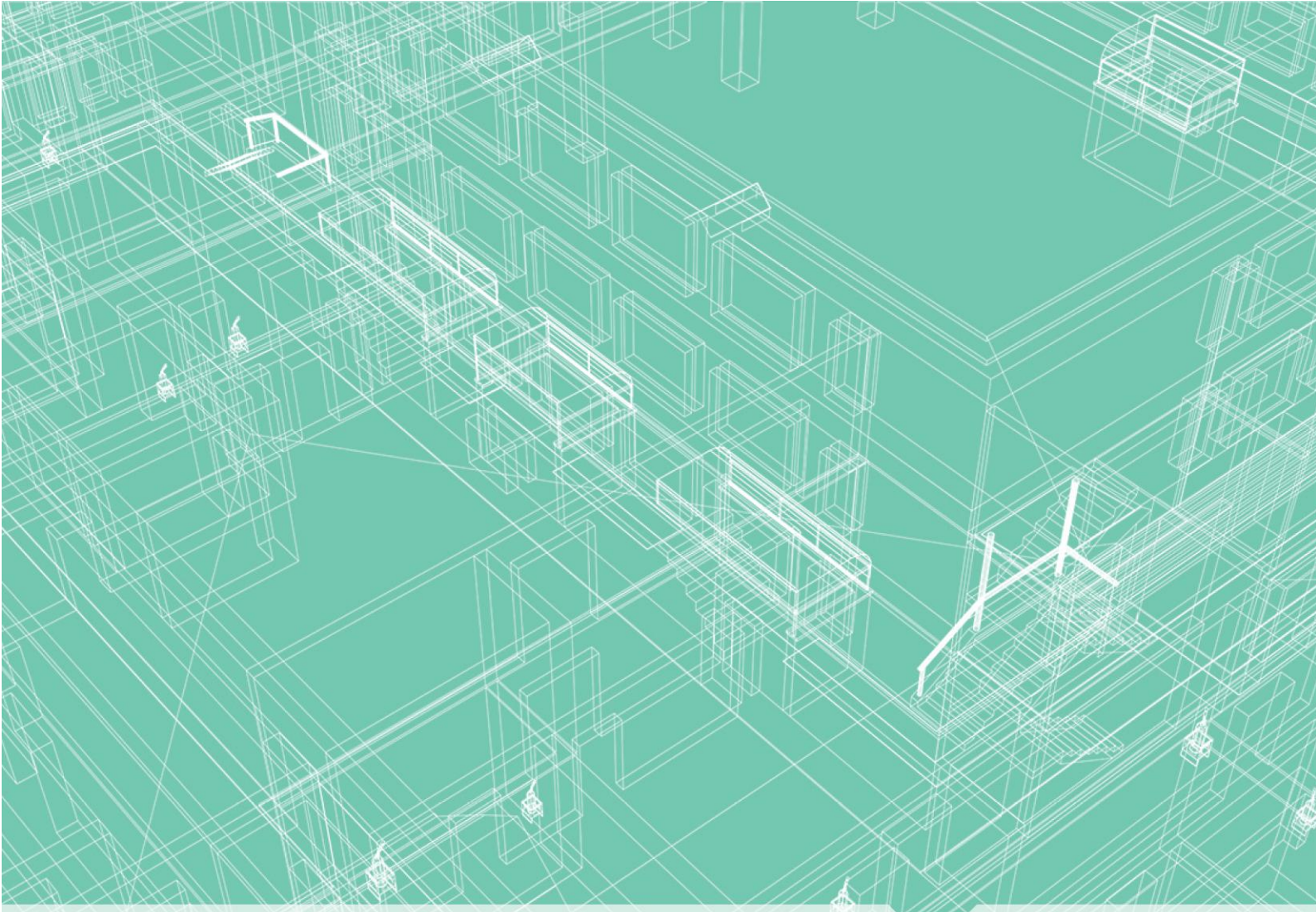

FIRE COMPLIANCE REVIEW

250270 HAFF NSW AT 28 FLORIDA STREET SYLVANIA NSW

FIRE SPRINKLER AND HYDRANT SERVICES

JHA

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DOCUMENT CONTROL SHEET

Project Number	250200
Project Name	HAFF NSW AT 28 FLORIDA STREET SYLVANIA NSW
Description	Review for compliance with EP&A Division 4.3, Section 4.15 and Section 4.17, AS2419.1-2021 and NSWF&R Access for Fire Brigade Vehicles and Fire Fighters
Key Contact	David Buckmaster

