

# Montefiore -, Hunters Hill

## Services Infrastructure Report

**Prepared for:** Montefiore Hunters Hill

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**Date:** August 2023

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# Revision

Revision	Date	Comment	Prepared By	Approved By
A	09.09.2022	Issued to Planner	RB, TH, JB	RB
B	21.11.2022	Updated with Client Comments	RB, TH, JB	RB
C	08.08.2023	Update with map on p4	BT	BT

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# Introduction

The purpose of this report is to provide Montefiore with information on the current provision and condition of the existing public utilities and likely authority requirements to support the Planning Proposal. The report also identifies opportunities for utility infrastructure provision for future development of the sites.

This report is based on the following sources of information:

1.
  - Dial Before You Dig information
  - Publicly available information

At this time, no discussions have been had with authorities for the project. The expectation is that once the risks and opportunities are defined and communicated to internal stakeholders, the strategy and approach to instigating discussions with external stakeholders will be developed.

Limitations of this report are as follows:

- No calculations were performed to check system capacities
- No taking or testing of material samples was carried out
- All information provided by others, particularly verbal information has been taken at face value
- No testing for or advice is provided with respect to asbestos, microbiological or other contaminants
- No detailed survey and detailed authority information is available
- No formal discussions with Authorities (feedback only available through a formal submission)



# Site Information

The proposed project site is located at 116-120 High Street, 2- 20 Gaza Avenue and 45-47 Barons Crescent,, Hunters Hill and is part of a development site having an area of approximately 40,878m<sup>2</sup>.

There are multiple buildings on the existing site and these buildings are serviced by an internal road accessed via High Street

2. The image below indicates the site and location of the existing buildings.



# Proposed Development

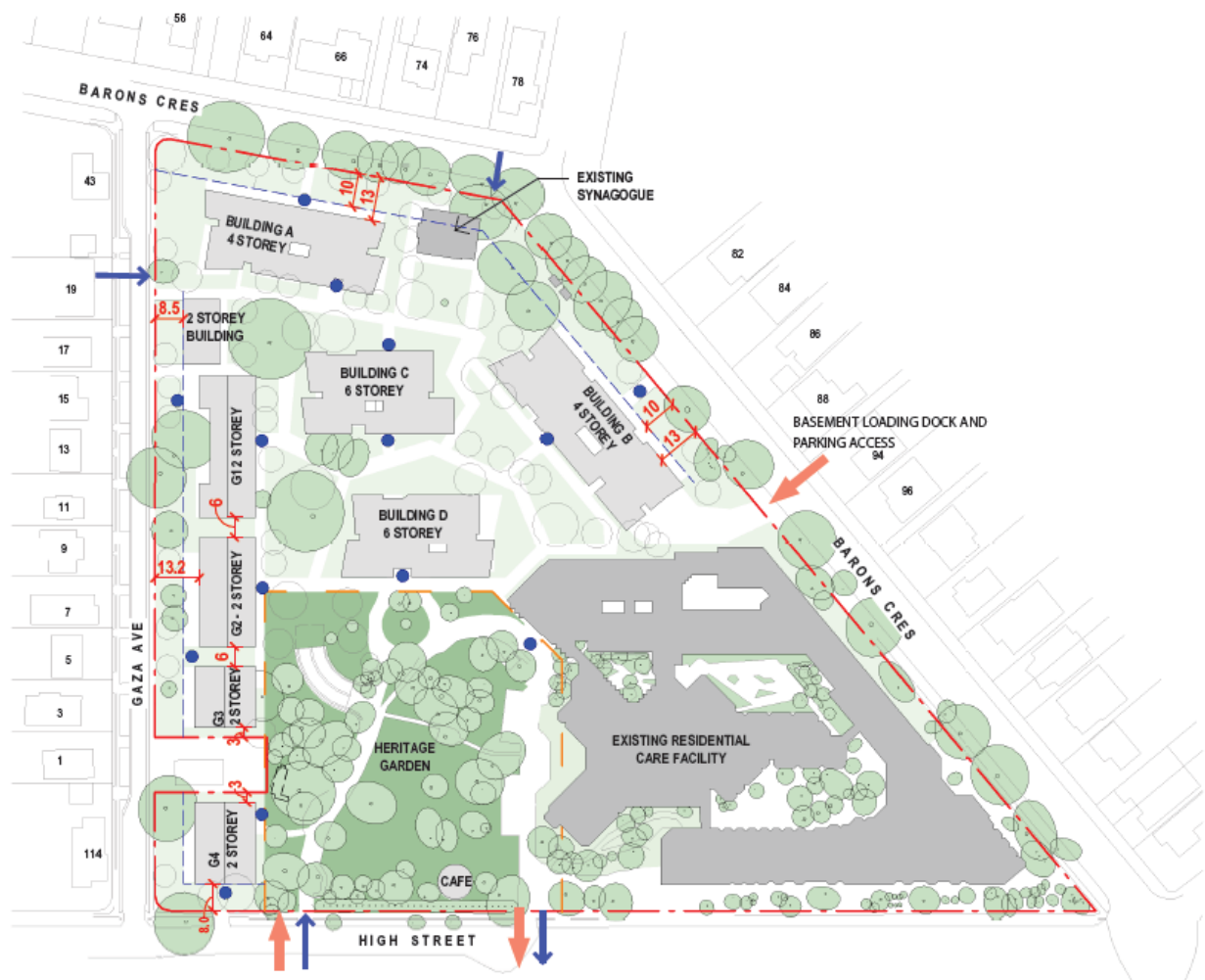
The Planning Proposal seeks to amend the existing *Hunters Hill Local Environmental Plan 2012 (LEP)*, by the way of the following:

3.
  - Change the zoning of the land from R2 Low Density to SP2 Infrastructure (Seniors Housing).
  - Increase the building height from 8.5m to 16m, 18m and 24m.
  - Consolidate the floor space ratio control for the properties in Gaza Avenue from 0.5:1 to 1:1

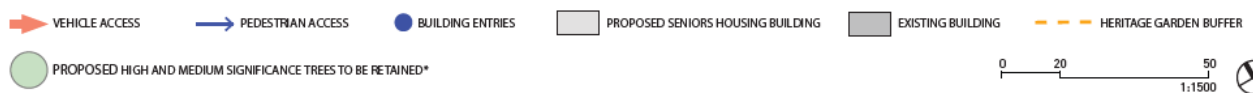
The Planning Proposal is supported by a Masterplan which includes the following buildings

Description	Area
Building A [4 Storey ILU]	3,642m <sup>2</sup>
Building B [4 Storey ILU]	4,102m <sup>2</sup>
Building C [6 Storey ILU]	3,228m <sup>2</sup>
Building D [6 Storey ILU]	3,530m <sup>2</sup>
Gaza Street G1 [2 Storey ILU]	986m <sup>2</sup>
Gaza Street G2 [2 Storey ILU]	941m <sup>2</sup>
Gaza Street G3 [2 Storey ILU]	532m <sup>2</sup>
Gaza Street G4 [2 Storey ILU]	792m <sup>2</sup>
Pavillion	355m <sup>2</sup>





# LEGEND



## Authority Infrastructure Cost Estimates

Approximate cost estimate:

4.

Services Description	Estimate
Water connection – Option 1	\$30,000 - \$50,000
Water connection – (Option 2 pending mains capacity)	\$25,000 - \$45,000
Gas Connection (By Authority pending mains capacity)	Authority works
Sewer Anticipated Connection – 1 (Note excludes any works for disconnection of existing sewer infrastructure)	\$35,000 - \$55,000
Sewer Anticipated Connection – 2	\$35,000 - \$55,000
Stormwater Infrastructure	\$400,000
Preliminary Bulk Earthworks (predominately associated with basement excavation)	\$1,500,000
1000kVA Kiosk Substation. Note excludes any upstream HV network augmentation that may be required.	\$250,000
NBN (\$400 per ILU)	\$54,800
<b>Total</b>	<b>\$2,329,800 - \$2,409,800</b>





# Electrical Services

## High Voltage Network

### Existing Supply Authority Network

The Supply Authority for the area is Ausgrid.

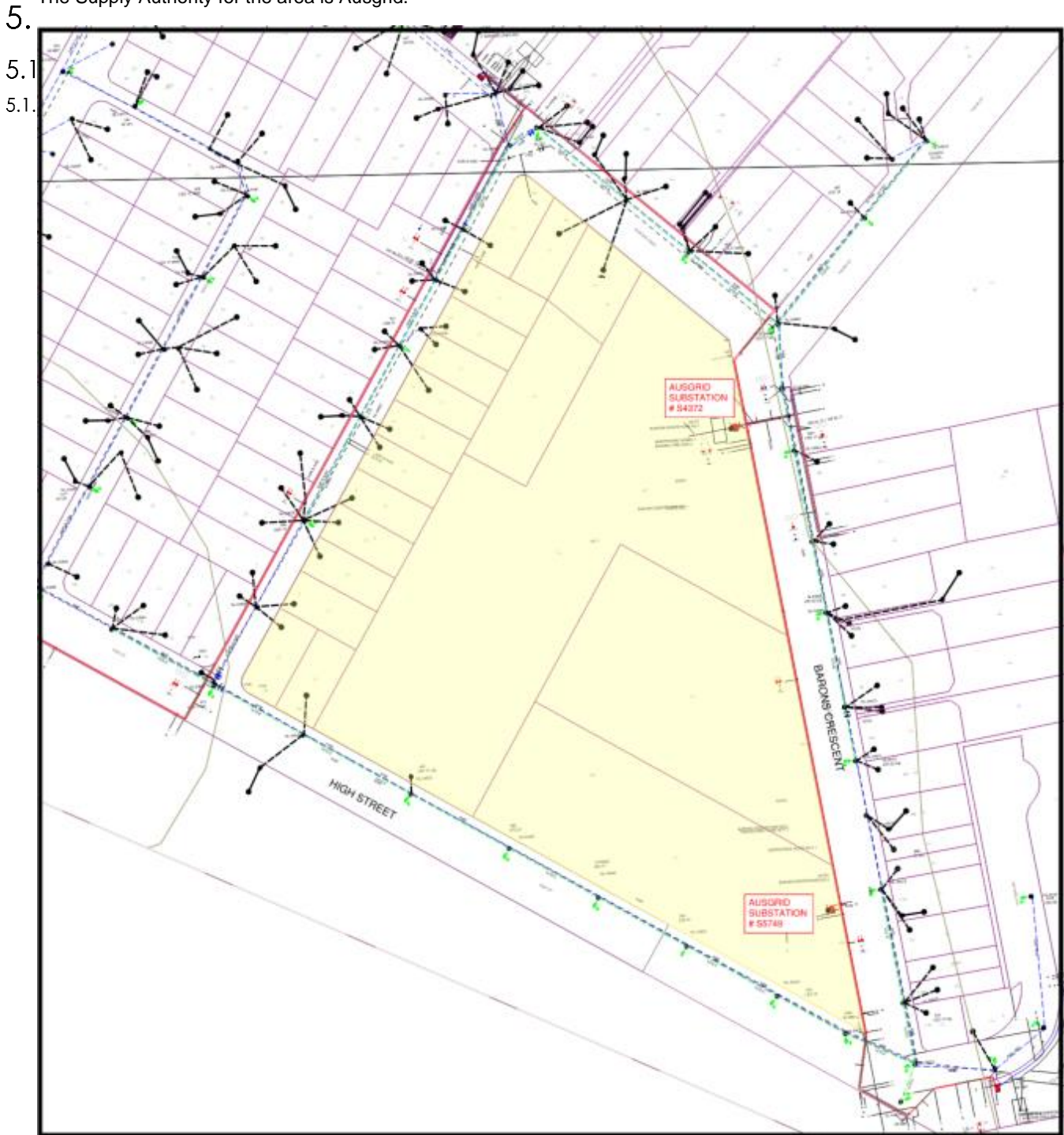


Figure 5.1 Ausgrid assets in vicinity of the Site



Existing Supply Authority network is depicted in Figure 5.1. There are 2 substations currently located on the site [#S.5749 and #S.4372].

