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HYDRAULIC SERVICES
UILITY SERVICES REPORT
SCHOFIELDS / TALLAWONG HIGH SCHOOL

21st January 2025

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APPROVALS

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01	J. Skubevski	Superseded		S. Matthews
02	A. Palmer	Superseded	J. Skubevski	S. Matthews
03	J. Chung	Superseded	J. Skubevski	S. Matthews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

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1 INTRODUCTION

WSce have been engaged by School Infrastructure New South Wales (SINSW) to prepare a town planning utility services report for the proposed development works of the Schofield / Tallawong High School relating to the hydraulics Services.

The proposed site (“the site”) for Schofield / Tallawong High School is located at 201 Guntawong Road, Tallawong NSW 2762. This is shown in Figure 1 (approximate site location identified in red).

Figure 1: Aerial view of property boundary (Source: Google Maps)

This report aims to describe the existing utility mains that surround the site and proposed servicing strategies as well as preliminary load assessments based on the proposed project scope for the Review of Environmental Factors (REF) assessment.

The report may also supplement any correspondence with the Network Utility Operator (NUO), which in this case is Sydney Water as it will enable them to determine whether there is sufficient capacity in their utility mains to supply to proposed development and that the proposed servicing strategies are feasible.

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

2 DEMOLITION

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

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 for student/staff population. This has been documented for Stage 1 of the development including:

- Stage 1 – 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 1*** 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 1: Average Daily Water Demand

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

Please refer to ***Table 2*** below for the average daily water demand calculation.

Table 2: Average Daily Water Demand Increase Calculation

Total Units	Average Demand (L/Metric Unit/Day)	Total Average Daily Water Demand (kL)
Stage 1 – 1000	20	20

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

- Probable simultaneous demand – N/A (To be calculated as the design develops)
- Fire flow for hydrants – 20 L/sec
- Fire flow for hose reels – 0.66 L/sec
- Fire flow for sprinklers and drenchers – TBC – BCA Certifier and Fire Safety Engineer required to determine requirement

3.2 SEWER DISCHARGE CALCULATIONS

To determine the average daily sewer discharge for the proposed development, 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 3*** below for this calculation.

Table 3: 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 4*** below for the Average Daily Sewer Discharge calculation.

Table 4: EP Calculation

Total Units	Average Demand (60% of Water Average Demand) (L/Metric Unit/Day)	Total Average Daily Sewer Discharge (kL)
Stage 1 – 1000	12	12

3.3 NATURAL GAS DEMAND CALCULATIONS

The natural gas demands have not been calculated at the time of writing this report as there are no available details on the appliances requiring natural gas.

As the mechanical and hydraulic systems will rely on electrical supply for energy generation in water heating, etc. it is assumed that the natural gas demand from the site will be quite low, mainly suppling science laboratories and kitchen facilities.

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:

- 100mm diameter water main in Nirmal Street,
- 750mm diameter water main in Guntawong Road.