Prepared By

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Revision History

Issued To	Revision and Date								
Alex Murphy of Homes NSW	P1								
	30.03.26								
Lisa Fathalia of BVN	P1								
	30.03.26								

1 CONTENTS

2 FIRE SERVICES REVIEW INTRODUCTION

JHA Engineers provide this report of the proposed fire services at 28 Florida Street Sylvania Sylvania NSW for use by the architect to seek approval from council for development consent. The review is provided to show the system proposed meets compliance requirements of the EP&A1979 through compliance with the NCC-2022 and AS2419.1-2021. The review will show that access required by the above documents and outlined in NSW Fire & Rescue Access for Brigade Guidelines is met. The report should be read in conjunction with the layout sketch plans provided by JHA for this proposed system.

3 ABREVIATIONS

EP&A	Environmental Planning & Assessment Act 1979 [203]
NCC	National Construction Code of Australia release 2022
DN	Diameter Nominal (Nominal Diameter)

4 EXECUTIVE SUMMARY

A review of the SSDA documents issued 26th March 2026, was conducted to provide advice on the suitability and compliance of the fire services water supply design, the access for fire brigade vehicles and fire brigade personnel. This review found:

- the fire services water supply compliant and sufficient allowance for the requirements of the NCC and referenced Australian standards.
- Access for brigade vehicles to be compliant with the NCC, referenced Australian standards and the New South Wales Fire & Rescue's document Fire Safety Guideline Access for Fire Brigade Vehicles and Fire Fighters [05.01] issued on 17th November 2020.
- Access for brigade personnel to be compliant with the NCC, and referenced Australian standards

It should be noted that the drawing reviewed are not detailed design documents for this project and so further development will occur to complete the design and detailing for these buildings.

5 SITE DETAILS

The proposed development consists of seven (7) buildings containing sole occupancy units. These buildings are built around shared grounds with a private roadway passing through the grounds. Four separate basements for housing resident carparking and plant rooms are provided below the buildings and contained within two separate lots.

Each basement serves the buildings of the lots it is housed within, refer to staging plan AR-DA-10A-XX-02[04] attached that shows the lots. On Level 04, within two basements provision for fire services pumps and tanks to service the buildings of the lot. Fire brigade boosting for each lot is provided along Pembroke Street, with separate brigade booster assemblies provided for each lot.

All levels of the buildings, from the roof top plant rooms to the basements are accessed by fire stairs. Fire stairs serving the basements end on the ground floor and are separate from the fire stairs that service the above ground floors which also end on the ground floor. All stairs have a width greater than 1100 as shown on the drawings.

There are several fire engineered performance solutions being proposed for the development, one of which is for extended travel distances along egress paths. These can be viewed in the fire safety engineers documents.

The water supply to each site is the same configuration and is proposed to consist of the two separate DN150 connection to the street mains in Pembroke Street into each lot. The connections are used to infill a set of reduced capacity tanks on each site that service, via pump sets, a combined sprinkler and hydrant system servicing the buildings of each lot.

Buildings 1A & 1B will have an effective height of 25.6m .

6 RELEVANT REQUIRED FIRE SYSTEM PERFORMANCE

6.1 EP&A 1979[203]

Requires fire systems to comply with the NCC

6.2 NCC-2022

Requires fire systems to comply with AS2118.6, AS2118.1-2017 & AS24191-2021

6.2.1 FIRE SERVICES WATER SUPPLY SYSTEMS.

Water supply and storage systems for combined fire services have their volumes and flow rates designed to meet the requirement of Australian standards which base the flow required on the hazard risk as classified in AS2118.6-2012, AS2118,1-2017 and AS2419.1-2021. The sizing of storage tanks uses this required flow rate and the minimum duration of system operation to size the water storage tank which may be reduced if a Town's Mains inflow can be provided to infill the tank.

As these buildings have an effective height of 25m or more the fire sprinkler systems require a dual supply This is provided by two compartmented tanks per lot. Each set of dual tanks providing 2/3rds capacity as permitted in AS2118.6-2012 Clause 2.8.5 (a). Added to the sprinkler system storage is the hydrant system storage to arrive at the final tank volumes of 150kL. These are calculated as below.