It will be necessary to lodge an Application for Load with Ausgrid to determine whether the HV street network has sufficient capacity or whether upstream network augmentation is required.

## Calculated Maximum Demand

The calculated maximum demand for the proposed development [excluding the existing RACF which is supplied from substation S.5749 and will remain as is] is 1,051kVA (1,520 Amps/phase). A breakdown of the demand is depicted below [See Appendix 1 for calculations]:

5.2

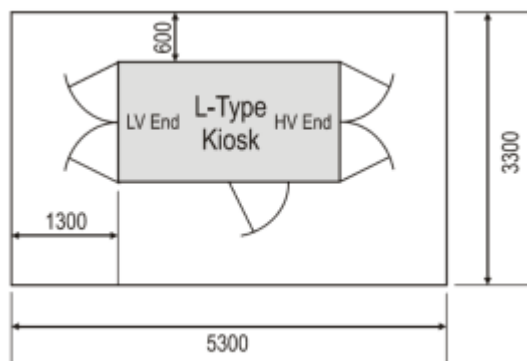
BUILDING	LOAD [A]
Building A	218
Building B	218
Building C	203
Building D	161
Gaza Street G1	109
Gaza Street G2	96
Gaza Street G3	96
Gaza Street G4	96
Basements	323
<b>TOTAL</b>	<b>1,520 Amps</b>

5.3

## Proposed Supply Arrangement to new Development

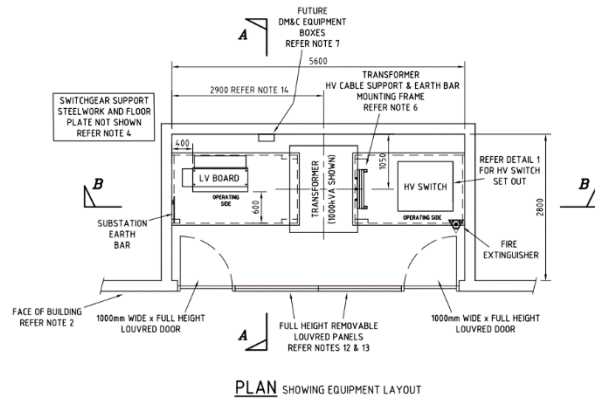
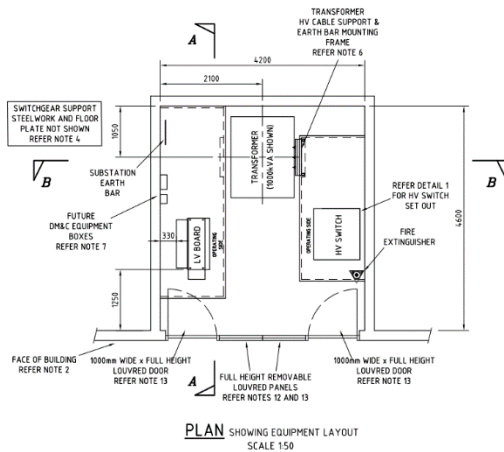
Based on the load calculation it will be necessary to provide one (1) new 1000kVA substations for the proposed development. Substation options would be as follows

1. Kiosk type substation
  - Easement of 5,300mm x 3,300mm
  - Fire segregation to building openings (3,000mm) and mechanical ventilation openings (6,000mm)



2. Mini-chamber type substation (needs to be located on ground level).
  - Option 1 : 4,200mm (street front) x 4,600mm (depth) x 3,200mm (clear height)
  - Option 2 : 5,600mm (street front) x 2,800mm (depth) x 3,200mm (clear height)





It is envisaged that a kiosk substation will be installed near existing substation #S4372 [which currently also supplies the LV street network]

It is noted that until an application for load is lodged with Ausgrid, it will not be possible to determine any off site augmentation works that may be required to supply the proposed site.

## Proposed site reticulation

5.4A new weatherproof site main switchboard to be established adjacent new substation discussed in section 5.3.

Each ILU building will contain a meter panel switchboard which shall house the authority retail meters and supply connection point to each ILU. Each meter panel switchboard to be supplied from the weatherproof main switchboard.

Reticulation pathways are indicatively shown in Figure 5.2



Figure 5.2 Proposed LV reticulation to new ILU Buildings

## Street and Area Lighting

Site lighting is still to be developed and will be done in conjunction with Architect and Landscape Architect. It is envisaged that it will be a combination of 3m pole mounted fittings and bollards [along walkways]. Consideration with regards to glare and obtrusive lighting to ILU's to be worked through during the detailed design of the project. Final lighting to comply to AS4282.

5.5 It is not envisaged that there will be any requirements to upgrade the street lighting of the adjacent public roads.

## Telecommunications

### General

Existing Carrier infrastructure is depicted below. The site is well serviced by existing Carrier networks, including NBN.

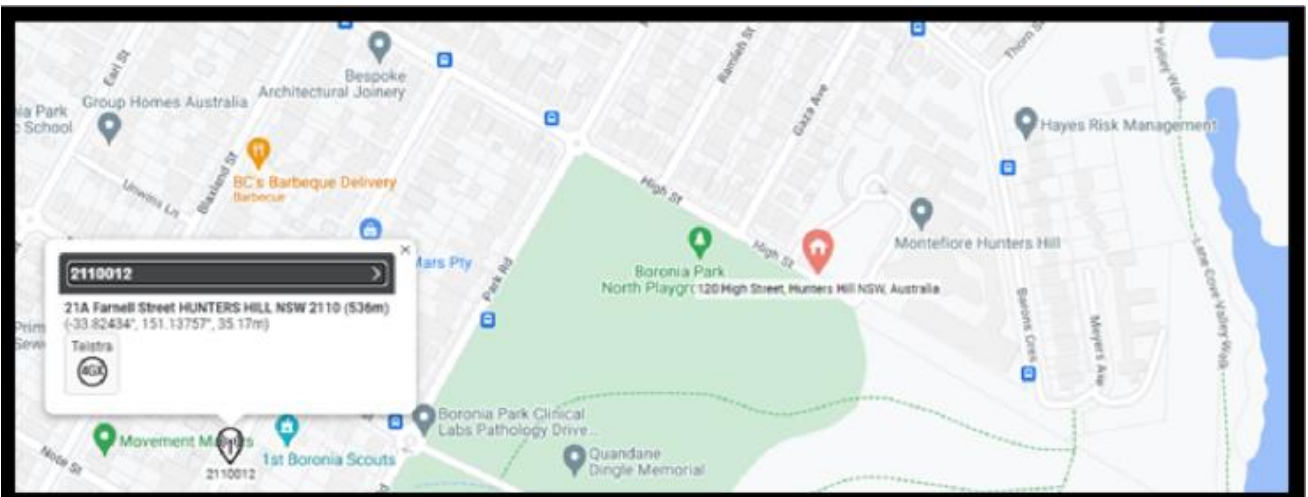
5.6 From the available information, Carrier diversions are required for Telstra and NBN [see section below on Telstra].

5.6.1

### Carrier Mobile Base Stations

It is noted that there are no carrier mobile base stations located on the site that will require relocation as per information available from Radio Frequency National Site Archive website search.

5.6.2



5.6.

Figure 5.3 Mobile Base Station Information Adjacent to Proposed Development

## Existing Carrier Service Infrastructure

### NBN

It is noted that the proposed development site is ready to be serviced by NBN connection. Necessary pit and conduit infrastructure need to be provided to suit the development to allow for NBN cables to be installed to cater to the requirements of the proposed development. New NBN pits will be installed to suite final location of the Communications Entrance Room which will house the headend equipment.





