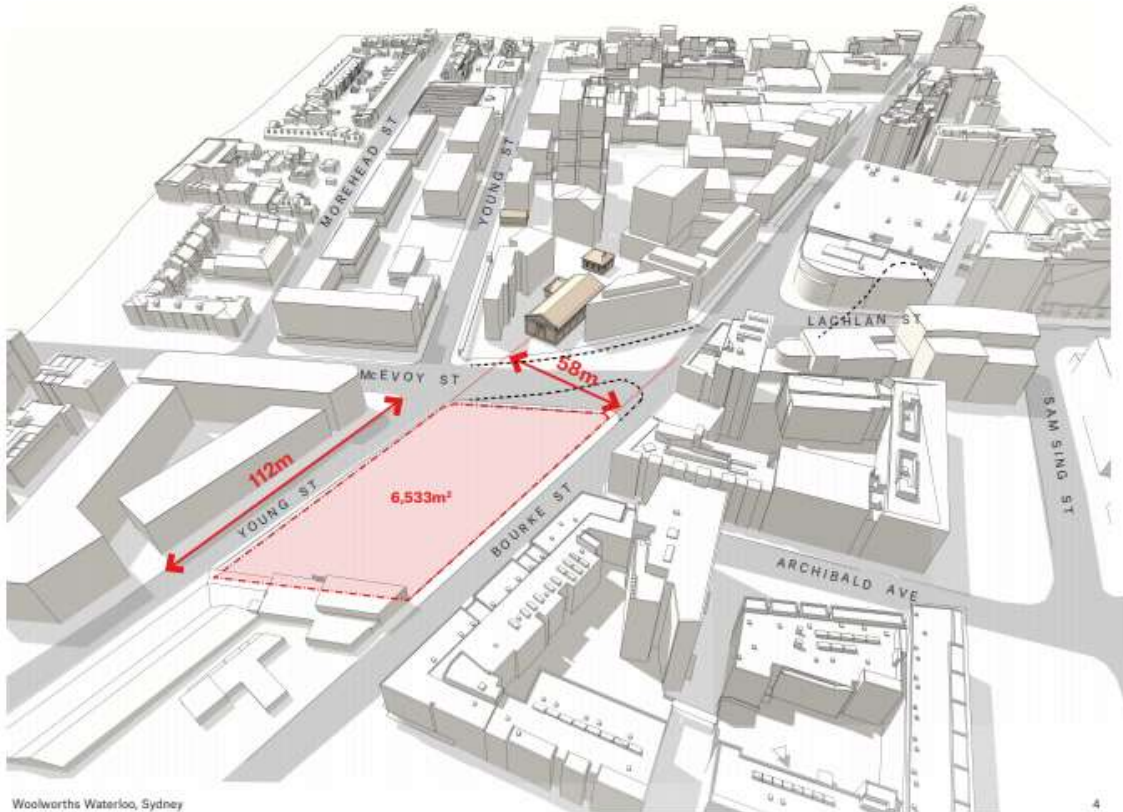


Attachment A13

Infrastructure Report

Infrastructure Analysis



Woolworths Waterloo 923 – 935 Bourke Street Waterloo

by:



Newman MEP Services
Agents for Building Services Success

31 August 2022 V7

Contents

1.Executive Summary	4
2.General	6
3.Hydraulics	6
3.1 Site	6
3.2 Approvals	7
3.3 Services	8
3.4 Sewer Drainage	8
3.6 Trade Waste	9
3.7 Stormwater	9
3.8 Rainwater Drainage	9
3.9 Potable Cold Water	9
3.11 Rainwater reuse	10
3.12 Natural Gas	10
4.Fire	10
4.1 Services	10
4.2 Fire Hose Reel	10
4.3 Fire Hydrant	10
4.3 Automatic Fire Sprinklers	11
5.Electrical	11
5.1 Maximum Demand and Substation Requirement	11
5.2 Rooftop PV Solar Production	11
5.3 EV Charging	11
5.4 Electrical Infrastructure	12
6.Final comments	12
7.Authority plans	13

1.Executive Summary

As requested, and following review of the Bates Smart, architectural Massing + Built Form Analysis dated August 2022, and the relevant authority services in accordance with the planning proposal is to achieve a mixed-use development outcome with a supporting indicative scheme. The purpose to amend the planning controls applicable to the site under the Sydney LEP 2012 in relation to – retail floorspace, building height and floorspace ratio.