Sprinklers System Flow & Volumes				
Largest sprinkler system hazard is	OH2	Car Park		
Minimum flow per sprinkler is	1	L/sec	60	L/min
Sprinkler heads in simultaneous operation is	12	off		
Additional margin is	20%			
Sprinkler Demand is	14.4	L/sec	864	L/min
Duration of sprinkler system operation is			60	min
Volume of water for sprinklers is			51840	L
2/3rds volume of storage in each tank			34560	L
Fire Hydrant Requirement				
Largest single fire compartment is	Car Park @	6975	m2	
Area is sprinkler protected				
From AS2419.1-2021 Table 2.2.5(B) number of hydrants in operation =	2	off		
Minimum Flow Rate per hydrant =	10	L/sec	600	L/min
Total flow rate for fire hydrants is	20	L/sec	1200	L/min
Duration Hydrant System - 4hrs			240	min
Volume of water required			288000	L
Flow rate from Town's Mains	15	L/sec	900	L/min
Volume of water required in tanks for hydrants			72000	L
Note : Water volume per tank for hydrants is			36000	L
Total Volume of water in Tank			141120	L
Tank Volume Provided			150000	L

The above tank sizing exceeds the minimum volumes indicates for a combined system in AS2118.6-2012 Clause 2.8.5 (a) and AS2419-2021 Clause 4.2.6.4.

A flow and pressure enquiry was made to Sydney Water, and their response on 1st September 2025 is provided with this report, the relevant results are tabulated below. Highlighted is the maximum flow this main will provide 95% of the time It is this available infill that the above calculation relies on for provision of the hydrants to the site.

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	61
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10	48
	15	22
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10	32
Maximum Permissible Flow	15	6

As such the size and locations of the water supplies complies with the NCC and referenced Australian standards.

7 BRIGADE ACCESS

The New South Wales Fire & Rescue's document Fire Safety Guideline Access for Fire Brigade Vehicles and Fire Fighters (FSG-Access) together with AS2118.6-2012, AS2118.1-21017 and AS2419.1-2021 define the access required for the brigade.

The two types are access for vehicles and access for personnel.

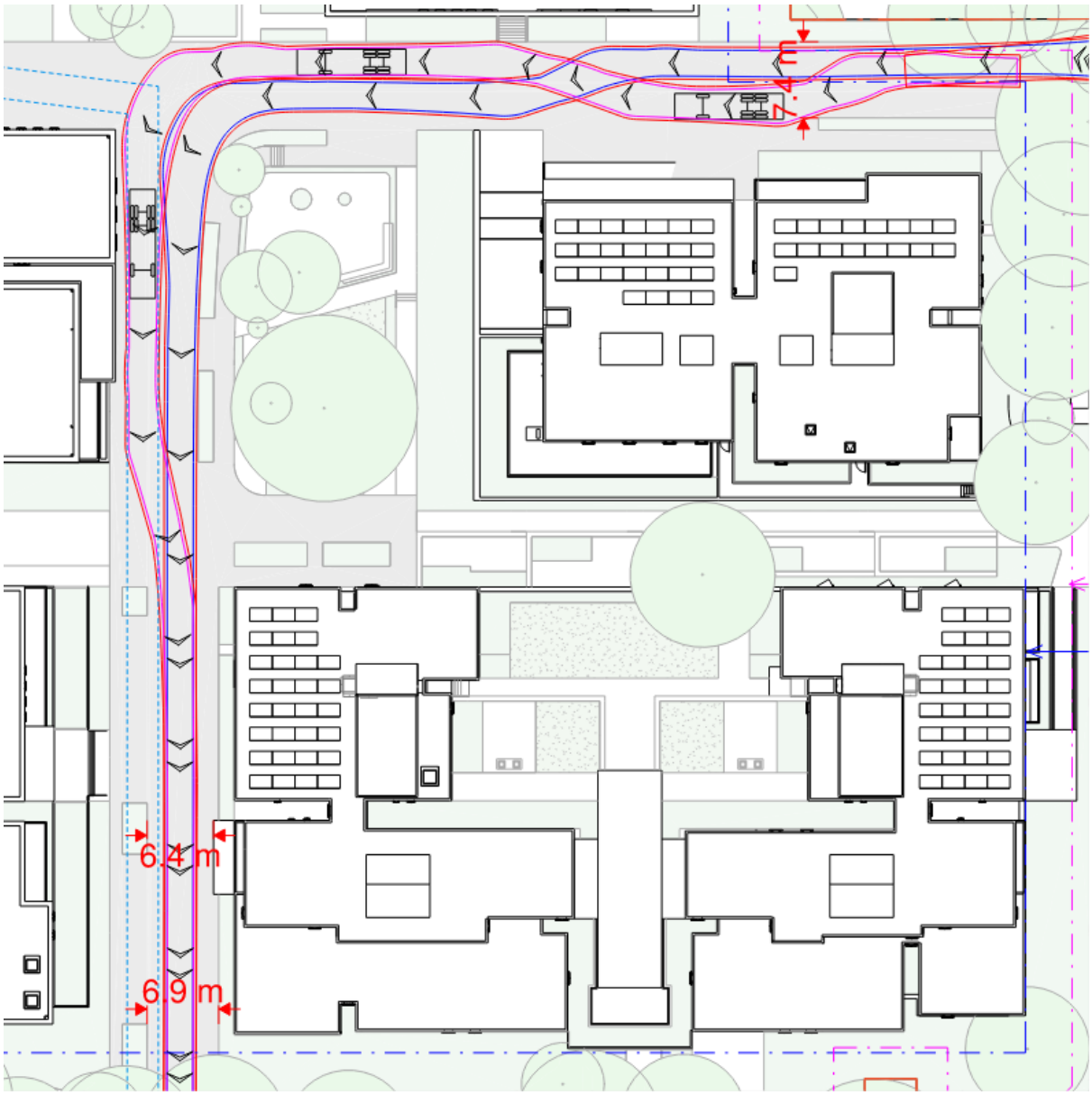
7.1 ACCESS FOR FIRE BRIGADE VEHICLES.

