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HYDRAULIC SERVICES
UTILITY SERVICES REPORT
NEW HIGH SCHOOL FOR JORDAN SPRINGS

22nd November 2024

DOCUMENT CONTROL

Rev #	Date	Description
01	20th September 2024	DRAFT – Utility Services Report for REF
02	1st November 2024	DRAFT Reissued – Utility Services Report for REF
03	22nd November 2024	Final Draft Issue for REF

APPROVALS

Rev #	Author	Status	Reviewer	Approver
01	J. Skubevski	Superseded		
02	A. Palmer	Superseded	J. Skubevski	S. Matthews
03	J. Chung	Current	J. Skubevski	S. Matthews

REPARED BY:	PREPARED FOR:
WSCE	**NSW DEPARTMENT OF EDUCATION**
ABN 36 300 430 126	
Level 20, 66 Goulburn Street	8/259 George St
Sydney 2000 NSW Australia	Sydney 2000 NSW Australia
T 02 9299 1312	**T** 1300 482 651

Contents

1 INTRODUCTION

This hydraulic services utility report has been prepared to accompany a Review of Environmental Factors (REF) for the Department of Education (DoE) for the construction and operation of a New High School for Jordan Springs (the activity) under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI).

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure.

This report examines and takes into account the relevant environmental factors in the Guidelines and Environmental Planning and Assessment Regulations 2021 under Section 170, Section 171 and Section 171A of the EP&A Regulation as outlined in Table *1*.

Table 1: Summary of Relevant Section of the Part 5 Guidelines and EP&A Regulation

Regulation / Guideline Section	Requirement	Response	Report Section
Section 171 – Part 2 (a), (b), (h), (m), (n), (r) *[13/12/2024]*	Infrastructure and environmental impact assessment	Utility services report	3 and 4

1.1 DOCUMENTATION REVIEW

The following plans/reports identified in Table *2* have been reviewed to inform the assessment contained within this report.

Table 2: Plans and Reports Reviewed

Discipline	Document name	Revision	Date
Utilities – Water and Sewer	DBYD Job No: 37105979 – Sydney Water Hydra map	N/A	11/07/2024
Utilities – Natural Gas	DBYD Job No: 37105979 – Sydney Water Hydra map	N/A	11/07/2024
Architectural	JSHS-DJRD-00-00-DR-A-0101	P02	25/10/24

1.2 PROPOSED ACTIVITY DESCRIPTION

The proposed activity for the construction and operation of the New High School for Jordan Springs is proposed to have a capacity of 1,000 students and 80 staff to meet forecast enrolment demand associated with population growth in Jordan Springs and Ropes Crossing. The school will provide permanent General Learning Spaces (GLS), Support Learning Spaces (SLS), staff facilities and a library across three (3), three storey buildings, a single storey hall, half playing field, three (3) outdoor sport courts, 72 operational at grade parking spaces (including two (2) accessible spaces), 100 bicycle spaces and landscaping.

Public domain works and the permanent off-site OSD Basin are to be constructed by others under separate planning pathways.

1.3 PROPOSED ACTIVITY SCENARIOS

The project scope of works includes two (2) Scenarios, to allow construction and operation of the school, with (Scenario 1 – preferred option) or without (Scenario 2 – Interim Solution) the public domain works and permanent off-site basin being constructed by others under a separate planning pathway.

1.3.1 SCENARIO 1 – PREFERRED OPTION - ROAD NETWORK COMPLETED AND PERMANENT OSD BASIN CONSTRUCTED

- External works undertaken by others to facilitate Scenario 1
  - Construction of Park Edge Road;
  - Any adjustments to Infantry Street;
  - Kiss and drop zone along Park Edge Road;
  - Support kiss and drop zone located along Infantry Street; and
  - Construction and operation of permanent OSD Basin off site.

Note – Scenario 1 is not to proceed if external works undertaken by others is not completed.

