Traffic Engineering Report

57 Hamilton Street, Redland Bay

Proposed Mixed Use Development

Palm Lake Works Pty Ltd

About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Revision Record

No.	Author	Reviewed/Approved		Description	Date
1.	M Grierson	S.Crank RPEQ 18360		DA Report	29/04/2022
2.					
3.					
4.					

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1 Introduction

1.1 Background

TTM Consulting has been engaged by Palm Lake Works Pty Ltd to prepare a traffic engineering report investigating a proposed residential development located at 57 Hamilton Street and 17-19 Weinam Street, Redland Bay. It is understood that this traffic report is to accompany a Development Application with Economic Development Queensland (EDQ), with referral to Redland City Council (RCC).

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply required to cater for anticipated development demands.
- Parking layout to provide efficient and safe internal manoeuvring.
- Identification of likely traffic volumes associated with the proposed development.
- Access configuration to provide efficient and safe manoeuvring between the site and the public road network.
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation.
- Access to suitable level of public transport.

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Redland City Plan Planning Scheme, specifically:
  - *Planning Scheme Policy 2 – Infrastructure Works (Infrastructure PSP)*
  - *Transport, Servicing, Access and Parking Code (TSAP Code) and*
- *Australian Standards for Parking Facilities* (AS2890 series), namely:
  - *Part 1: Off-street car parking* (AS2890.1:2004)
  - *Part 2: Off-street commercial vehicle facilities* (AS2890.2:2019)
  - *Part 3: Bicycle parking* (AS2890.3:2015) and
  - *Part 6: Off-street parking for people with disabilities* (AS2890.6:2009).

1.3 Site Location

The site is located at 17-19 Weinam Street and 57 Hamilton Street, Redland Bay as shown in Figure 1.1 and Figure 1.2. The property description is Lot 2 on SP115173, Lot 1 SP169111. The site has road frontages to Hamilton Street to the east, Weinam Street to the south and Pitt Street to the west. The site is currently occupied by a Residential Care Facility and vacant lot.

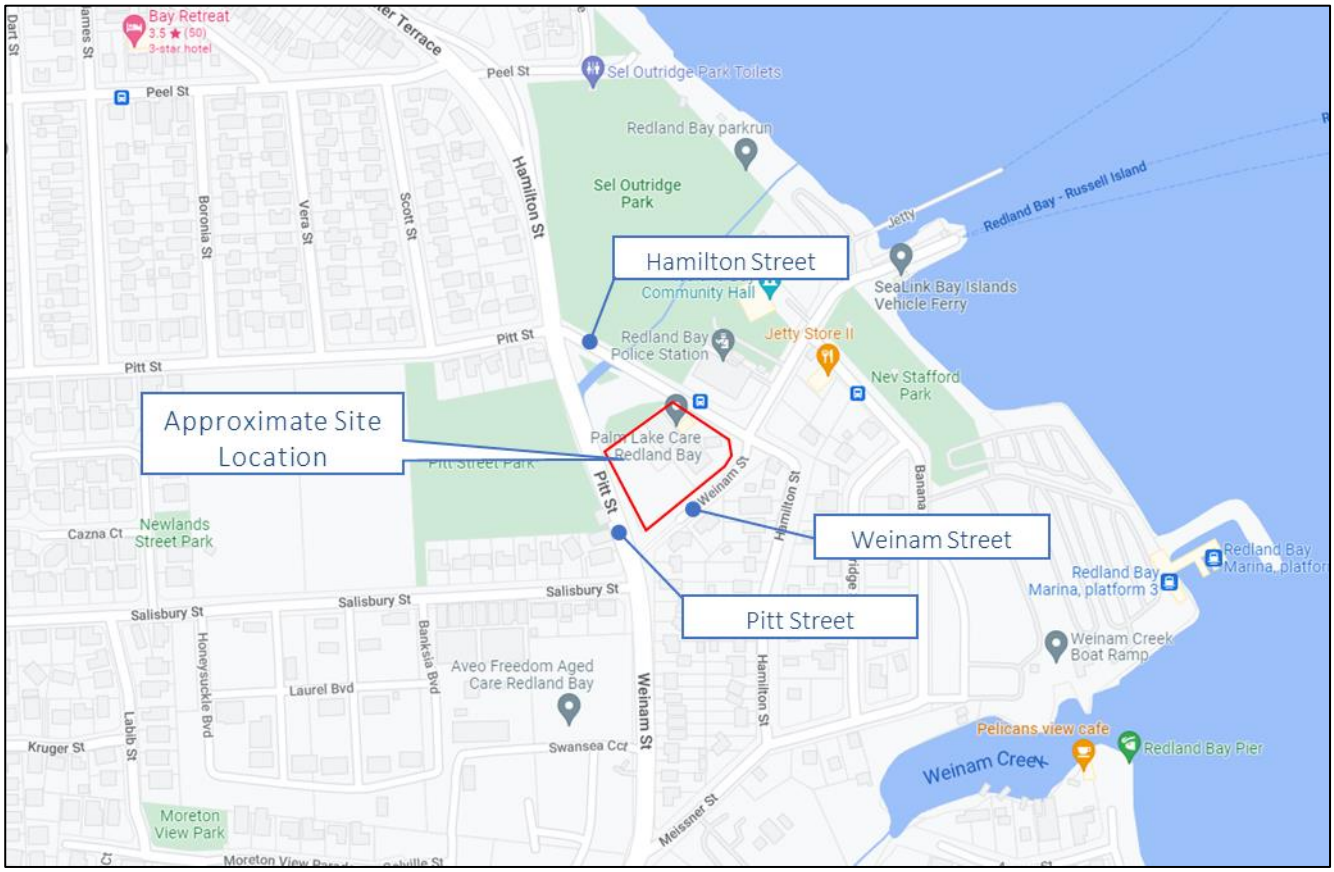

Figure 1.1: Site location (Surrounding Context) Source: Google Maps

Figure 1.2: Site Location (Aerial) Source: Nearmap

The key site characteristics of the development site from a planning perspective include:

- 7,026m^2 combined site area
- Located in the Weinam Creek Priority Development Area (PDA)
- Designated as Precinct 1 – Mixed Use Village in the Weinam Creek PDA masterplan.

1.4 Previous Application

TTM notes that there is a current development approval over the subject site (EDQ reference DEV2018-990) (Existing Approval). The Existing Approval over the subject site consisted of a 188 unit Residential Care Facility. The Existing Approval is noted to be a more intensive development in terms of potential traffic generation than that now proposed for the site.

Within the Existing Approval the development gained access to the site via two crossovers to Hamilton Street and a single access crossover to Pitt Street. The Pitt Street access is noted to be a service access, with the Hamilton Street providing primary access.

2 Proposed Development

2.1 Development Profile

The development proposes to construct a 5 storey residential building and one level of basement carparking. The development will consist of a mix of residential apartment sizes and some townhouse style dwellings located along the southern side of the development, fronting Weinam Street.

A copy of the proposed development plans prepared by Archidiom is included in **Appendix A**.

The proposed yields for this development are summarised in Table 2.1.

Table 2.1: Proposed Development Yields

Use	Yield
Apartments: – 2 bedroom – 3 bedroom – 4 bedroom	 21 units (incl 4 accessible units) 51 units (incl 5 accessible units) 11 units
Total	**83 units**

2.2 Access

The development plan includes a single vehicle access via Weinam Street, located 25m off the eastern boundary of the subject site. The proposed access crossover consists of a 7.0m wide General Wide Flared vehicle crossover catering for all vehicle movements into and out of the development site.

Further details regarding the proposed access arrangements are included in Section 4.

2.3 Parking

The development proposal includes a total of 165 parking spaces, provided as follows:

- 156 resident spaces, which are located within the ground and basement carparking levels
    - Including nine (9) accessible parking carparking spaces suitable for People with Disability (PWD), located in the basement carparking area adjacent to the lift core.
- 9 visitor/general spaces, which are located on ground level

In addition, the development proposes two (2) electric vehicle (EV) charging bays.

Further details regarding the development parking provisions are included in Section 5.

2.4 Servicing

The development plan allows for occasional access for vehicles up to the size of an 8.8m Medium Rigid Vehicle (MRV) and regular access for up to a 9.8m rear loading Refuse Collection Vehicles (RCV). Refuse collection is proposed to occur via on site bulk bin collection from the ground level loading area.

Further details regarding the proposed servicing arrangements are included in Section 6.

3 Existing Transport Infrastructure

3.1 The Road Network

All of the roads in the immediate vicinity of the site are administered by Council. The hierarchy and characteristics of roads are shown below in Table 3.1.

Table 3.1: Local Road Hierarchy

Road	Speed Limit	Lanes	Classification
Hamilton Street	60kph	2 lane undivided, with shoulder parking lanes	Local Road
Pitt Street	60kph	2 lane undivided	Local Road
Weinam Street	50kph	2 lane undivided	Local Road

Hamilton Street has a 14m wide carriageway at the site frontage with shoulder parking lanes utilised for indented bus stops near the development site. The intersection of Hamilton Street and Weinam Street is a priority-controlled intersection.

3.2 Public Transport and Active Transport Facilities

Buses

Access to public transport from the site is good with bus stops located directly on the sites frontage of Hamilton Street. Additional stops are located approximately 170m to the north-east along Banana Street. The bus lines have services that include:

- 250 – Redland Bay, Victoria Pt, Cleveland, Capalaba, Carindale City – running every half hour
- 282 – Logan Hyperdome, Cornubia, Mt Cotton, Redland Bay - running hourly
- 281 – Redland Bay, Victoria Pt, Sheldon, Garden City, Griffith Uni – Weekday Express running half hourly during peak periods
- 280 – Redland Bay, Victoria Pt, Sheldon, Garden City, Griffith Uni – running hourly

Pedestrians

The nearest formal pedestrian footpaths are located on both sides of Hamilton Street and along the property boundary of Weinam Street.

Cyclists

Outlined in Redland City Councils Cycling and Walking Guide, shown in Figure 3.1, both on-road and off-road bikeways are provided within the surrounding vicinity of the development.

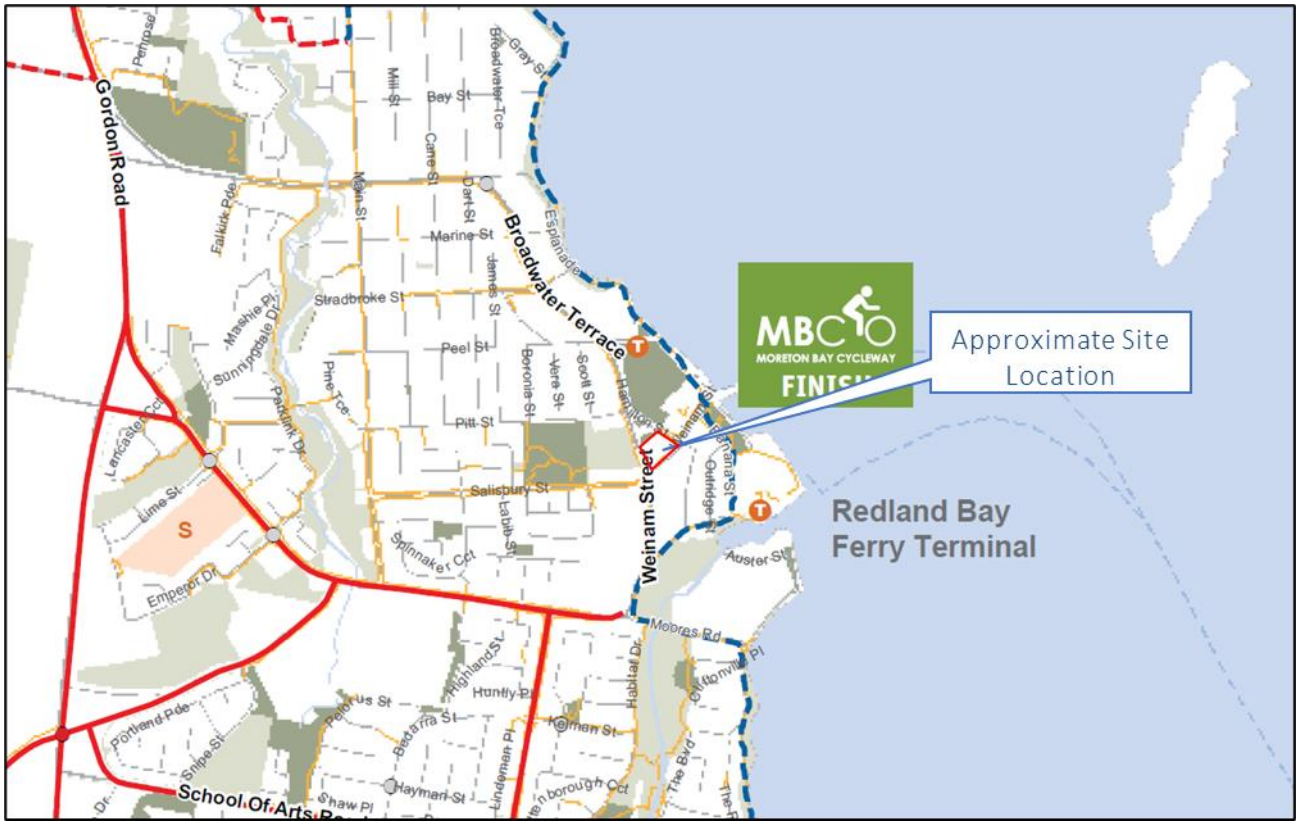

Figure 3.1: Cycle facilities

4 Site Access Arrangements

4.1 Existing Access Arrangements

Vehicle access is currently provided to the development site via the following arrangements:

- Hamilton Street
  - 6m wide driveway crossover, providing access to the Residential Care site.
  - 6m wide driveway crossover, providing access to the Residential Care site.

These existing crossovers are to be removed, with the verges and kerbing reinstated as part of the proposed development of the site.

4.2 Proposed Access Arrangements

The development is to provide vehicle access to the site via a single all movements crossover located on the Weinam Street frontage. The current site includes a hardstand area and vehicle crossover, the hardstand area extends into the development site. This turnaround hardstand area is illustrated in Figure 4.1. There does not appear to be an access or other formalised easements over this area. The function of this area appears to be to facilitate turning movements of larger vehicles on Weinam Street, such as Refuse Collection Vehicles (RCV).

Figure 4.1: Existing Hardstand Turnaround

As part of the proposed redevelopment of the site this turnaround area is to be removed. Based on this removal the proposed all movements crossover has been configured to the facilitate turnaround movements of a side loading RCV from Weinam Street. A swept path demonstrating these turning movements is provided in **Appendix B**.

The development access arrangement has been reviewed against the requirements of the Redland Planning Scheme. The proposed Weinam Street access driveway requirements are specified in Table 4.1.

Table 4.1: Typical Driveway Requirements for the Weinam Street Access

Design Aspect	Council Requirement	Proposed Provision	Compliance
Distance from a minor intersection	10m (min)	25m from Hamilton Street	Compliant
Sight Distance – 50km/h Posted Speed Limit	Desirable – 69m Minimum – 45m	>70m	Compliant
Width / Crossover Type to accommodate Service vehicles[1 2]	7.0m / Type B2	7.0m / Type B2	Compliant
Driveway Sight Splays	2.0m wide x 2.5m deep (on each side)	2.0m wide x 2.5m deep (on each side)	Compliant
Queuing Provisions	4 Cars (24m) AS2890.1	3 cars (20m) Entry before first internal intersection	Performance Solution
Maximum Driveway grade	1:20 (5%) maximum within first 6m	Grading limited to less than1:20 (5%) within first 6m	Compliant

The proposed access arrangements are generally consistent with the provisions of the TSAP Code. However, the following have been resolved with performance solutions.