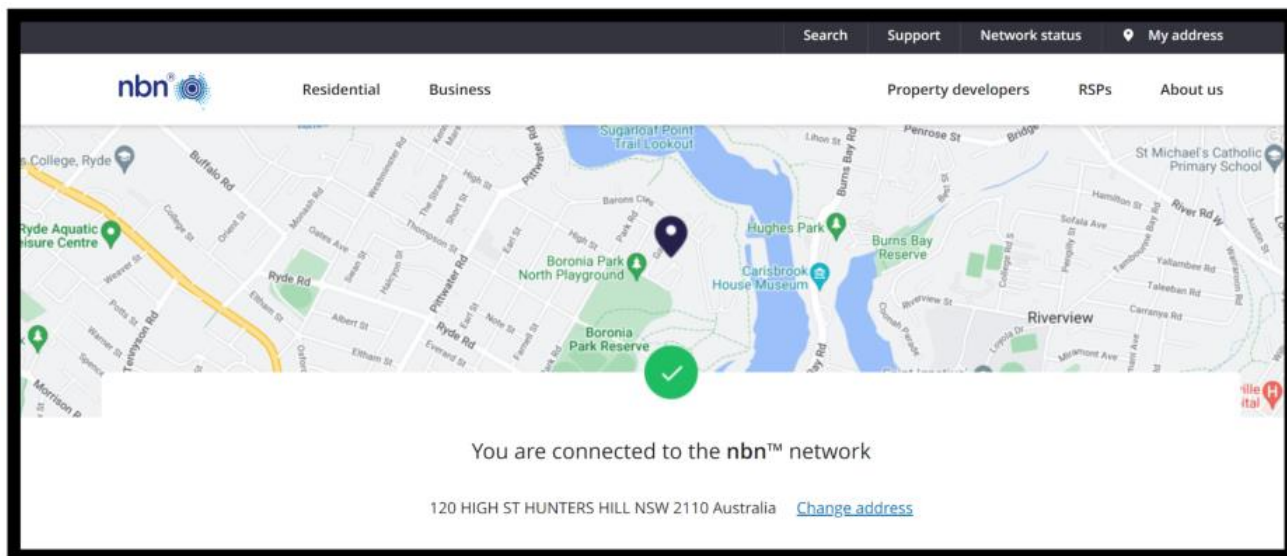


Figure 5.4 NBN Serviceability Map

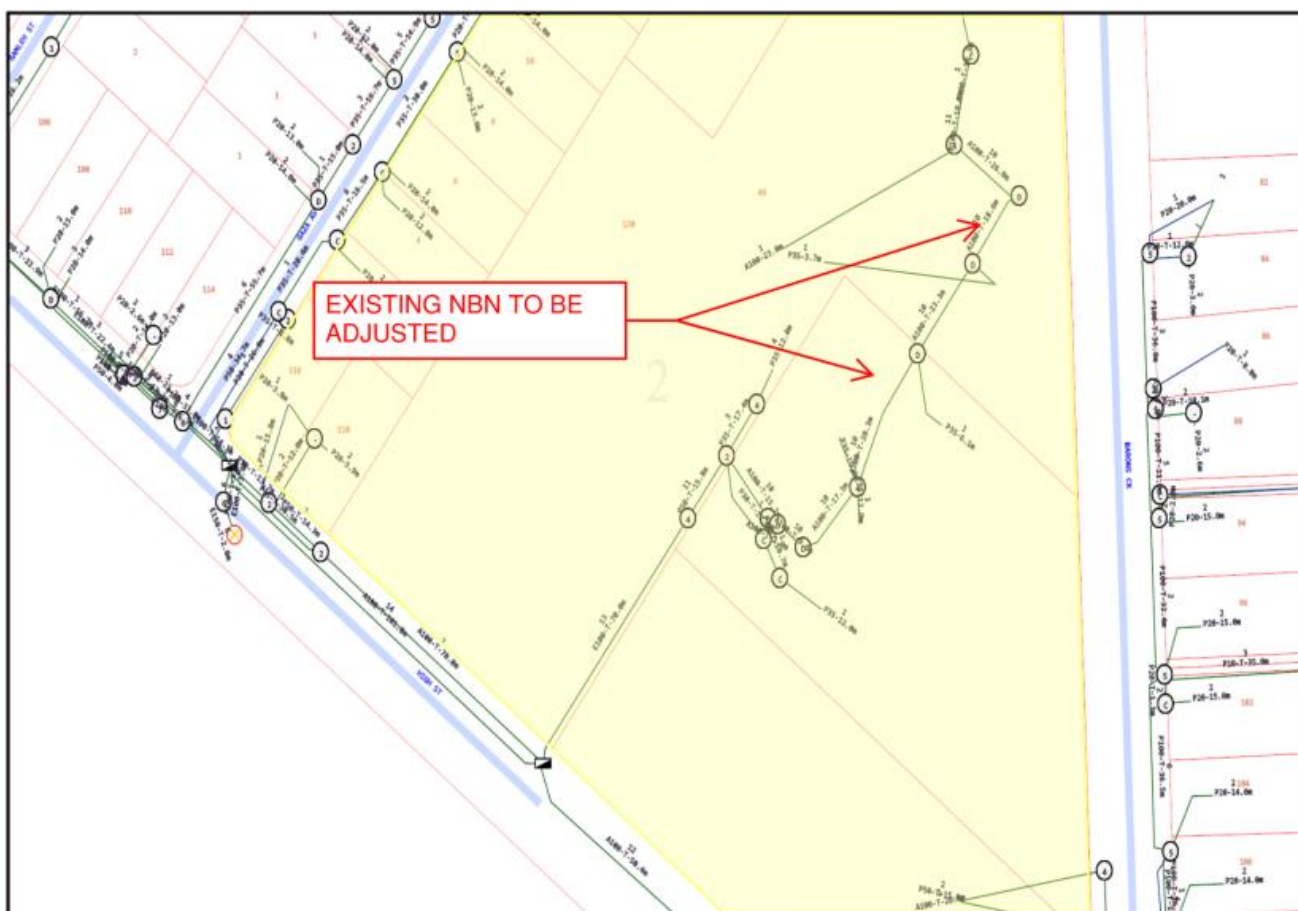


Figure 5.5 Existing NBN Infrastructure

From the image depicting NBN infrastructure for the site, it is noted that NBN have utilised the Telstra pit and pipe network to reticulate. It will be necessary to arrange for NBN to attend site and advise on services to be relocated or extinguished to suit the proposed development. Any planned outages would need to be co-ordinated with Montefiore Hunters Hill.



It is proposed to allow for NBN services to the new development. This will consist of a network of NBN pit and pipe to suit the proposed layout. Each ILU to be supplied with a standard NBN NTD.

## TELSTRA

It is noted that there are existing Telstra Pit and pipe network on the site to service the existing buildings. It will be necessary to arrange for Telstra to attend site and advise on services to be relocated or extinguished. Any planned outages would need to be co-ordinated with Montefiore Hunters Hill.

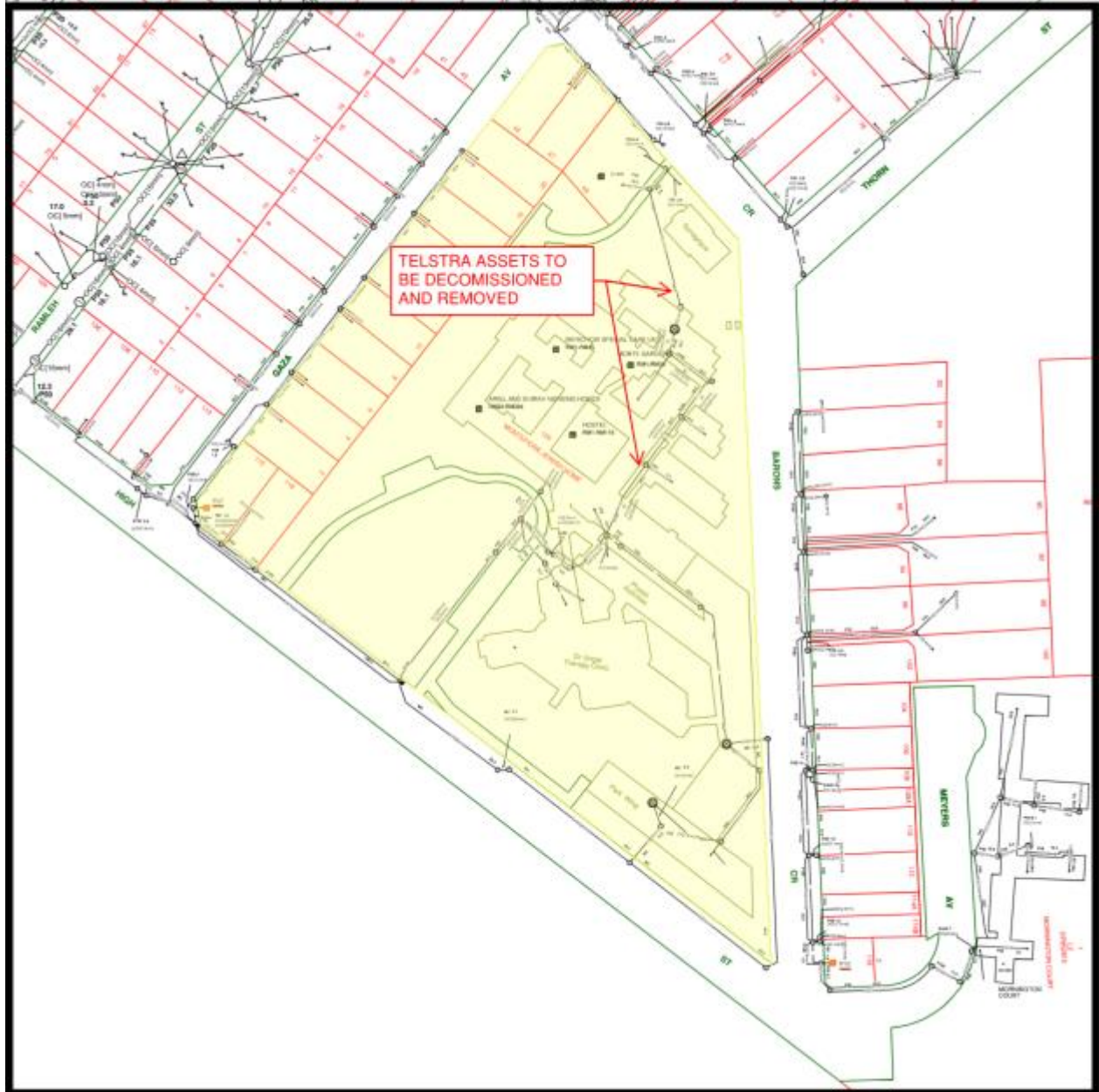


Figure 5.6 Telstra Services Map



# Hydraulic Services

The hydraulic services in the following section provides information regarding existing infrastructure across the flowing key utilities;