The indicative reference scheme accommodates a mixed-use development of between 4 and 7 storeys, including a full-line Woolworths supermarket in a subterranean level, speciality retail and commercial floorspace, community use infrastructure, market and affordable residential dwellings. Basement parking for supermarket, retail, residential, commercial and visitors is accommodated together with a ground level public plaza and through-site link and podium communal residential facilities.

It is noted the proposed mixed-use development contains the following building classes: 2, 6 and 7a. The items reviewed, suggested and allowed for in this document are **“Deemed to Satisfy” NCC 2019 alternate solutions are to be considered** during the development application phase, following the design competition stage.

Hydraulic Services

The site is located within a mature district of Sydney and water, sewer, stormwater & gas services which are located adjacent to service road corridors, nominally, Bourke St and Young St.

The services infrastructure capacities are expected to satisfactorily cater for loads associated with the size and type of the proposed development. Stormwater flows are required to be controlled to restrict volumes entering the stormwater infrastructure.

There are two (2) constraints which directly encumber the site. These are, a 450mm sewer main and a 1350mm water main both traversing the site. The two services may affect the siting of building structures or impose conditions of access and clearances or require diversion and it is anticipated that detailed discussions on scope and complexity will be undertaken during the development application phase following design competition.

Infrastructure connection points are available depending on load volumes derived from the proposed development design outcomes in the architectural design competition phase.

Fire

The proposed development is required to provide onsite fire services. Fire hose reel, Fire hydrant and Automatic fire sprinkler protection systems are to be installed throughout.

It is likely storage tanks and pumps will be required for the fire hydrant and automatic sprinkler systems.

Electrical Services

Electrical Maximum Demand calculations indicate a requirement for an onsite chamber substation of approximately 3060 kVA capacity. This would require a 3-hour fire rated room of either approximately 60m² or 130m² depending on selection of transformer size. The location of the substation will be derived from the proposed development design outcomes in the architectural competition phase.

Electrical Vehicle Charging Facilities

The project is intended to deliver a benchmark provision of publicly accessible electric vehicle charging facilities. Car spaces in the development to be EV ready, 50% of worker car spaces are to be EV ready and 25% of retail customer car spaces are to be fitted from the outset with a three phase Level 2 EV charger at 22 kilowatts or higher) with the addition of two (2) Level 3 or 4 fast chargers accessible within the retail parking provisions.

The project will provide the above which is understood to be consistent with the City's draft Electric Vehicles Policy.

Data Services

The site is served by NBN and Telstra. The proposed development is expected to provide fibre to the premises for the Residential, Commercial, and Retail uses.

2. General

This report relates to 923-935 Bourke Street, Waterloo and is submitted to the City of Sydney in support of a request for Planning Proposal seeking amendments to the Sydney Local Environmental Plan 2012. The broad intent of the Planning Proposal is to achieve a mixed-use development outcome, including a supermarket, which facilitates a suitable urban form to support local strategic planning intent for the establishment of a new 'neighbourhood centre' within the site. The Planning Proposal seeks amendment to maximum building height mapping and to introduce a site-specific criteria-based exemption to the retail floor area cap outside of Green Square Town Centre and other planned centres. The indicative reference scheme in support of the proposal accommodates a mixed-use development including a subterranean supermarket, retail, commercial, residential apartments on podium and rooftop communal facilities. Basement parking is accommodated for all uses, with ground level loading and 'Direct to Boot' pick up facilities. The following sections provide greater detail and visual considerations to the development and will be subject to the supply and authority's acceptance.

