Traffic Impact Assessment

Planning Proposal
33 Herbert Street, St Leonards

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1. Introduction

TRAFFIX has been commissioned by Aqualand St Leonard Development Pty Ltd to undertake a traffic impact assessment of the development potential arising from a planning proposal for 33 Herbert Street, St Leonards. The site is located within the City of Willoughby local government area and is subject to that Council's controls.

Approval is sought to rezone the subject site under the *Willoughby Local Environmental Plan 2012* to allow for permissible uses including, but not limited to, high density residential, commercial, retail and child care centre uses.

This report documents the findings of our investigations and should be read in the context of the Planning Proposal submission, prepared separately by Francis-Jones Morehen Thorp. The proposal relates to development potential for residential and commercial uses not exceeding a threshold of 300 apartments or 10,000m^2 GFA of commercial space. It will thereby not require formal referral to the Roads and Maritime Services (RMS) under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the planning proposal and indicative development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Presents the overall study conclusions.

2. Location and Site

2.1 Location

The site is located at 33 Herbert Street in St Leonards, approximately 45 metres south of Ella Street and approximately 400 metres north of St Leonards Railway Station. It is legally described as Lot 3 in DP772072, Lot 1 in DP744175 and Lot 2 in DP744175.

The site roughly has a rectangular shaped configuration with a site area of 3,653.26m^2. It has a western frontage to Herbert Street that measures approximately 89 metres whilst the remainder of site shares a border with: a bulky goods development to the north that measures approximately 46.0 metres, a railway corridor to the east that measures approximately 101 metres and a residential flat building development to the south that measures approximately 38 metres.

A separate entry-exit driveway on Herbert Street provides the sole vehicular access to the site.

The subject site is zoned as *'Light Industrial IN2'* under the *Willoughby Local Environmental Plan 2012* and is permitted a maximum floor space ratio of 1:1. The site is also identified as being within a *'Railway Precinct Area'*, defined by the *Willoughby Development Control Plan* as developments situated within 500 metres from a railway station or major public transport corridor.

Reference should be made to the Photographic Record presented in **Appendix A**, which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is discussed below, highlighting roads of particular interest:

- Pacific Highway: an RMS highway (HW10) that generally runs in a north-south direction between the Queensland Border at Cobaki Lakes in the north and the Warringah Freeway at North Sydney to the south. In the vicinity of the site, it carries approximately 61,000 vehicles per day (2012 AADT) and has a posted speed limit of 60 km/h. Generally across St Leonards, the Pacific Highway accommodates three lanes of traffic in either direction within a divided carriageway.

- Herbert Street: a local road that runs in a north-south direction between Punch Street in the north and the Pacific Highway to the south. It carries approximately 16,500 vehicles per day (2008 AADT) and has a posted speed limit of 50 km/h. Herbert Street generally accommodates a single lane of traffic in either direction within an undivided carriageway.

- Frederick Street: a local road that runs in an east-west direction between Herbert Street in the north and Reserve Road in the west. It generally accommodates a single lane of traffic within an undivided carriageway and has a 50 km/h speed zoning.

3.2 Public Transport

The public transport services operating within the vicinity of the site are shown in **Figure 1**. It is evident that the site is within 400 metres from St Leonards Railway Station, which lies on the T1 North Shore, Northern and Western Line. Rail services to the City from St Leonards Railway Station depart every three minutes during morning peak periods and every three to six minutes during evening peak periods.