- Scenario 1
  - Construction and Operation of the New High School for Jordan Springs, including:
    - Decommissioning of existing on-site OSD basin;
    - Demolition of roads and associated services within the site boundary;
    - Tree removal within the site boundary
    - Earthworks;
    - Three (3) multi-storey classroom buildings;
    - One (1) school hall;
    - Three (3) outdoor sport's courts;
    - One (1) sport's field;
    - 72 at grade car parking spaces, including two (2) accessible parking spaces, and waste services, accessed via Park Edge Road;
    - 100 bicycle parking spaces across the site; and
    - Landscaping.

1.3.2 SCENARIO 2 - INTERIM SOLUTION – ROAD NETWORK NOT COMPLETED, PERMANENT OSD BASIN NOT CONSTRUCTED

- Scenario 2 - Stage 2

  Stage 2 is not to be undertaken until the temporary on-site OSD basin under stage 1 works is completed and operational.

  - Decommissioning of existing on-site OSD basin, prior to the following works being undertaken:
    - 72 at grade car parking spaces, including two (2) accessible parking spaces, and waste services, located on the southeast corner of the site. This car park cannot be constructed until the decommissioning of the existing OSD basin is completed and will be non-operational with no road connection until completion of Scenario 2 – Stage 3;
    - One (1) school hall;
    - Three (3) outdoor sport's courts; and
    - Associated landscaping.

- External works undertaken by others to facilitate Stage 3
  - Construction of Park Edge Road;
  - Any adjustments to Infantry Street;
  - Kiss and drop zone along Park Edge Road;
  - Support kiss and drop zone located along Infantry Street; and
  - Construction and operation of OSD Basin off site.

Note – Scenario 2 - Stage 3 is not to proceed until the external works undertaken by others have been completed.

- Scenario 2 - Stage 3
  - Connection of the southeast carpark to Park Edge Road;
  - Rectification works along Armoury Road to remove temporary kiss and drop facilities and cross over for temporary carpark;
  - Demolition of temporary carpark, once permanent car park is operational; and
  - Decommissioning of temporary OSD basin.

1.4 ACTIVITY SITE

The project site is located on the corner of Armoury Road and Infantry Street in Jordan Springs and is legally described as part of Lots 2 and 3 in DP 1248480.

Figure 1 provides an aerial photograph of the project site, outlines the boundaries of the project site (in red) and the boundaries of Lots 2 and 3 in DP 1248480 (in blue).

Figure 1: Aerial view of property boundary)

The project site is within the Central Precinct of the St Mary's Release Area in the Penrith Local Government Area.

Figure 2 below is illustrative of the proposed buildings that will reside across the site upon the project's completion.

Figure 2: Proposed site massing

1.5 OTHER APPROVALS

External works and construction of the off-site OSD Basin are to be constructed by others.

2 DEMOLITION

There are no existing buildings on the site that are required to be demolished.

There are existing water, sewer and gas utility main assets within the boundary that are required to be demolished &/or relocated which require approval from the local authorities.

3 HYDRAULIC SERVCES DEMAND CALCULATIONS

There is currently no existing demand on the Sydney Water and/or Jemena network utility mains as there are no existing buildings on the site. Therefore, the additional demands incurred on the network mains have been based on the school's design parameters of 1000 students.

3.1 WATER SUPPLY DEMAND CALCULATIONS

The assumption used in determining the average daily potable water demands for the proposed additional student population was sourced from the Sydney Water table, "Average Daily Water Use by Property Type" and is presented in Table *3* below. Please refer to APPENDIX A – for the Sydney Water table.

Where possible, potable water usage will be reduced by using low flow taps and sanitary fixtures (specified by the architect).

Table 3: Average Daily Water Demand

Classification	Metric Unit	Average Demand (L/Metric Unit/Day)
Special Use - School	Student	20

Please refer to Table *4* below for the average daily water demand calculation.