This was a visual inspection only with no testing or measurements being undertaken.

The project is to contain separate stratum for residential, retail, commercial and car park and all services would be expected to be metered in these stratum and outcomes available for the Body Corporate.

All authority essential services such as water, sewerage, gas and energy will be measured independently.

The design criteria at this stage, are Deemed to Satisfy. Alternative Solutions are to be considered during the design application phase for fire and life safety.

3. Hydraulics

3.1 Site

The site is bounded by Bourke Street, Young Street and McEvoy Street. An industrial & commercial complex currently occupies the site. Utilities are present on all three (3) sides.

Water, sewer & stormwater services for the existing site are operational and connected to the surrounding infrastructure.

The site is burdened by one (1) 450, Salt Glazed Vitrified Clay Ware Pipe (SWG) sewer main traversing the site from south to north and one (1) 1350 Steel, Cement Lined Internal Bitumen Lined (SCL IBL) water supply carrier running south east to north west. Sewer main is approximately 3.0 - 4.2 metres deep. The water main is approximately 33.0 metres deep at the southern boundary and approximately 30.0 metres deep at the northern boundary. Both services are assets of Sydney Water Corporation (SWC). Location, size and depth of services for this report, are obtained from SWC maps and As Built long-section. Confirmation of depths are required and can be procured through SWC.

The existing development is constructed over these services. It is reasonable that Sydney Water have construction and design constraints and conditions relating to access and clearance of these assets and these will be discussed and agreed during the consent period.

A standard historical condition requires the sewer main to be concrete encased and or redirected. These standards do not appear to have been imposed previously, based on the map records available

at the time of this analysis. The 1350mm water supply main may be regarded as a protected asset due to its depth of 30 metres. Constraints these services will impose on any new development will be verified during the development application phase

Both these services will be the subject of a comprehensive approval process which will commence during the Architectural Competition phase to ensure that an agreed resolution by all parties is achieved before the enabling works phase.

Refer figure 3.1 below, which shows existing structure in relation to the water and sewer location. Overall, the impact on these major services is limited to the southern portion of the development.



Figure 3.1

3.2 Approvals

The design development phase will require authority approval, which are as below but not limited to the following;

- Section 73 certificate - Sydney Water Corporation (SWC),
- Trade Waste application - (SWC)
- Onsite pump approval - (SWC)
- Onsite fire tank – (SWC)
- On Site Detention (OSD)
- Approval to connect to council asset- City of Sydney Council (CoS)
- Approval to drain stormwater to SWC asset
- Jemena approval to connect to natural gas main

3.3 Services

Site and building services contained in this section are identified as follows;

- Sewer drainage/trade waste drainage,
- Stormwater, Rainwater drainage, Rainwater Reuse
- Potable cold water,
- Natural Gas,
- Fire services.

3.4 Sewer Drainage

Existing sewer provisions are located within the site as well as potential connection points within the Bourke St corridor. The 450 SWG sewer has a total of two (2) connection points dedicated for the property, mainly at the southern portion of the site. Connection points circled, see figure 3.2 below.