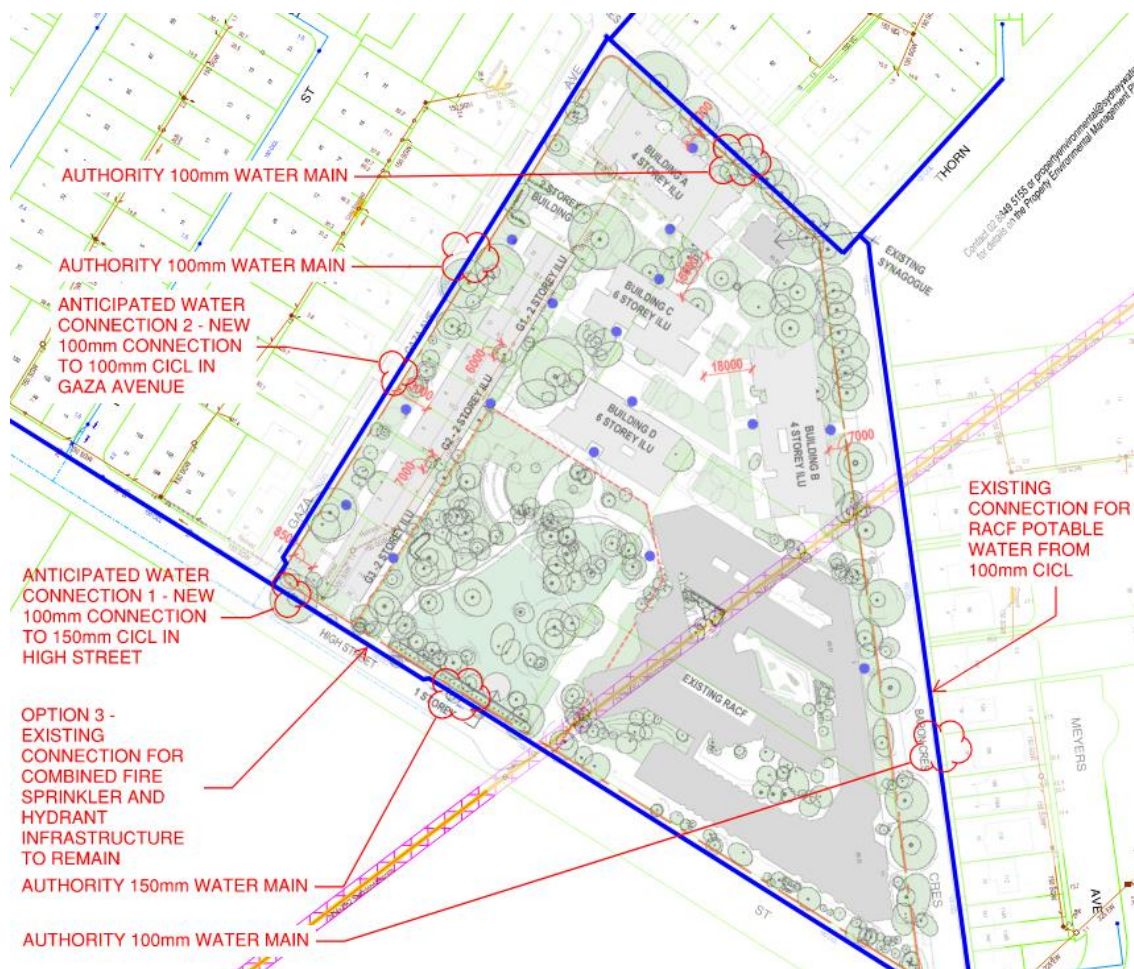
- Water Supply Network – Network Authority, Sydney Water
- 6. • Sewer Network – Network Authority, Sydney Water
- Natural gas Network – Network Authority, Jemena

## Water Supply

DBYD plans have indicated Sydney Water, water assests within proximity to the subject site.

6.1 This includes the following;

- Ø150 Sydney Water potable water main located on Northern side of High Street.
- Ø100 Sydney Water potable water main located on Eastern side of Barons Crescent.
- Ø100 Sydney Water potable water main located on Eastern side of Gaza Avenue.



We anticipate the Ø150 water main that extends down High Street (Connection Option 1) or the Ø100 water main that reticulates in Gaza Avenue (Option 2) would be the most suitable water main to supply the development subject to. We expect these water main to be capable of supplying the required domestic water. Sydney Water may request that the existing connection to the main in High Street is used reduce cut ins, however we anticipate this would require amplification to provide sufficient pressure and flow for the site water demand and fire fighting purposes. This will be further determined upon application with Sydney Water for the Section 73 Compliance Certificate as part of the DA requirements.

### **Sydney Water Dial Before You Dig Plan – Water Services**

**THIS INFORMATION IS PRELIMINARY ONLY AND IS SUBJECT TO DISCUSSION WITH SYDNEY WATER. ANY ADVICE FROM THE SYDNEY WATER COORDINATOR DURING THE SECTION 73 APPLICATION PROCESS WILL OVERRIDE THE ABOVE PRELIMINARY INFORMATION.**

#### **POTABLE WATER CAPACITY – Proposed Development Only**

The approximate domestic potable cold-water demand for the development is 93,766L/day based on Sydney Waters average daily water usage data for the property development type. This may vary depending on the final development product and system selections. Refer to Appendix A for further reference.

#### **Independent Living Units (ILU's)**

Number of Beds:	351 beds
Average demand:	271 L/day
Potable water demand:	93,766 L/day

#### **FIRE WATER CAPACITY – SITE A**

##### **Fire Hose Reel System**

A fire hose reel will be required to be installed as follows.

Class 7 Basement Carparking – FHR Required

Class 2 Residential – FHR Not Required

A fire hose reel system requires 0.66L/sec @ 220kPa (2x fire hose reels operating simultaneously) pressure and flow for fire-fighting purposes.

The pressure and flow requirements will be achieved via connection to the authority water main and with the use of on-site pressure boosting pumps.

Further investigations into the existing infrastructure is required to identify any opportunities and/or risks that may be present for the development.





## Fire Hydrant and Fire Sprinkler System

The existing facility is equipped with an on-site fire hydrant and automatic fire sprinkler system installed throughout the development (all building classes).

The proposed development will require the implementation of a combined fire hydrant and fire sprinkler system throughout. The combined flow rate for the fire hydrant and fire sprinkler system is anticipated to be within the range of 20 - 40L/sec.

The pressure and flow requirements for the combined fire hydrant and fire sprinkler system will be achieved via the existing connection to the authority water main and with the use of on-site pressure boosting pumps.

Further investigations into the existing infrastructure is required to identify any opportunities and/or risks that may be present for the development.

## Sewer

DBYD plans have indicated Sydney Water, sewer assets within proximity to the subject site.

6.2 This includes the following;

- Ø225 Sydney Water sewer main located in Southeast corner of site at junction of High Street and Barons Crescent.
- Ø150 Sydney Water sewer main passing through the west of the site.



**Sydney Water Dial Before You Dig Plan – Sewer Services**



**THIS INFORMATION IS PRELIMINARY ONLY AND IS SUBJECT TO DISCUSSION WITH SYDNEY WATER. ANY ADVICE FROM THE SYDNEY WATER COORDINATOR DURING THE SECTION 73 APPLICATION PROCESS WILL OVERRIDE THE ABOVE PRELIMINARY INFORMATION.**

We anticipate 2 connections to the existing sewer mains servicing the existing site. 1 x 150mm connection in the South West corner of the site in High Street (anticipated connection 1) connecting buildings G3 and G2. 2 x 225 connection in the South East corner of the site in High Street (anticipated connection 2) connecting the remainder of the proposed development. We expect the sewer main to be capable of meeting the required sewer demand for the development subject to section 73 application. Alternative options may require sewer amplification or sewer detention tanks pending Sydney Water information. Minor/major works may be required to extend the authority sewer within the site boundary for connection. This will be further determined upon application with Sydney Water for the Section 73 Compliance Certificate as part of the DA requirements. Further investigations into the existing services plans regarding levels, size and capacity are required for potential connections.

#### **SEWER CAPACITY – Proposed Development Only**

The approximate sewer demand for the development is 75,012L/day (80% of Water Usage) based on Sydney Waters average daily water usage data for the property development type. This may vary depending on the final development product and system selections.

#### **Independent Living Units (ILU's)**

Number of Beds:	351 beds
Average demand:	271 L/day
Potable water demand:	75,012 L/day

### 6.3 Gas

DBYD plans have indicated Jemena, natural gas assets within proximity to the subject site.

This includes the following;

- Ø50 Jemena gas main (210kPa) located in Barons Crescent.
- Ø50 Jemena gas main (210kPa) located in Gaza Avenue.
- Ø50 Jemena gas main (1050kPa) located in High Street.

We anticipate the Ø50 natural gas main that reticulates in Barons Crescent would be the most suitable gas main to service the development. We expect this natural gas main to be capable of meeting the required gas demand for the development. This will be further determined upon application with Jemena for the gas connection as part of the design development phase.



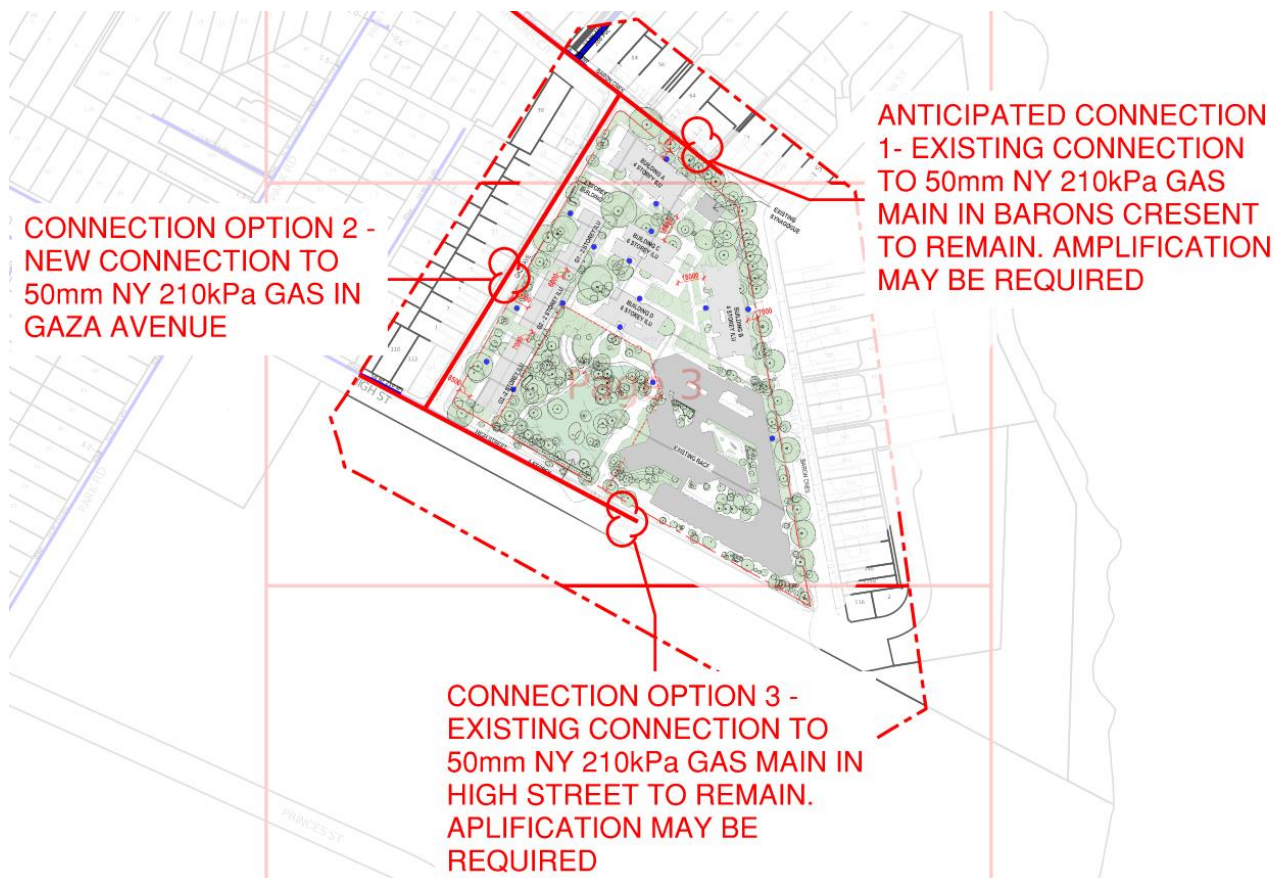


Figure 4: Jemena Dial Before You Dig Plan – Natural Gas Services

**THIS INFORMATION IS PRELIMINARY ONLY AND IS SUBJECT TO DISCUSSION WITH JEMENA**

#### **GAS CAPACITY – Proposed Development Only**

The approximate gas demand for the development is 3,075 MJ/day based off usage data and operating hours for the proposed gas equipment. This may vary depending on the final development product and system selections. It is anticipated that cooking and heating within ILU's will be electric and gas is for hot water heating only.