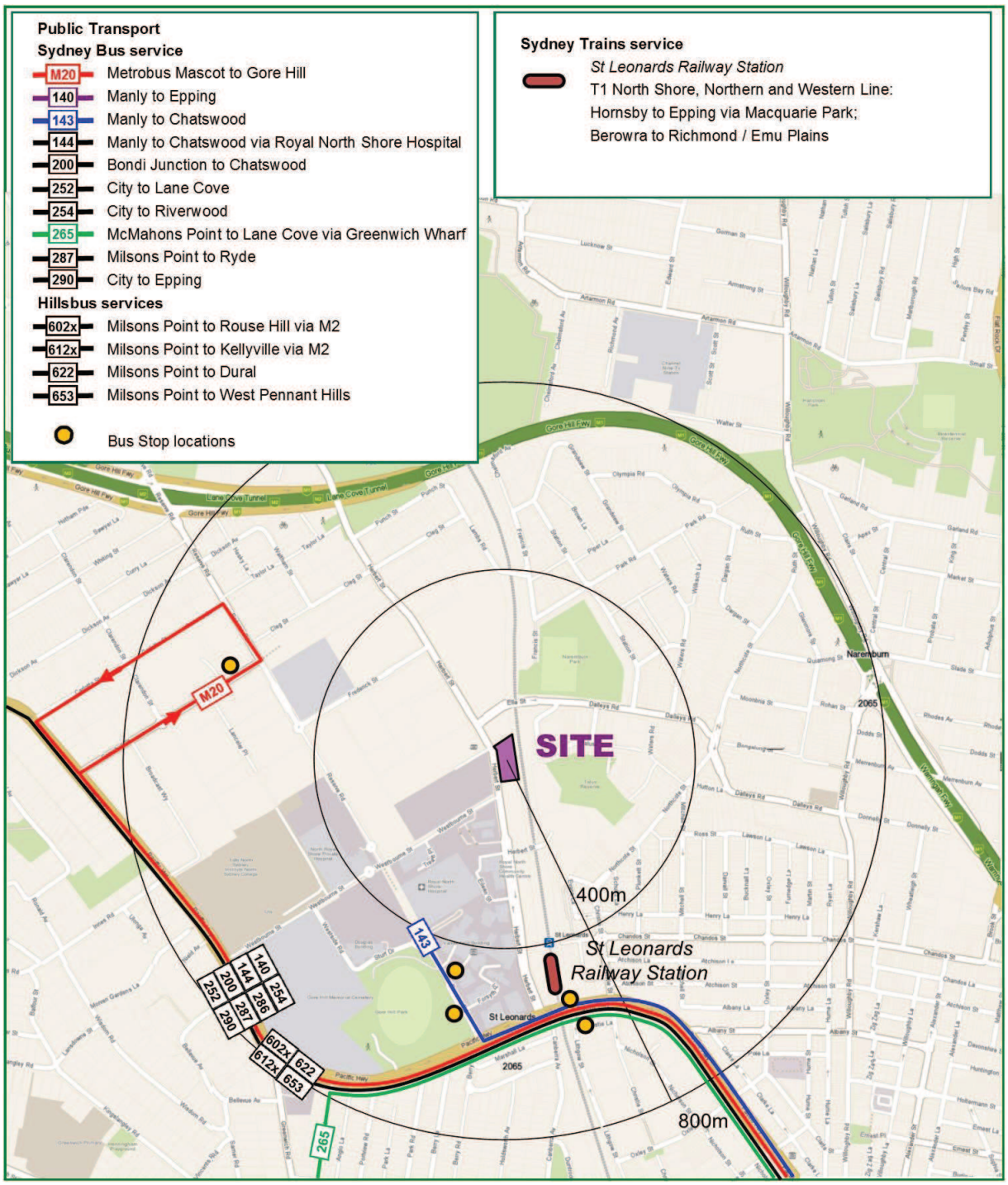


Figure 1: Existing Public Transport Routes

3.3 Existing Site Generation

The existing development on-site consists of a three storey building containing approximately 6,000m^2 gross floor area (GFA) of commercial space, with two levels of basement car parking that accommodate 163 parking spaces. The RMS *Technical Direction TDT 2013//04a* provides traffic generation rates for commercial developments in Sydney based upon data collected in 2010. It recommends an average peak hourly trip generation rate of 1.6 vehicle trips per 100m^2 GFA during the AM peak period and 1.2 vehicle trips per 100m^2 GFA during the PM peak period. Application of the above rates to the existing commercial development on-site results in the following estimation of the approved traffic generation for the site:

- 96 vehicle trips per hour during the AM Peak (77 in 19 out); and
- 72 vehicle trips per hour during the PM Peak. (14 in, 58 out).