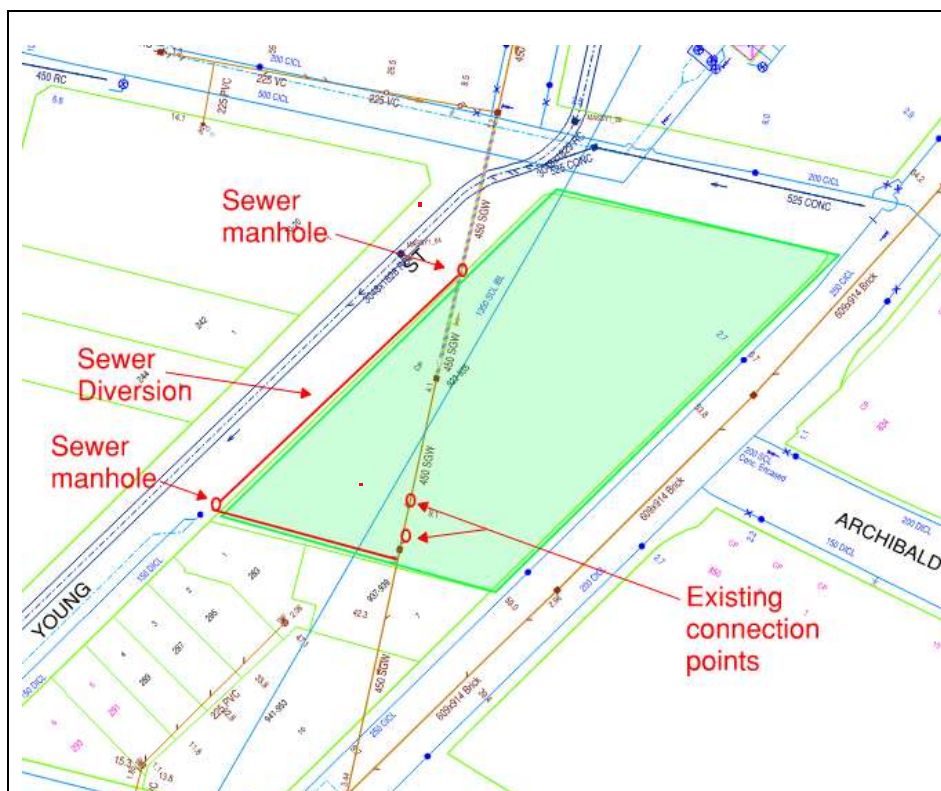


Figure 3.2

The sewer is to be diverted to Young Street and travel to a reconnection point further north in Young Street with manholes to be located outside the site boundaries and allowing for future connection points through Manholes as required.

The sewer system will convey waste discharge consisting of sewage, treated trade waste & AC condensate discharge.

3.6 Trade Waste

A trade waste system will be required for pre-treatment of food preparation and is expected to include the supermarket and retail specialty uses. Subject to tenancy requirements of the commercial use trade waste systems may also be needed, this is to be confirmed at the Development Application stage. Other pre-treatment devices may be required for other enterprises such as a carwash. It is assumed the existing sewer will be suitable to accept post treated discharges.

3.7 Stormwater

The stormwater system is designed to convey all rainwater & surface flows from the site. The site is located within SWC’s Shea’s Creek catchment. Young St, McEvoy St & Bourke St are drained via minor stormwater infrastructure which drains to a larger 3048 x 1825 culvert system within the Young St corridor. Flow is from north to south. Sections of Bourke St and McEvoy St drain to this system.

The existing site drains to Young St via a connection to the minor road drainage system. Depending on the final size of the proposed development and in relation to the predevelopment area impervious percentage, it is likely a similar connection to the minor road drainage system in Young St would accommodate the site stormwater flows.

Stormwater collection within the site will be subject to CoS and SWC conditions which limit site flows and imposes water quality targets.

On Site Detention (OSD), Pollution Control Devices and Water Sensitive Urban Design (WSUD) will be required to satisfy design and sustainability aspirations. Rainwater storage and reuse will also form part of sustainability measures proposed.

3.8 Rainwater Drainage

Comprises the system where rainwater is conveyed from roofs, balconies, hard and soft surfaces and planter beds. Connects with the site’s stormwater system.

3.9 Potable Cold Water

There are four (4) SWC town mains. One (1) in Young St, two (2) in McEvoy St and one (1) in Bourke St. See table 5.1 below

Sydney Water Potable Supply			
Corridor	Size	Location	Comments
Young St	150 DICL	South west corner	Water main is a spur line and not adequate to serve the proposed development
McEvoy St	200 CICL	Traverses’ property frontage, north	Town supply reticulation main. Potential connection point.
McEvoy St	500 CICL	North west sector of property	SWC trunk main. Unlikely to be approved as a point of connection.
Bourke St	250 CICL	Traverses’ property frontage, east	Most likely point of connection. Main offers greater flow and would be the most suitable for potable water applications and fire service supply.