Table 4: Average Daily Water Demand Increase Calculation

Total Units	Average Demand (L/Metric Unit/Day)	Total Average Daily Water Demand (kL)
1000	20	20

The following flows for the entire site have also been calculated:

- Probable simultaneous demand – 2.43 L/sec
- Fire flow for hydrants – 20 L/sec
- Fire flow for hose reels – 0.66 L/sec

3.2 SEWER DISCHARGE CALCULATIONS

To determine the average daily sewer discharge for the proposed activity, an estimate of the daily sewer discharge in terms of Litres/Day has been made by adopting information derived by the NSW Water Directorate. Where the standard equivalent tenement figures suggest that a 60% water to sewer discharge factor is appropriate. Refer to Table *5* below for this calculation.

Table 5: Sewer Discharge Calculation

Classification	Unit	Average Demand (60% of Water Average Demand) L/Metric Unit/Day)
Special Use – School	Student	12

Please refer to Table 6 below for the Average Daily Sewer Discharge calculation.

Table 6: Average Daily Sewer Discharge Calculation

Total Units	Average Demand (60% of Water Average Demand) (L/Metric Unit/Day)	Total Average Daily Sewer Discharge (kL)
1000	12	12

3.3 NATURAL GAS DEMAND CALCULATIONS

There are no requirements for natural gas for the site, noting the project's direction for electrification.

Where gas services have been noted as required, this has been provided via liquified petroleum gas (LPG) bottles, which is outside the scope of this report.

4 UTILITY SERVICE CONNECTIONS

4.1 WATER

The existing site has access to multiple Sydney Water utility water mains as identified below and in Figure 3:

- 200mm diameter water main in Armoury Road,
- 250mm diameter water main in Armoury Road,
- 150mm diameter water main in Infantry Street.
- 100mm diameter water mains within sites boundary.
    - This is to be confirmed by others during the Section 73 process.

Figure 3: Existing utility sewer and water mains surrounding and within the site

There are requirements for water main diversions &/or disconnections as there are mains that reticulate within the site boundary and the proposed road expansion. This is to be confirmed during the Section 73 process.

Sydney Water was contacted on 11th of October 2024. Sydney Water provided a response on 11th of October 2024. Sydney Water advises that a Water Services Coordinator is required to carry out the liaison with Sydney Water and lodge any Section 73 applications.

It is proposed to connect to the 250mm diameter water main asset in Armoury Road for both lot 2 and 3. Sydney Water issued a pressure and flow test on 31/07/24 for Lot 2 and results are included in APPENDIX B – NETWORK UTILITY OPERATOR CORRESPONDENCE. Although the statements state Lot 2, there is no impact on Lot 3. WSce have initiated and updated pressure and flow enquiry for the full site, both Lot 2 & 3, which is expected to be issued in early 2025. WSce confirm the addresses do not have an impact on the results.

The application will be amended for both lot 2 and 3, however, the results/outcomes will not affect this report. It was identified that this main is sufficient to supply the proposed activity from a hydraulic and fire services perspective, although is to be confirmed via the Sydney Water Section 73 process.

4.2 SEWER

The existing site has access to multiple Sydney Water utility sewer mains as identified below and in Figure 3:

- 150mm diameter sewer main in Armoury Road,
- 150mm diameter sewer main Infantry Street,
- A number of 150mm diameter mains located within sites boundary.
    - This is to be confirmed during the Section 73 process.

There are requirements for sewer main diversions &/or disconnections as there are mains that reticulate within the site boundary. This is to be confirmed during the Section 73 process.

Sydney Water was contacted on 11th of October 2024. Sydney Water provided a response on 11th of October 2024. Sydney Water advises that a Water Services Coordinator is required to carry out the liaison with Sydney Water and lodge any Section 73 applications.

It is proposed to connect to the 150mm diameter sewer main asset in Infantry Street. The main will be required to be extended into the site as per Sydney Water's requirements which is to be defined by the Section 73 process.