4. Description of Proposal

A detailed description of the planning controls sought for the site can be found in the planning proposal, prepared separately. In summary, the planning proposal seeks to rezone the site to allow for high density residential, commercial, retail and child care centre uses, in addition to changes to the permissible building height and floor space ratio.

It is understood that adoption of these planning controls will allow for a mixed-use development to be permissible on-site, comprising of residential, commercial, retail and child care uses. As such, the following indicative development is envisaged for the site which comprises of two buildings with common ground and basement levels:

- A residential component containing a total of 245 apartments (including affordable housing dwellings), consisting of:
  - 27 x one bedroom apartments (6 apartments dedicated for affordable housing);
  - 52 x one bedroom plus study apartments (8 apartments dedicated for affordable housing);
  - 142 x two bedroom apartments (3 apartments dedicated for affordable housing); and
  - 24 x three bedroom apartments;
- A ground floor retail component containing 562.3m^2 GFA;
- Three levels of commercial space containing a total of 2,728.3m^2 GFA;
- A child care centre with capacity for 30 placements;
- Provision of up to five levels of basement car parking with a total of 371 parking spaces; and
- Provision of a new Herbert Street vehicle access adjacent to the southern boundary of the site.

This indicative development has formed the basis for assessing the parking requirements and traffic impacts associated with the planning controls sought in this planning proposal, and are discussed in Sections 5 and 6, respectively. Reference should also be made to the plans submitted separately to Council which are presented in **Appendix B**.

5. Parking Requirements

5.1 Car Parking

The *Willoughby Development Control Plan* requires car parking for high density residential, commercial, retail and child care centre uses to be provided in accordance with the parking rates shown in **Table 1**, noting that specific rates apply for residential flat buildings and office uses within *Railway Precincts*. The indicative development also includes affordable housing, to which parking rates from *State Environmental Planning Policy (Affordable Rental Housing) 2009* have been adopted for this use.

Table 1: Car Parking Rates and Provision

Type	No. / GFA	Parking Rate	Spaces Required[4]	Spaces Provided
Residential[1,3]				**371**
1 Bedroom	21	1 space per dwelling	291	
1 Bedroom + Study	44			
2 Bedroom	139			
3 Bedroom	24	1.25 spaces per dwelling		
Visitor	228	1 space per 4 dwellings		
Affordable Housing[2]				
1 Bedroom	6	0.5 spaces per dwelling	10	
1 Bedroom + Study	8			
2 Bedroom	3	1 space per dwelling		
Retail[1]	562.3m^2	1 space per 25m^2	22.4	
Office[1,3]	2,728.3m^2	1 space[2] per 110m^2	24.8	
Child Care Centre[1]	30	1 space per 2 employees	2	
		Total	**350**	**371**

[1] Parking rates applicable from *Willoughby Development Control Plan*.
[2] Parking rates applicable from *State Environmental Planning Policy (Affordable Rental Housing) 2009*.
[3] Parking rates for developments situated in Railway Precincts or Major Public Transport Corridors.
[4] Parking spaces rounded down to nearest whole number in accordance with Willoughby Development Control Plan.

It can be seen that the indicative development envisaged under this planning proposal would be required to provide a total of 350 parking spaces. In response, it is understood that up to five basement levels can be constructed, in which case would accommodate 371 car parking spaces. This indicates that the site is sufficiently large enough in area to accommodate the required number parking spaces needed to permit a development of this size. It also suggests that pick up and drop off demands of the child care centre may be accommodated on-site with no reliance on on-street parking. On this basis, the indicative development is capable of complying with the car parking controls set out by the DCP.

5.2 Disabled Parking

With respect to residential flat buildings, the DCP requires 50% of apartments to be adaptable when the development exceeds three storeys. This equates to 123 adaptable apartments in the case of the indicative development.