Queuing Provision

The proposal provides a minimum 3 car vehicle queuing to the property boundary prior to the first internal intersection point. This is below the 4 vehicles recommended under the AS2890.1 requirements. It should be noted that the queuing provision requirements outlined in AS2890.1 are based on the number of carparks and does not take into account the land use or development traffic generation / space turnover.

As detailed in Section 8, the proposed development is expected to generate in the order of 35 inbound vehicle trips during the critical PM peak hour period. The probability of more than 3 vehicles arriving at the same time (or within say a 1 minute period) would be less than 1%. This is based on the 'Poisson Distribution' equation for queueing theory, as outlined in the Austroads Guide to Traffic Management Part 2: Traffic Theory.

Based on the above information, the internal entry queue capacity of 3 vehicles (to the first internal intersection point) is sufficient to accommodate the 99th percentile queuing demands for the site as a minimum.

Overall, the proposed site access arrangements are considered fit for purpose.

5 Parking Arrangements

5.1 Car Parking Supply

The subject site is located within the 400m walking distance of a bus stop that provides a minimum of 10 return services during normal business hours per day including Saturdays.

Based on this the carparking has been reviewed against parking rates as identified in Table 9.3.5.3.2 of the TSAP Code. The TSAP Code parking requirements for proposed land use of this development are identified in Table 5.1.

Table 5.1: TSAP Code Parking Supply Requirement

Land Use	TSAP Code Requirement	Yield	Requirement	Provision
Multiple Dwelling 2 Bedroom unit – Resident	Minimum 1.5 space/unit	17 Units 4 Accessible Units	26 (25.6) residential 4 NDIS accessible spaces + 2 residential	147 general residential 9 NDIS accessible spaces 9 visitor 2 EV charging bays
Multiple Dwelling 3 Bedroom unit – Resident	Minimum 2.0 space/unit	46 Units 5 Accessible Units	92 residential 5 NDIS accessible spaces + 5 residential	
Multiple Dwelling 4 Bedroom unit – Resident	Minimum 2.0 space/unit	11 Units	22 residential	
Visitor Spaces	1.0 space / 10 Units	83 Units	9 (8.3) visitor spaces	
Total		**83 Units**	**156 residential spaces** **9 visitor spaces** **165 Total Spaces**	**147 residential spaces** **9 NDIS accessible resident spaces** **9 visitor** **165 Total Spaces** **+ 2 EV Charging Bays**

As detailed in Table 5.1, the development provides a total parking supply of 165 spaces, which meets the requirements of the TSAP code recommendations.

The above parking supply is to also includes an allowance for NDIS / PWD accessible parking within the basement, adjacent to the lift core. The accessible parking supply has been provided at a rate of one accessible space per proposed accessible unit, with the balance of the units parking supply requirement provided as a general parking spaces.

In addition to the above carparking spaces the development also includes two (2) electric vehicle (EV) charging bays, located within the basement carparking area. These bays would be communal in nature,

similar to a car wash bay. Residents may use them as required, however they are not part of the designated permanent parking supply.

Overall, TTM consider the parking supply for the proposed development acceptable and in accordance with the TSAP Code.

5.2 Bicycle Parking Supply

It is noted that neither the TSAP Code nor PSP2 Infrastructure provides specific requirements for bicycle parking for multiple dwelling developments. Bicycle parking provision have therefore been based on the Austroads 'Cycling Aspect of Austroads Guides' recommendations.

The current development layout provides 26 residential bicycle parking spaces in a dedicated bicycle parking facility in the Basement, which is to be accessed via the lifts or basement ramping. The 7 visitor bicycle parking spaces are to be located on the ground level. These bike spaces are generally provided as ground hoops.

Table 5.2 provides a summary of the bicycle parking supply requirements in line with the Austroads guidance, and the proposed provisions, for the development scheme.

Table 5.2: Austroads Bicycle Parking Supply recommendation

Land Use / Component	Austroads Recommendation	Extent	Requirement	Provisions
Resident	1 bicycle space per 3 units	83 units	26 spaces	26 spaces
Resident (Visitors)	1 bicycle space per 12 units	83 units	7 spaces	7 spaces
Total		**83 units**	**33 spaces**	**33 spaces**

The provision of bicycle parking spaces complies with Austroads 'Cycling Aspect of Austroads Guides' minimum recommendations.

The proposed bicycle parking is considered appropriate to support the development.

5.3 Car Park Layout

Table 5.3 identifies the characteristics of the proposed parking area with respect to the TSAP Code requirements, which refer to Australian Standards 2890 series. The last column identifies the compliance of each design aspect. Where compliance with Council is not achieved, further information is provided below.

Table 5.3: Parking Design Requirements

Design Aspect	AS2890.1 Provison	Proposed Provision	Compliance
Car Parking			
Parking space length: – Standard bay – NDIS Accessible Space	 5.4m 5.5m	 5.4m 5.5m	 AS2890.1 Compliant NDIS Compliant
Parking space width: – Residential – Visitor – NDIS accessible bay	 2.4m 2.6m 3.8m	 2.4m 2.6m 2.4m + 2.4m Shared Area	 AS2890.1 Compliant AS2890.1 Compliant AS2890.6 Compliant
Aisle Width: – Parking aisle (Class 1) – Parking Aisle (Class 3) Visitor – Circulation aisle/ramp	 5.8m (min) 6.2m (min) 5.5m + 0.3m clearances	 5.9m – 6.0m (min) 6.2m 6.2m wall to wall (Ground – B1 Ramp)	 AS2890.1 Compliant AS2890.1 Compliant AS2890.1 Compliant
Parking envelope clearance – Column/walls adjacent to bay	Located as per Figure 5.2 of AS2890.1	Located as per Figure 5.2 in AS2890.1	AS2890.1 Compliant
Maximum Gradient: – PWD parking – Parking aisle – Ramp	 1:40 (2.5%) 1:20 (5%) 1:5 (20%)	 Generally Flat Generally Flat 1:5 (20%)	 AS2890.6 Compliant AS2890.1 Compliant AS2890.1 Compliant
Maximum Change in Grade	1:8 (12.5%) summit[1] 1:6.67 (15.0%) sag[1]	1:8 (12.5%)	AS2890.1 Compliant
Height Clearance – General Min. – Over NDIS Accessible / PWD bay	 2.3m 2.5m	 2.3m (min) 2.5m (min)	 AS2890.1 Compliant AS2890.6 Compliant
Parking Aisle Extension	1m beyond last bay	1m beyond last bay	AS2890.1 Compliant
Bicycle Parking			
Horizontal Racks	1.2m (min)	1.2m	AS2890.3 Compliant
Rack spacing[1]	0.5m (min)	0.5m	AS2890.3 Compliant
Manoeuvring/Access Paths	1.5m (min)	1.5m	AS2890.3 Compliant

[1] Assuming full handlebar stagger.

The proposed carpark layout complies with AS2890 requirements and is therefore considered appropriate from a traffic perspective.

6 Service Vehicle Arrangements

6.1 Council Requirements

To assess the required service vehicle provisions for the development, TTM has referred to the requirements as set out in the TSAP Code and PSP2 – Infrastructure.

RCC requires refuse collection to be undertaken on-site for multiple dwelling developments containing more than 11 units with frontage onto a minor road (as is the case in this instance) via an RCC Waste Collection Vehicle (WCV). There are no specific loading bay requirements for the proposed development. However, it states that the development should allow for manoeuvring requirements of a WCV

6.2 Proposed Service Vehicle Arrangements

As shown in the development plans included in **Appendix A**, it is proposed that on-site servicing (including refuse collection) will be undertaken via dedicated loading area close to the main vehicle entry. Refuse collection for the development is proposed to be undertaken by RCC waste collection services using a rear-loading collection vehicle. The primary bin store is proposed to be located within the basement parking area, with additional storage area provided at the rear of the loading area.

It is expected that courier deliveries and maintenance contractors will use the visitor car parking spaces located at ground level. Other occasional vehicles (such as furniture vehicles up to the size of an 8.8m Medium Rigid Vehicle (MRV)) would also be able to access the site, utilising the proposed loading area in the same manner as the WCV

The proposed servicing arrangements satisfy the requirements set out in RCC with respect to provision for regular and occasional access vehicles.

Loading Bays

The development plan includes the following loading bay provisions:

- One (1) shared MRV and RCV service bay at ground level

Overall, the loading bay provisions are considered sufficient to meet the needs of the development.

Table 6.1 identifies the service vehicle design layout provisions with respect to the TSAP Code.

Table 6.1: Service Vehicle Design Review

Design Aspect	AS2890.2 Provision	Proposed Provision	Compliance
Loading bay length: • MRV / RCV	8.8m (min)	9.0m (min)	AS2890.2 Compliant
Loading bay width: • MRV / RCV	3.5m (min)	3.5m (min)	AS2890.2 Compliant
Service aisle width (two-way)	6.5m (min)	6.5m (min)	AS2890.2 Compliant
Loading bay grades • MRV	1:25 (4%) max	Generally Flat	AS2890.2 Compliant
Ramp grades • MRV	1:8 (12.5%) max if reverse movements are occurring	1:10 (10%)	AS2890.2 Compliant
Height Clearance: • MRV	4.5m (min)	4.5m (min)	AS2890.2 Compliant

TTM have prepared swept path assessment for the proposed development. A copy of the swept paths is provided in **Appendix B.** Service vehicles are able to enter the site, manoeuvre into position within the loading bay and then depart the site in a forward gear.

Refuse Collection Provisions

General refuse and recycling will be stored / within bulk bins and collected by a rear-loading RCV. The bins will be wheeled out of the refuse room and collected by the truck within the loading area. The development layout has specified temporary bin storage areas adjacent to the shared loading area.

The service vehicle design provisions are generally consistent with the TSAP Code recommendations. Based on the above the proposed servicing arrangements are appropriate to support the proposed development.

TTM have prepared a swept path for a 9.84m Rear Loading Refuse Collection Vehicle (RCV) and 8.8m Medium Rigid Vehicle (MRV) copy of the swept paths is provided in **Appendix B.**

7 Active Transport

7.1 Public Transport

The site is located in close proximity to existing public transport infrastructure currently available in the immediate area.

TTM consider the availability of public transportation provisions in the vicinity of the site will satisfy the site's requirements for such facilities.

7.2 Pedestrian Access

Pedestrian access to the site is considered appropriate with several pedestrian access points available along both of the site frontages. Both frontages are to connect to the existing pedestrian pathways along the development frontages.

8 Traffic Impact Assessment

8.1 Estimated Development Traffic Generation

8.1.1 Existing Development Traffic

The site has an existing development approval over it (EDQ reference DEV2018-990). The approved Residential Care Facility development included 188 units.

8.1.2 Proposed Development Traffic Volume

The site location is zoned as High-Density Residential, TTM have used the *RTA's Guide to Traffic Generating Developments* traffic generation rate for high-density residential developments to estimate the traffic generation associated with the proposed development.

The estimated development traffic and a comparison to the approved development traffic is provided in Table 8.1.

Table 8.1: Estimated Traffic Generation

Scenario	Extent	Generation Rate	Estimated Generation	
			AM Peak	PM Peak
Approved Development	Residential Care Facility 188 units	0.4vph per unit (peak)	-76vph	-76vph
Proposed Development	Multiple Dwelling 83 units	0.6vph per dwelling (peak)	50vph	50vph
Net Traffic Generation			**-26vph**	**-26vph**

As seen in Table 8.1, the proposed development is likely to generate up to 50 vehicle trips during the AM and PM peak hour periods. This represents a net decrease in peak hour traffic of 26vph by comparison to the previously approved development.

Based on the above, TTM consider the proposed development will have no additional impacts on the surrounding road network when compared to the existing approved uses on site. As such, no further external traffic works are required to mitigate the impact of the proposed development.

9 Summary and Conclusions

9.1 Access Arrangements

Vehicle access is proposed to be provided to Weinam Street via a single 7m wide crossover.

This access is to also facilitate turnaround movements for external vehicle traffic on Weinam Street.

The site access layout generally complies with the TSAP Code requirements, with exceptions to some performance solutions with respect to queuing which are deemed fit-for-purpose. Pedestrian access is to be provided via multiple connection points across the Weinam Street and Hamilton Street frontages.

Overall, TTM considers the access arrangements for the development are acceptable.

9.2 Car Parking Arrangements

The proposed parking supply of 165 car parking spaces, meeting the requirements of the TSAP Code. The car park layout generally complies with AS2890.1 requirements.

Overall, TTM considers the proposed car parking arrangements for this development to be adequate.

9.3 Service Vehicle Arrangements

Servicing for this development will be facilitated in the designated loading area on the ground floor, which is to be accessed via Weinam Street. The largest design vehicle, a 9.8m Rear Loading Refuse Collection Vehicle (RCV), can enter and exit in a forward gear and manoeuvre on site while maintaining appropriate clearances to physical obstructions. An additional the shared loading bay has been configured to accommodate up to Medium Rigid Vehicle (MRV).

Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

9.4 Public and Active Transport Facilities

The current public transport infrastructure and proposed site provisions for pedestrian/bicycle facilities is considered adequate for the development. The development includes 26 resident bicycle parking spaces in a dedicated storage area and 7 visitor bicycle parking spaces provided on the ground level. The proposed bicycle supply is appropriate to support the development.

9.5 Impact on Surrounding Road Network

The proposed development is expected to generate up to 50 vehicle trips during the peak hour periods. Once distributed on the surrounding road network, these traffic demand increases are likely to represent only a small percentage of existing demands and so are not likely to result in any adverse impacts to road operations.

In addition the proposed development represents a net reduction in vehicle traffic when compared to the existing approval over the site. With the proposed development estimated to generate 26vph less than that of the existing approval.

Assessment of the proposed development indicates that the development will not have a significant impact on the future road network. As such, no further mitigating road works are required.

9.6 Conclusion

Based on the assessment contained within this report, TTM see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A Proposed Site Plan

ARCHIDIOM

STATISTICS

site plan + development statistics

DEVELOPMENT STATISTICS

1. Site Area	Total 7026m²		
2. Zoning	Weinam Creek PDA - Precinct 1 - Mixed use village		
3. Land Use	Multiple Dwellings		
4. Site Coverage	Ground (L1) - 2390m² | 34.0%	Level 3 - 3932m² | 56.0%	
	Level 2 - 4113m² | 59%	Roof - 4015m² | 58%	
5. Height	Zoned - 5 Storeys	Proposed - 5 Storeys | 24.23m	
6. Setbacks	As shown		
7. Residential Density	Proposed - 83 Units | 239Beds [1 Unit per 84.6m² & 1 bedroom per 29.3m²]		

8. Proposed Unit Mix

Unit Types	No. of Units	Accessible Units	No. of Beds	Units %
2 Bed / 2 Bed+	17	4	42	25%
3 Bed / 3 Bed+	46	5	153	62%
4 Bed / 4Bed+	11		44	13%
TOTAL	**83 Units**		**239 Beds**	**100%**

9. Proposed Carparking No.

Use	Quantity	No. of Units	RCC Rate	Required	Provided
Units	(2B/2B+)	17	1.5/Unit	25.5 (26)	26
	2B Accessible	4	(1 Accessible + 0.5)/Unit	4 Accessible + 2	4 Accessible + 2
	(3B/3B+)	46	2/Unit	92	92
	3B Accessible	5	(1 Accessible + 1)/Unit	5 Accessible + 5	5 Accessible + 5
	(4B/4B+)	11	2/Unit	22	22
	Vis		1/10Units	8.3 (9)	9
TOTAL		**83**		**9 Accessible + 156 = 165**	**9 Accessible + 156 = 165**

	No. of Units	Rate	Required	Provided
Res Bikes (Tower Only)	77	1 / 3 Units	26	26
Vis Bikes	83	1 / 12 Units	7	7 *within landscape

10. Landscape Area

Communal Open Space - Refer SLI

Landscape Area - Refer SLI

Deep Planting - Refer SLI

ARCHIDIOM

FLOOR PLANS

basement 1

NOTE.
ALL CARPARKS TO BE ALLOWED POWER AND CONDUITS FOR CHARGING STATION INSTALLATION IF REQUIRED.