#### **Independent Living Units (ILU's)**

Number of apartments:	144 apartments
Hot water heating:	3,075MJ/hr (4 hours operation per day)
Gas demand:	3,075MJ/day

**TOTAL NATURAL GAS DEMAND: 3,075 MJ/day**





# Civil and Stormwater Services

The civil and stormwater services in the following section provides information regarding existing infrastructure and design policies applicable to the development.

## Civil and Earthworks

### 7. Site Characteristics

#### 7.1

##### 7.1.1



**Development Site Location Plan**

The proposed development is located on at 116-120 High Street, 2- 20 Gaza Avenue and 45-47 Barons Crescent, where planning controls need to refer to the Hunters Hill Consolidated Development Control Plan (DCP) 2013. This publication identifies civil requirements for land use and grading.

#### **Topography**

The local topography around the site shows that the site primarily falls north-west to south-east. A ridgeline is observed internal to the site approximately 35m off the western boundary, whereby falls transition to north-east to south-west. A small portion of the site along the northern boundary falls north towards Barons Crescent. The highest point of the site is located at the north-western corner of the site at a level of approximately RL 46.50m AHD and the lowest point is located along the south-eastern corner at a level of approximately RL 37.0m AHD. This is an average slope of approximately 3.2%.





**Site Topography (Elvis Foundation Spatial Data)**

### Stormwater Catchments

The surrounding area has been investigated to determine the likely impact of existing external stormwater catchments on the proposed site. The site is currently surrounded by residential houses and roadway, so it is believed that no external catchments impact the development site.

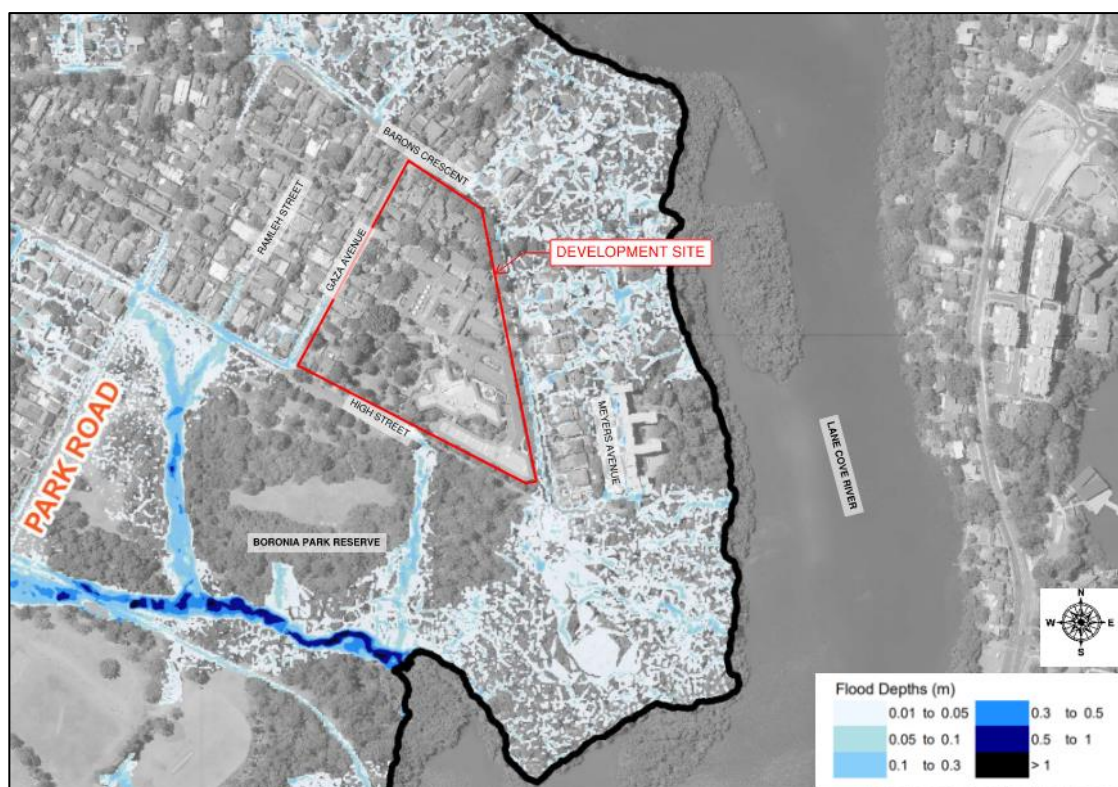
Falls along the northern boundary of the site, shown as Catchment 1 in the figure below, are directed via Barrons Crescent to Lane Cover River. Falls along the western boundary of the site, shown as Catchment 2 in the figure below, are directed via High Street to Lane Cove River through the centre of Boronia Park Reserve. Falls from the majority of the site, shown as Catchment 3 in the figure below, are directed via High Street and Barrons Crescent to Lane Cover River along the north-eastern boundary of Boronia Park Reserve.

A flood study has been undertaken for the Hunters Hill Local Government Area (LGA) by GRC Hydro. The flood modelling confirms that the site is not subject to flooding in all storm events up to, and including, the PMF storm event. Shallow flooding from 10mm to 300mm is observed along Gaza Avenue, High Street and Barrons Crescent fronting the site in the 1% AEP and PMF storm events.

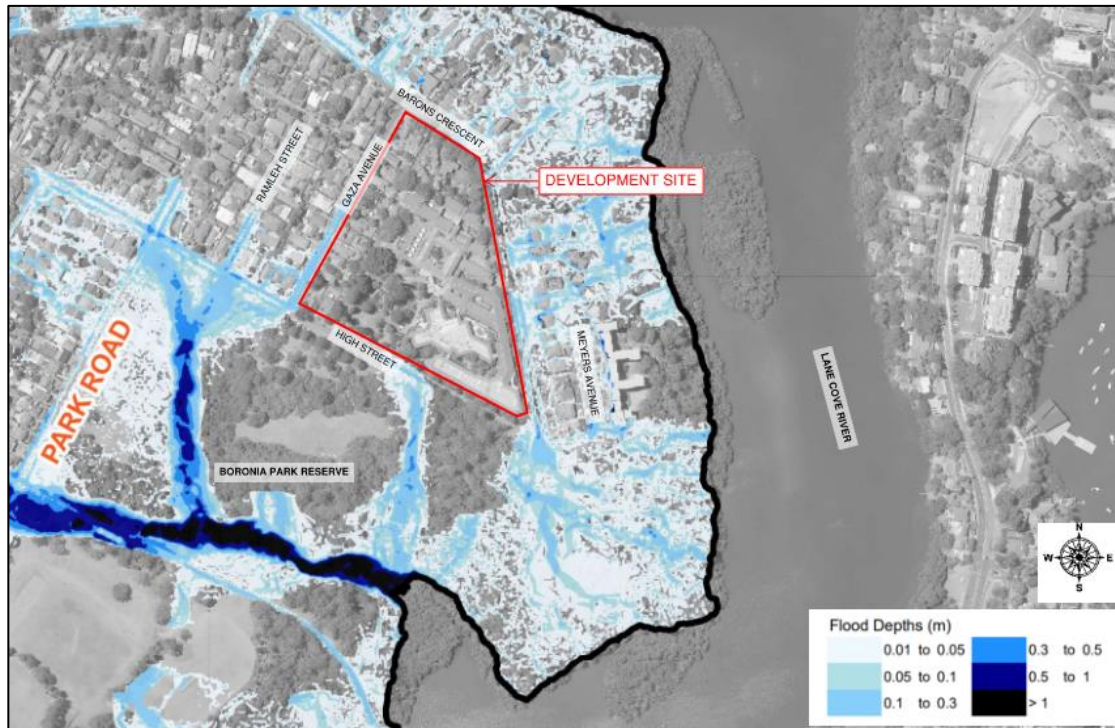




Development Site Sub-Catchments



1% AEP Flood Extent and Depths (Source: Hunters Hill LGA Flood Study)



**PMF Flood Extent and Depths (Source: Hunters Hill LGA Flood Study)**

### Existing Stormwater Infrastructure

Through review of the existing survey information and Google Maps, it has been determined that the site contains pit and pipe infrastructure to convey surface flows and roof drainage to the public stormwater network. It is not believed that there is an existing OSD tank on-site.

Council stormwater infrastructure exists in Barons Crescent and High Street in the form of kerb inlet pits. It is assumed that the 1-2 storey residential buildings fronting Gaza Avenue are conveyed via a gutter and downpipe system and discharged to kerb and gutter in Gaza Avenue. It is assumed that the 2 storey Montefiore hostels and Synagogue fronting Barons Crescent are conveyed via a formalised gutter and downpipe system and discharged to kerb and gutter and/or existing in-ground drainage infrastructure in Barons Crescent. It is also assumed that the existing RACF facility is conveyed via a formalised gutter and downpipe system and discharged into the site in-ground drainage infrastructure prior to being discharged from the site.

Limited information is available on the reticulation of the existing Council stormwater network. GRC Hydro obtained information on the Council stormwater network for integration in their flood model. Refer to the figure below for details of the existing stormwater network in High Street and Barons Crescent and discharge locations.





**Existing Council Stormwater Drainage Network (Source: Hunters Hill LGA Flood Study)**

### Existing Stormwater Discharge

Due to the falls across the site, the majority of site runoff (Catchment 3) appears to be directed to the existing DN300-450 stormwater pipe in south-east corner of High Street and discharged overland through Boronia Park Reserve. Similarly, Catchment 2 appears to be directed to the existing DN600-900 stormwater pipe at the corner of High Street and Ramleh Street and discharged overland through Boronia Park Reserve. A minor portion of the site (Catchment 1) appears to drain to Barons Crescent and discharges via the existing DN300-450 stormwater pipe to Lane Cove River. All catchments eventually discharge to Lane Cove River.