The DCP requires accessible parking to be provided in proportion to the number of adaptable housing dwellings as shown by the following distribution in **Table 3**.

Table 3: Accessible Parking Requirements

Number of Adaptable Housing Dwellings	No. of Adaptable Car Spaces
1-4	1
5-9	2
10-14	3
15-19	4
(etc)	

When following the distribution as shown in Table 3, the indicative development will need to provide 25 accessible parking spaces for residential use.

With respect to the office, retail and child care components of the indicative development, the DCP issues accessible parking rates for Class 5, 6 and 9b buildings, as defined within the *Disability (Access to Premises – Buildings) Standards 2010*. Accessible parking for these classes of buildings must be provided in parking areas with 5 or more spaces, where the greater of the following must be provided:

- 1 accessible space; or
- 3% of the total car parking spaces

Application of the above rates results in the commercial and retail components of the indicative development requiring a single space each to be designed as an accessible space, whilst the number of regular car parking spaces for the child care centre does not meet the threshold to provide accessible parking.

The indicative development will thus require a total of 27 accessible parking spaces in order to comply with the DCP. This can be confirmed once detailed design of the basement car park has been undertaken during a subsequent development application stage.

5.3 Motorcycle Parking

The DCP requires motorcycle parking for all development types to be provided at a rate of 1 space per 25 car parking spaces. Accordingly, whilst plans for the indicative development do not yet show any areas for motorcycle parking, a subsequent development application will need to demonstrate provision for 14 motorcycle parking spaces, based on the car parking requirement for 350 parking spaces.

5.4 Bicycle Parking

The DCP requires bicycle parking for the respective uses of the indicative development to be provided in accordance with the following rates:

- 1 bicycle parking space per 10 units for residents and 1 bicycle space per 12 units for visitors;
- 1 bicycle parking space per 600m^2 for office staff and 1 bicycle space per 2,500m^2 for visitors; and
- 1 bicycle parking space per 450m^2 for retail staff and 1 bicycle space per 150m^2 for customers.

Accordingly, whilst plans for the indicative development do not yet show areas for bicycle parking facilities, a subsequent development application will need to demonstrate provision for a total of 55 bicycle parking spaces which comprise of 25 residential spaces, 20 residential visitor spaces, 5 commercial staff spaces, 1 commercial visitor space, 1 retail staff space and 4 retail visitor spaces.

5.5 Servicing

Control C4.4 of *Part C – General Development Guidelines* from the *Willoughby Development Control Plan* states that the size and number of loading bays for commercial and retail developments is to be determined by Council whilst provision must be made for removalist vans to park, load and unload on site for all residential developments in excess of 12 units. As such, this is a matter for a subsequent development assessment stage.

Nonetheless the plans for the indicative development reveal an area on the ground floor marked for loading activities suggesting that only minor modifications to the building may be needed to accommodate the nominated design vehicle(s).

6. Traffic Assessment

6.1 Trip Generation

6.1.1 Residential

The RMS *Technical Direction TDT 2013/04a* provides traffic generation rates for high density residential uses based upon surveys conducted during 2012. It recommends an average Sydney trip rate of 0.19 vehicle trips per unit during the AM peak hour and 0.15 vehicle trips per unit during the PM peak hour. Application of the above rates to the 245 residential units envisioned in the indicative development results in the following traffic generation:

- 47 vehicle trips per hour during the AM peak period (9 in, 38 out); and
- 37 vehicle trips per hour during the PM peak period (30 in, 7 out).

6.1.2 Commercial

In adopting the same rates published in the RMS *Technical Direction TDT 2013/04a* which have been used to estimate the traffic generation for the existing commercial development on-site, the commercial component of the indicative development is expected to generate the following traffic:

- 44 vehicle trips per hour during the AM peak period (35 in, 9 out); and
- 33 vehicle trips per hour during the PM peak period (7 in, 26 out).