CARPARKING FACILITIES LEGEND
(To comply with AS2890.1:2004)

			Dim. (Size)
Cars			
1		Residential car space	2.4 x 5.4m
2		Circulation aisles adj. resident cars	5.8m min. clear aisles
3		Accessible car space	3.8 x 5.5m
4		Circulation aisles adj. resident cars	5.8m min. clear aisles
5		Visitor car space	2.6 x 5.4m
6		Circulation aisles adj. visitor cars	6.2m min. clear aisles
7		Electric Vehicle Charging Bay	1 every 100 cars
Bikes			
8		Vis Bikes	0.5 x 1.8m
9		Bike storage in accordance with Austroads Part 14 requirements).	1.5m clear aisles min.
10		Horizontal Residential bike space	0.5 x 1.8m
11		Bike storage in accordance with Austroads Part 14 requirements).	1.5m clear aisles min.
Ramps			
12	Width	Ramp widths	6.1min clear
13	Grade	Top of ramp - 2m transition	1:8
		Bottom of ramp - 2m transition	1:8
		Ramp < 20m long	1:5 max

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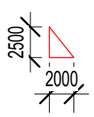
FLOOR PLANS

level 1 (ground)

LEGEND

SIGHT TRIANGLES



PEDESTRIAN SIGHT TRIANGLES TO BE KEPT CLEAR OF OBSTRUCTIONS TO VISIBILITY. LANDSCAPING UP TO 500MM IN HEIGHT IS PERMITTED WITHIN THIS AREA.

Q100 3.23 AHD

CARPARKING FACILITIES LEGEND
(To comply with AS2890.1:2004)

Cars			Dim. (Size)
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		Bottom of ramp - 2m transition	1:8
		Ramp < 20m long	1:5 max

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2022/1290

Date: 08/03/2023

Queensland Government

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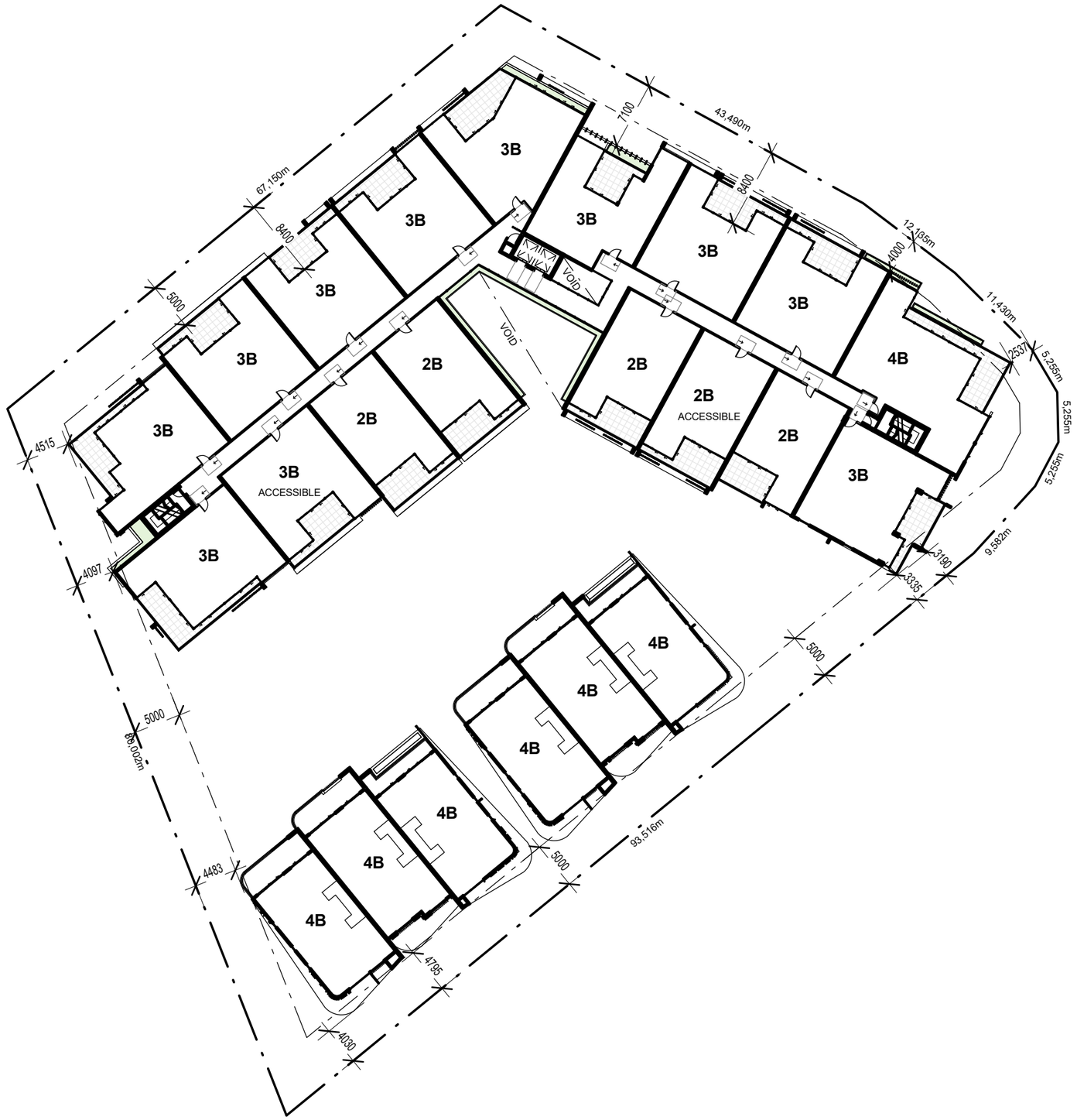
FLOOR PLANS

level 2

ARCHIDIOM

FLOOR PLANS

levels 3-5



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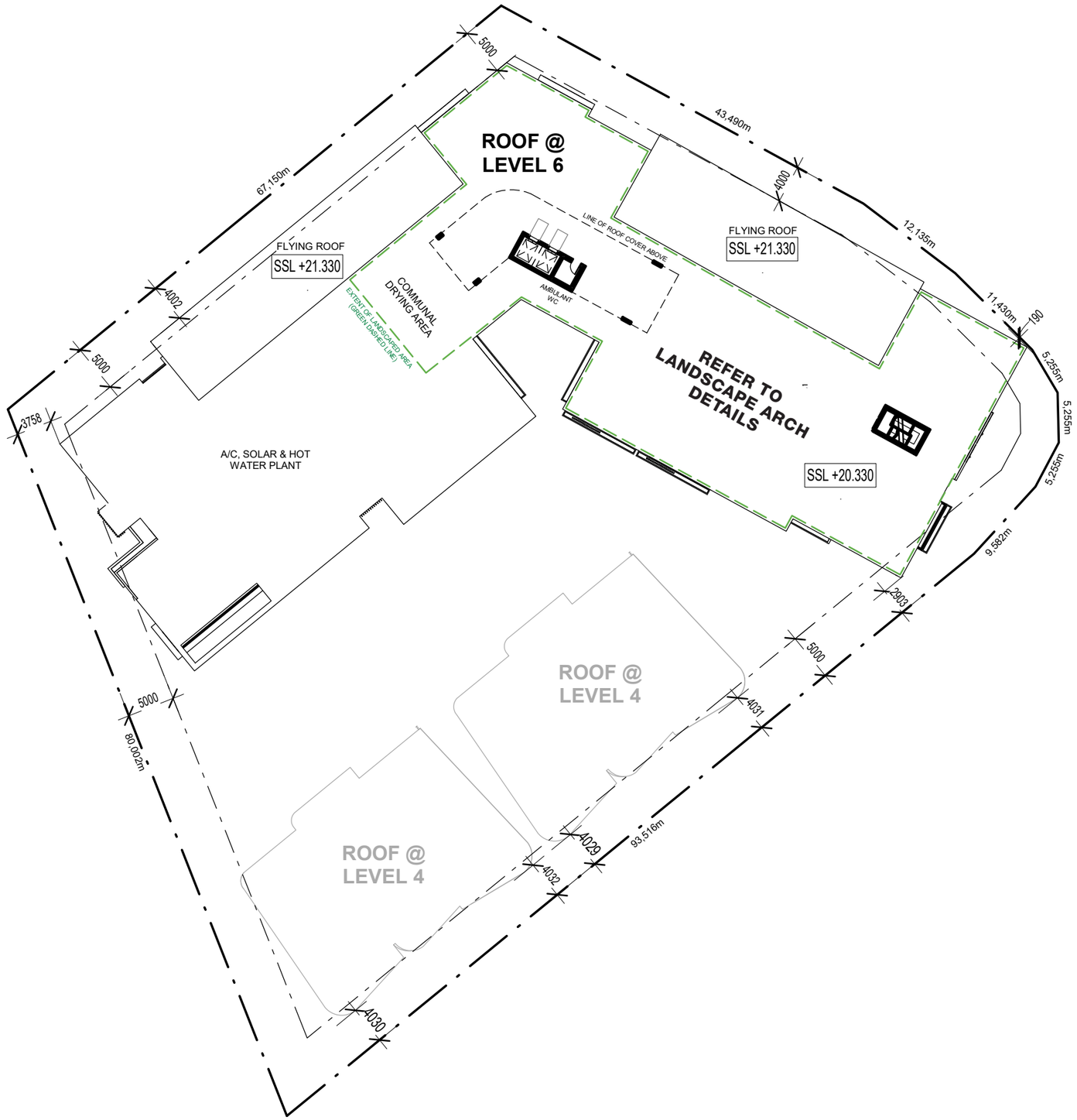
FLOOR PLANS

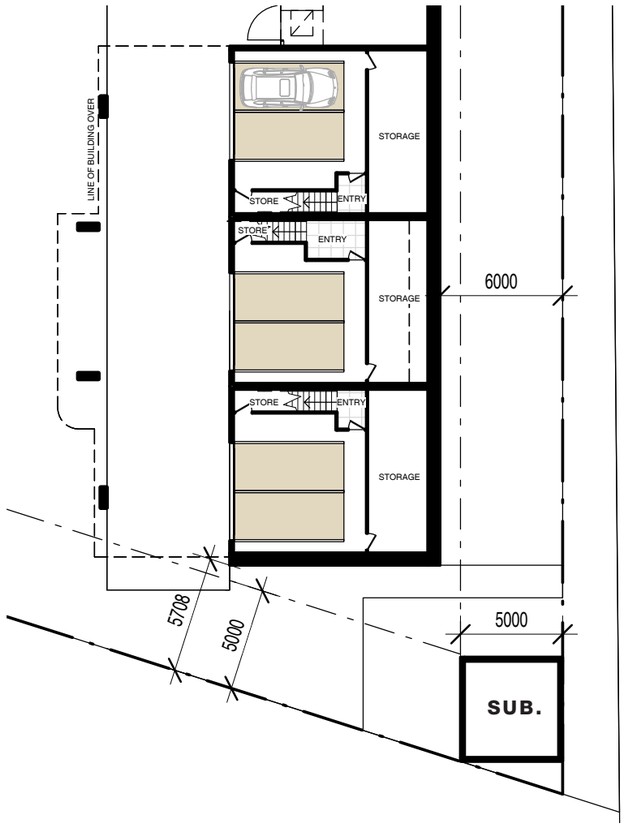
roof



ARCHIDIOM

TOWNHOUSES

floor plans



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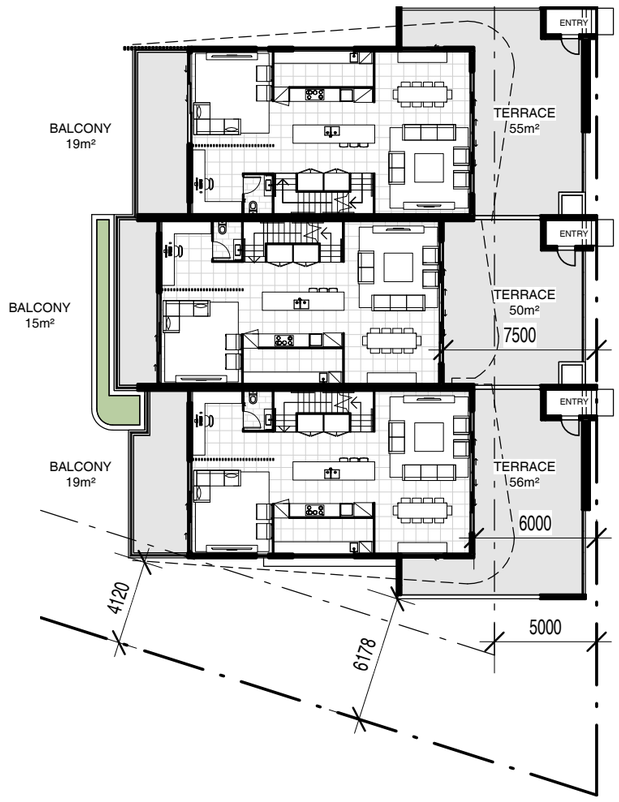

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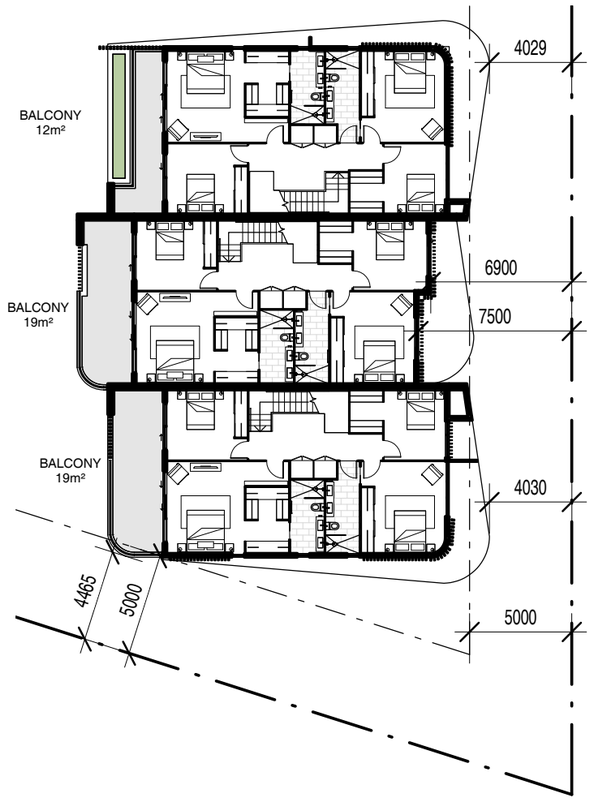