7.1.2

### Site Grading Requirements

#### Access & Mobility

There are access and mobility control in the Council DCP. For a Class 2 building, the Hunters Hill Council controls are as follows:-

- a) DD Act and Access Standards:- Access Code for Buildings applies to buildings that have short-term rental accommodation;
- b) Hunters Hill LGA:- Accessible paths of travel per Access Code for Buildings are encouraged for adaptable units;

It is expected that grading will need to suit accessibility requirements needed to comply with AS1428.

#### At-Grade Parking & Driveways

There are at-grade parking controls in the Council DCP. This impacts the site grading, as well as layout, landscape design, deep soil zones and stormwater management. The Hunters Hill Council controls are as follows:

- c) In general, their location and design should blend with character of the surrounding locality;
- d) Dimensions and design should not visually dominate any façade which would be visible from a road;
- e) Paved outdoor areas for vehicle access and parking should be minimized;
- f) Garages and carports for residential developments generally should be located behind the street boundary setback (or front building line);
- g) Dimensions and gradients of driveways, access ramps, aisles and parking areas shall confirm with AS 2890.1 Design of Off-Street Parking;





- h) The absolute maximum longitudinal gradients shall not exceed 25% within the property and 10% within the footway;
- i) If a pedestrian footpath is required, the gradient must not exceed 2.5% across the footpath;
- j) In general, only one (1) vehicle driveway should be provided for each development site. A maximum of two (2) crossings may be permitted under the following circumstances:-
  - i. The property is a corner block or has the front and rear backing onto a street, where it enjoys access to two (2) or more street frontages;
  - ii. The property is a commercial/industrial development where there are currently separate entry and exit points or there are two (2) or more entry levels or multiple ramps;
  - iii. Duplexes may be permitted to have two (2) vehicle crossings where the location of the garages or parking spaces within the property does not permit the use of a shared driveway.
- k) Visit parking spaces should be conveniently accessible and clearly identified;
- l) Parking spaces for vehicles and bicycles should be undercover, and;
- m) For every development, Council may require street works that may include construction of a full width kerb and gutter, a concrete footpath and associated street drainage works.

Any basement parking will be captured within the specific building design and align with the Council requirements.

## Erosion and Sediment Control Plan

The Development is to comply with the Hunters Hill Consolidated DCP 2013, Section 5.4 Sediment & Erosion Control. All developments, where the site is disturbed, shall provide appropriate Erosion and Sedimentation Control measures to control runoff, mitigate soil erosion and trap pollutants before they can reach downslope lands and receiving watercourses. Potential impacts of erosion and sediment control must be considered in relation to riparian land and waterways, areas of bushland, and properties which are adjacent to development sites or nearby.

The Erosion and Sediment Control Plan is to be prepared in conjunction with the Site Stormwater Management Plan and as a minimum contain the following information:

- iv. Property details;
- v. Site analysis (contours, access points, general soil description, location of existing vegetation/creeks/buildings or other features);
- vi. Extent and degree of clearing works and any excavations;
- vii. Conservation/protection of sensitive areas and trees either on site or adjoining development;
- viii. Truck movements and access arrangements/routes (load limits);
- ix. Sediment and Erosion Control Measures (location and type of all control measures);
- x. Excavation pit protection;
- xi. Material stockpile location and control method, waste management;
- xii. Pump out method (if required);
- xiii. Dust control measures to reduce surface or airborne movement of sediment from exposed areas of the site;
- xiv. Appropriate disposal of site waste, litter and spills;
- xv. Hours of operation;
- xvi. Ongoing maintenance methods;
- xvii. Risks, safeguards and safety precautions; and;
- xviii. Contingencies.

## Stormwater

The Hunters Hill Consolidated DCP 2013 states multiple prescriptive measures for stormwater management such as:-

- a) Appropriate measures should restrict the volume and rate of runoff to level which, as near as possible, would have existing for a natural site prior to development;
- b) Stormwater from roofs, driveways and other impervious areas should not be discharged directly into bushland, and should not be discharged without an approved dispersal system, and;
- c) Stormwater discharge pipes constructed through bushland will not be approved unless there is no technical alternative.



The following requirements relate to the respective point of discharge to this infrastructure:-

### Kerb and Gutter

- a) Kerb and guttering shall be graded and aligned in accordance with the plan. In cul-de-sacs or on internal roads, not to be later extended, minor variations of up to 20mm in line and 10mm in level over a distance of 5 metres will be accepted;
- b) Concrete in kerb and guttering to be placed in accordance with general requirements for concrete within this specification and shall have a minimum compressive strength of 32MPa at 28 days. The finish is to be a smooth steel trowel type surface. All works shall comply with AS2876-1987;
- c) The kerb and guttering is to be laid on previously compacted approved gravel with no loose material beneath. Alternative construction options may be approved by prior arrangement with Council's engineer;
- d) Expansion joints shall be provided at junctions with accesses, pits and other structures, and shall comprise approved expansion jointing material placed through the entire cross sectional area of concrete and finishing flush with exposed surfaces. Contraction joints consisting of a vertical cut to within 50mm of base shall be formed at a maximum of 6 metre intervals. All accesses are to be provided with expansion joints where the layback merges with the kerb;
- e) Where gutter crossings are provided as part of the development, a concrete access slab from the kerb and gutter to the boundary shall be required over the footpath area. This may occur as pre-determined layouts of developments and existing driveways;
- f) Where vehicle access is to be provided, the maximum allowable crossing slab width is as follows (refer Hunters Hill Council Diagram – Plan of Typical Driveway):-

Property Frontage Width (m)	Crossing width at the back of the layback* (m)	Width at site boundary (m)
Less than 10.0	3.5	3.5
10.0 to less than 12.0	3.5	4.0
12.0 to less than 15.0	3.5	5.0
15.0 to less than 20.0	3.5 to 4.0	6.0
20.0 to less than 30.0	4.0 to 6.0	7.2
Greater than 30.0	To be assessed by Council's Engineer	

\* Note:- the minimum width refers to the crossing slab only and does not include the width of the layback (0.45m from gutter) with 0.6m wing-walls at each end.

- g) Vehicular crossings are to be fully reinforced 32MPa concrete with one (1) layer of F72 mesh with 50mm cover (refer Hunters Hill Council DRG DW001-2017 V1).

### Inground Drainage Infrastructure

Where the drainage system is able to discharge directly to the inground drainage public drainage network, connection to the system will be permissible by means of either connection to an existing kerb/ junction pit, constructing a new pit to Council's specifications or where a kerb inlet/ junction pit cannot be readily located, installing an appropriate slope junction.

Where the level of development is significant to warrant extension of the inground drainage infrastructure, Council's drainage system is to be extended using a minimum 375 mm RC pipe with a kerb inlet or junction pit to a point near the boundary of the subject property to allow a direct connection.

All drainage pits are to conform to Council's current standards, with the length of the kerb inlet to be shown on the engineering plans. Pits are to be located to prevent ponding. Step irons are to be provided in all pits deeper than 1.2m.



### Existing Kerb Inlet Pit

- a) Pipes connected to existing pits shall be cut flush with the internal wall of the pit;
- b) The pipe should enter the pit perpendicular to the pit wall and all damage to the internal wall of the pit around the pipe connection must be fully repaired to Council's satisfaction.

### New Kerb Inlet Pit

- a) Where a new stormwater pit is to be constructed over an existing pipeline they shall be cast in-situ concrete;
- b) The works are to be undertaken in accordance with Council's current standards.

### Gully and Junction Pits

Standard pits are to be constructed in accordance with Council's current standards. Non-standard structures are to be constructed as detailed on the plan. Precast pits are to be installed as per the manufacturer's specifications.

All pits are to be constructed on a sound bedding. For in-situ pits, the floors should be poured first so that the walls may be fully supported on the base slab. Walls are to be bonder to the floor by cement grout to form a tight joint. Minimum floor, wall and lid thicknesses for in-situ pits shall be 125mm. Pits poured in multiple height sections shall require starter bars of minimum diameter 12mm.

Lids are to be adequately reinforced and provided with approved lifting eyes. The disturbed area around any pit is to be restored and shaped to suit the surrounding levels.

### Stormwater Pipe Cover

Cover of stormwater pipes in roads is to be in accordance with that prescribed by the manufacturer and shall be a minimum of 450mm below gutter level (current Australian Standard or Concrete Pipe Association of Australia "Concrete Pipe Guide").

### Subsoil Drainage

Subsoil drainage shall be provided where indicated on the plan and at such other locations as may be considered necessary by Council's Engineer during construction. Type and diameter of pipe and location in all cases is to be approved by Council's Engineer prior to installation.

- a) Trench width to suit the size of pipe used - should be a minimum of 300mm wide, and 600mm deep below subgrade.
- b) (i) Pipe backfilled with filter sand. Sand and sock must conform to the R.T.A. Grading Specification for subsoil drains wrapped with approved sock.

Or (ii) Pipe placed in trench, with single sized min. 10mm blue metal surround and trench lined with geotextile fabric.

Pipe shall be as follows:

- a) Grades less than 1% - slotted U.P.V.C. or F.R.C.
- b) Grades 1% and greater - aggrflow pipe.

Subsoil pipes shall be laid with a minimum grade of 0.5% and properly connected to main drainage pipes or pits.

- a) Residential developments generally, under kerb and guttering, however, depending on the types of gravels used for pavement construction, the subsoil may have to be located in front of the kerb and guttering and carried through to the base course layer.
- b)
  - i. Rural developments, under kerb and guttering or concrete dish drain on the high side.
  - ii. Where no concrete dish drain, place under shoulder 600mm from edge of bitumen
  - iii. At edge of other strategic locations as may be deemed necessary due to site conditions.

Flushing points to be provided every 80 metres. An approved standard R.T.A. subsoil access lid is to be provided flush with the surface, cast into concrete dish drain or cast into a concrete surround in shoulder where no concrete is provided.



## OSD

The On-Site Detention Tank is to comply with the Hunters Hill Consolidated DCP 2013. The following general requirements apply in the design of OSD systems.