6.1.3 Retail

The RMS *Guide to Traffic Generating Developments* provides traffic generation rates for secondary retail developments, which it defines as retail stores tending not to be the primary attractor to the development and thus are applicable to the retail component of the indicative development. It recommends a maximum peak hour trip generation rate of 4.6 vehicle trips per 100m^2 GFLA of retail space, occurring during the PM peak period on Thursdays. Whilst no rates are provided for AM peak hourly traffic generation, an equivalent rate has been adopted for the AM peak period, assumed to

represent staff arrivals. Application of the above rates to the retail component of the indicative development, assuming GLFA to be equivalent to GFA, results in the following traffic generation:

- 26 vehicle trips per hour during the AM peak period (13 in, 13 out); and
- 26 vehicle trips per hour during the PM peak period (26 in, 0 out).

6.1.4 Child Care Centre

The RMS *Guide to Traffic Generating Developments* also provides trip generation rates for child care centres. It recommends a trip generation rate of 0.8 vehicle trips per child during the AM peak hourly period and 0.7 vehicle trips per child during the PM peak hourly period. Application of these rates to the child care centre component of the indicative development results in the following traffic generation:

- 24 vehicle trips per hour during the AM peak period (12 in, 12 out); and
- 21 vehicle trips per hour during the PM peak period (11 in, 10 out).

6.1.5 Combined

Having regard for the trip generation rates for the above uses, the indicative mixed use development is expected to generate the following traffic during peak periods:

- 141 vehicle trips per hour during the AM peak period (69 in, 72 out); and
- 117 vehicle trips per hour during the PM peak period (74 in, 43 out).

6.1.6 Net Traffic Impact

The above traffic generation for the indicative development is not expected to be a net increase over existing conditions. When accounting for the existing commercial development on-site, future development permissible under the planning controls sought within the planning proposal is estimated to result in the following net change in traffic generation:

- 45 vehicle trips per hour during the AM peak period (-8 in, 53 out); and

- 45 vehicle trips per hour during the PM peak period (60 in, -15 out).

6.2 Traffic Impacts

It can be seen from the above that the indicative development will generate an additional 45 vehicle trips per hour over existing conditions, during AM and PM peak periods. These volumes equate to an additional vehicle trip being generated every 1 minute and 20 seconds and is considered to result in minimal impacts on the surrounding road network. As the development is not situated in proximity to any signalised intersections, intersection modelling is not considered warranted at this stage. It should also be noted that the trip rates adopted in this analysis do not take into account the excellent access to public transport available within proximity to the site, which is likely to offset traffic generation for residents and employees. In summary, the traffic impacts for the indicative development are considered acceptable.

7. Conclusions

In summary:

- The planning proposal seeks to rezone the subject site to *'High Density Residential R4'* under the *Willoughby Local Environmental Plan 2012*, for which it is currently zoned *'Light Industrial IN2'*. Other changes sought include an increase to permissible building height and floor space ratio controls.

- Upon adoption of the above controls, the proposed changes are anticipated to indicatively allow for a mixed use development containing 245 residential apartments, 562.3m^2 GLFA of retail space and 2,728.3m^2 GFA of commercial space.

- Under the *Willoughby Development Control Plan*, the indicative development is required to provide 350 parking spaces. In response, the indicative development has potential for up to five levels of basement car parking, which would accommodate 371 parking spaces. This suggests that the site is large enough to accommodate all parking demands for the development.

- The traffic generation for the indicative development has been assessed to be a net increase over existing conditions, with 45 additional vehicle trips per hour generated during AM and PM peak periods. This equates to one additional vehicle trip every 1 minute and 20 seconds during peak periods. The traffic impacts are considered acceptable with no intersection modelling considered warranted at this stage.

It is therefore concluded that the proposal is supportable on traffic planning grounds and will operate satisfactorily.

Appendix A

Photographic Record

View looking south on Herbert Street with subject site on left hand side of photograph.

View looking north on Herbert Street with subject site on right-hand side of photograph.

View looking east on Herbert Street of existing subject site access.