LEVEL 3

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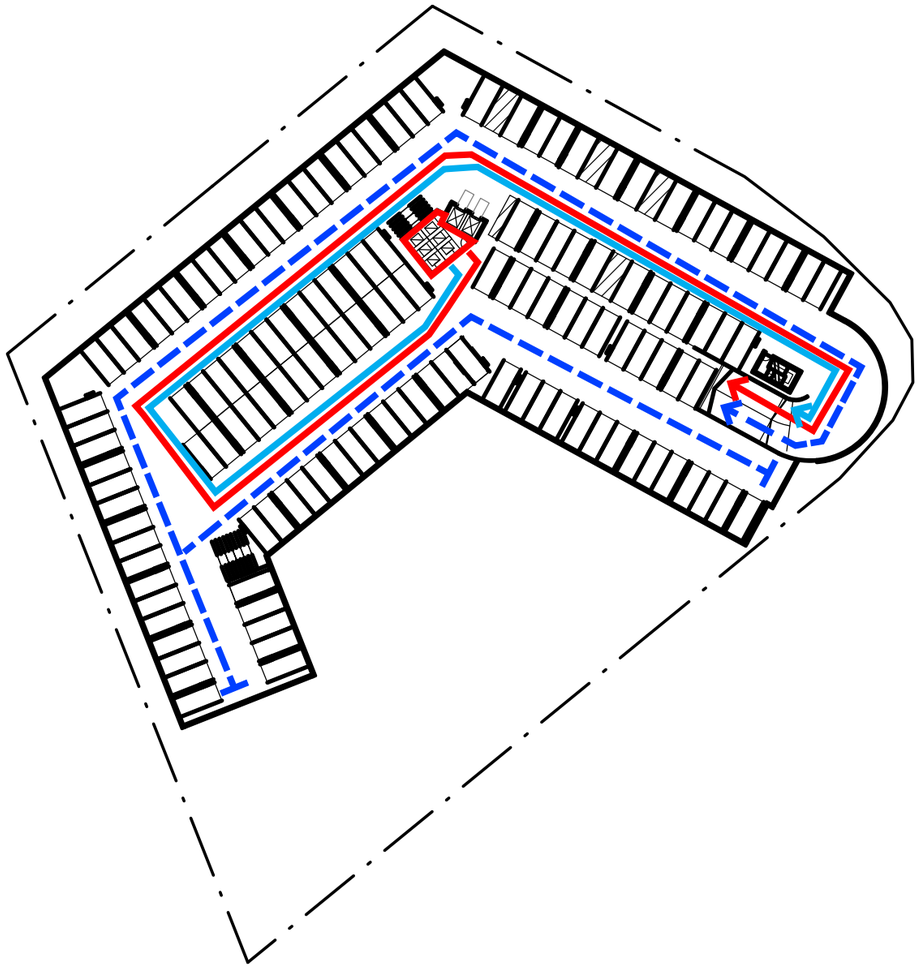
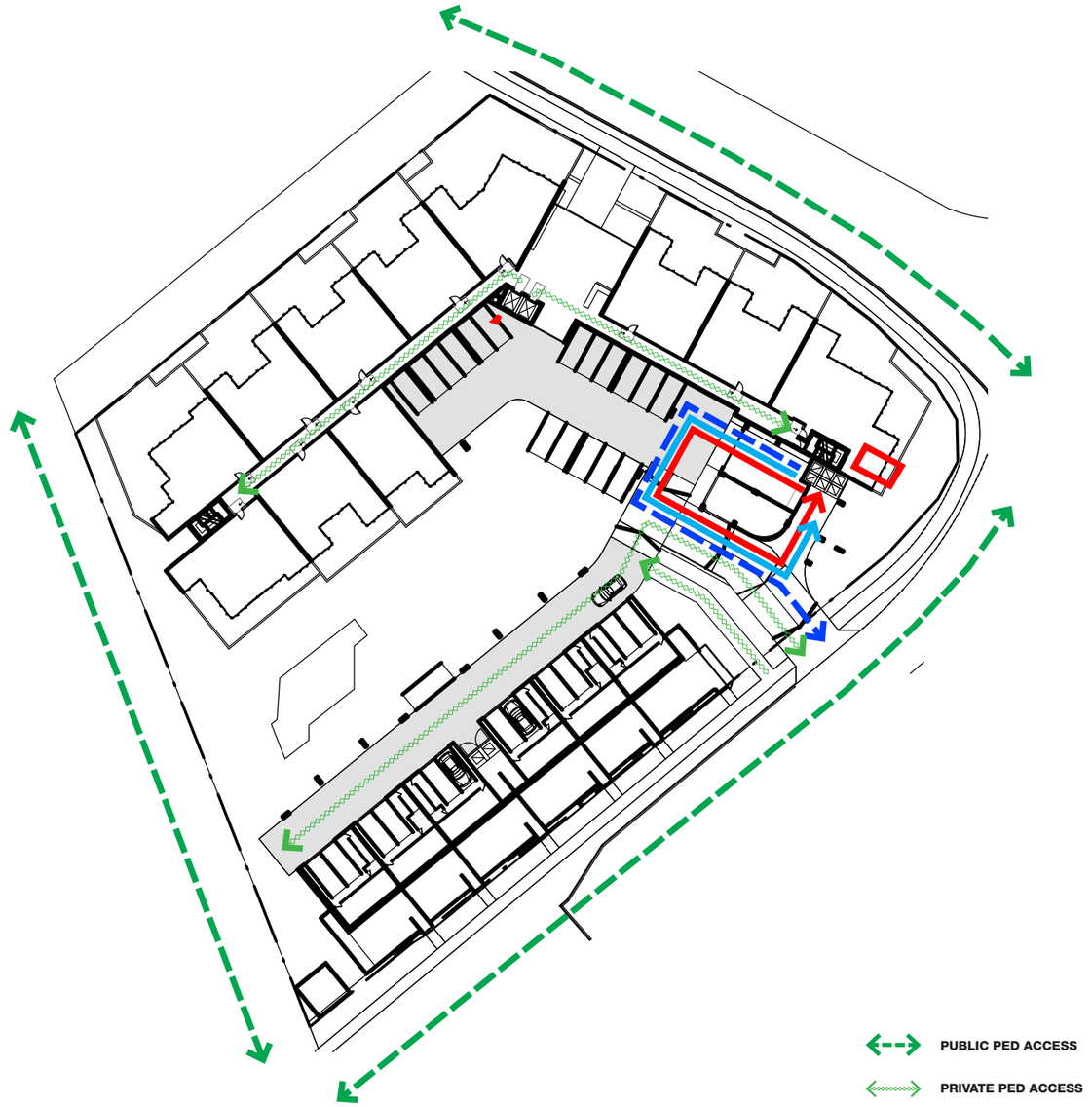
MISCELLANEOUS

refuse & vehicular diagrams



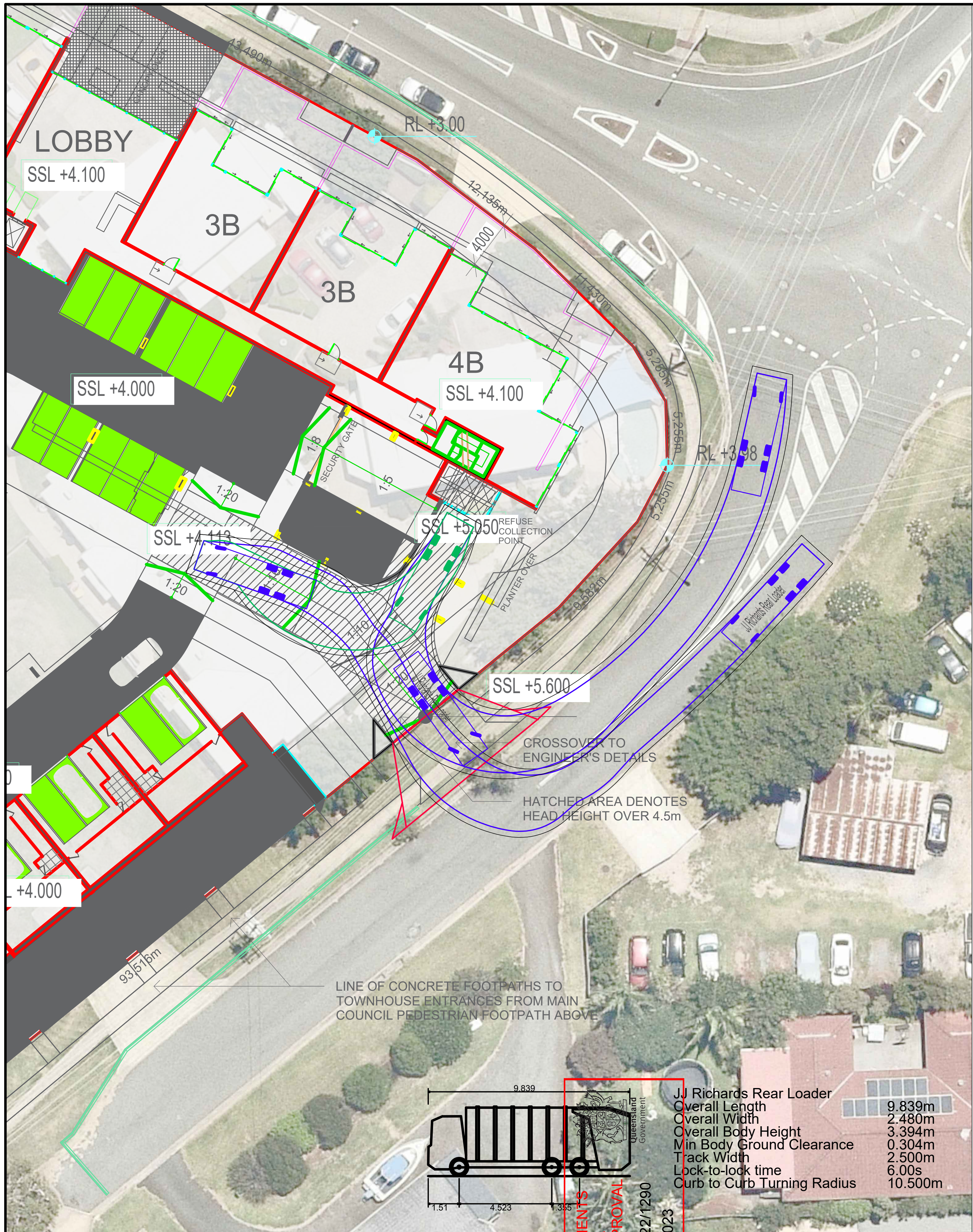
REFUSE + VEHICULAR



PEDESTRIAN

TO BE UPDATED

Appendix B Service Vehicle Swept Paths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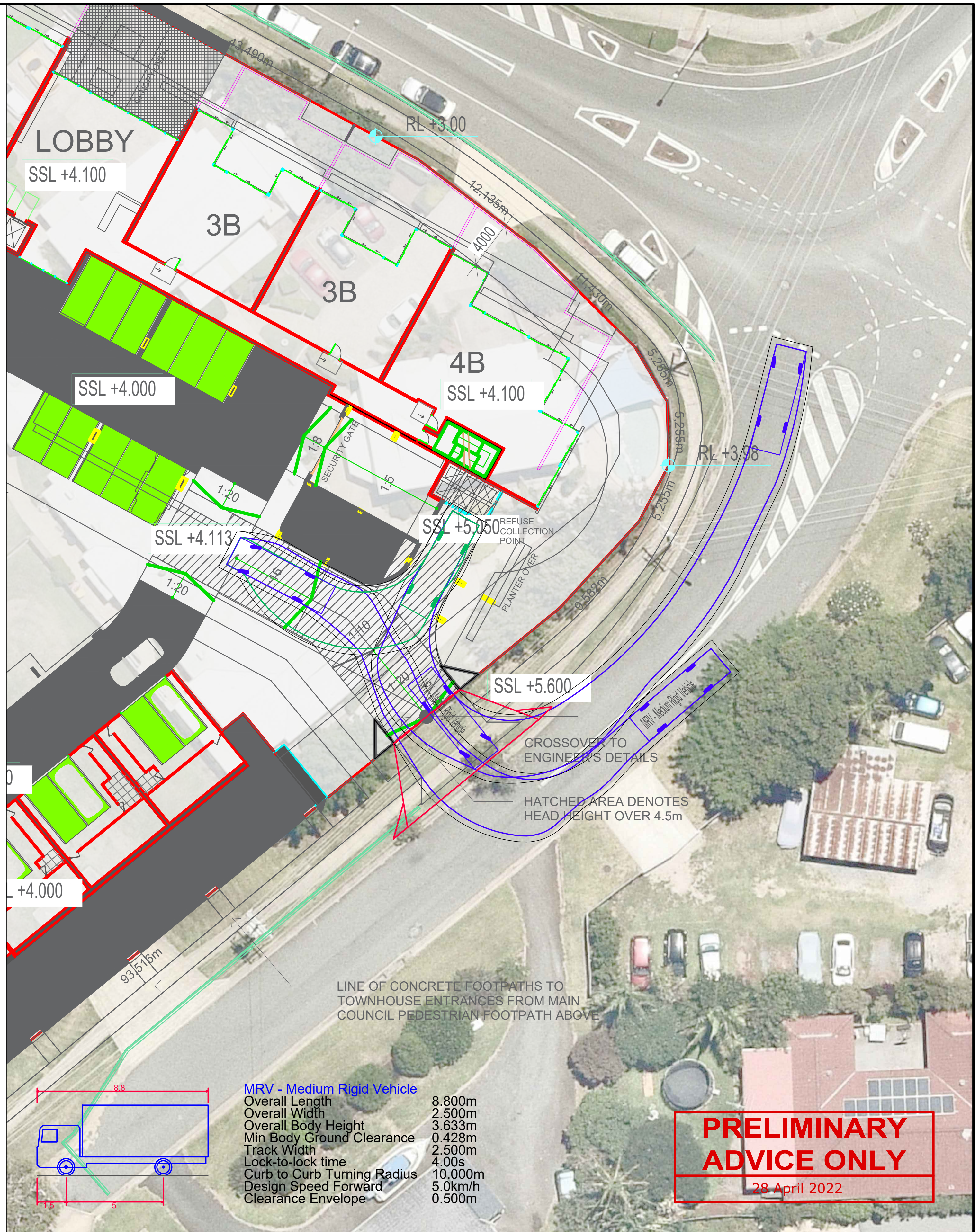
3B
4B
SSL +4.100
SSL +4.000
RL +3.00
RL +3.98
SECURITY GATE
SSL +4.113
SSL +5.050
REFUSE COLLECTION POINT
PLANTER OVER
SSL +5.600
CROSSOVER TO ENGINEER'S DETAILS
HATCHED AREA DENOTES HEAD HEIGHT OVER 4.5m
+4.000
LINE OF CONCRETE FOOTPATHS TO TOWNHOUSE ENTRANCES FROM MAIN COUNCIL PEDESTRIAN FOOTPATH ABOVE
93.516m
9.839
1.51
4.523
1.355
JJ Richards Rear Loader
Overall Length 9.839m
Overall Width 2.480m
Overall Body Height 3.394m
Min Body Ground Clearance 0.304m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 10.500m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RL +3.00
RL +3.98
SECURITY GATE
SSL +4.113
SSL +5.050
REFUSE COLLECTION POINT
PLANTER OVER
SSL +5.600
MRV - Medium Rigid Vehicle
CROSSOVER TO ENGINEER'S DETAILS
HATCHED AREA DENOTES HEAD HEIGHT OVER 4.5m
+4.000
LINE OF CONCRETE FOOTPATHS TO TOWNHOUSE ENTRANCES FROM MAIN COUNCIL PEDESTRIAN FOOTPATH ABOVE
93.516m
8.8
MRV - Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 10.000m
Design Speed Forward 5.0km/h
Clearance Envelope 0.500m

