

378-390 Pacific Highway, Crows Nest Services Infrastructure Report

Prepared for: Futuro No 1 Pty Ltd

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Date: 26/08/2021

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Revision

| Revision | Date | Comment | Prepared By | Approved By |
|----------|----------|---|-------------|-------------|
| A | 03.06.21 | Issued to Client | ALM | ALM |
| B | 13.08.21 | Final Issue incorporating comments | ALM | ALM |
| C | 24.08.21 | Final Issue incorporating architectural updates | ALM | ALM |
| D | 26.08.21 | Final Issue | ALM | ALM |
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1. Introduction

The purpose of this report is to provide Futuro No 1 Pty Ltd with information on the current provision and condition of the existing public utilities and likely authority requirements to support the new development. 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:

- 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)



2. Site Information

The site is located at 378-390 Pacific Highway, Crows Nest and has a site area of approximately 1,314m².

The site is currently developed with 3 story commercial properties.

The image below indicates the location of the site.

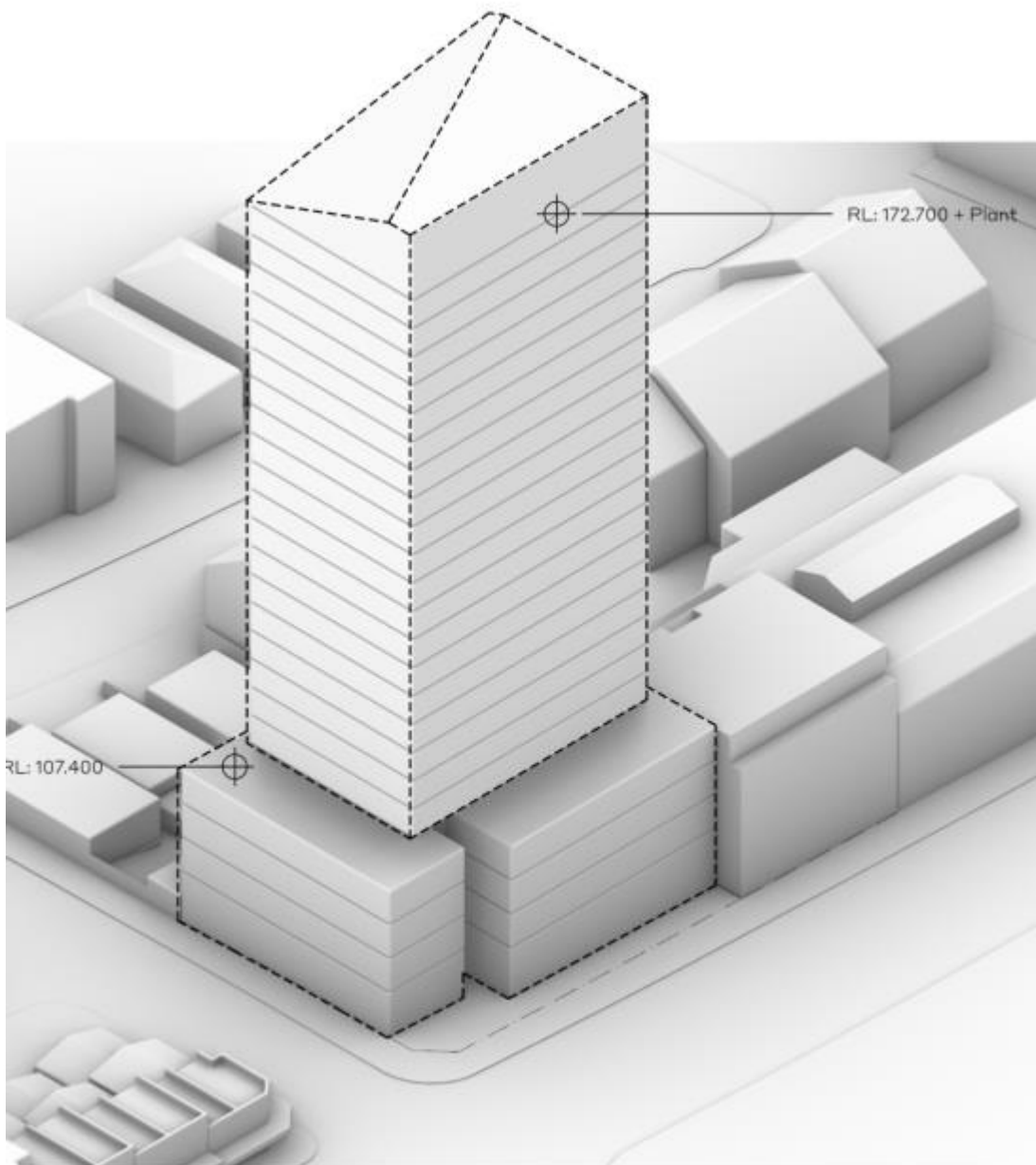


3. Proposed Development

The proposed development is located at 378-390 Pacific Highway, with a proposed 4 levels of podium area/ mixed use and 20 levels of residential use.