Table 5.1

Potable water supply is capable of serving all proposed buildings and water use applications including fire water source.

A master meter and backflow prevention device is required for the proposed development. System booster pumps may be required based on available pressure and flow. Submeters will be required for strata and stratum portions of the development.

Applications for use as follows:

- Drinking water
- Hygiene,
- Mechanical plant make-up (in conjunction with stormwater reuse requirements)
- Rainwater reuse make-up for irrigation and toilet flushing.

3.11 Rainwater reuse

Rainwater reuse will be encouraged if not mandated depending on the DA conditions. A suitably sized rainwater tank designed to store the optimum volume of rainwater captured from the roof only, can supply water for mechanical plant make up, WC flushing, washdown and landscape irrigation.

3.12 Natural Gas

Natural gas infrastructure is located within the Bourke St corridor only. There are two (2) utility mains. One is a 250mm 1050 kPa (High Pressure) gas main and the other is a 75mm 210 kPa (medium pressure) gas main.

The selection of either the 75mm 210 kPa or 250mm 1050 kPa main will be made during the design phase following confirmation of the usages required for this development. In the event that the 250mm 1050 kPa is required a secondary main extension and meter set will be sited at the Bourke St boundary for. This will be a significant cost. If the 75mm 210 kPa main is able to supply the expected load, a smaller medium pressure gas meter set will be located at the Bourke St boundary this is deemed to be a better solution in terms of cost. Jemena will decide which supply main can serve the site based on projected gas loads.

4. Fire

4.1 Services

Building Services contained in this section are identified as follows;

- Fire Hose Reel,
- Fire Hydrant,
- Automatic Fire Sprinkler.

4.2 Fire Hose Reel

Water supply for the fire hose reel system will be sourced from the potable water supply. Pressure and flow will be based on potable water demand and performance requirements of 220kPa @ 0.66 L/sec as per AS2441. Pressure assistance may be via the potable water booster pump system. Fire hose reels are required in car parks and currently in retail, BOH spaces.

4.3 Fire Hydrant

The water source for the fire hydrant system will be supplied from the potable water supply main, potentially in Bourke St. Approval to connect to the 250mm main will be required. The system is to be designed in accordance with AS 2149.1 and may be classified as a 30 L/sec system. System comprises water supply reticulation, hydrant booster assembly at the Bourke St boundary. A grade 1 water supply appears to be available based on infrastructure configuration, however pumps and storage tanks are a distinct possibility for this site based on available pressure and flow data.

4.3 Automatic Fire Sprinklers

The water source for the automatic fire sprinkler system will be supplied from the potable water supply main, potentially in Bourke St. Approval to connect to the 250mm main will be required. The system is to be designed in accordance with AS2119.1. System will comprise water supply reticulation, sprinkler booster assembly at Bourke St boundary, (shared with FH booster). A grade 1 water supply appears to be available based on infrastructure configuration, however pumps and storage tanks are a distinct possibility for this site based on available pressure and flow data.

5. Electrical

5.1 Maximum Demand and Substation Requirement

The calculated maximum demand for the site, based on electric hot water and cooking, is as follows:

MAXIMUM DEMAND CALCULATION						
	Apts	GFA	VA/m ²	kVA		A/ph.
Residential Apartments	125			710		
Retail		1278	180	230.4		
Supermarket		4600	250	1150		
Commercial Office		1973	100	197.3		
Carpark - Mechanically ventilated		4800	15	72		
EV Charging				700		980
TOTAL				3059.7	kVA	4284

The above demand would need to be met via the provision of an onsite substation comprising either 2 x 1500kVA transformers or 3 x 1000kVA transformers. Typically, in the City of Sydney it would be a chamber substation. In terms of spatial requirements, this would equate to a space of approximately 60m² (2 x 1500kVA transformers) or 130m² (3 x 1000kVA transformers)

5.2 Rooftop PV Solar Production

The rooftop could accommodate solar. The capacity and complexity of the system will be reviewed and undertaken during the design phase of the project.