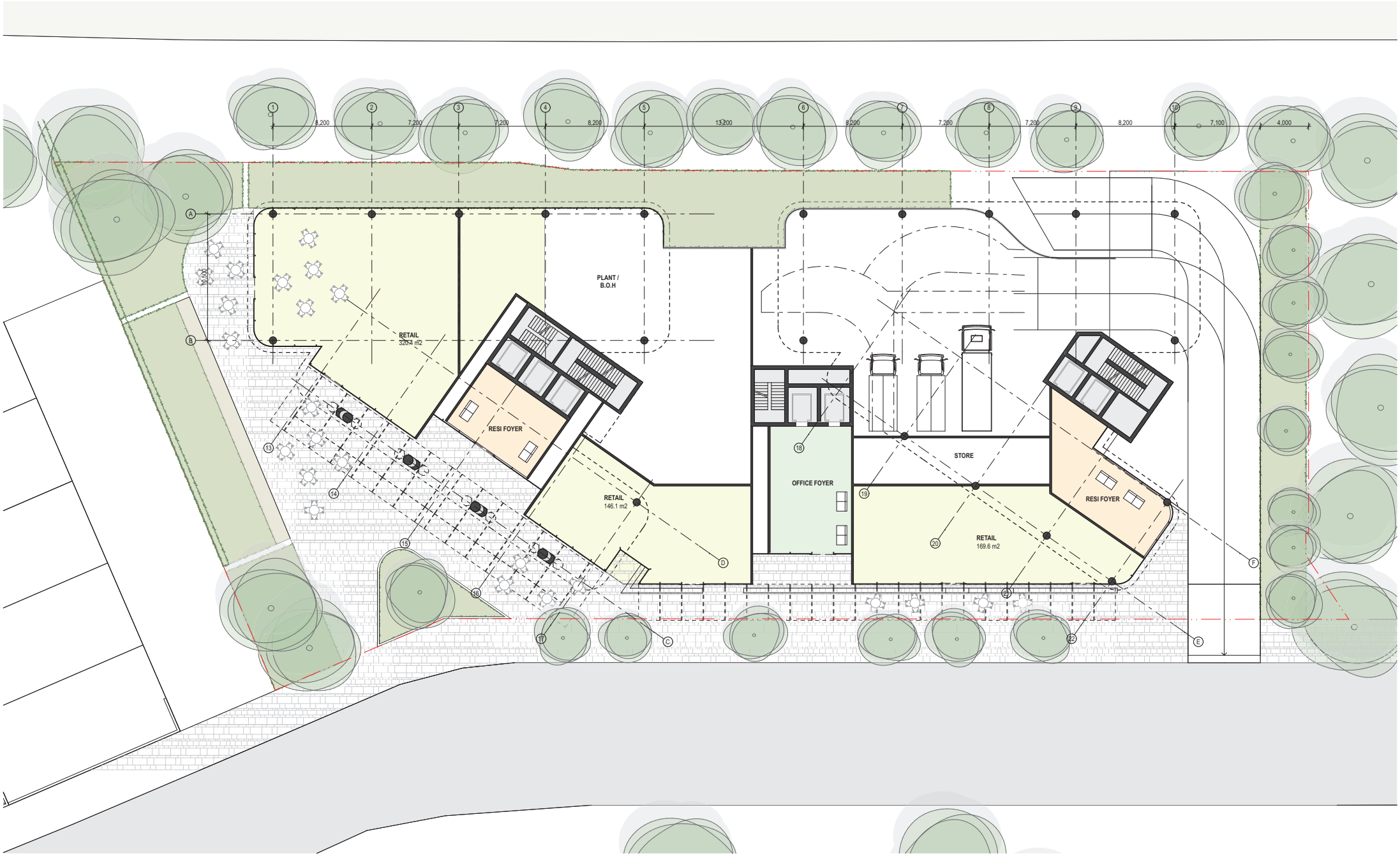
View looking north on Herbert Street from existing subject site access.

View looking south on Herbert Street from existing subject site access.