7.1.1 CARRIAGE WIDTH OF PRIVATE ROADS

A review of AR-DA-10A-XX-05[04] shows the private road is not a dead end nor is Florida Street.

In FSG-Access clause 7.1.2, the roadway width for access of specialist fire appliances (the largest vehicles) is 6m wide and in clause 7.3 is permitted to be 3.2m wide for a maximum length of 50m.

A review of AR-DA-10A-XX-05[04] which shows the travel paths and turning circles of vehicles indicates that the private roadway is never less than 6m wide. The narrowest point being 6.4m wide. See part plan of AR-DA-10A-XX-05[04] below.



7.1.2 CARRIAGEWAY TURNING CIRCLES

FSG-Access Clause 7.1.5 requires roadways to have a minimum radius of 7.1m and a maximum radius of 14.6m for the specialist vehicle.

7.1.5 The distance between inner and outer *turning circle radius* is to provide body swing clearance (i.e. vehicle swept path), and not be less than 5 m for general *fire appliance* access and 7.5 m for specialist *fire appliance* access (see Figure 4).

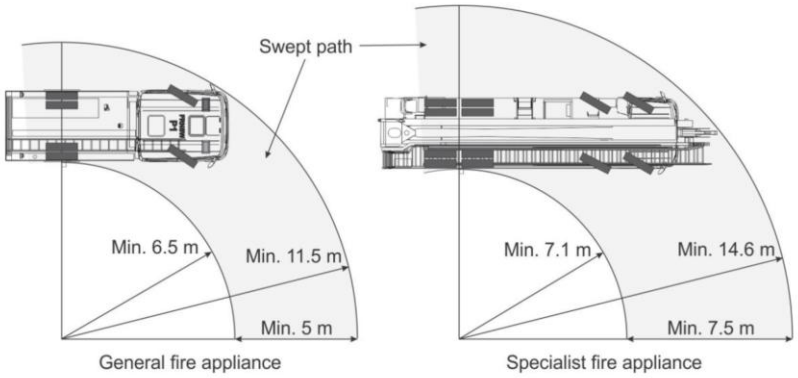
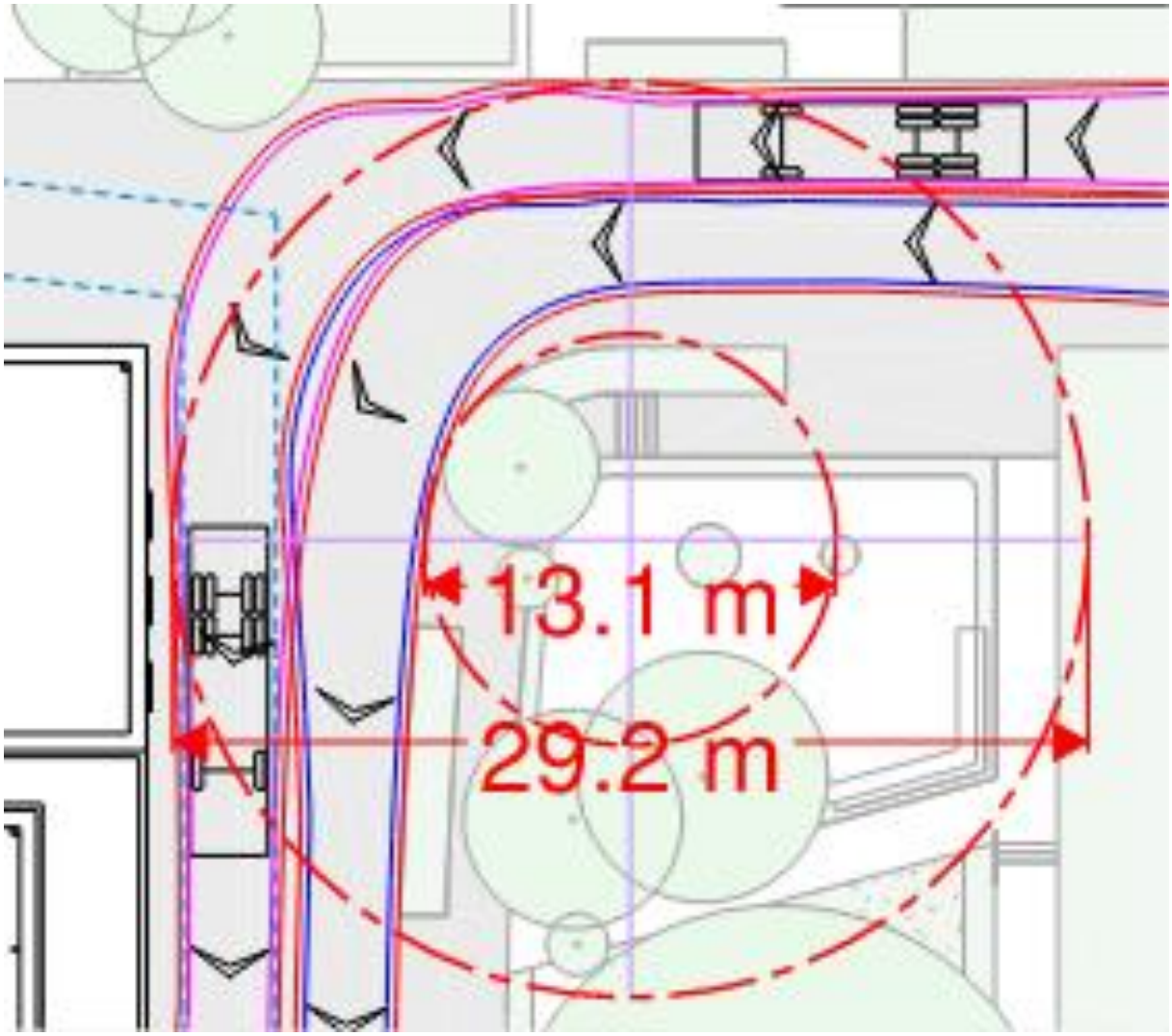


Figure 4 Minimum turning circle radius (curved section)

The minimum turning circles for the swept paths required by FSG-Access Clause 7.1.5 of a minimum radius of 7.1m and a maximum radius of 14.6m for the specialist vehicle have been met, see part plan of AR-DA-10A-XX-05[04] below.



7.1.3 HARDSTAND AT BRIGADE BOOSTER

Section 8 of the FSG-Access requires the specialist vehicle to be provided with a hard standard of 6m wide and 16m long and for this to be within 8m of the brigade booster assemblies provided.

8 Hardstand area

8.1 Design requirements

8.1.1 Designated *hardstand* areas are to provide a safe working space for firefighters to exit the vehicle and move around the fire appliance to remove and use equipment, including connecting fire hoses to the *fire appliance* (see Figure 13).