The Podium levels excluding basement car parking is approximately 2,618m² GFA

The residential yield is approximately 104 apartments.



4. Infrastructure Cost Estimates

Approximate cost estimate:

| Services Description | Estimate |
|---|---------------------|
| Water connection | \$20,000 |
| Gas Connection | \$20,000 |
| Sewer Connection | \$10,000 |
| Minor sewer works to demolish Existing authority Main | \$40,000 |
| Mini Chamber Substation | \$300,000 |
| New Carrier Lead-ins | \$36,000 |
| Total | \$426,000.00 |

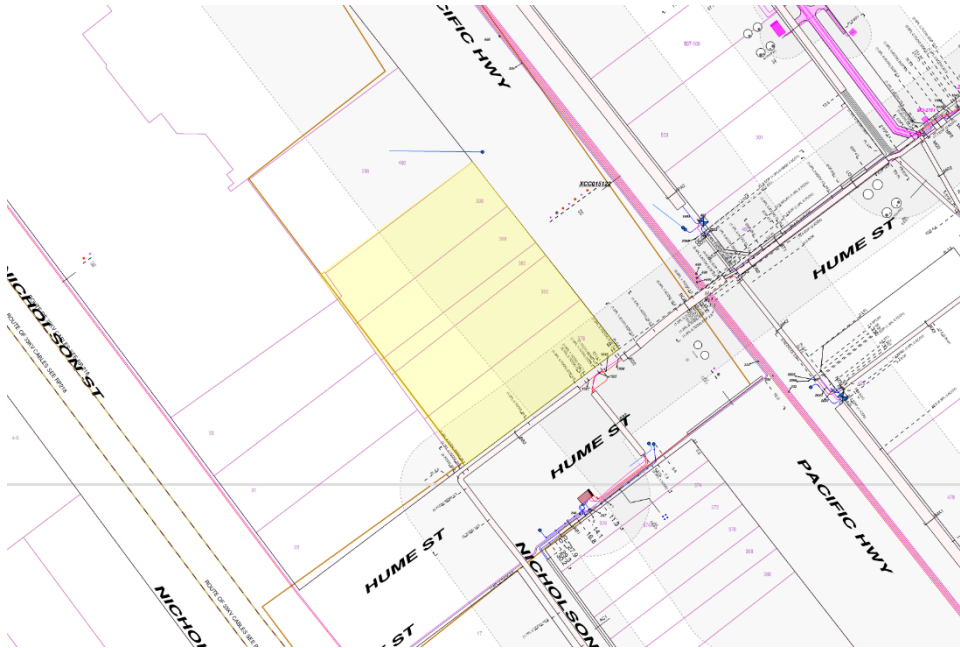


5. Electrical Services

5.1 High Voltage Network

5.1.1 Existing Supply Authority Network

The Supply Authority for the area is Ausgrid.



Ausgrid assets in vicinity of the Site

It is noted that there are no substations on the site. The site is currently supplied from the Ausgrid LV street network which is shared with other customers. It is noted that the existing overhead street services are located on opposite side of the road and no undergrounding of overhead services is required.



Street View: Corner of Hume Street and Pacific Highway



5.2 Calculated Maximum Demand

The calculated maximum demand for the proposed development is 778kVA (1,124 Amps/phase). A breakdown of the demand is depicted below:

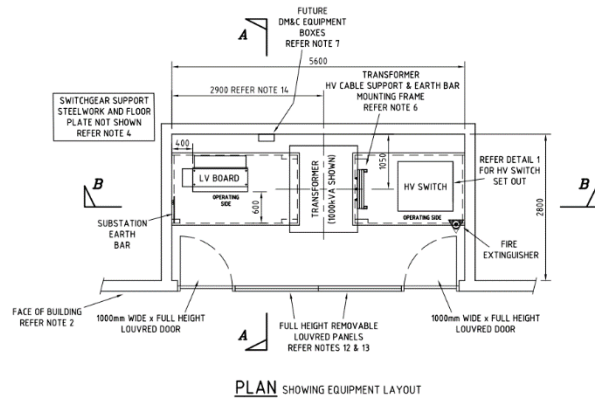
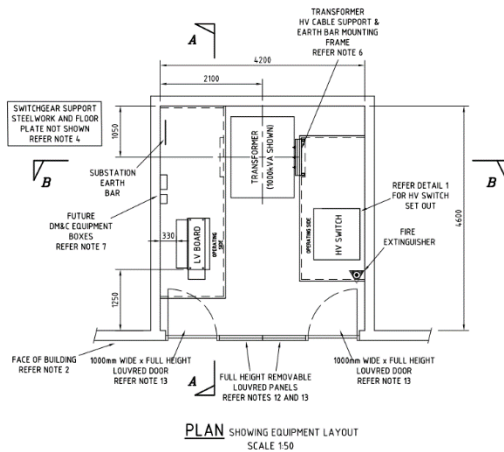
| MAXIMUM DEMAND CALCULATION | | DATE | | 26.08.2021 | | |
|--|--|--|--|----------------------------|----------------------------|--------|
| PROJECT NO | 378-390 Pacific Highway, Crows Nest | | | | | |
| AS/NZS 3000:2007 | Wiring Rules | Appendix C1 | | | | |
| TABLE C1 | | | | Total Number of Units | 104 | |
| | | | | Number of Units per Phase | 35 | |
| | 1 | 2 | 3 | 4 | 5 | |
| LOAD GROUP | DESCRIPTION | Single Domestic electrical installation | 2 to 5 Units per Phase | 6 to 20 Units per Phase | 21 or more Units per Phase | LOAD |
| Ai | Lighting | 3A for 1 to 20 points + 2A for each additional 20 points or part thereof | 6A | 5A + 0.25 per unit | 0.5 per unit | 17.5 |
| Aii | Outdoor lighting | 75% of connected Load | No assessment for purpose | | | 0 |
| Bi | Socket Outlets not exceeding 10A | 10A for 1 to 20 points + 5A for each additional 20 points or part thereof | 10A + 5A per living unit | 15A +3.75A per living unit | 50A + 1.9A per living unit | 116.5 |
| Bii | Socket Outlets not exceeding 10A (SSO above 2.3m, perm installed heatering or combination SSO) in Buildings with Permanent heating/cooling | 10A | | | | 10 |
| Biii | Socket Outlets exceeding 10A (SSO above 2.3m or combination) | 15A | | | | 15 |
| C | Appliances for cooking, instant water heaters, heating and cooling | 50% of connected load | 15A | 2.8A per living Unit | | 98 |
| D | Fixed space heating or air conditioning equipment, saunas or socket outlets rated at more than 10% | 75% of connected load | | | | 262.5 |
| 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 | Swimming Pools, Spas | 75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder | | | | 10 |
| Loading not associated with individual units - connected to each phase (communal lighting, laundry, lifts, motors etc) | | | | | | |
| H | Communal Lighting | N/A | Full connected load | | | 10 |
| I | Socket outlets not included in groups J and M below. Permanently connected electrical equipment not exceeding 10A | N/A | 2A per point, up to maximum of 15A | | | 0 |
| Ji | Appliances rated at more than 10A : Clothes dryers, water heaters, self heating washing machines | N/A | 50% of connected load | | | 0 |
| Jii | Appliances rated at more than 10A : Fixed space heating, air conditioners | N/A | 50% of connected load | | | 0 |
| Jiii | Appliances rated at more than 10A : Spa and swimming pool heaters | N/A | 75% of largest spa plus 75% of largest swimming pool, plus 25% of remainder | | | 10 |
| K | Lifts | Largest lift motor : 125%, nest largest lift : 75%, Remaining lift motors : 50% | | | | 100 |
| L | Motors | Largest motor : 125%, next motor : 75%, Remaining motors : 50% | | | | 0 |
| M | Appliances, including socket outlets other than those set out in groups A to L above | Connected load 10A or less : no assessment ; Connected load over 10A : By assessment | Connected load 10A or less : no assessment ; Connected load over 10A : By assessment | | | 0 |
| Other | Basement Levels | 3000m2 x 10VA/m2 + EV Charging | | | | 225 |
| | | Commercial/Retail | | | | 250 |
| Other | | | | | | 0 |
| TOTAL | | | | | | 1124.5 |

5.3 Proposed Supply Arrangement to new Development

Based on the load calculation it will be necessary to provide a substation to the 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)





3. Basement chamber
 - High capital cost and footprint, unlikely for this development

5.4 Street Lighting

It is unlikely any changes to the existing street lighting would be required.

