



Hydraulic & Wet Fire Services

Return Brief

Clarence Valley Conservatorium Renovations & Additions 6 - 8 Villiers Street Grafton NSW 2460

Client:

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Review and Approval Record

Rev	Date	Description of Release	Prepared By	Reviewed By	Approved By
A	14/02/25	Client Comment Issue	JD	GH	GH

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1 Introduction

1.1 Background

Glenn Haig & Partners have been commissioned by DRA Architects to prepare a return brief for the Hydraulic and Fire Services on the proposed refurbishment of the existing Buildings at 6-8 Villiers Street, Grafton. This report provides a description of the existing services available, the proposed works to be installed, materials to be utilised and codes and regulations to which the services should be designed and constructed.

1.2 Project Description

The project consists of part demolition, refurbishment and additions to the existing Buildings spanning 6 – 8 Villiers Street Grafton which will become a single Building to be used as a musical conservatorium.

1.3 Site Description

The site is located at 6-8 Villiers Street Grafton, there are currently two buildings situated on the site. One building is of brick construction and the other is of wooden construction, the latter will be demolished to make way for the new construction.

1.4 General Design Methodology

The project will utilise the existing services throughout the site where possible including cold water connections, sewer connections and stormwater connections, new services will be installed throughout to serve the proposed Building fitout including Hot & Cold Water, Sanitary drainage, Stormwater Drainage, Fire Hose Reels.

1.5 Scope of Services

The scope of services addressed in the report, include the following:

- i. Sanitary Drainage
- ii. Stormwater Drainage
- iii. Potable Hot & Cold Water Service
- iv. Fire Hydrant Service
- v. Fire Hose Reel Service

1.6 Briefing Documents

The engineering elements considered in this report have been based on or taken into consideration the following documents: -

- i) Preliminary Architectural Drawings prepared by DRA Architects
- ii) Preliminary information from various supply Authorities.
- iii) Site visit conducted by Glenn Haig & Partners
- iv) Principals project requirements

1.7 Governing Authorities

The following Governing Authorities and Regulations shall singularly have jurisdiction over the design, documentation and installation of the hydraulic and wet fire services:

- i. Australian Standards: -
 - a. AS3500 Parts 1, 2, 3 & 4
 - b. AS2419.1 -2021
 - c. AS2441 -2005
- ii. The Building Code of Australia 2022
- iii. Clarence Valley Council

2 Hydraulic & Fire Services

2.1 Sanitary Drainage

The sanitary drainage system shall connect to the existing sewer main connections for 6 Villiers Street to the east of the site, we will endeavor to utilize any existing house drainage servicing the existing buildings where possible subject to in pipe camera inspections to verify the condition of the existing pipework. Where this is not feasible new PVC pipework will be installed to service each fixture.

We recommend in pipe camera inspections of the existing in ground sanitary drainage pipework be undertaken to ascertain the extent, location and condition of the existing drainage pipework this will allow us to nominate the extent of new works required.

The materials used for the system shall be as follows:

- a) UPVC pipe and fittings for all pipe diameters.