4.3 NATURAL GAS MAINS

The existing site has access to multiple Jemena utility natural gas mains as identified below and in Figure 4:

- 32mm diameter 210kPa natural gas main in Armoury Road, Infantry Street, Convoy Street, and Commander Street.
- A number of 32mm diameter 210kPa natural gas mains located within sites boundary.

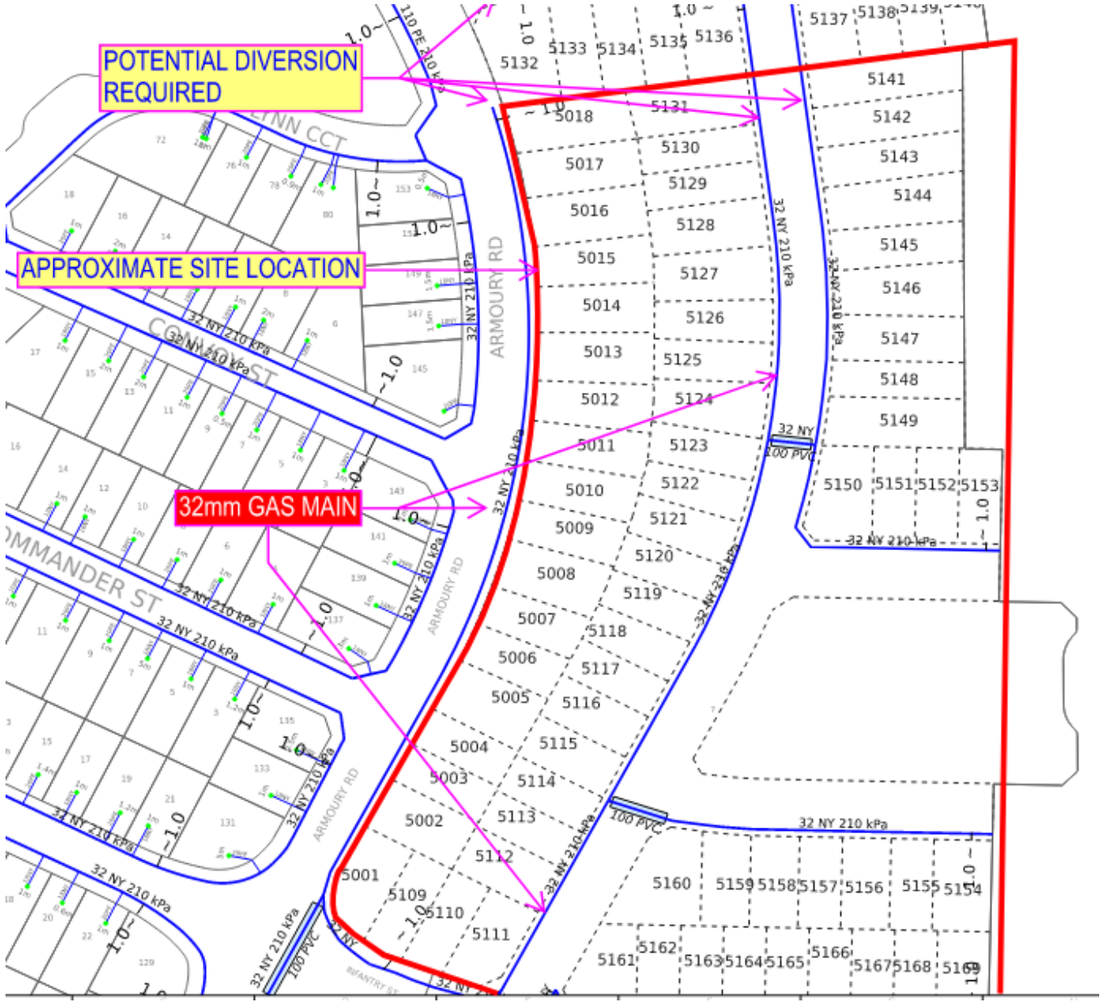

Figure 4: Existing utility natural gas mains surrounding the site

There are no proposed new natural gas connections due to the project's electrification and LPG strategy.