- 7.2.1
- a) Reduce pre-development volumes of stormwater which are discharged from the site;
  - b) Ensure that developments do not contribute to increased risk of flooding during moderate rainfall events with an average recurrence interval of up to 1.5 years;
  - c) Ensure that developments are compatible with the design and capacity of existing stormwater systems;
  - d) Prevent adverse impacts upon environments such as bushland, wetlands and estuaries which are sensitive to increased stormwater flows;
  - e) Avoid damage to stream banks, adjacent bushland and aquatic habitat due to stormwater that is discharged in a large volume or at a high velocity;
  - f) Development proposals shall comply with the following performance standards to **maintain water balance**:-

Development Type	Performance Standard
Residential accommodation (excluding dwelling houses and secondary dwellings)	<i>Baseline annual stormwater volume</i> * reduced by 15%

\* *Baseline annual stormwater volume refers to the volume that would be discharged from the development site before the proposed development and without any management measures.*

- g) Management measures which would be appropriate to achieve the performance standards include:-
  - i. Rainwater tanks for on-site reuse;
  - ii. Porous paving and water-permeable surfaces surrounding buildings, and;
  - iii. Stormwater infiltration pits or systems.
- h) Development proposals shall provide the following **detention storage volumes** when located in Zone 1, Zone 2 or Zone 3 of the Hunters Hill LGA (refer figure below for catchment management zones):-

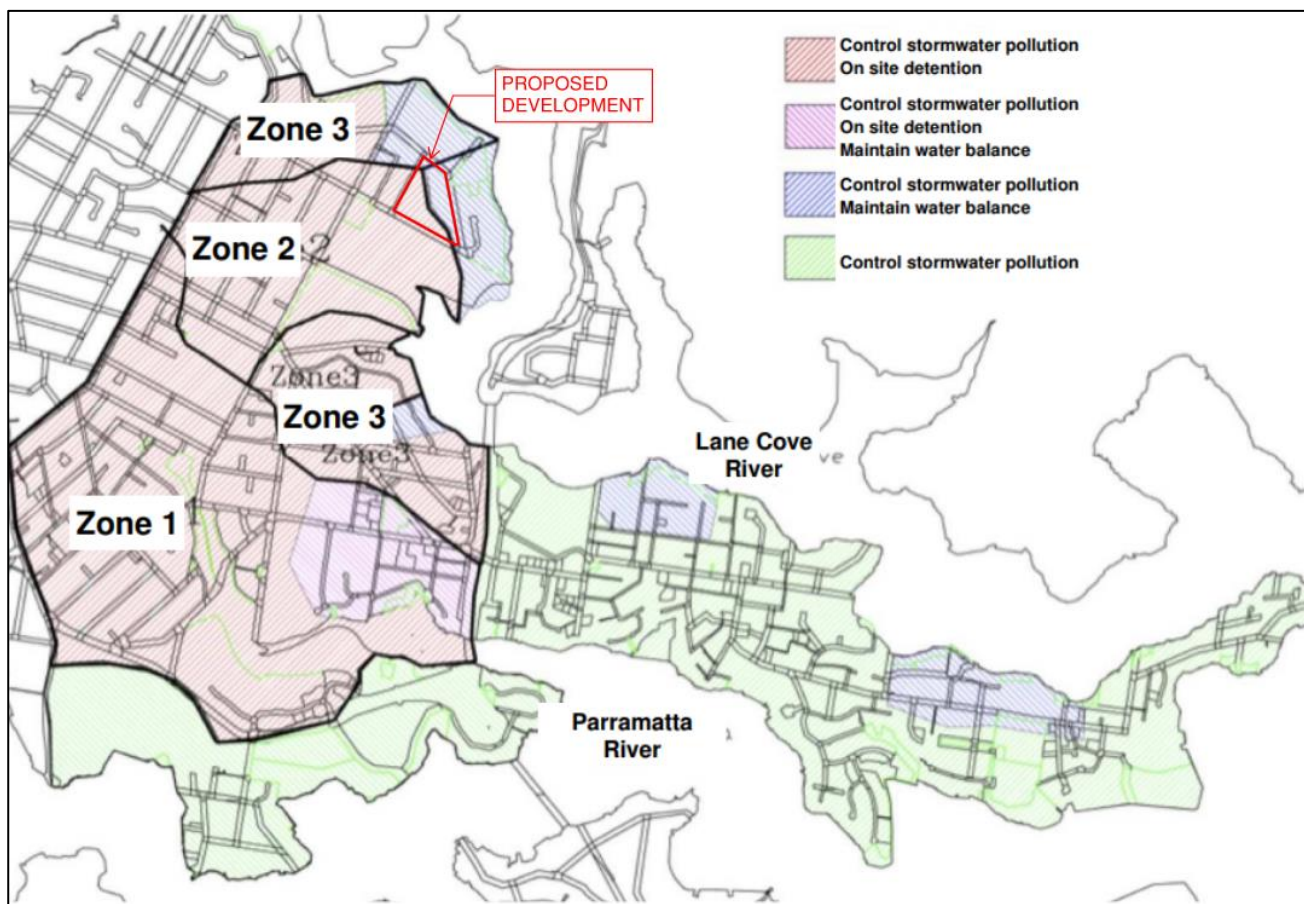
Zone	Detention Storage Volume for flood mitigation m <sup>3</sup> /100m <sup>2</sup> impervious area*	Detention Storage Volume for erosion control m <sup>3</sup> /100m <sup>2</sup> impervious area*
1	3.04	1.2
2	2.63	1.1
3	2.47	1.0

\* *Storage volumes specified above are measures as a proportion of the total impervious area of the site following the proposed development (includes the areas of all proposed roofs and paved surfaces).*

- i) Development proposals shall not exceed the following permissible site discharge (PSD) when located in Zone 1, Zone 2 or Zone 3 of the Hunters Hill LGA (refer figure below for catchment management zones):-

Zone	PSD for flood control L/s/100m <sup>2</sup> impervious area*	PSD for erosion control L/s/100m <sup>2</sup> impervious area*
1	1.80	0.41
2	2.20	0.57
3	2.40	0.64





The development site is located partially within Zone 2, whereby the site will be required to provide on-site detention in accordance with the table above based on the impervious area of the post-developed site. The remainder of the site is subject to water balance control, whereby the post-development stormwater discharge from the site is to be reduced to 85% of the pre-development discharge rates.

7.2.2 The estimated OSD requirement for the development is expected to be **150m<sup>3</sup>** for the area located within Zone 2 and **100m<sup>3</sup>** for the zone where the water balance is required to be reduced to 85% of the pre-development discharge rates.

### Stormwater Quality

The pollutant reduction targets for the site is to comply with the Hunters Hill Consolidated DCP 2013. Development proposals shall comply with the following performance standards:-

- a) The expected average annual post-development pollutant loads in stormwater discharged from the site must not exceed the following values for residential accommodation:-

Pollutant	Performance Standard
Total Suspended Solids (TSS)	80% reduction of <i>baseline annual load</i> *
Total Phosphorus (TP)	45% reduction of <i>baseline annual load</i> *
Total Nitrogen (TN)	45% reduction of <i>baseline annual load</i> *

\* *Baseline annual load* refers to the post development pollutant load that would be discharged from the development site over the course of an average year if no management measures are applied.

- b) Management measures which would be appropriate to achieve the performance standards include:-

- iv. Rainwater tanks for on-site reuse;
- v. Porous paving and water-permeable surfaces surrounding buildings;
- vi. Stormwater infiltration pits or systems;
- vii. Grassed swales, and;
- viii. Bioretention systems that collect and filter surface flows.

## Stormwater Conveyance

This section of the report discusses the systems proposed to allow for stormwater to be conveyed across the site to the legal point of discharge.

7.2.3 Hunters Hill Council have set serviceability requirements for the stormwater conveyance network such that minor flows are conveyed through piped drainage, and major flows are discharged via controlled overland flow. The following design storm Average Recurrence Interval should be allowed for when designing the stormwater runoff conveyance systems for the development.

Design Parameter	Annual Exceedance Probability (AEP %)	Conveyance Method
Minor Drainage System	5% AEP	In-Ground (Piped)
Major Drainage System	1% AEP	Overland

### Roof Drainage

The gutter and downpipe drainage system shall be designed in accordance with AS3500.3-2021.

### Surface Drainage

The surface areas should be drained through a variety of methods, in accordance with AS3500.3:2021 and Council's stormwater drainage guidelines.

The in-ground drainage shall be designed to meet the following criteria:-

- In the minor design storm event (5% AEP), there will be no surcharging of the in-ground drainage system and;
- 7.2.4 In the major design storm event (1% AEP), there will be no uncontrolled discharge from the site onto neighbouring properties or the surrounding street

## Stormwater Attenuation

The attenuation of stormwater discharge from the site must be provided in accordance with Hunters Hill Consolidated DCP 2013.

Council encourages the use of computer models by Professional Civil Engineers for drainage design. Data input and output files of any program used shall be submitted in electronic format to Council. For example, DRAINS, which can be used to determine the required on-site detention so as to restrict discharge from the development site back to the prescribed rates to achieve the specified water balance and flood mitigation detention on site. The size and performance of detention will need to be assessed through DRAINS modelling within the concept design phase.



# Critical Spatial's

The following section provides a high level requirement for authority spatial's.

## Electrical

- 8. - Kiosk Type Substation.  
Easement of 5,300mm x 3,300mm
- Main Comms Room : 3,000mm x 3,000mm [located in large basement]

8.1

## Hydraulic

- 8.2 - Water meter assembly - 3000mm X 500mm Deep X 1500mm high
- Fire services Booster – Existing to remain pending BCA / Fire Engineering Review
- Fire services pump room – Existing to remain pending BCA / Fire Engineering Review
- Gas boundary connection – Existing to remain

## Civil and Stormwater

8.3

- In-ground approximately **250m<sup>3</sup> (for overall site) OSD tank** to detain stormwater on-site to the rates prescribed in Section 7.2.1 towards the downstream end of the site;
- Above ground bioretention basin/landscaped swale for water quality – expected **150m<sup>2</sup>** in plan. Likely to also require filter cartridges within the OSD tank, and;
- In-ground stormwater network connecting to existing Council stormwater in High Street and Barons Crescent. Approx. 350m stormwater pipe, average 375mm diameter to be allowed in preliminary costings.





## Appendix A – Sydney Water Daily Usage

9.