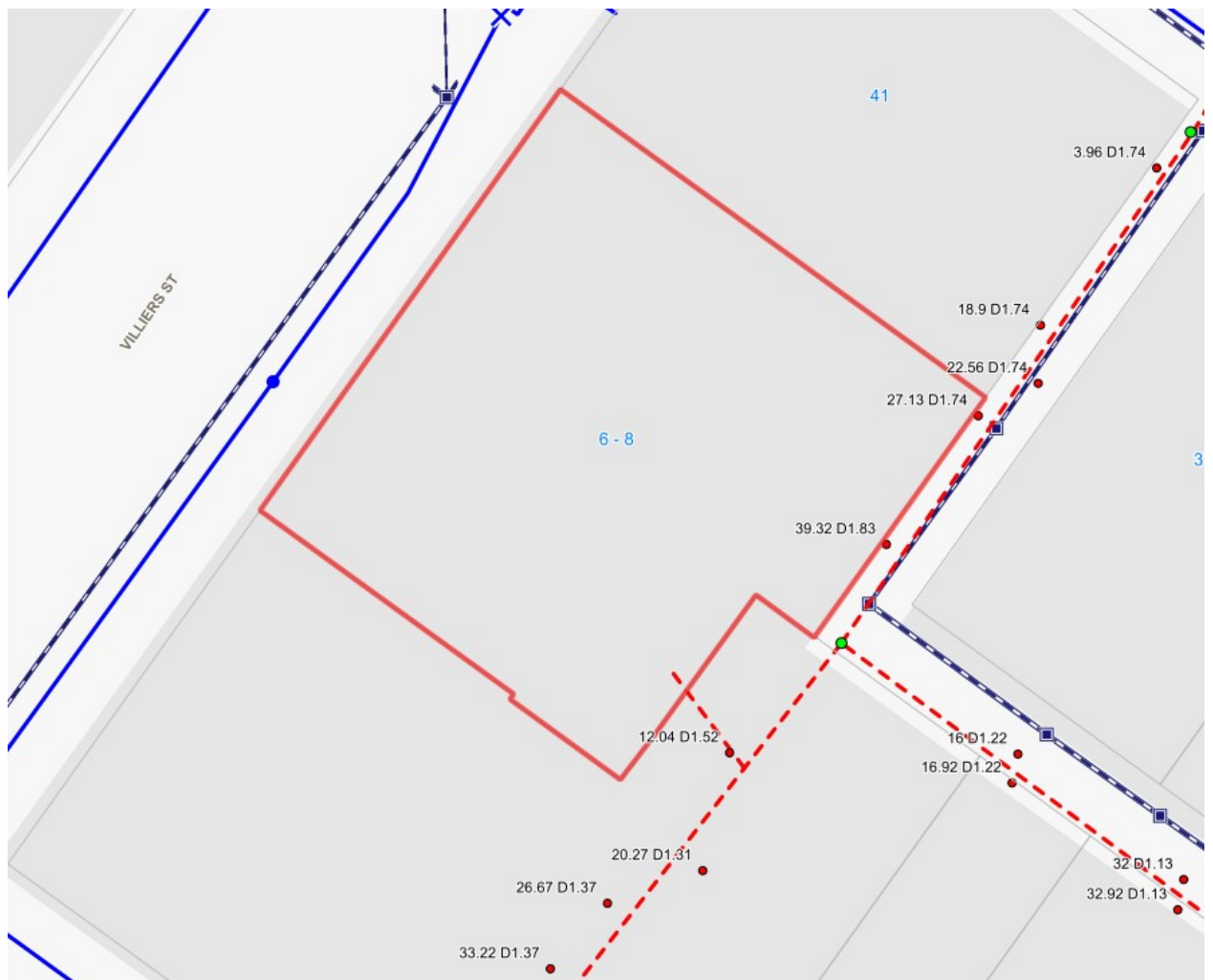


Diagram 1 – Showing existing sewer main connections from the rear lane

2.2 Roofwater / Stormwater Drainage

Without undertaking an in pipe camera inspection it is difficult to determine the exact route of the existing pipework. At present we believe the site stormwater system draining to both the 900mm diameter stormwater pipe located in Villiers Street and the existing 375mm stormwater pipe located in the rear lane.

Any new roofwater drainage and stormwater drainage pipework will discharge to the existing 375mm diameter pipe located in the rear lane.

We recommend in pipe camera inspections of the existing in ground stormwater / roofwater drainage pipework be undertaken to ascertain the extent, location and condition of the existing drainage network this will allow us to nominate the extent of new works required.

The materials used for the system shall be as follows:

- a) UPVC pipe and fittings for all pipe diameters.

2.3 Potable Cold Water System

The building at 6 Villiers Street is currently serviced by a 20mm water meter and the building at 8 Villiers Street is currently serviced by a 25mm water meter, both of which are connected to the authorities 100mm water main in Villiers Street.

The two existing water meters are to be disused and a new 32mm diameter connection to Councils water main in Villiers Street is to be provided complete with a new 32mm domestic cold water meter with backflow prevention assembly. The cold water pipework will extend to all new sanitary fixtures and points of use. Any dis-used pipework from demolition work is to be removed and capped off below ground, in ceilings or in walls as appropriate.

The potable cold water reticulation for each building within the wet areas shall be installed within walls and ceiling spaces as required for connection to the following fixtures:

- a) Basins
- b) Showers
- c) Sinks
- d) Commercial kitchen and bar equipment

Backflow Prevention

Backflow prevention shall be provided as required within the building to achieve AS3500.1 compliance.

Pressure within the system shall be maintained as follows:

- a) Maximum pressure 500kPa
- b) Minimum pressure shall be 250kPa.

Materials

The materials recommended for use for the system shall be as follows:

- a) Main reticulation – Copper

- b) Rough In Reticulation - . Copper or Cross Linked Polyethylene

2.4 Potable Hot Water System

A new potable hot water system shall be installed and extend to all new sanitary fixtures and points of use. Any dis-used pipework from demolition work is to be removed and capped off below ground, in ceilings or in walls as appropriate.

The potable hot water reticulation for each building within the wet areas shall be installed within walls and ceiling spaces as required for connection to the following fixtures:

- e) Basins
- f) Showers
- g) Sinks
- h) Commercial kitchen and bar equipment

Backflow Prevention

Backflow prevention shall be provided as required within the building to achieve AS3500.1 compliance.

Pressure within the system shall be maintained as follows:

- c) Maximum pressure 500kPa
- d) Minimum pressure shall be 250kPa.