There are requirements for gas main diversions &/or disconnections as there are mains that reticulate within the site boundary.

5 REVIEW OF ENVIRONMENTAL FACTORS ASSESSMENT

5.1 MITIGATION MEASURES

Mitigation measures are required to avoid, minimize, or rectify the potential adverse environmental impacts of the proposed hydraulic works. These measures aim to reduce the environmental risks associated with the project over time by promoting preservation, restoration, and ongoing maintenance.

A summary of the impacts of the activity and the proposed mitigation measures are surmised in the table below:

Table 7: Mitigation Measures

Mitigation Number/ Name	When is Mitigation Measure to be complied with	Mitigation Measure	Reason for Mitigation Measure
Water Connection	Before & During Construction	Engage an accredited Water Services Coordinator to lodge a Section 73 application Coordinating the water services connection with Sydney Water to ensure it can be constructed in a risk free manner and also that the proposed activity does not negatively impact their system.	To ensure existing water mains within boundary are disconnected or diverted as required prior to construction. To ensure the site is sufficiently supplied with drinking water. To ensure the site demand does not disrupt water supply to the local area.
Sewer Connection	Before & During Construction	Engage an accredited Water Services Coordinator to lodge a Section 73 application Coordinating the sewer services connection with Sydney Water to ensure it can be constructed in a risk-free manner and also that the proposed activity does not negatively impact their system.	To ensure existing sewer mains within boundary are disconnected or diverted as required prior to construction. To ensure the site can sufficiently drain all wastewater to the utility network. To ensure the site demand does not disrupt sewer drainage of the local area. To ensure the effect to the surrounding properties water supply is minimised.
Water & Sewer Supply to Surrounding Properties	Before Construction	Engage an accredited Water Services Coordinator to lodge a Section 73 application	To ensure the supply to the surrounding properties water and sewer maintained &/or impact minimised.
Gas Connection	Before Construction	Engage Jemena to complete an abolishment &/or diversions.	To ensure existing gas mains within boundary are disconnected or diverted as required prior to construction. To ensure the effect to the surrounding properties water supply is minimised.
Gas Supply to Surrounding Properties	Before Construction	Engage Jemena to complete an abolishment &/or diversions.	To ensure the supply to the surrounding properties gas is maintained &/or impact minimised.

5.2 EVALUATION OF ENVIRONMENTAL IMPACTS

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that:

- The extent and nature of potential impacts is low and we conclude that there will not be significant impacts on the locality, community and/or the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

6 APPENDICES

6.1 APPENDIX A – SYDNEY WATER AVERAGE DAILY WATER USE TABLE

"AVERAGE DAILY WATER USE BY PROPERTY TYPE"