5.5 Telecommunications

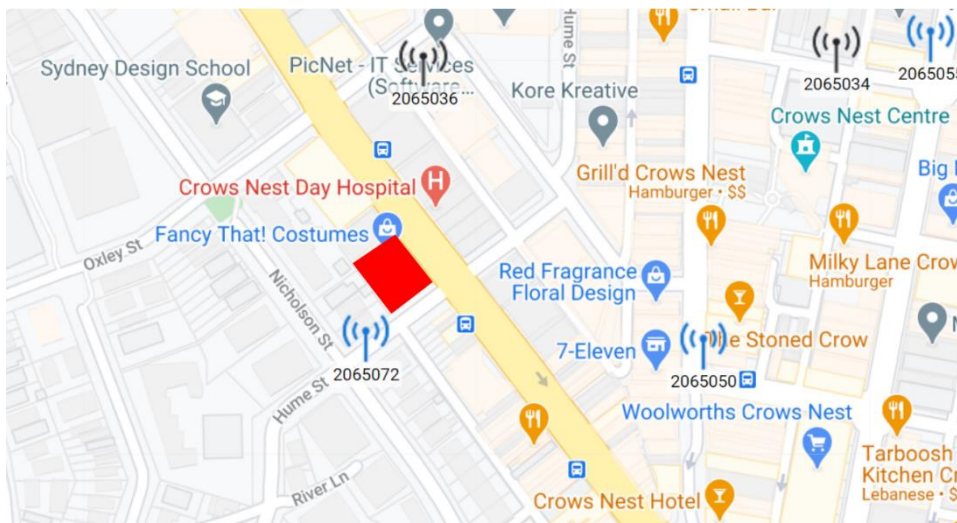
5.5.1 General

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

From the available information, No Carrier diversions are required.

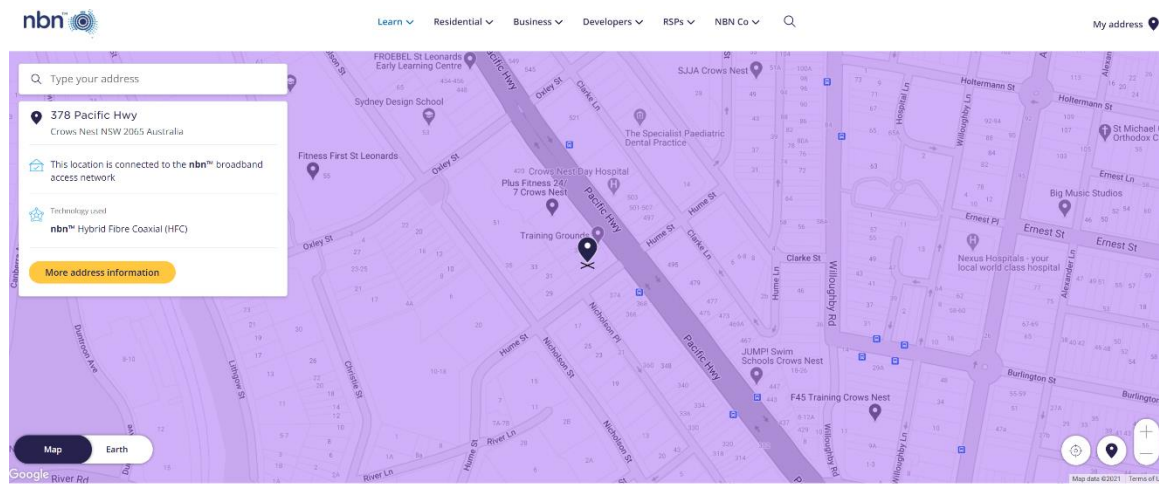
5.5.2 Carrier Mobile Base Stations

It is noted that there are no carrier mobile base stations located on the site.