PRELIMINARY ADVICE ONLY
28 April 2022

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL
Approval no: DEV2022/1290
Date: 03/03/2023

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	28-04-22	ORIGINAL ISSUE	MGr	MGr	SC

SCALE 0 4 8 12 16 20m
SCALE 1:400 AT ORIGINAL SIZE

NORTH

CLIENT: PALM LAKE WORKS PTY LTD

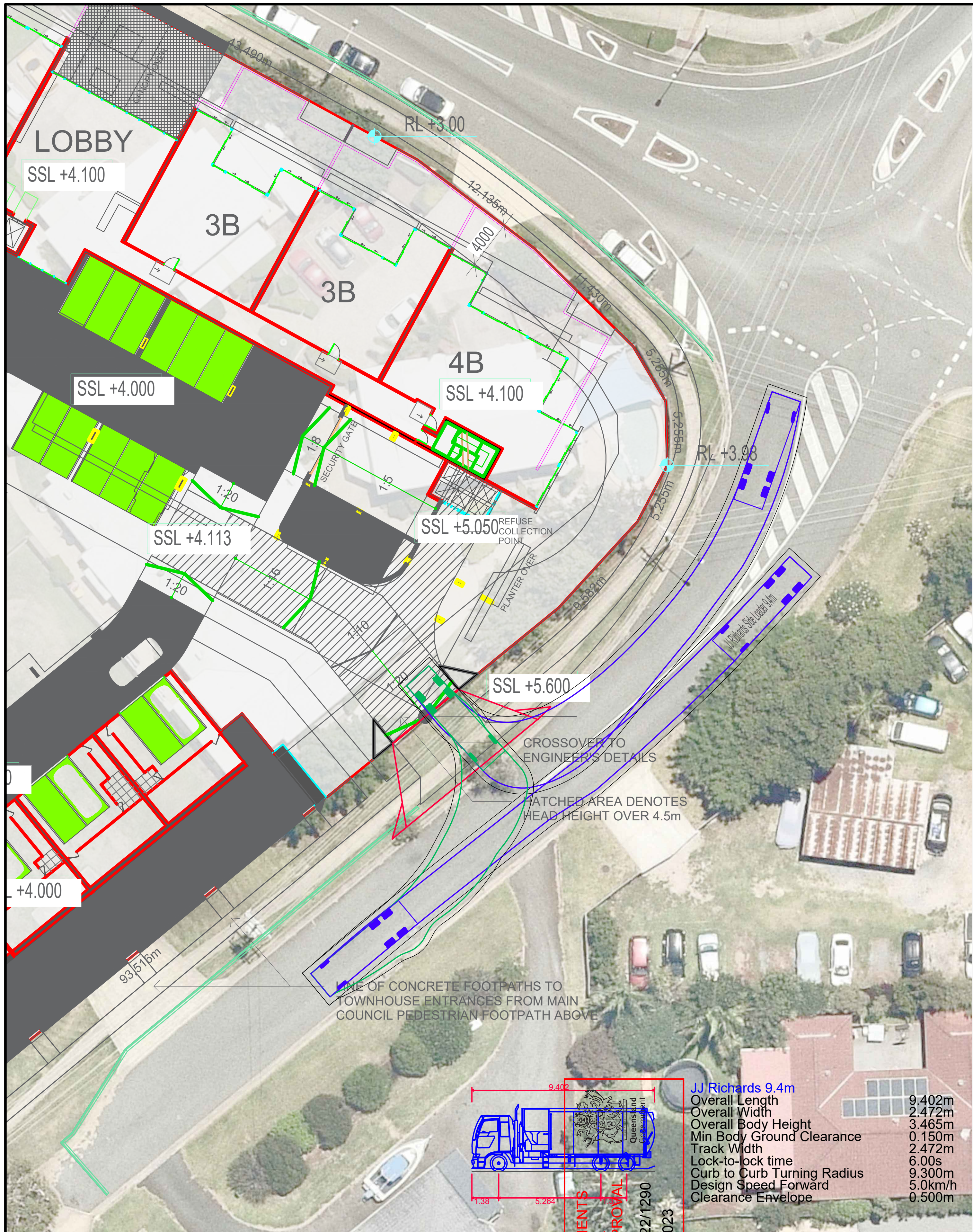
ttm

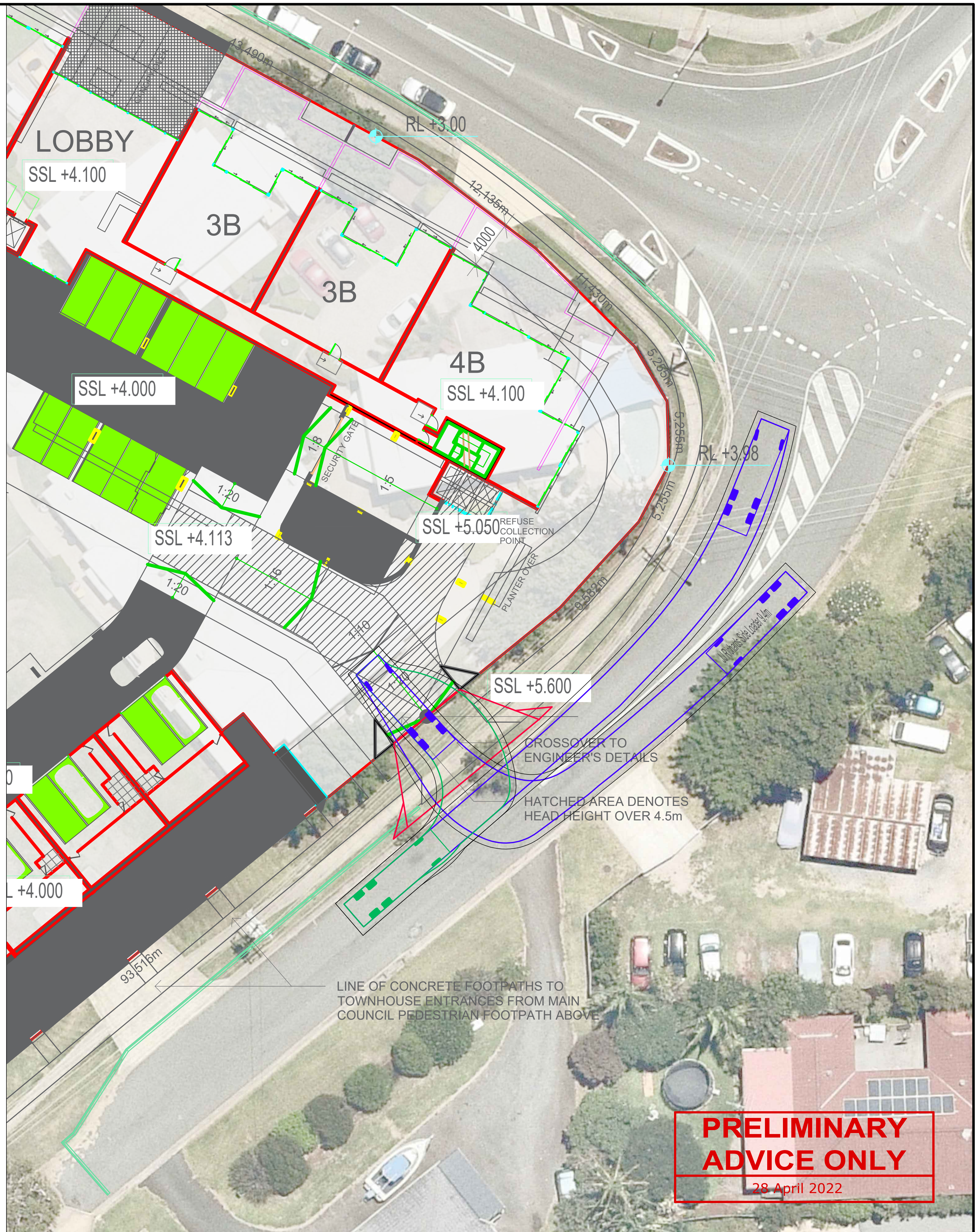
TTM CONSULTING PTY LTD
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
P.O. BOX 12015, BRISBANE QLD 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: 57 HAMILTON STREET, REDLAND BAY

DRAWING TITLE: **SWEPT PATH ANALYSIS**
ON SITE SERVICING

PROJECT NUMBER	ORIGINAL SIZE
21BRT0753	A3
DRAWING NUMBER	REVISION
21BRT0753-01	A
DATE	SHEET
28 Apr 2022	1 OF 1





PRELIMINARY ADVICE ONLY
28 April 2022

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL
Approval no: DEV2022/1290
Date: 03/03/2023

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	28-04-22	ORIGINAL ISSUE	MGr	MGr	SC

SCALE 0 4 8 12 16 20m
SCALE 1:400 AT ORIGINAL SIZE

NORTH

CLIENT: PALM LAKE WORKS PTY LTD

TTM CONSULTING PTY LTD
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
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T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **57 HAMILTON STREET, REDLAND BAY**

DRAWING TITLE: **SWEPT PATH ANALYSIS**
SIDE LOADING REFUSE COLLECTION VEHICLE (RCV)
UPDATED TURN AROUND ARRANGEMENT

PROJECT NUMBER	ORIGINAL SIZE
21BRT0753	A3
DRAWING NUMBER	REVISION
21BRT0753-02	A
DATE	SHEET
28 Apr 2022	1 OF 1

Queensland Government

Section 4 - SPECIALIST REPORTS

Waste Management Plan
Prepared by Zone Planning Group

zone Planning Group

Queensland Government

Zone Planning Group

Waste Management Report

DEVELOPMENT PERMIT
Material Change of Use
for a Multiple Dwelling

Prepared for Palm Lake Care Properties Pty Ltd

April 2022
Z21379

17-19 Weinam Street & 55-61 Hamilton Street,
Redland Bay

This report was prepared by

Zone Planning Group Pty Ltd

ABN 36 607 362 238

1638 Tweed Street
BURLEIGH HEADS QLD 4220

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BURLEIGH TOWN QLD 4220

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www.zoneplanning.com.au

Issue	Date	Prepared by	Checked By
Draft	27/04/2022	SJM	DG
Final Version	29/04/2022	SJM	EM

Disclaimer

Contents

Figures & Tables

Appendices

Appendix 1	Waste Management Plan
Appendix 2	Architectural Plans prepared by Archidiom

Glossary of Terms

Bin carting route – the proposed route to move bins between the storage point and the servicing point.

Bulk bins – bins fitted with lids and side pockets to allow them to be serviced by a front-lift truck.

Clinical or related waste –waste that has the potential to cause disease, including, for example, the following –

- animal waste;
- discarded sharps;
- human tissue waste; or
- laboratory waste.

Commercial accommodation – for the purposes of this report means commercial development that includes a domestic or residential component, such as Retirement facility, Community care centre, Rooming accommodation, Short term accommodation or Resort complex.

Commercial premises – for the purpose of this report means any of the following types of premises:

- a Hotel, Short term accommodation, Tourist park, Food and drink outlet;
- an assembly building, institutional building, Child care centre, Educational establishment;
- premises where a sport or game is ordinarily played in public;
- an exhibition ground, show ground or racecourse;
- an Office, Shop or other premises where business or work other than a manufacturing process is carried out.

Commercial waste – means waste, other than green waste, recyclable waste, and interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of commercial developments.

Common servicing point – a common area where more than two dwellings/tenancies stand their wheelie bins for servicing.

Common storage point – a common area where more than two dwellings/tenancies store their wheelie bins.

Constructed hardstand area – a hardstand area, for example a concrete pad, which has been constructed for bin storage.

Digesters and dehydrators – machines specifically designed to reduce food waste volumes to allow for efficient disposal. Digesters typically process the material into sludge while dehydrators remove liquid from food waste generating a fertiliser as the end product. Disposal of end product can be used on either internal gardens or on external gardens/farms.

General waste – waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic or commercial premises.

Glass crushers – machines that can reduce the volume of glass waste by up to 75%, saving valuable space.

Hazardous waste – solid waste that is or contains toxic material, for example light bulbs, fluorescence lights, batteries.

Internal servicing roadway – is a driveway, private roadway or other path intended for use by vehicles, in which the waste collection vehicle is required to use to service a bin.

Mixed-use development – for the purpose of this report, any building or development complex used, or intended to be used, for residential purposes in combination with other commercial uses (e.g. Offices, Food and drink outlets etc).

Organic waste – is waste that comes from plants or animal that is biodegradable for example green waste and food waste.

Recycling chute – a duct in which recycling descends from one point to another.

Recyclable waste – for a local government's area, means clean and inoffensive waste that is declared by the local government to be recyclable waste for the area. In the Redlands Shire Council the following wastes are deemed recyclable:

- all household plastics, bottles and containers;
- aluminium and steel cans and aerosols;
- bottles and jars made only of glass;
- clean cardboard, newspaper, loose paper, junk mail, magazines and cartons.

Related waste – means waste that constitutes, or is contaminated with, chemicals, cytotoxic drugs, human body parts, pharmaceutical products or radioactive substances.

Ro-Ro bin – roll-on roll-off bin.

Roll-on roll-off bin – large steel open top skip bins or enclosed bins. Bins are collected by a hook-lift truck.

Solid waste – any general or recyclable waste, be it commercial or domestic. Solid waste does not include waste discharges to sewer/water or the atmosphere.

Servicing point – the designated area allocated to the temporary storage of waste bins for the period of servicing only. The point may be within or external to a development.

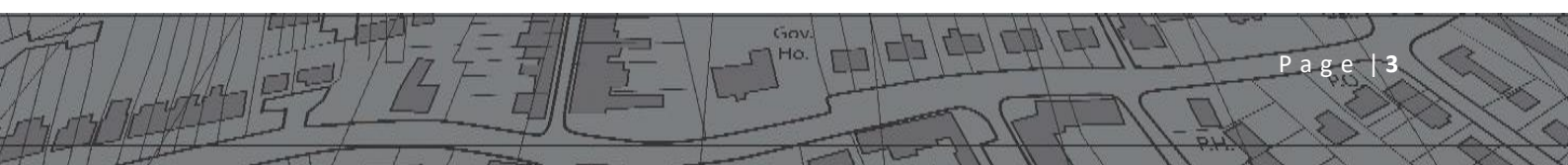
Storage point – the area allocated to the permanent storage of waste bins. This is the normal location of the waste bins and excludes the period where the bin is serviced. A storage point may be a common storage point or an individual bin storage point.

Waste – includes anything, other than a resource that is:

- left over, or an unwanted by-product from an industrial, commercial, domestic or other activity; or
- surplus to the industrial, commercial, domestic or other activity generating the waste.