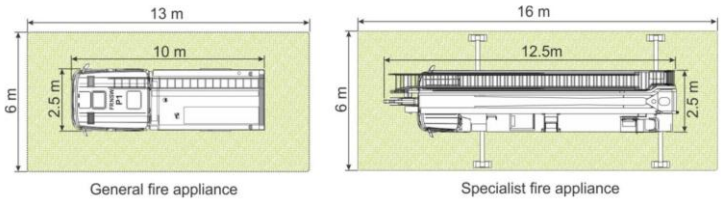
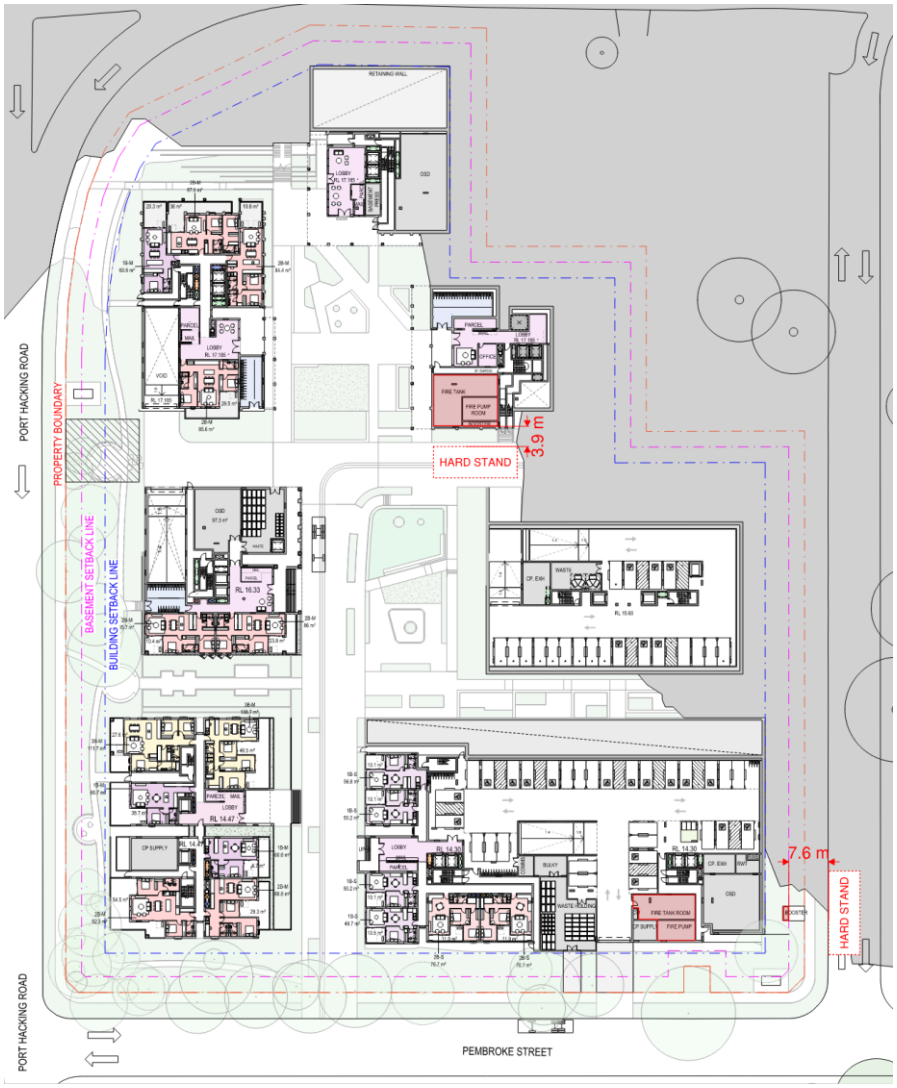


Figure 13 Minimum working space for hardstand area

Booster assemblies for these lots are located in Building 1c and Social House Building with the hard stand on the private roadway and Florida Street respectively. A review of AR-DA-10A-XX-05[04] & AR-DA-10B-03-01[09] show that both the private roadway and Florida Street provide this hardstand in front of the booster within 8m of the booster.



As such the buildings do or can be made to made to comply with the FSG-Access and NCC referenced standards.