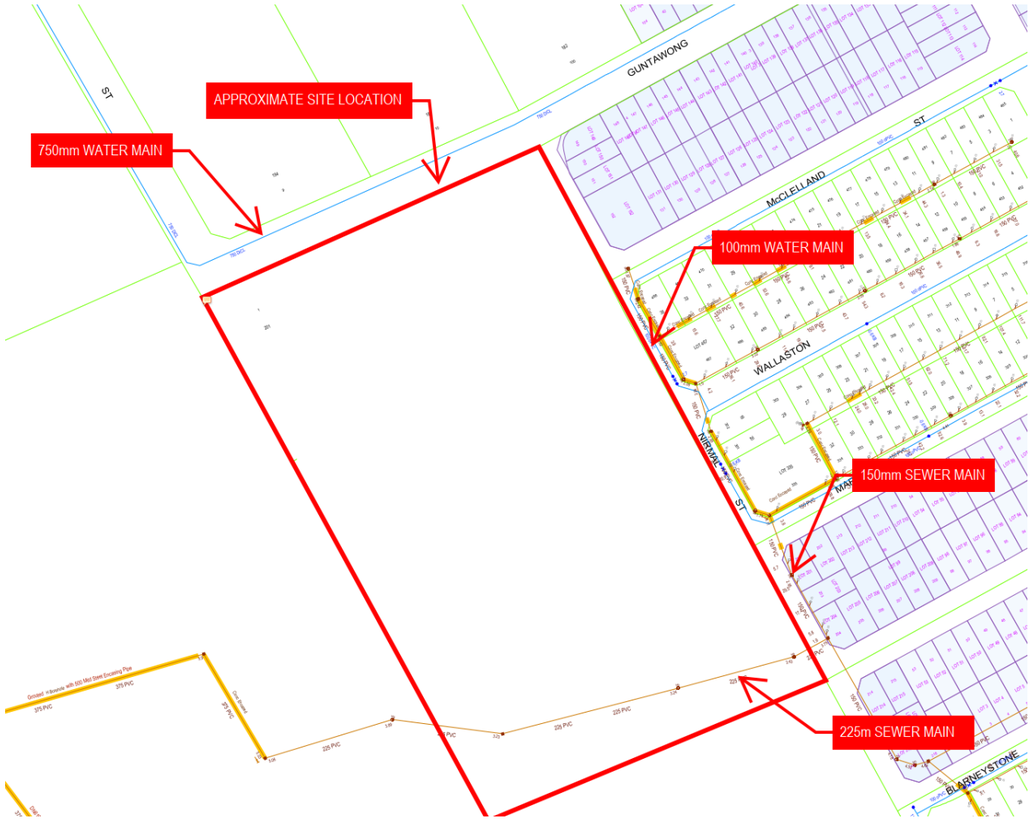

Figure 3: Existing utility sewer and water mains surrounding the site

There has been no formal correspondence with Sydney Water regarding the capacity of their water assets at the time of writing this report. An accredited Water Services Coordinator is required to carry out the liaison and with Sydney Water and lodge any Section 73 applications.

There is no requirement for any water main diversions as there are no mains that reticulate within the site boundary.

It is proposed to connect to the 100mm diameter water main asset in Nirmal Street. A Pressure and flow application of this water main was previously lodged and has been referenced in APPENDIX B – NETWORK UTILITY OPERATOR CORRESPONDENCE. It was identified that this main is sufficient to supply the proposed development 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 Nirmal Street,
- 225mm diameter sewer main reticulating through the property along the southern boundary.

There has been no formal correspondence with Sydney Water regarding the capacity of their sewer assets at the time of writing this report. An accredited Water Services Coordinator is required to carry out the liaison and with Sydney Water and lodge any Section 73 applications.

There is no requirement for any sewer main diversions as there are no proposed buildings located above or adjacent to the Sydney Water asset that reticulates through the site.

It is proposed to connect to the 225mm diameter sewer main asset that reticulates through the site, due to the natural landform of the site.

4.3 NATURAL GAS MAINS

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

- 40mm diameter 210kPa natural gas main in Nirmal Street,
- 200mm diameter 1050kPa natural gas main in Guntawong Road.

Figure 4: Existing utility natural gas mains surrounding the site

There is no proposed new natural gas connections or diversions required due to the project's electrification strategy.

5 APPENDICES

5.1 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

5.2 APPENDIX B – NETWORK UTILITY OPERATOR CORRESPONDENCE

Statement of Available Pressure and Flow

Sydney WATER

Michael Cahalane
233 Castlereagh Street
Sydney, 2000

Attention: Michael Cahalane Date: 07/08/2024

Pressure & Flow Application Number: 1939715
Your Pressure Inquiry Dated: 2024-07-26
Property Address: 163 Tallawong Road, Rouse Hill 2155

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: Tallawong Road	Side of Street: East
Distance & Direction from Nearest Cross Street	10 metres North from Marchant Street
Approximate Ground Level (AHD):	56 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	32 metre head
Minimum Pressure	25 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	25
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15 20 25 30 40	25 25 25 24 24 23
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10 15 20 25 30 40	25 25 24 24 24 23
Maximum Permissible Flow	46	22

(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

Sydney WATER

Michael Cahalane
233 Castlereagh Street
Sydney, 2000

Attention: Michael Cahalane Date: 07/08/2024

Pressure & Flow Application Number: 1939706
Your Pressure Inquiry Dated: 2024-07-26
Property Address: Marchant Street, Rouse Hill 2155

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: Nirmal Street	Side of Street: East
Distance & Direction from Nearest Cross Street	30 metres North from Marchant Street
Approximate Ground Level (AHD):	44 metres
Nominal Size of Water Main (DN):	100 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	44 metre head
Minimum Pressure	37 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	37
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15 20 25	35 32 28 23
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10 15 20 25	35 32 28 23
Maximum Permissible Flow	26	22

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