Waste carting distance – the distance required for a person to transport their waste from the nearest point of exit of their dwelling/tenancy to a storage point (or in the case of a multi-level building, to the nearest waste disposal point).

Waste chute – a duct in which waste descends from one point/level to a collection bin.



Waste disposal point – the point where waste is disposed of into the chute, also known as waste hopper. It consists of a fixed frame and hood unit, covered with a hinged or pivoted door.

Waste storage room – the room at the base of the chute used for the storage of waste bins.

Wheelie bin – two wheeled mobile garbage bins, made from high density polyethylene (HDPE). Wheelie bins are collected by a side-lift truck.

1.0 Introduction

1.1 Site & Application Details

Table 1: Site & Application Details

Address	17-19 Weinam Street & 55-61 Hamilton Street, Redland Bay
Real Property Description	Lot 1 on SP169111 & Lot 2 on SP115173
Site Area	7,026m^2
Applicant	Palm Lake Care Properties Pty Ltd C/- Zone Planning Group
Applicant Contact Details	Sam Monaghan Zone Planning Group 07 5562 2303 | smonaghan@zoneplanning.com.au
Local Government	Redlands Shire Council
SEQ Regional Plan Designation	Urban Footprint
Planning Provisions	Weinam Creek Priority Development Area within Precinct 1 – Mixed Use Village

1.2 Site Location & Characteristics

The subject site consists of two allotments with a total site area of 7,026m2. The site is bound by Hamilton Street to the north-east with a frontage width of approximately 71m; Weinam Street to the south with a frontage width of 108m and Pitt Street to the west with a frontage width of 80m. An informal park, Hamilton Street Park adjoins the site to the north. The site slopes from Weinam Street towards Hamilton Street Park with a relatively sharp fall from Weinam Street into the site where the verge is at 5.2m AHD and the site is approximately 3.76m AHD.

The eastern portion of the site hosts the Palm Lakes Care Redland Bay aged care accommodation facility with the balance of the land being unimproved. The existing aged care facility consists of access from Hamilton Street and waste servicing is undertaken from within the site. The overhead waste vehicle drives into the site via the southern crossover, services the bulk bins and reverses back out onto Hamilton Street.

Table 2: Site Location & Characteristics

Topography	The site slopes from Hamilton Street towards the Hamilton Street Park.
Vegetation & Waterways	The site has all services available to it – water, sewer, stormwater, electrical and telecommunications.
Availability of Services	The site is of irregular shape with a frontage width to Hamilton Street of approximately 71m, a frontage width to Weinam Street of approximately 108m and a frontage width of approximately 80m to Pitt Street. The site has a 67m long boundary with Hamilton Street Park north of the site.
Allotment Dimensions	The site is occupied by a double storey aged care accommodation facility.
Current Use & Improvements	The site slopes from Hamilton Street towards the Hamilton Street Park.

Figure 1: Aerial Photograph of Subject Site (Source: Nearmap)

1.3 Proposed Development

This Development Application seeks approval for a Material Change of Use to establish Multiple Dwelling and land use over the site in the form of a 6-storey residential apartment building containing 77 units and six town houses fronting Weinam Street.

The development is arranged to include a single level basement; ground level visitor car parking, services, access and lobby area; Levels 2-5 apartments and rooftop communal area. The six townhouses are spread over two storeys where the garages are provided below ground level, ground level consists of living, kitchen and dining areas and bedrooms are located on Level 2. The development's unit mix is broken down as follows:

- 21 x 2-bedroom units
- 51 x 3-bedroom units
- 11 x 4-bedroom unit (including 6 townhouses)

A waste storage room is proposed within the basement and is accessible via doors on the room's south-eastern façade, refer to **Figure 2**. General and recycling waste will be conveyed from the apartments to the basement waste storage room via a waste chute. An e-diverter is proposed to divert recycling and general waste into the correct bins.

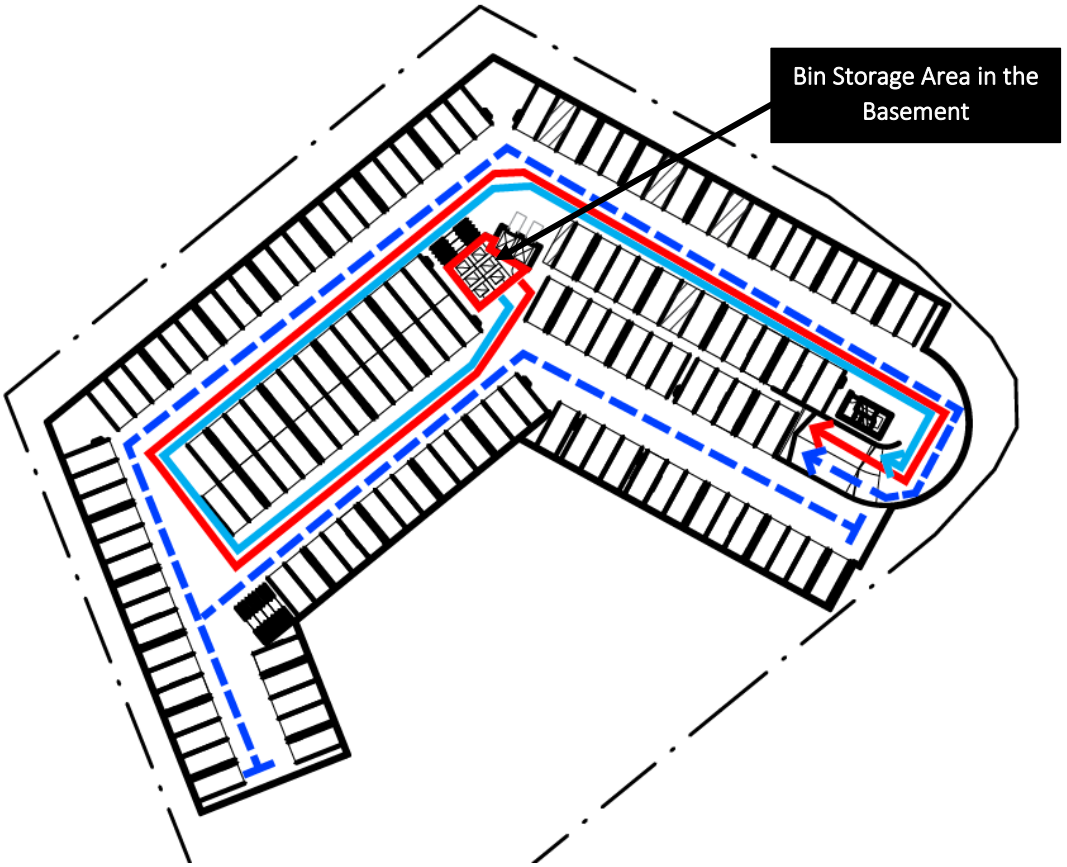


Figure 2: Basement Level Plan indicating the Waste Storage Area (Source: Archidiom)

The townhouses are provided with a waste storage room below the ground level in the centre of the run of townhouses. Residents will be required to walk their general and recycling rubbish from their townhouses to the bins.

Vehicular access to the site is proposed via a double width crossover positioned along Weinam Street, refer to **Figure 3** below. A dedicated on-site waste servicing area is proposed on the eastern side of the driveway just inside the south-eastern boundary. This area is to be screened by a landscaping and will be partially below the level the verge to remain relatively obscured from street view. The waste servicing point will house majority of the development's bins and the body corporate will be responsible for exchanging the bins on an as needed basis.

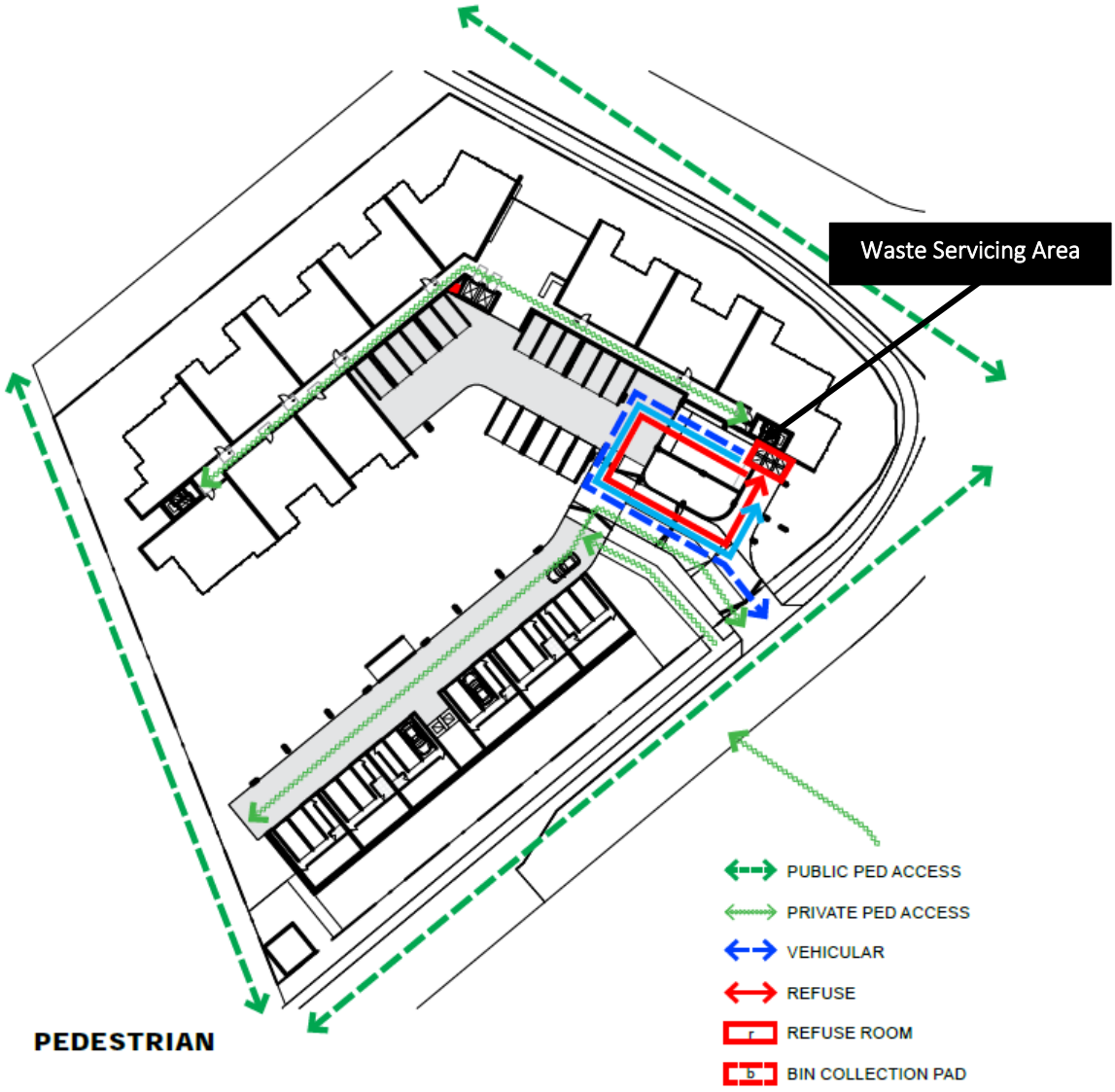


Figure 3: Ground floor plan (Source: Archidiom, 2022)

1.4 Scope of Report

This Report presents a Waste Management Plan for the operation of the development which includes:

- details of the anticipated type and quantity of waste;
- details of the waste storage room requirements, waste chutes and waste storage bins; and
- details of the proposed waste collection arrangements.

This Report is based on the plans referenced in **Appendix 2** and presents conceptual information on the abovementioned elements rather than detailed design and calculations and presents the 'end case' scenario once the proposed development has been constructed and is operational.

2.0 Waste & Recycling Generation

2.1 Type of Waste Streams

The proposed development is anticipated to generate residential general and recycling waste.

No commercial waste is anticipated to be generated by the development.

2.2 General & Recycling Waste Quantities

Calculations of the general and recycling waste predicted to be generated by the development have been prepared using the typical waste generation rates provided within the Redlands Shire Council City Plan, *Planning Scheme Policy 2 – Infrastructure Works, Section 2.4 Waste Management*.

Table 3: Waste Generation Calculations

LAND USE	GENERAL WASTE RATE	TOTAL	RECYCLING RATE	TOTAL
Multiple Dwellings				
77 units (apartments)	100L/unit/week	7,700L	70L/unit/week	5,390L
6 units (townhouses)	120L/unit/week	720L	60/unit/week	360L
TOTAL		**8,420L/week**		**5,750L/week**

3.0 Waste & Recycling Storage

3.1 Waste & Recycling Bin Requirements

Table 4 below provides a breakdown of the general and recycling waste bins required by the development based on the calculations in Section 2.2 of this Report. The screened temporary servicing point is located at ground level behind the front boundary and has been designed to accommodate the required bins.

Table 4: Refuse Bin Requirements

General Waste Storage Requirement	Recycling Waste Storage Requirement	Total Waste Storage Requirement
MULTIPLE DWELLING APARTMENTS		
7,700L/week 4 x 1,100L bulk bin + 1 x 1,100L bulk bin proposed to be located under the chute during servicing periods.	5,390L/week 3 x 1,100L bulk bin + 1 x 1,100L bulk bin proposed to remain within the bin store area during servicing periods.	General Waste: 5 x 1,100L bulk bin Recycling Waste: 3 x 1,100L bulk bin
MULTIPLE DWELLING TOWNHOUSES		
720L/week 1 x 1,100L bulk bin	360L/week 1 x 1,100L bulk bin	General Waste: 1 x 1,100L bulk bin Recycling Waste: 1 x 1,100L bulk bin

Based on the scale of the development and amount of waste generated, both recycling and general waste will require servicing twice per week for the apartments and once per week for the townhouses.

Due to the accommodation of waste servicing on the site, the applicant has elected to utilise rear lift waste servicing and the bin sizes have been chosen to reflect this arrangement.

Bin Dimensions	
1,100L bulk bin	Dimensions: Length 1,240 x width 1,070 x height 1,330

3.2 Waste Storage Area

The waste storage area associated with the apartments is proposed to be located within the basement and will accommodate 6 x 1,100L rear lift waste bins. The area is proposed to be encased by solid walls and will have a roller door access on the south-eastern side the room. Access to the waste storage room will be limited to authorised personnel only. The bin storage areas have been designed to accommodate the required bins, refer to **Figure 4** below.