View looking west from Francis Street towards subject site, across the rail corridor.

Appendix B

Reduced Plans



fjmt
francis-jones morehen thorp

Ground

AQUALAND - Herbert Street

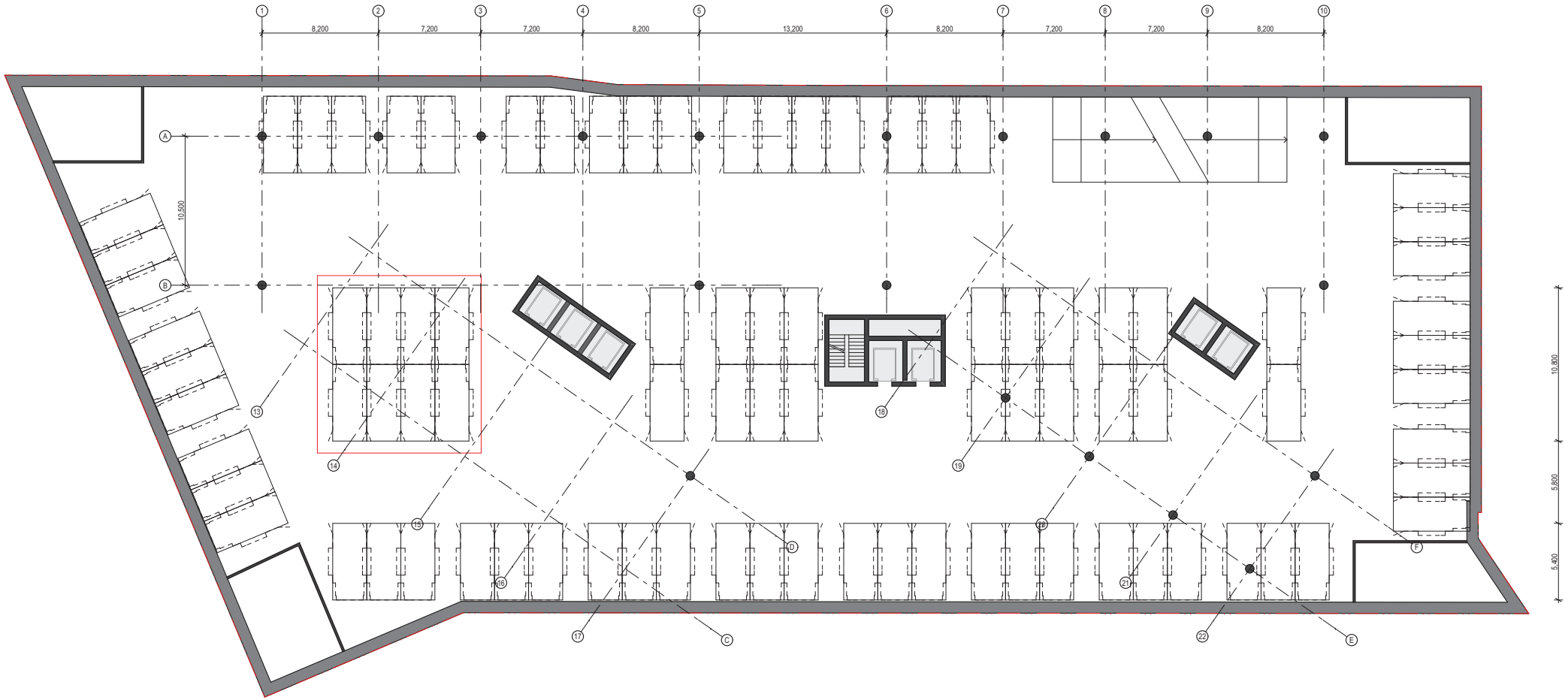
0 2 5 10m

1:200 @ A2

30/11/2015

Preliminary

2002



fjmt
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Basement

AQUALAND - Herbert Street

0 2 5 10m

1:200 @ A2

30/11/2015

Preliminary

2001