Water Supply Code of Australia



MWH/PB Flow Study Report



Water usage survey



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 metre	2.36
	High Rise Units	Net floor area	Square metre	3.34
	Single Lot Community	Dwelling	Each dwelling	623.00
Mixed	Residential / Commercial	Combined floor area	Each dwelling / Square metre	Use separate rates for each component
	Commercial / Industrial	Combined floor area	Square metre	Use separate rates for each component
Commercial	Aged Accom - Self Care	Net floor area	Square metre	2.50
	Aged Accom - Hostel	Bed	Each bed	271.00
	Aged Accom - Full Care	Bed	Each bed	271.00
	Childcare	Net floor area	Square metre	3.60
	Hotel / motel / serviced apartments	Room	Each room	359.94
	Office	Net floor area	Square metre	2.27
	Shopping Centre	Net floor area	Square metre	3.00
	Laundry / Dry Cleaner	Net floor area	Square metre	10.50
	Café / Fast Food / Butcher / Deli	Net floor area	Square metre	2.48
	Retail Units	Net floor area	Square metre	2.48
	Medical / Veterinary	Net floor area	Square metre	2.48
	Mechanical Repair	Net floor area	Square metre	2.48
	Car / Boat Sales	Net floor area	Square metre	2.48
	Car Wash	Net floor area	Square metre	9.40
	Club	Net floor area	Square metre	3.77
Industrial	Heavy Process	As required		
	Chemical Manufacturing	As required		





# Appendix B – Maximum Demand Calculations [Electrical]

10

MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : <b>Building A</b>							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	31
						Number of Units per Phase	11
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	7.75	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load	No assessment for purpose				
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	56.25	
Bii	Where the electrical installation includes	10A				0	
Biii	Where the electrical installation includes	15A				15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		30.8	
D	Fixed space heating or airconditioning	75% of connected load				82.5	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit	100A + 0.8A per unit		0	
F	Storage water heaters	33.3% of connected load	6A per living Unit	100A + 0.8A per unit		0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<b>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</b>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A	2A per point, up to maximum of 15A				
Ji	Appliances rated at more than 10 A and	N/A	50% of connected load				
Jii	Fixed space heating, airconditioning	N/A	50% of connected load			0	
Jiii	Spa and swimming pool heaters	N/A	75% of largest spa plus 75% of largest swimming pool, plus 25% of				
K	Lifts	Largest lift motor : 125%, next largest lift : 75%, Remaining lift motors : 50%				20	
L	Motors	Largest motor : 125%, next motor : 75%, Remaining motors : 50%					
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						<b>TOTAL LOAD IN AMPS</b>	<b>218</b>
						<b>TOTAL LOAD IN KVA</b>	<b>151</b>

MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : <b>Building B</b>							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	31
						Number of Units per Phase	11
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	7.75	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load	No assessment for purpose				
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	56.25	
Bii	Where the electrical installation includes	10A				0	
Biii	Where the electrical installation includes	15A				15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		30.8	
D	Fixed space heating or airconditioning	75% of connected load				82.5	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit	100A + 0.8A per unit		0	
F	Storage water heaters	33.3% of connected load	6A per living Unit	100A + 0.8A per unit		0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<b>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</b>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A	2A per point, up to maximum of 15A				
Ji	Appliances rated at more than 10 A and	N/A	50% of connected load				
Jii	Fixed space heating, airconditioning	N/A	50% of connected load			0	
Jiii	Spa and swimming pool heaters	N/A	75% of largest spa plus 75% of largest swimming pool, plus 25% of				
K	Lifts	Largest lift motor : 125%, next largest lift : 75%, Remaining lift motors : 50%				20	
L	Motors	Largest motor : 125%, next motor : 75%, Remaining motors : 50%					
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						<b>TOTAL LOAD IN AMPS</b>	<b>218</b>
						<b>TOTAL LOAD IN KVA</b>	<b>151</b>



MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : <b>Building C</b>							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	30
						Number of Units per Phase	10
	1	2	3	4	5		
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	7.5	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load		No assessment for purpose			
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	52.5	
Bii	Where the electrical installation includes		10A			0	
Biii	Where the electrical installation includes		15A			15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		28	
D	Fixed space heating or airconditioning		75% of connected load			75	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<b>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</b>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A		2A per point, up to maximum of 15A			
Ji	Appliances rated at more than 10 A and	N/A		50% of connected load			
Jii	Fixed space heating, airconditioning	N/A		50% of connected load		0	
Jiii	Spa and swimming pool heaters	N/A		75% of largest spa plus 75% of largest swimming pool, plus 25% of			
K	Lifts			Largest lift motor : 125%, nest largest lift : 75%, Remaining lift motors : 50%		20	
L	Motors			Largest motor : 125%, next motor : 75%, Remaining motors : 50%			
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						<b>TOTAL LOAD IN AMPS</b>	<b>203</b>
						<b>TOTAL LOAD IN KVA</b>	<b>141</b>

MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : <b>Building D</b>							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	19
						Number of Units per Phase	7
	1	2	3	4	5		
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	6.75	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load		No assessment for purpose			
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	41.25	
Bii	Where the electrical installation includes		10A			0	
Biii	Where the electrical installation includes		15A			15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		19.6	
D	Fixed space heating or airconditioning		75% of connected load			52.5	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<b>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</b>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A		2A per point, up to maximum of 15A			
Ji	Appliances rated at more than 10 A and	N/A		50% of connected load			
Jii	Fixed space heating, airconditioning	N/A		50% of connected load		0	
Jiii	Spa and swimming pool heaters	N/A		75% of largest spa plus 75% of largest swimming pool, plus 25% of			
K	Lifts			Largest lift motor : 125%, nest largest lift : 75%, Remaining lift motors : 50%		20	
L	Motors			Largest motor : 125%, next motor : 75%, Remaining motors : 50%			
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						<b>TOTAL LOAD IN AMPS</b>	<b>161</b>
						<b>TOTAL LOAD IN KVA</b>	<b>112</b>

MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : <b>GAZA Street, G1</b>							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	8
						Number of Units per Phase	3
	1	2	3	4	5		
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	5.75	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load		No assessment for purpose			
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	25	
Bii	Where the electrical installation includes		10A			0	
Biii	Where the electrical installation includes		15A			15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		15	
D	Fixed space heating or airconditioning		75% of connected load			22.5	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<b>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</b>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A		2A per point, up to maximum of 15A			
Ji	Appliances rated at more than 10 A and	N/A		50% of connected load			
Jii	Fixed space heating, airconditioning	N/A		50% of connected load		0	
Jiii	Spa and swimming pool heaters	N/A		75% of largest spa plus 75% of largest swimming pool, plus 25% of			
K	Lifts			Largest lift motor : 125%, nest largest lift : 75%, Remaining lift motors : 50%		20	
L	Motors			Largest motor : 125%, next motor : 75%, Remaining motors : 50%			
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						<b>TOTAL LOAD IN AMPS</b>	<b>109</b>
						<b>TOTAL LOAD IN KVA</b>	<b>76</b>



MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : GAZA Street G2							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	6
						Number of Units per Phase	2
1	2	3	4	5			
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	6	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load		No assessment for purpose			
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	20	
Bii	Where the electrical installation includes		10A			0	
Biii	Where the electrical installation includes		15A			15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		15	
D	Fixed space heating or airconditioning		75% of connected load			15	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<i>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</i>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A		2A per point, up to maximum of 15A			
Ji	Appliances rated at more than 10 A and	N/A		50% of connected load			
Jii	Fixed space heating, airconditioning	N/A		50% of connected load		0	
Jiii	Spa and swimming pool heaters	N/A		75% of largest spa plus 75% of largest swimming pool, plus 25% of			
K	Lifts			Largest lift motor : 125%, next largest lift : 75%, Remaining lift motors : 50%		20	
L	Motors			Largest motor : 125%, next motor : 75%, Remaining motors : 50%			
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						TOTAL LOAD IN AMPS	96
						TOTAL LOAD IN KVA	67

MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : GAZA Street G3							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	4
						Number of Units per Phase	2
1	2	3	4	5			
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	6	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load		No assessment for purpose			
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	20	
Bii	Where the electrical installation includes		10A			0	
Biii	Where the electrical installation includes		15A			15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		15	
D	Fixed space heating or airconditioning		75% of connected load			15	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<i>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</i>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A		2A per point, up to maximum of 15A			
Ji	Appliances rated at more than 10 A and	N/A		50% of connected load			
Jii	Fixed space heating, airconditioning	N/A		50% of connected load		0	
Jiii	Spa and swimming pool heaters	N/A		75% of largest spa plus 75% of largest swimming pool, plus 25% of			
K	Lifts			Largest lift motor : 125%, next largest lift : 75%, Remaining lift motors : 50%		20	
L	Motors			Largest motor : 125%, next motor : 75%, Remaining motors : 50%			
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						TOTAL LOAD IN AMPS	96
						TOTAL LOAD IN KVA	67

MAXIMUM DEMAND CALCULATION						DATE	1-Sep-22
PROJECT NO 301350959 - 120 High Street : GAZA Street G4							
AS/NZS 3000:2018 Wiring Rules Appendix C1							
TABLE C1						Number of Units	4
						Number of Units per Phase	2
1	2	3	4	5			
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per	6 to 20 Units per	21 or more Units per	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional	6A	5A + 0.25 per unit	0.5 per unit	6	
Aii	Outdoor lighting exceeding a total of 1000 W	75% of connected Load		No assessment for purpose			
Bi	Socket-outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional	10A + 5A per living unit	15A + 3.75A per living	50A + 1.9A per living	20	
Bii	Where the electrical installation includes		10A			0	
Biii	Where the electrical installation includes		15A			15	
C	Ranges, cooking appliances, laundry	50% of connected load	15A	2.8A per living Unit		15	
D	Fixed space heating or airconditioning		75% of connected load			15	
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
G	Spa and swimming pool heaters	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder					
<i>Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc)</i>							
H	Communal lighting	N/A		Full connected load		5	
I	Socket-outlets not included in groups J and M	N/A		2A per point, up to maximum of 15A			
Ji	Appliances rated at more than 10 A and	N/A		50% of connected load			
Jii	Fixed space heating, airconditioning	N/A		50% of connected load		0	
Jiii	Spa and swimming pool heaters	N/A		75% of largest spa plus 75% of largest swimming pool, plus 25% of			
K	Lifts			Largest lift motor : 125%, next largest lift : 75%, Remaining lift motors : 50%		20	
L	Motors			Largest motor : 125%, next motor : 75%, Remaining motors : 50%			
M	Appliances, including socket-outlets other than	Connected load 10A or less : no assessment ;	Connected load 10A or less : no assessment ;	Connected load over			
						TOTAL LOAD IN AMPS	96
						TOTAL LOAD IN KVA	67



MAXIMUM DEMAND CALCULATION				DATE		1-Sep-22	
PROJECT NO		301350959 - 120 High Street : <b>Basement Parking</b>					
AS/NZS 3000:2018		Wiring Rules		Appendix C1			
TABLE C1							
		1		2			
LOAD GROUP	DESCRIPTION	Area					LOAD [A]
1	Basement Car Parking	8947m2 @ 25VA/m2					323
TOTAL LOAD IN AMPS						323	
TOTAL LOAD IN KVA						223,675	
* Allowance for EV Charging							

Design with  
community in mind