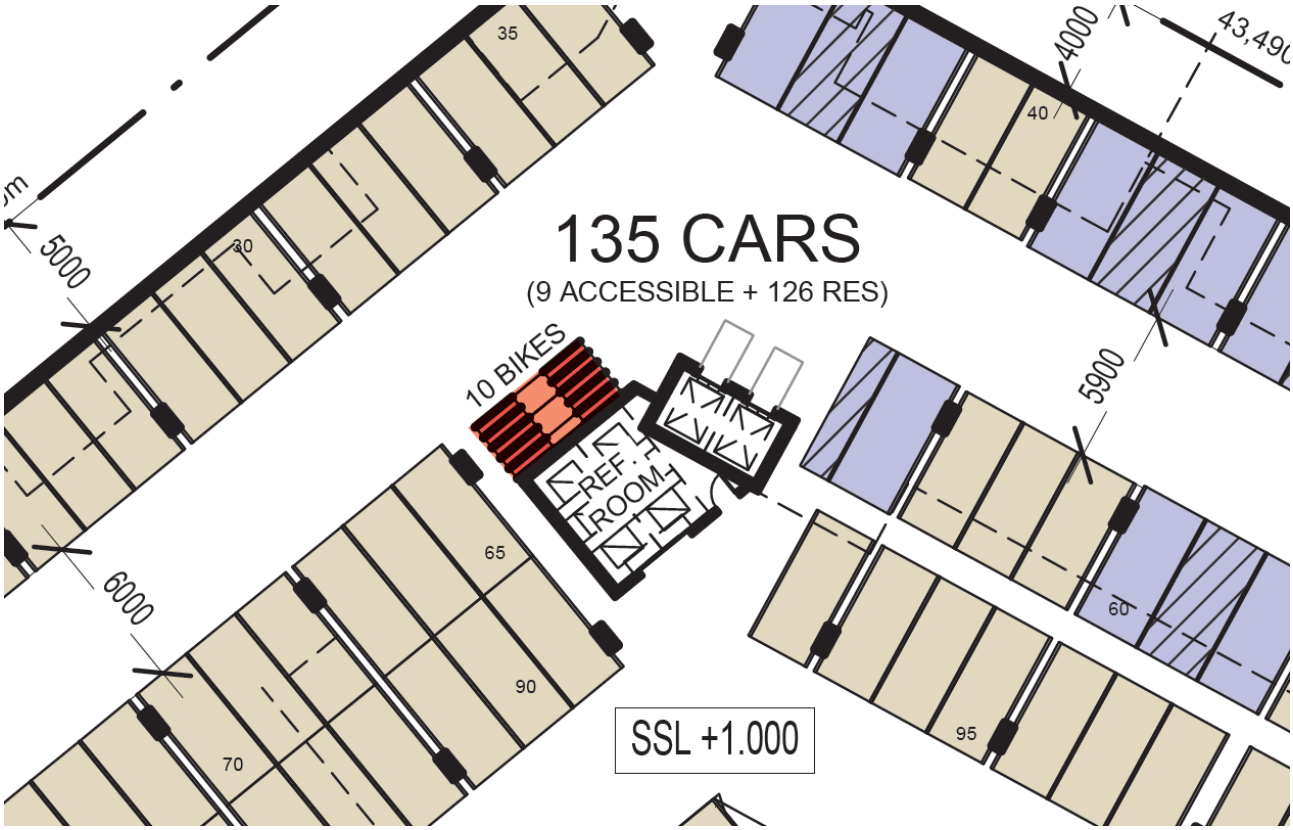


Figure 4: Proposed Bin Storage Area (Source: Archidiom, 2022)

The proposed bin storage area for the townhouses is to be positioned between the townhouses below the ground level. The storage area will consist of gates that will be accessible to residents.

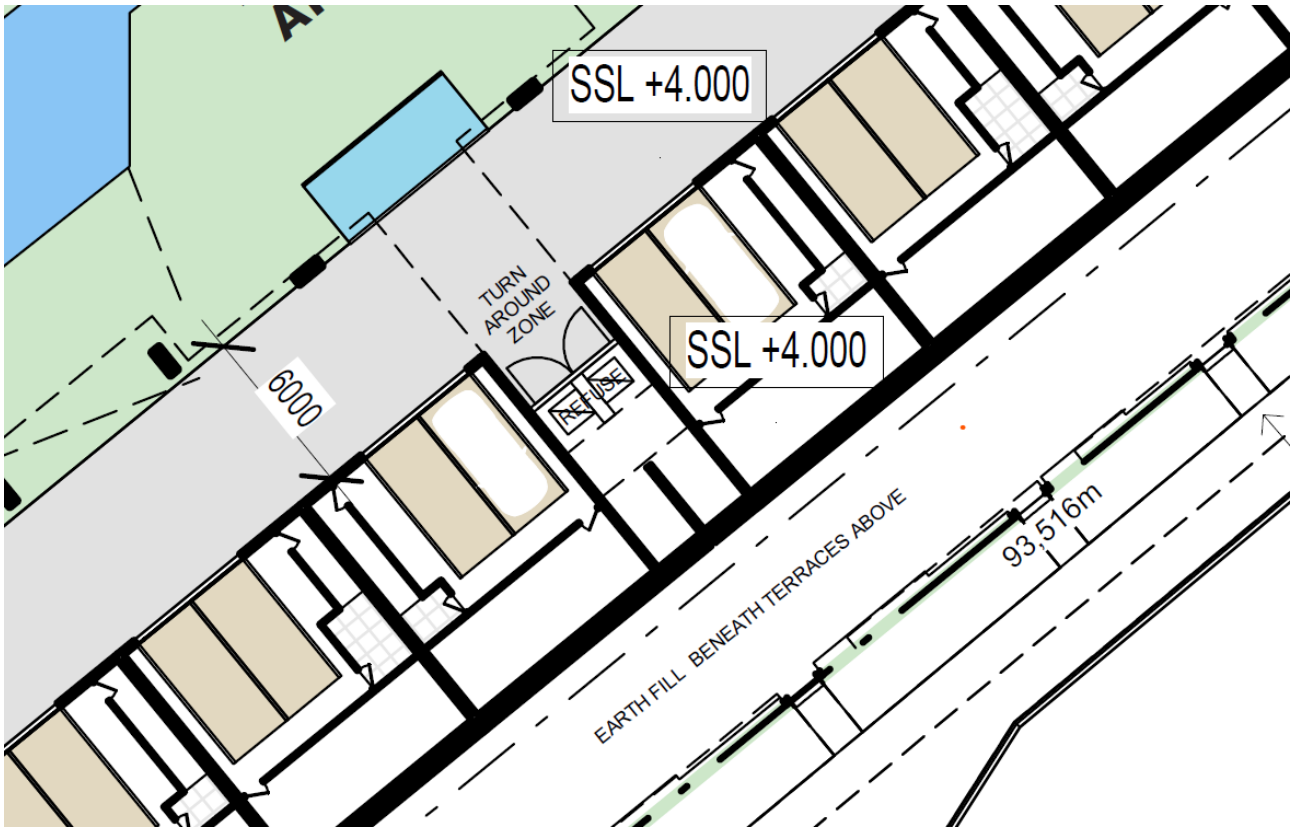


Figure 5: Proposed Townhouse Bin Storage Area (Source: Archidiom, 2022)

3.2.1 General Design Requirements

The waste storage / collection area will be subject to detailed design, subject to the following requirements. The waste storage / collection area must be:

- located at least 5m from any door, window or fresh air intake within the development or any adjoining site;
- connected to the crossover by a paved path so that the bin can be manoeuvred for servicing within living the bin over raised surfaces (pram ramp);
- allow for bin carting via hard stand pathways or internal roads and ensure bins can be easily moved to the temporary storage area wither side of the property entry point and are not stored on a section of the driveway that falls away;
- inclusive of clear and safe access to the disposal area for all users of the storage point;
- screened to ensure bins are not visible from passing vehicles and pedestrian traffic external to the site, or inhabitants of adjoining properties;
- ventilated in accordance with the Building Code of Australia (BCA);
- designed to allow for at least an additional 0.3m clearance surrounding each bin/container;
- comprised of a hardstand area with solid concrete base or equivalent;
- provided with a hose cock for cleaning of bins and the room;
- graded to fall to a drainage point within the storage area;
- connected to the sewer in accordance with trade waste requirements;
- fire rated in accordance with the BCA;
- designed to permit access for the transfer of bins/containers to the storage and servicing point and for the positioning of bins/containers in appropriately in relation to the waste chute;
- designed to ensure doors are wide enough to allow for the easy removal of the largest bin/container to be stored;
- designed to ensure the walls, ceiling, floor and equipment of the waste storage room are constructed of impervious material with a smooth finish to allow for easy cleaning; and
- designed to be insect and vermin proof.

3.3 Waste Chutes

General waste associated with the development will be transferred to the waste storage room at ground level via waste chutes accessible from each residential floor.

The waste chute is to be constructed to meet the following requirements:

1. be adequate in strength for its purpose, including additional reinforcing where necessary at joins, bends and hopper intersections;
2. be insect and vermin proof;
3. the chute must be constructed and installed to prevent the following issues during use and operation:
   a. transmission of vibration to the structure of the premises;
   b. excessive odour;
   c. excessive noise to the occupants of the development;
4. the waste chutes must be installed in a fire rated duct and ventilated in accordance with the requirements of the BCA;
5. the chute should comply with the technical specifications of the manufacturer; and
6. shutters should be fitted at the base of the chute for closing off the chute manually during bin exchange and automatically in the case of fire.

Waste hoppers are to be constructed to meet the following requirements:

- be housed in a dedicated room/compartment as illustrated on the proposal plans;
- be located to ensure the handle of the hopper is at least 1,200mm above finished floor level;
- the hopper door is to automatically return to the close position after use;
- be designed to permit free flow of waste into the chute;
- be constructed so that the diameter or largest dimension of the service opening does not exceed three quarters of the diameter of the chute with which the hopper is connected; and
- the floor adjacent to the hopper is to be constructed of a durable impervious material with a smoot finished surface.

4.0 Collection Details

The following provides an overview of the refuse bin collection and servicing details relevant to this proposal.

Based on the calculations provided in this Report, and the bin requirements determined in Section 3.1, the general and recycling waste will require servicing twice per week. Once the development is operational, the collection frequency should be reviewed to ensure that efficient practice is in place.

4.1 Bin Servicing Point

The on-site manager will be responsible for the carting of the bins from the waste storage rooms to the temporary servicing point. The waste contractor will drive into the site and reverse into the waste servicing area and drag the bins to be serviced. The development has made provision for the rear loading waste servicing clearance. Once the bins have been serviced, the waste vehicle will exit the site in a forward gear onto Weinam Street, refer to the swept path diagrams provided below.

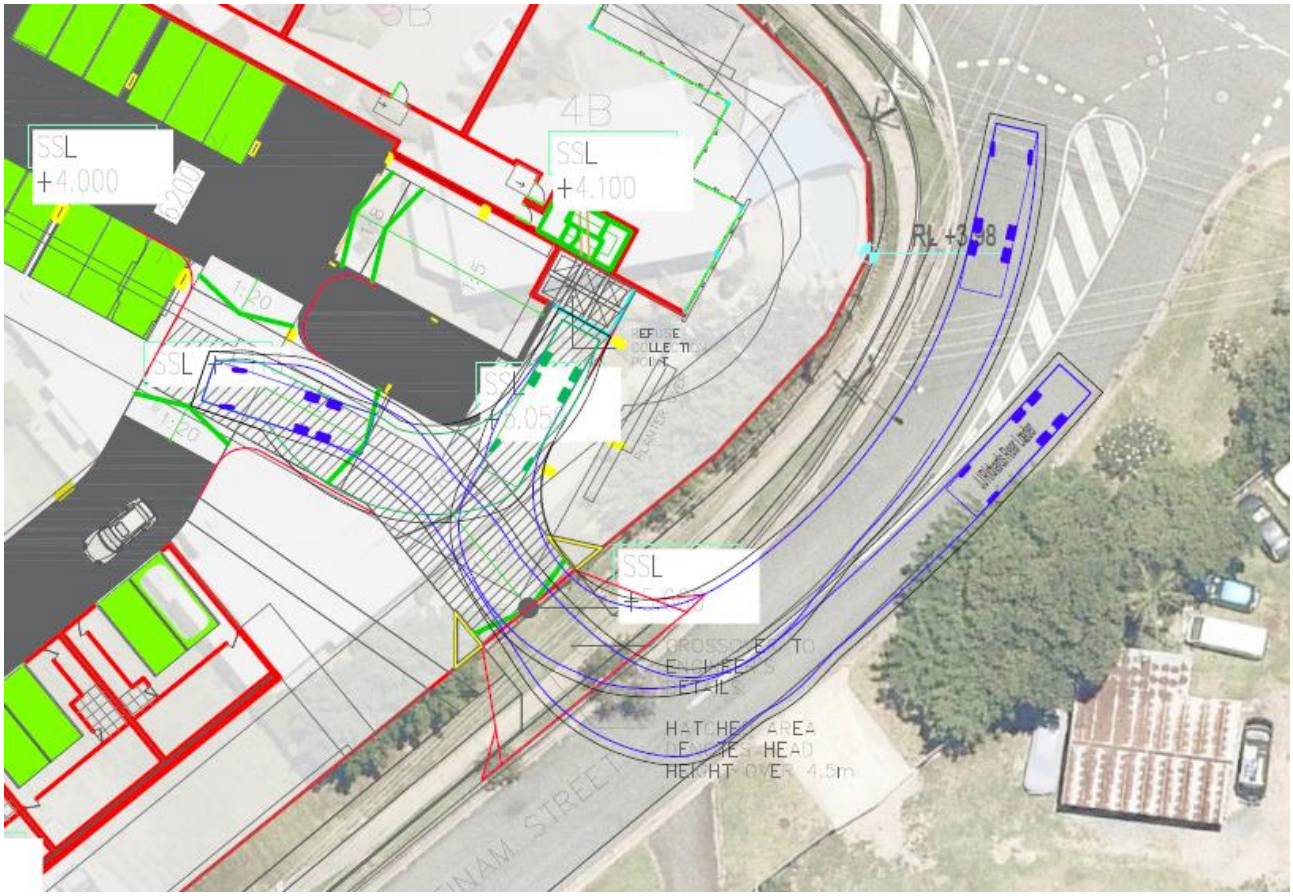


Figure 6: Ground Level Plan showing the Temporary Bin Servicing Point Swept Path for Waste Vehicle

4.2 Collection Vehicle Access

The development will be required to be serviced by a rear-loading refuse collection vehicle. Servicing is proposed to be undertaken on-site within the dedicated loading area. Sufficient vertical clearance is provided above the waste servicing area to accommodate the required waste servicing vehicle servicing height of 3.4m. The development also makes provision for a side lift truck to utilise the driveway to turnaround within Weinam Street as is currently the case on the crossover into the site at the western end of Weinam Street.

6.0 Conclusion

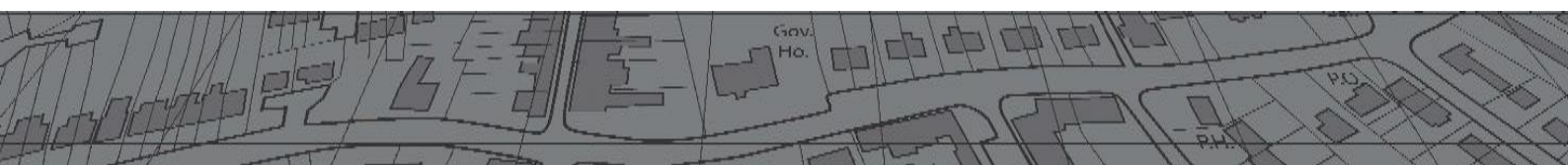
This Report has been prepared to demonstrate the proposed waste management practices to be implemented during the operational phase of the proposed development. Additional detailed engineering designs regarding waste area size, drainage and service vehicle access are to be completed by others during the detailed design stage of the development.

The proposed development consists of a 6-storey Multiple Dwelling development comprising 77 units and six townhouses. The development is anticipated to generate general and recycling waste streams consistent with the residential nature of the development.