5.5.3 Existing Carrier Service Infrastructure

NBN

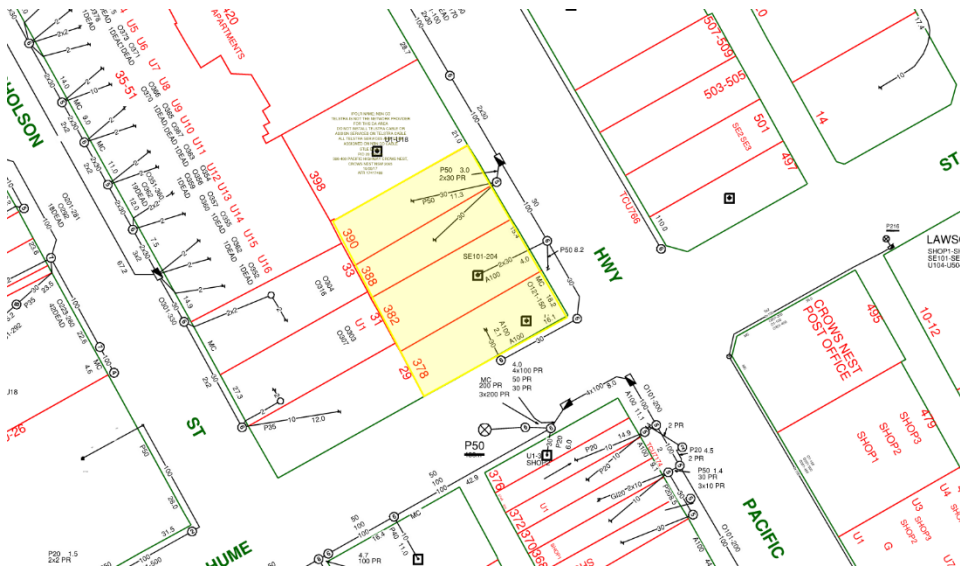


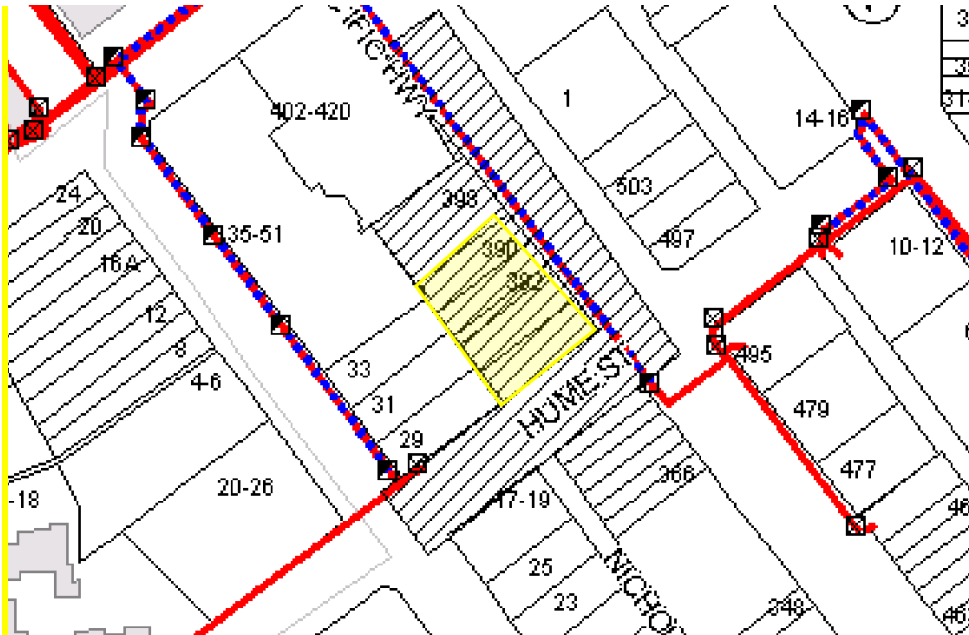
Important information: While most premises in the purple "Service available area" can connect to services over the nbn™ network, some premises may require additional work to be completed first. On rare occasions, some premises cannot be connected. Check your address above and contact a provider to find out if the nbn™ network is available at your home or business.

Map options

☒ Rollout status ☐ Service available area ☐ Build commenced area ☐ Other fibre provider area

TELSTRA





6. Hydraulic Services

The following section provides infrastructure guidance for the following hydraulic services:

- Sewer
- Water Supply
- Gas Supply

Note that all infrastructure options and capacities are based on experience and other similar projects, however at no point have any utility providers been contacted or have they assessed the recommendations in this report. This is subject to change following development of the design and further stakeholder engagement.

6.1 Sewer Services Review

The proposed development site has a frontage and rear access to a 225mm sewer, we would envisage this site will connect to the existing services.

Based on the proposed works being circa 130 apartments there are no upgrades deemed necessary. There will be minor sewer works to demolish the existing sewer line at the rear of the property.



