water sewer main running along Hospital Road, serving the existing Hospital.

As part of the IASB project, Hospital Road & the 225mm sewer line were lowered on the southern end to allow construction of the IASB. It is anticipated that the current design for the new civil works to lower / alter the final levels of the existing roadway as part of this REF report, will not affect the levels of existing Sydney Water sewer main in Hospital Road (shown in green on Figure 1 below), and it can be retained in its current form.

Discussions with Sydney Water are being undertaken by the Sydney Water accredited Water Servicing Coordinator (WSC) and we are waiting on a final decision from Sydney Water in relation to this asset.



Figure 1 - 225mm Sydney Water sewer main

Refer to Appendix A for further detail on sewer line location and extent.

No new connection is anticipated to be required to the authority 225mm sewer main on Hospital Road, however it was noted that the current changes that are being undertaken in Hospital Road might limit the flexibility to redevelop the SCH Stage 2 site in the future.

Arup have done preliminary calculations, discussion with WSC and consideration of the future SCH Stage 2 and believe that the 225mm sewer line in Hospital Road does not have sufficient capacity to cater for additional loads from the existing hospital site.

Our assessment is that the proposed works in Hospital Road will limit any future upgrade to this sewer main. In regard to the future capacity requirements, we have assessed various scenarios, taking into consideration program, cost and future flexibility. The preferred scenario sees the extension a new sewer service (Sydney Water owned, subject to SW approval) from the point of connection to the Sydney Water sewer within the site (parallel to Botany Street), through to the eastern side of Hospital Road.

Based on preliminary information from the WSC, it is suggested that the sewer in Botany Street will have capacity to accept the sewer from the existing SCH site. The new sewer line will be designed and installed as an authority sewer service (Sydney Water owned), therefore it is being further investigated and documented by the WSC. Of the works required for this option, only the short section of the sewer pipework crossing Hospital Road would need to be undertaken of part of this REF (highlighted in yellow in the sketch below):



Figure 2 – Snapshot of schematic plan of sewer extension /deviation as preliminary documented by the WSC. Refer to **Appendix B** for full drawing.

1.3 Private Cold Water and Fire Mains

A short section of the private 150mm cold water ring main and similarly a section of the 150mm fire hydrant ring main are located within the section of Hospital Road affected by the lowering and as such will require diversion. Both ring mains are owned and operated by the Hospital as a private network.

It is understood that the design to relocate these services has already been carried out for the area immediately adjacent the IASB as part of the IASB scope of works. It is proposed for a similar relocation/lowering to occur also for the reminder portion of the ring mains before they divert east within the existing Hospital site and away from Hospital road.



Figure 3 – Snapshot from utility survey

Both existing systems (fire hydrant and potable cold water) are always to remain operational during construction to continue servicing existing buildings. Any scheduled services shutdown will need to be discussed with the Campus Engineering Team to ensure minimum disruption to the buildings.

Refer to **Appendix C** for further details on the estimated new cold water and fire water pipe route. Pipes shown on the sketch are not to scale and indicative only. The final pipe routes and levels will require coordination with the civil design and the other services in the area.

1.4 Existing Fire Boosters on Hospital Road

An existing fire brigade booster assembly serving the existing SCH (building 1A) is located at the northern end of Hospital Road, as shown on the figure below.

Furthermore, there are additional booster valves for buildings 1C (Ainsworth) and 17 (Royal Hospital For Women) further south on Hospital Road, which have already been relocated to allow Brigade access as part of the IASB Hospital Road lowering project.



Figure 4 - Existing boosters around the site

The fire brigade access to all existing boosters around the site will need to be maintained at all times during construction and after completion of the new building. This will include all the existing boosters along Hospital Road, but also the new booster on Magill St serving IASB.

This requirement is essential as, in the event of a fire, fire fighters will need be able to park the fire truck on hardstand within 8m from the booster in order to connect into it.

A performance solution for a temporary arrangement will be addressed within the Fire Engineering Report in the event that the construction works on Hospital Road will obstruct access to the existing booster.

Appendices

Appendix A: Authority Sewer Main Sketch



		Job No	271986-00
ARUP		Dwg No	Appendix A
		Date	27-08-2020
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RANDWICK

SEWERAGE

ADJUSTMENT/DEVIATION

Appendix B: Schematic plan of sewer extension /deviation as documented by the WSC



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RANDWICK SEWERAGE ADJUSTMENT/DEVIATION

Appendix C: Cold Water and Fire Water Private Mains Sketch