5.3 EV Charging

Fabcot intends to deliver a benchmark provision of publicly accessible electric vehicle charging facilities through a future VPA. All residential car spaces in the development to be EV ready, 50% of worker car spaces are to be EV ready and 25% of retail customer car spaces are to be fitted from the outset with a three phase Level 2 EV charger at 22 kilowatts or higher) with the addition of two (2) Level 3 or 4 fast chargers accessible within the retail parking provisions.

Fabcot signals their intention to provide the above which is understood to be consistent with the City's draft Electric Vehicles Policy.

5.4 Electrical Infrastructure

The electrical spatial requirements for the development will be developed during the design phase and will include: -

- Substation
- Main Switch Room
- Main Comms Room
- Electrical and Communication Cupboards/Risers
- Solar PV Installation
- EV Charging

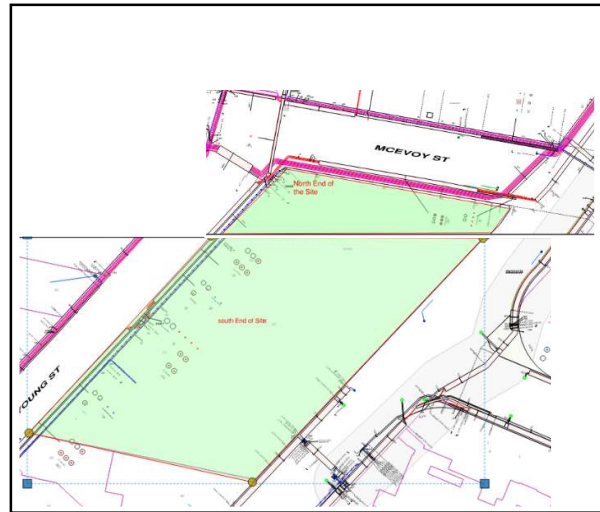
6. Final comments

Generally, the only items that raise a requirement for detailed further discussions are the SWC requirements on the possible stormwater flooding, sewer and water mains that traverse the site. The remaining authority infrastructure is adequate as indicated in the attached authority documents.

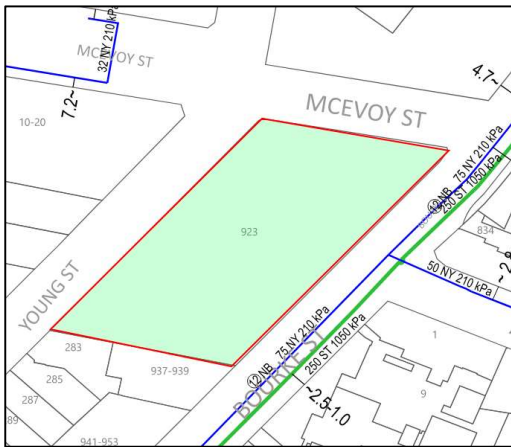
7. Authority plans



Sydney Water



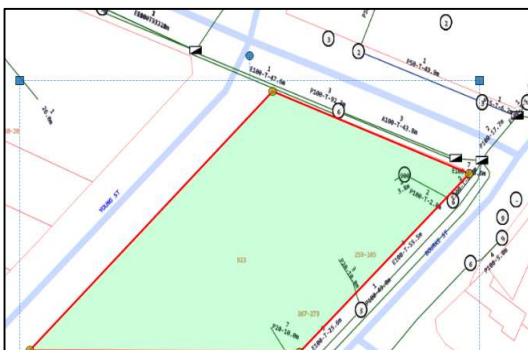
Ausgrid North and South ends of Site



Jemena



Sydney City Council



NBN