

NSW Health Infrastructure
**Children's Hospital at Westmead
Stage 2**
MSCP Infrastructure Management
Plan
Hydraulic & Fire Services

Rev.03 | 22 January 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 271986-00

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ARUP

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1 Introduction

Arup have been engaged by Health Infrastructure NSW to undertake an Infrastructure Management Plan to support the State Significant Development Application (SSDA) for the proposed Multi Storey Car Park (MSCP).

The proposed development will be designed to comply with the BCA, DDA and all other relevant codes, standards and Authorities requirements.

1.1 Proposed Development

The proposed development under this SSDA is a Multi Storey Car Park (MSCP) accommodating both staff and visitor car parking to be located on Labyrinth Way, on the site of The Lodge.

The scope of proposed works includes:

- Demolition of The Lodge
- Construction of a new MSCP, approximately 8 car parking storeys, which is equivalent to the height of 5 storeys of the hospital.
 - Facilitating approximately 1000 car parking spaces for staff and visitors
 - Vehicular access from Labyrinth Way and / or Redbank Road
 - A split-level approach to the MSCP to respond to the natural ground level
- Ancillary retail facilities
- Road works:
 - Realignment of Redbank Road with vehicular access connection to MSCP
- Tree removal
- Associated landscape works

The MSCP is being designed to be constructed in a single stage yet car parking will be staged operationally to come on-line with parking demand across the Precinct:

- The first stage of car parking operation would provide replacement car parking for the demolished P17 car park. There would be no net increase of parking on site under this stage.
- The second stage of car parking operation to serve the growth in hospital activity associated with the future PSB (subject to a separate SSDA) would only come on-line operationally with the PSB SSDA consent becoming operational, specifically at occupation. This would provide

growth of around 280 additional spaces in line with hospital activity projections until 2031.

2 Hydraulic and Fire Services Infrastructure

The site survey undertaken by LTS Lockley (2020) indicates the presence of existing utilities within the MSCP site. The MSCP site works and the Redbank Road re-alignment will impact various existing services including sewer, potable cold water and natural gas. These utilities are a combination of privately owned and authority owned assets. Refer to site plan in **Appendix A** illustrating the MSCP site works with respect to existing services.

All existing services will require protection during excavation and construction works.

2.1 Domestic Cold Water

The cold water supply to the MSCP development will be provided from a new connection to the 100mm authority water main adjacent to the Redbank Road bridge. Similarly, a new connection will be provided for the fire protection water supply.

2.2 Sanitary Drainage

An existing private sewer line and an authority sewer service will be impacted by the realignment of Redbank Road. All existing services will require protection during excavation and construction works.

No new connection into the authority or private sewer main is anticipated to be required for the MSCP.

2.3 Natural Gas

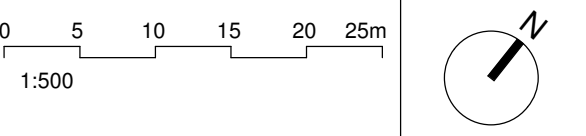
Due to the realignment of Redbank Road, an existing high-pressure Jemena Gas Main will need to be relocated to follow the new road alignment, as per Jemena's preliminary advice.

Discussions with Jemena are currently underway to determine the location of the realigned gas main. The authority gas main re-alignment will be designed, installed, managed and owned by Jemena.

No new connection for natural gas supply is anticipated to be required for the MSCP.

Appendix A

MSCP Hydraulic and Fire Services – Schematic Site Plan



Scale	Date
1 : 500@A1	16/12/20
Drawn By	Checked By
NG	EL
Revision	
A	
Project No	271986
Drawing No	
CHW-HY-DG-MCP-10-01000	

Appendix B

Sydney Water Pressure and Flow results

Statement of Available Pressure and Flow

Elena Longo
201 Kent Street
Sydney, 2000

Attention: Elena Longo

Date: 03/07/2020

Pressure & Flow Application Number: 893849
Your Pressure Inquiry Dated: 2020-06-17
Property Address: 178 Hawkesbury Road, Westmead 2145

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Redbank Road	Side of Street: East
Distance & Direction from Nearest Cross Street	1 metres South from Labyrinth Way
Approximate Ground Level (AHD):	13 metres
Nominal Size of Water Main (DN):	100 mm (Target Point as per sketch provided)

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	103 metre head
Minimum Pressure	47 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	46
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	47
	10	42
	15	35
	20	26
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	44
	10	39
	15	32
	20	22
Maximum Permissible Flow	26	8

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

swtapin@sydneywater.com.au

General Notes

This report is provided on the understanding that (i) the applicant has fully and correctly supplied the information necessary to produce and deliver the report and (ii) the following information is to be read and understood in conjunction with the results provided.

1. Under its Act and Operating Licence, Sydney Water is not required to design the water supply specifically for fire fighting. The applicant is therefore required to ensure that the actual performance of a fire fighting system, drawing water from the supply, satisfies the fire fighting requirements.
2. Due to short-term unavoidable operational incidents, such as main breaks, the regular supply and pressure may not be available all of the time.
3. To improve supply and/or water quality in the water supply system, limited areas are occasionally removed from the primary water supply zone and put onto another zone for short periods or even indefinitely. This could affect the supply pressures and flows given in this letter. This ongoing possibility of supply zone changes etc, means that the validity of this report is limited to one (1) year from the date of issue. It is the property owner's responsibility to periodically reassess the capability of the hydraulic systems of the building to determine whether they continue to meet their original design requirements.
4. Sydney Water will provide a pressure report to applicants regardless of whether there is or will be an approved connection. Apparent suitable pressures are not in any way an indication that a connection would be approved without developer funded improvements to the water supply system. These improvements are implemented under the Sydney Water 'Urban Development Process'.
5. Pumps that are to be directly connected to the water supply require approval of both the pump and the connection. Applications are to be lodged online via Sydney Water Tap in™ system - Sydney Water Website – www.sydneywater.com.au/tapin/index.htm. Where possible, on-site recycling tanks are recommended for pump testing to reduce water waste and allow higher pump test rates.
6. Periodic testing of boosted fire fighting installations is a requirement of the Australian Standards. To avoid the risk of a possible 'breach' of the Operating Licence, flows generated during testing of fire fighting installations are to be limited so that the pressure in Sydney Water's System is not reduced below 15 metres. Pumps that can cause a breach of the Operating Licence anywhere in the supply zone during testing will not be approved. This requirement should be carefully considered for installed pumps that can be tested to 150% of rated flow.

Notes on Models

1. Calibrated computer models are used to simulate maximum demand conditions experienced in each supply zone. Results have not been determined by customised field measurement and testing at the particular location of the application.
2. Regular updates of the models are conducted to account for issues such as urban consolidation, demand management or zone change.
3. Demand factors are selected to suit the type of fire-fighting installation. Factor 1 indicates pressures due to system demands as required under Australian Standards for fire hydrant installations. Factor 2 indicates pressures due to peak system demands.
4. When fire-fighting flows are included in the report, they are added to the applicable demand factor at the nominated location during a customised model run for a single fire. If adjacent properties become involved with a coincident fire, the pressures quoted may be substantially reduced.
5. Modelling of the requested fire fighting flows may indicate that local system capacity is exceeded and that negative pressures may occur in the supply system. Due to the risk of water contamination and the endangering of public health, Sydney Water reserves the right to refuse or limit the amount of flow requested in the report and, as a consequence, limit the size of connection and/or pump.
6. The pressures indicated by the modelling, at the specified location, are provided without consideration of pressure losses due to the connection method to Sydney Water's mains.