7.2 ACCESS FOR FIRE BRIGADE PERSONNEL

Brigade personnel are required to be provided with access to the fire sprinkler control valve assemblies, the internal fire hydrants and fire pump rooms if access to these rooms is not from open space. A review of the drawings finds:

- As per AS2118.6-2012 all buildings are provided with fire stairs which will house the fire sprinkler control valve assemblies, the fire services risers and fire services isolation valves in accordance with Clause 2.2.1.
- As per AS2419.1-2021 Clause 6.11 access to the pump rooms for these building can be made from open space, adjacent to the booster assembly for Building 1c or via a fire isolated passage and airlock for the Social Housing Building.
- No external hydrants are more than 100m from the hardstand for these sprinkler-protected-buildings, as limited by AS2419.1-2021 Clause 2.2.4 (b)

As such the design complies with the referenced standards for access.

8 CONCLUSION

The SSDA design shown in the documents reviewed for this project show compliant access and fire water supplies in a schematic design stage. Further development will occur as the project progresses and compliance can be maintained in this progression of the design.

9 ATTACHMENTS

1. Sydney Water Statement of Available Pressure and Flow 2214229 dated 1st September 2025
2. BVN drawing PROPOSED SITE PLAN STAGE 2 AR-DA-10A-XX-05 [04] with mark-ups by JHA
3. BVN drawing GA - OVERALL - LEVEL 04 AR-DA-10B-03-01[09] with mark-ups by JHA

Statement of Available Pressure and Flow

Diego Montelvere
23/101 Miller Street
North Sydney, 2060

Attention: Diego Montelvere Date: 01/09/2025

Pressure & Flow Application Number: 2214229
Your Pressure Inquiry Dated: 2025-08-21
Property Address: Pembroke Street, Sylvania 2224

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: Pembroke Steet	Side of Street: South
Distance & Direction from Nearest Cross Street	39 metres East from Port Hacking Road
Approximate Ground Level (AHD):	13 metres
Nominal Size of Water Main (DN):	150mm (As per diagram provided)

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	99 metre head
Minimum Pressure	62 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	61
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15	48 22
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10	32
Maximum Permissible Flow	15	6

(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.

PRINCES HIGHWAY

PRINCES HIGHWAY

PRINCES HIGHWAY

STORMWATER LINE TO BE REDIRECTED AS PART OF STAGE 2 WORKS SHOWN DASHED IN BLUE

PORT HACKING ROAD

PORT HACKING ROAD

FLORIDA STREET

PEMBROKE STREET

7.4 m

13.1 m

29.2 m

6.4 m

6.9 m

3M DCP BASEMENT SETBACK

7.5M DCP SETBACK

BVN

ARCHITECTS REGISTRATION BOARD / NOMINATED ARCHITECTS

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ISSUE	DATE	FOR	CHKD
01	31.07.2025	CONCEPT DESIGN	
02	10.01.2025	SDRP 2	
03	17.10.2025	DRAFT SSDA	
04	24.10.2025	SSDA SUBMISSION	

CONSULTANT

CONSULTANT

CONSULTANT

PROJECT MANAGER

CLIENT

HOMES NSW

CLIENT NUMBER

PROJECT

HAFF NSW
28 FLORIDA STREET SYLVANIA

BVN PROJECT NUMBER

2506009

DRAWING KEY

TRUE NORTH

GRAPHIC SCALE

0 10000 25000

SCALE

1 : 500@A1

STATUS

DRAWING

PROPOSED SITE PLAN
STAGE 2

	ISSUE
AR-DA-10A-XX-05	04

BVN

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ISSUE	DATE	FOR	CHKD
01	31.07.2025	CONCEPT DESIGN	
02	01.09.2025	CONCEPT DESIGN	
03	23.09.2025	FOR INFORMATION	
04	29.09.2025	FOR INFORMATION	
05	10.01.2025	SDRP 2	
06	17.10.2025	DRAFT SSDA	
07	24.10.2025	SSDA SUBMISSION	
08	27.10.2025	SSDA ADJUSTMENTS	
09	26.03.2026	SSDA RESPONSE TO SUBMISSION	

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PROJECT MANAGER

CLIENT

HOMES NSW

CLIENT NUMBER

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HAFF NSW
28 FLORIDA STREET SYLVANIA

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2506009

DRAWING KEY

TRUE NORTH

GRAPHIC SCALE

0 10000 25000

SCALE

1 : 500@A1

STATUS

DRAWING

GA - OVERALL - LEVEL 04

AR-DA-10B-03-01

ISSUE 09