6.2 Water Services Review

The site has access to mains in Pacific Highway & Hume Street, there is a 100mm main in Pacific Highway and a 150mm Main in Hume Street. The main to connect to will ideally be the 150mm Main in Hume Street, water flow testing has not been conducted on this main, however review of the Sydney water assets and connections currently shown it appears that other adjacent buildings are connecting to this main with their fire services, the main is envisaged to have sufficient capacity.

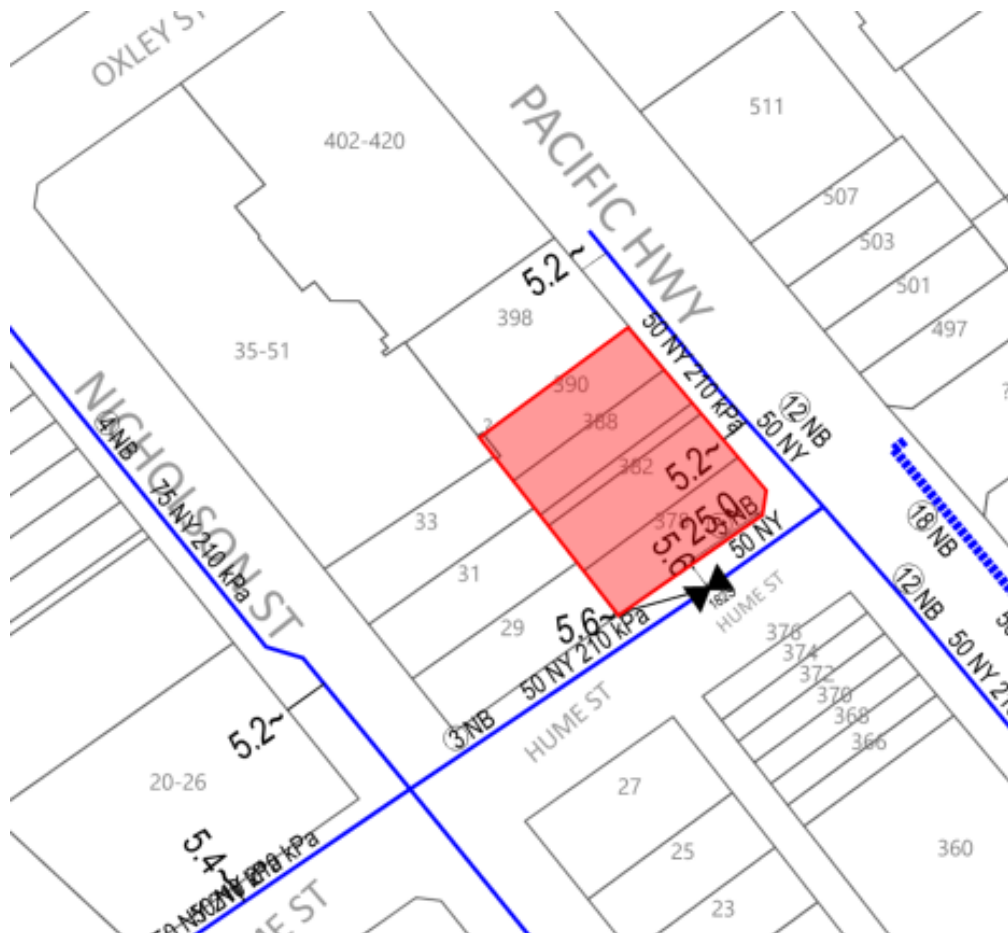


6.3 GAS Services Review

The proposed development gas load consists of both commercial purposes. The allowances for gas would include the following:

- Gas cooking for commercial and retail use
- Gas hot water heating for commercial & retail.

Based on our experience we would anticipate the potential gas load to be circa 14,000MJ/hr. This is considered to be a small to medium load and could be serviced by the 50mm 210kPa main within Pacific Hwy or Hume Street.



7. Critical Spatial

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

7.1 Electrical

- 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)
- Main Comms Room : 3,000mm x 3,000mm

7.2 Hydraulic

- Water meter assembly - 2000mm X 500mm Deep X 1500mm high
- Fire services Booster – 4000mm X 800mm deep 2000mm high.
- Fire services pump room – 6X6m accesses via fire isolated stairs.
- Fire services tank – min 80m3 capacity – (effective) 6x6x3m (next to fire pump room)
- Gas boundary connection – 2.5m X 1200 deep. X 1.8m h.
- Fire control room – 2.5X 2.5m at front entry



Design with
community in mind