Materials

The materials recommended for use for the system shall be as follows:

- c) Main reticulation – Copper
- d) Rough In Reticulation - . Copper or Cross Linked Polyethylene

2.5 Fire Hydrant System

System Description

The proposed building achieves hydrant coverage from the existing street hydrant located in Villiers Street. This is achieved via a fire brigade appliance located a minimum of 10 metres from the building and utilising 60 metres of hose length to reach all areas within the building. The entire building including the first floor will achieve coverage from the existing street hydrants therefore no additional on site hydrant will be required.

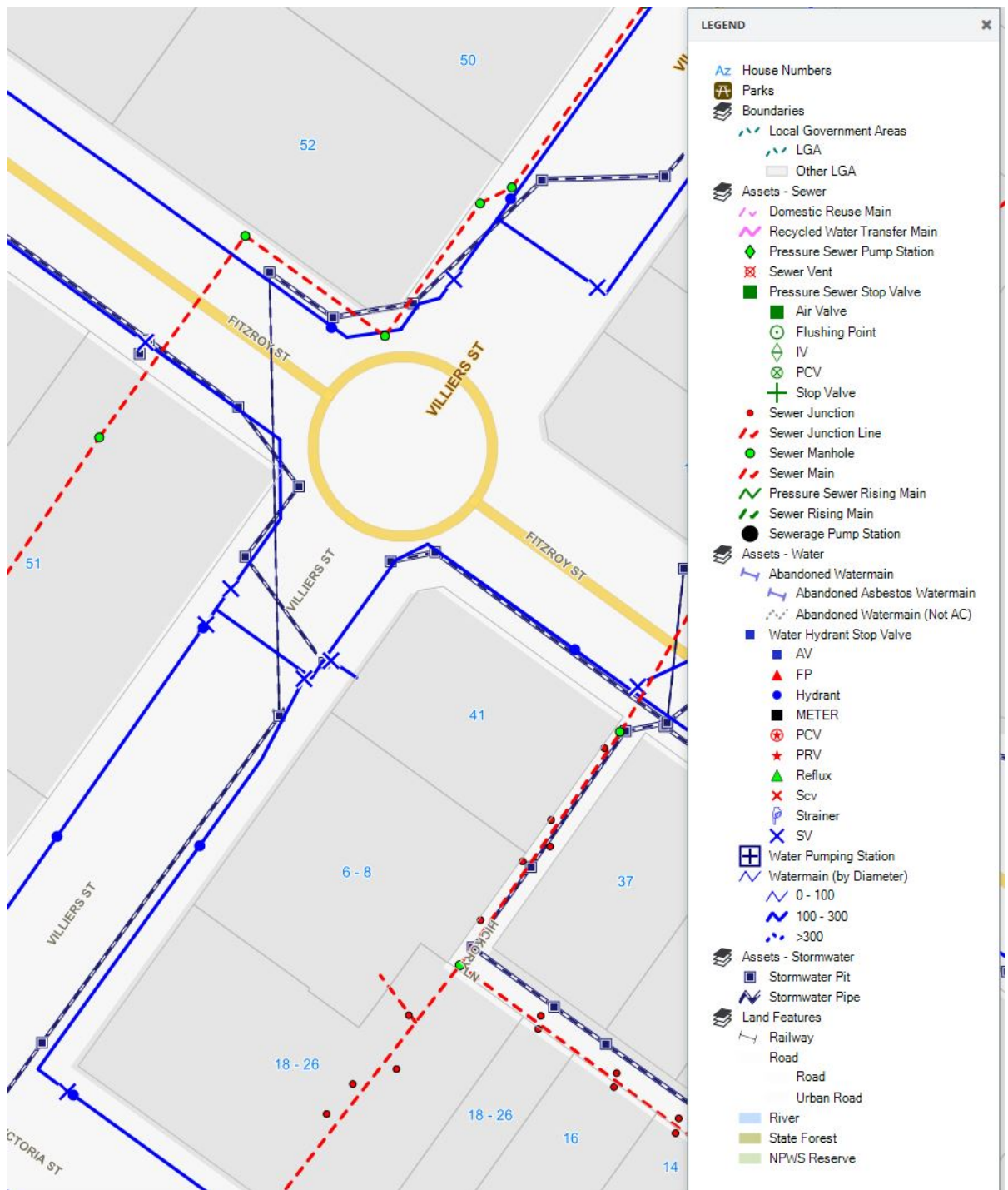


Diagram 2 – Showing existing in ground hydrant services

DATE OF TEST: 18/12/2023 **TIME OF TEST:** 8:00AM

LOCATION: 8 Villiers Street

WATERMAIN SIZE & TYPE – 100mm PVC

	<u>FLOW L/SEC</u>	<u>PRESSURE (kPa)</u>
	No flow	820
	5	820
	10	820
	15	800
Maximum Flow	15	800

2.6 Fire Hose Reel System

New fire hose reels shall be located as required throughout the development, such that coverage can be achieved in accordance with current BCA and AS2441 requirements.

The new fire hose reel system will connect to the upgraded potable cold water service with fire hose reels generally to be located within 4 metres of an exit.