Development Type	Development Sub-Type	Key Metric	Metric Unit	Average Demand (L/Metric Unit / Day)
Residential	Single Lot Torrens	Dwelling	Each dwelling	623.00
	Flats Torrens	Net Floor Area	Square Meter	2.36
	High Rise Units	Net Floor Area	Square Meter	3.34
	Single Lot Community	Dwelling	Each dwelling	623.00
Mixed	Residential / Commercial	Combined Floor Area	Each dwelling / Square Meter	Use separate rates for each component
	Commercial / Industrial	Combined Floor Area	Square Meter	Use separate rates for each component
Commercial	Aged Accom - Self Care	Net Floor Area	Square Meter	2.50
	Aged Accom - Hostel	Bed	Each bed	271.00
	Aged Accom - Full Care	Bed	Each bed	271.00
	Childcare	Net Floor Area	Square Meter	3.60
	Hotel / motel / serviced apartments	Room	Each room	359.94
	Office	Net Floor Area	Square Meter	2.27
	Shopping Centre	Net Floor Area	Square Meter	3.00
	Laundry / Dry Cleaner	Net Floor Area	Square Meter	10.50
	Café / Fast Food / Butcher / Deli	Net Floor Area	Square Meter	2.48
	Retail Units	Net Floor Area	Square Meter	2.48
	Medical / Veterinary	Net Floor Area	Square Meter	2.48
	Mechanical Repair	Net Floor Areas	Square Meter	2.48
	Car / Boat Sales	Net Floor Area	Square Meter	2.48
	Car Wash	Net Floor Area	Square Meter	9.40
	Club	Net Floor Area	Square Meter	3.77
Industrial	Heavy Process		As required	
	Chemical Manufacturing		As required	
	Printing Manufacturing		As required	
	Beverage Manufacturing		As required	
	Light Factory Unit	Developed floor area	Square Meter	2.82
	Warehousing	Developed floor area	Square Meter	2.82
	Transport / Bus Depot	Site area	Square Meter	0.91
Special Uses	University	Student	Each student	20.00
	School	Student	Each student	20.00
	Hospital	Bed	Each bed	271.00
	Religious assembles	Developed floor area	Square Meter	1.30
	Government Depot	Site area	Square Meter	0.91
	Community Centre / Library	Floor area	Square Meter	1.84
	Sport Fields with Amenities		As required	
	Park & Reserves		As required	
	Services - Police / Ambulance etc.	Floor area	Square Meter	1.40

6.2 APPENDIX B – NETWORK UTILITY OPERATOR CORRESPONDENCE

Statement of Available Pressure and Flow

Michael Cahalane
233 Castlereagh Street
Sydney, 2000

Attention: Michael Cahalane Date: 01/08/2024

Pressure & Flow Application Number: 1935917
Your Pressure Inquiry Dated: 2024-07-22
Property Address: Lot 2 Armoury Road, Llandilo NSW 2747

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: Infantry Street	Side of Street: North
Distance & Direction from Nearest Cross Street	8 metres East from Armoury Road
Approximate Ground Level (AHD):	19 metres
Nominal Size of Water Main (DN):	150 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	108 metre head
Minimum Pressure	72 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	72
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15 20 25 30 40 50 60	72 72 71 71 71 70 69 68
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main) Maximum Permissible Flow	10 15 20 25 30 40 50 60 67	71 71 71 70 70 69 68 66 65

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

hydraulicassessment@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 a 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.

Statement of Available Pressure and Flow

Michael Cahalane
233 Castlereagh Street
Sydney, 2000

Attention: Michael Cahalane Date: 01/08/2024

Pressure & Flow Application Number: 1935935
Your Pressure Inquiry Dated: 2024-07-22
Property Address: Lot 2 Armoury Road Llandilo NSW 2747

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: Armoury Street	Side of Street: East
Distance & Direction from Nearest Cross Street	20 metres North from Infantry Street
Approximate Ground Level (AHD):	19 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	108 metre head
Minimum Pressure	72 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	72
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15 20 25 30 40 50 60	72 72 71 71 71 70 69 68
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main) Maximum Permissible Flow	10 15 20 25 30 40 50 60 87	71 71 71 70 70 69 68 67 63

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

hydraulicassessment@sydneywater.com.au

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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.

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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.

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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.

Statement of Available Pressure and Flow

Michael Cahalane
233 Castlereagh Street
Sydney, 2000

Attention: Michael Cahalane Date: 31/07/2024

Pressure & Flow Application Number: 1935905
Your Pressure Inquiry Dated: 2024-07-22
Property Address: Lot 2 Armoury Road, Llandilo NSW 2747

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: Armoury Road	Side of Street: East
Distance & Direction from Nearest Cross Street	5 metres North from Infantry Street
Approximate Ground Level (AHD):	19 metres
Nominal Size of Water Main (DN):	250 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	108 metre head
Minimum Pressure	72 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	72
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15 20 25 30 40 50 60	72 72 71 71 71 70 69 68
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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 a 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.