The proposed waste management arrangements consist of the following:

- upon completion, the development is anticipated to generate 8,420L of general waste per week and 5,750L of recycling per week;
- for the apartments, the development will require 5 x 1,100L bulk bins for general waste and 3 x 1,100L bulk bins for recycling waste;
- for the townhouses, the development will require 1 x 1,100L general waste bin and 1 x 1,100L recycling waste bin;
- the waste chutes will direct general waste into the bins within the waste store room for the apartments and the townhouse residents will be required to dispose of their rubbish within the townhouse waste storage area;
- bins will be relocated on service day to the temporary service point via the driveway by the body corporate or on-site manager; and
- bins will be serviced on the site by the contractor.

APPENDIX 1
Waste Management Plan



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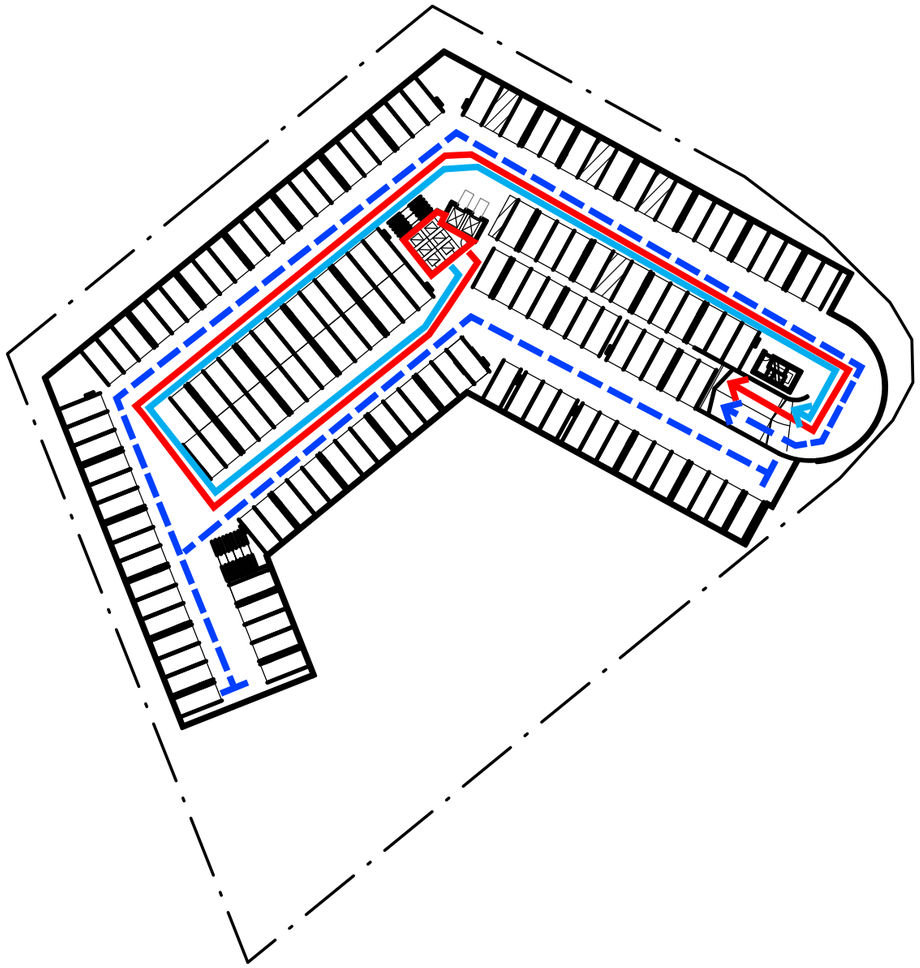
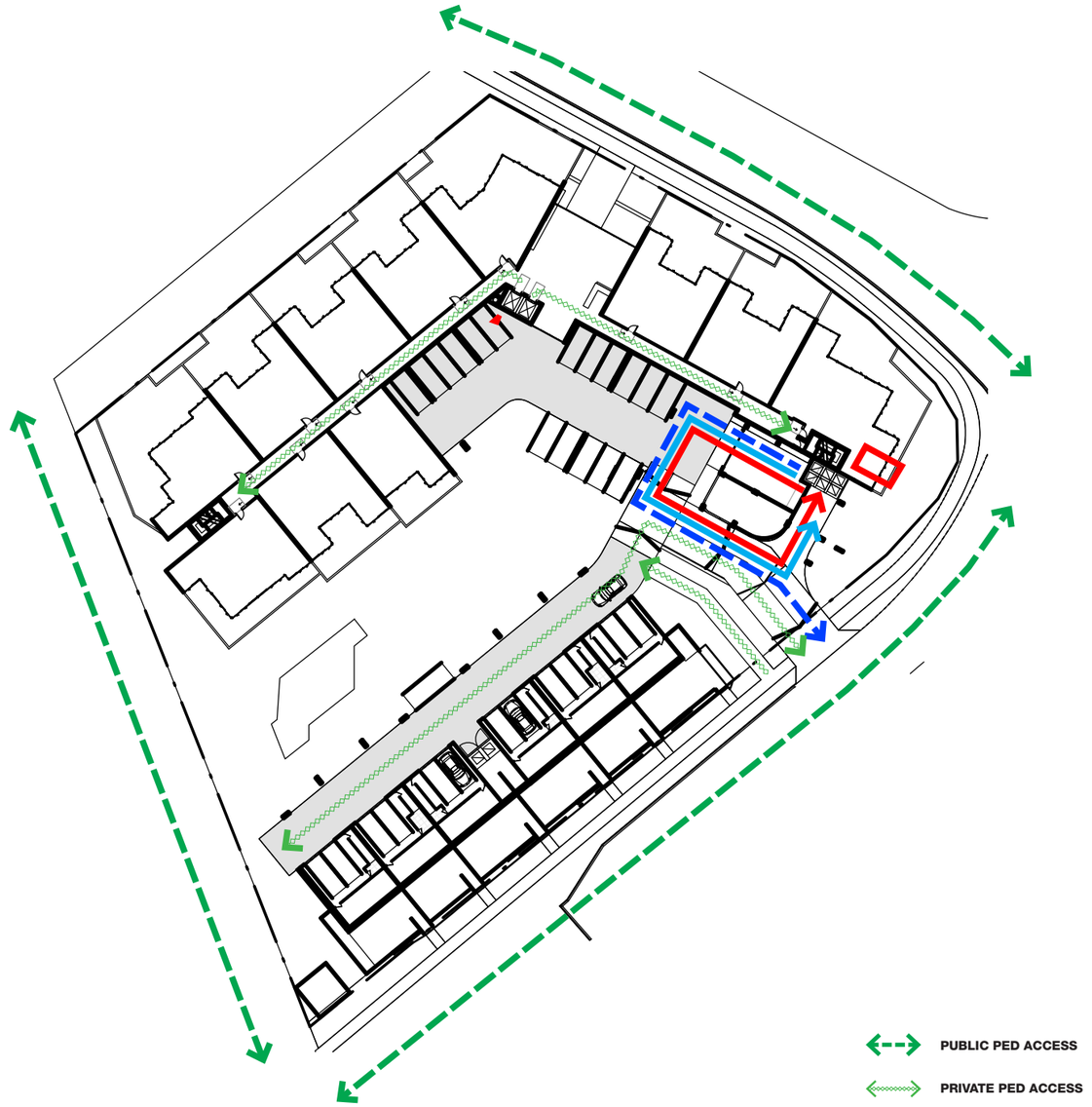
MISCELLANEOUS

refuse & vehicular diagrams



REFUSE + VEHICULAR



PEDESTRIAN

TO BE UPDATED

APPENDIX 2
Architectural Plans

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STATISTICS

site plan + development statistics

DEVELOPMENT STATISTICS

1. Site Area	Total 7026m²		
2. Zoning	Weinam Creek PDA - Precinct 1 - Mixed use village		
3. Land Use	Multiple Dwellings		
4. Site Coverage	Ground (L1) - 2390m² | 34.0%	Level 3 - 3932m² | 56.0%	
	Level 2 - 4113m² | 59%	Roof - 4015m² | 58%	
5. Height	Zoned - 5 Storeys	Proposed - 5 Storeys | 24.23m	
6. Setbacks	As shown		
7. Residential Density	Proposed - 83 Units | 239Beds [1 Unit per 84.6m² & 1 bedroom per 29.3m²]		

8. Proposed Unit Mix

Unit Types	No. of Units	Accessible Units	No. of Beds	Units %
2 Bed / 2 Bed+	17	4	42	25%
3 Bed / 3 Bed+	46	5	153	62%
4 Bed / 4Bed+	11		44	13%
TOTAL	**83 Units**		**239 Beds**	**100%**

9. Proposed Carparking No.

Use	Quantity	No. of Units	RCC Rate	Required	Provided
Units	(2B/2B+)	17	1.5/Unit	25.5 (26)	26
	2B Accessible	4	(1 Accessible + 0.5)/Unit	4 Accessible + 2	4 Accessible + 2
	(3B/3B+)	46	2/Unit	92	92
	3B Accessible	5	(1 Accessible + 1)/Unit	5 Accessible + 5	5 Accessible + 5
	(4B/4B+)	11	2/Unit	22	22
	Vis		1/10Units	8.3 (9)	9
TOTAL		**83**		**9 Accessible + 156 = 165**	**9 Accessible + 156 = 165**

	No. of Units	Rate	Required	Provided
Res Bikes (Tower Only)	77	1 / 3 Units	26	26
Vis Bikes	83	1 / 12 Units	7	7 *within landscape

10. Landscape Area

Communal Open Space - Refer SLI

Landscape Area - Refer SLI

Deep Planting - Refer SLI

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FLOOR PLANS

basement 1

NOTE.
ALL CARPARKS TO BE ALLOWED POWER AND CONDUITS FOR CHARGING STATION INSTALLATION IF REQUIRED.

CARPARKING FACILITIES LEGEND
(To comply with AS2890.1:2004)

			Dim. (Size)
Cars			
1		Residential car space	2.4 x 5.4m
2		Circulation aisles adj. resident cars	5.8m min. clear aisles
3		Accessible car space	3.8 x 5.5m
4		Circulation aisles adj. resident cars	5.8m min. clear aisles
5		Visitor car space	2.6 x 5.4m
6		Circulation aisles adj. visitor cars	6.2m min. clear aisles
7		Electric Vehicle Charging Bay	1 every 100 cars
Bikes			
8		Vis Bikes	0.5 x 1.8m
9		Bike storage in accordance with Austroads Part 14 requirements).	1.5m clear aisles min.
10		Horizontal Residential bike space	0.5 x 1.8m
11		Bike storage in accordance with Austroads Part 14 requirements).	1.5m clear aisles min.
Ramps			
12	Width	Ramp widths	6.1min clear
13	Grade	Top of ramp - 2m transition	1:8
		Bottom of ramp - 2m transition	1:8
		Ramp < 20m long	1:5 max

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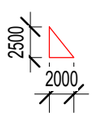
FLOOR PLANS

level 1 (ground)

LEGEND

SIGHT TRIANGLES



PEDESTRIAN SIGHT TRIANGLES TO BE KEPT CLEAR OF OBSTRUCTIONS TO VISIBILITY. LANDSCAPING UP TO 500MM IN HEIGHT IS PERMITTED WITHIN THIS AREA.

Q100 3.23 AHD

CARPARKING FACILITIES LEGEND
(To comply with AS2890.1:2004)

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		Ramp < 20m long	1:5 max

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2022/1290

Date: 08/03/2023

Queensland Government

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FLOOR PLANS

level 2

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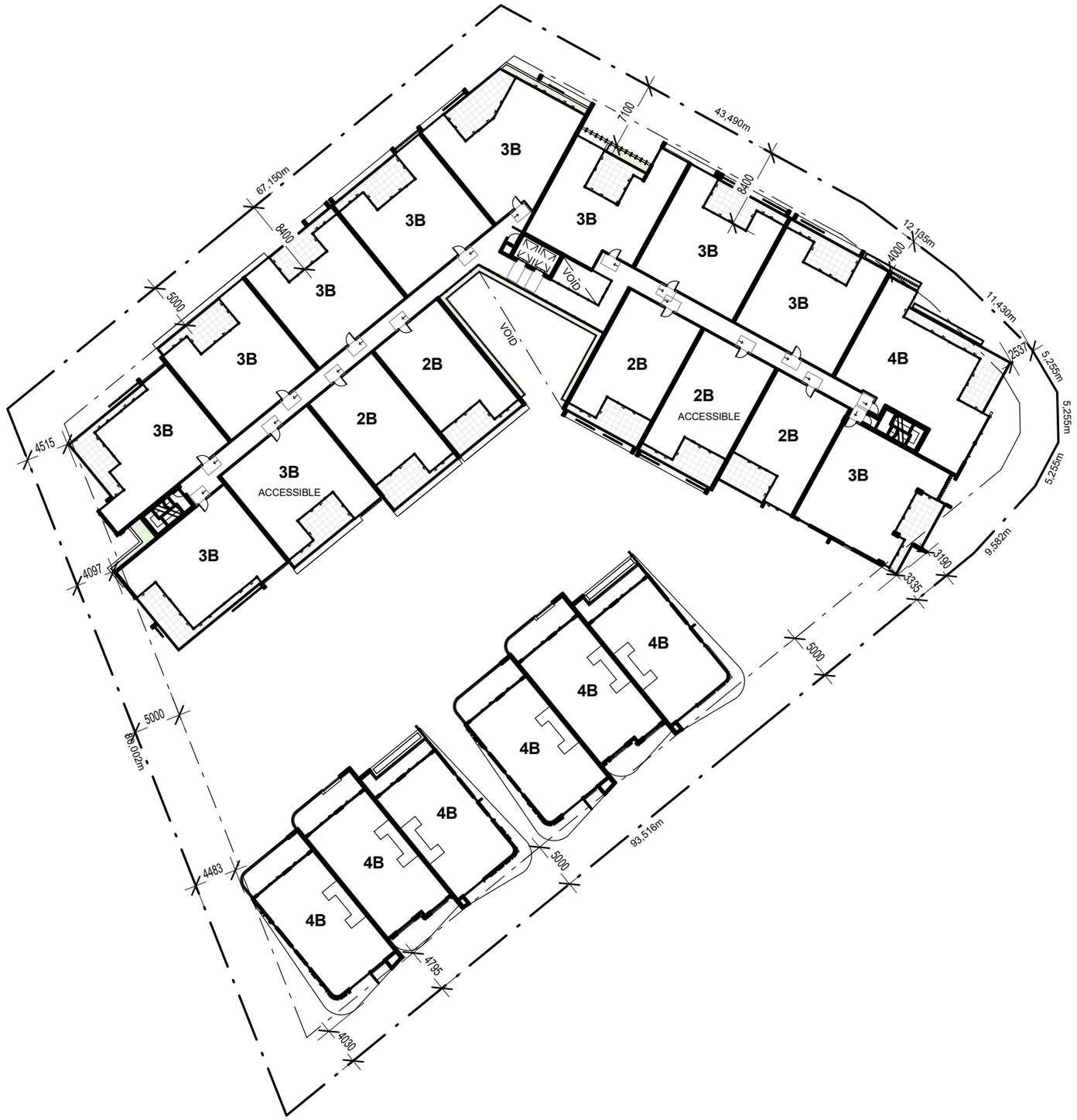
FLOOR PLANS

levels 3-5



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FLOOR PLANS

roof