PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2024/1579

Date: 05 February 2025

Queensland Government

6 December 2024
Our Ref: 20GCT0106_LT04A
Your Ref: DEV2022/1323

Attention: Leo Mewing

Mewing Planning Consultants
by email

Dear Leo,

RE: 5 Hercules Street, Hamilton – Traffic Engineering

1. Introduction

TTM Consulting (now a Colliers company) has been engaged to prepare a traffic engineering report investigating a proposed mixed use development within the Northshore Hamilton PDA. This report has been prepared in support of an application to Economic Development Queensland (EDQ).

This assessment incorporates responses to the Further Issues Letter dated 19 March 2024, and the most recent land use change of replacing the multiple dwelling units with rooming accommodation units.

2. Existing Site Conditions

The site is located at 5 Hercules Street, Hamilton, near the north-east corner of the intersection between Hercules Street and Main Street.

Figure 1: Site location

The property is described as Lot 1 on SP231749 and has road frontage to Hercules Street and Main Street and is currently occupied by a commercial property.

3. Existing Transport Infrastructure

Roads - All roads within 200m of the site are administered by Council – the exception being Main Street which is a private road. Neighbourhood/local roads are subject to a 50kph speed limit and generally have two traffic lanes plus kerbside parking lanes. Kingsford Smith Drive is the nearest arterial road located 150m to the north of the site. Kingsford Smith Drive provides access to the broader Brisbane network, is subject to a 60kph speed limit and is 3 lanes wide in both directions. The Kingsford Smith Drive / Hercules Street intersection is signalised.

Public transport - Doomben and Ascot train stations on the Doomben line are located approximately 1.2km to the northeast and northwest of the site respectively. Bretts Wharf Citycat ferry terminal is located 380m walk to the south west of the site.

The nearest on-street bus stop is located on Remora Road 350m east of the site. The stop services routes 303, 304 and 305, connecting the site with Doomben, Eagle Farm, Pinkenba, Newstead and Brisbane CBD.

Located 450m away on Kingsford Smith Drive near the Bretts Wharf Citycat ferry terminal, additional stops are provided that service routes 300, and 302, connecting the site with both Toombul Centro and the Brisbane CBD.

These routes provide a weekday service generally every 15-20 minutes, and weekend services are generally every 30 minutes.

Cyclists - An off-road cycle path extends across the site frontage along Hercules Street and also from the nearby cruise ship terminal westward toward Newstead, between Kingsford Smith Drive and the river's edge. Other on-street routes connect Kingsford Smith Drive to the Doomben and Ascot train stations.

Pedestrians - Formal pedestrian footpaths are located on both sides of all roads in the immediate vicinity of the site, and signalised pedestrian crossings are incorporated into nearby intersections with Kingsford Smith Drive and Remora Road.

Planning – Review of the Queensland Transport and Roads Investment Program (QTRIP) 2026-2027 shows no planned road upgrades in the immediate vicinity of the site, or other works which will impact upon or be impacted by the proposed development.

An indicative pedestrian pathway is proposed along Main Street and a proposed indicative cross block link opposite the site, connecting to the Brisbane River as per the proposed amendment (Oct 2022) to the Northshore Hamilton PDA Development Scheme.

4. Proposed Development

The development proposes 579m² GFA of commercial area, of which 287m² is at ground level, with 130 hotel rooms, 107 co-living (rooming accommodation) units and communal facilities on the levels above.

It is proposed that the ground and mezzanine level commercial tenancies will accommodate a range of land uses (i.e - Shop, Food and Drink Outlet, Health Care Service, Educational Establishment, Bar, Hotel and Indoor Sport and Recreation).

The ground and two podium levels (level 1 and 2) provide 62 car parking spaces. The site provides 46 bicycle spaces across the parking levels of which 3 freely accessible spaces are located at ground level. Standing for an MRV is also accommodated within a service bay at ground level.

The access arrangements include a 6.35m wide driveway crossover located on the southern boundary of the site direct to Main Street – to which the site has access easement rights. The access is priority controlled with all turns permitted.

5. Car Parking Supply

The Northshore Hamilton PDA Development Scheme identifies expected car parking rates for development, and these are outlined in Table 1 below. The rates are further defined by the October (2022) amendment to the Hamilton PDA, which for unspecified non-residential (ie. short term accommodation) uses refers to the City Frame rates identified within BCC TAPS PSP.

Table 1: Current Development Scheme Car Parking Supply Requirement

Land Use	Parking Rates	Extent	Min Required Spaces
Residential	Min 0.75 / Max 2.0 spaces per dwelling unit	107 room	80 min – 214 max
Residential - Visitor	0.15 spaces per dwelling unit	50 units	16
Short term accommodation (BCC TAPS)	0.5 spaces per room, unit, or cabin, plus 0.5 spaces per staff	130 rooms	65 plus staff
*Commercial **	*Max. 2 spaces per 100m²*	*579m²*	*12*
		Total	161 - 295 plus staff

** commercial parking is a maximum rate and is therefore not included within the minimum required spaces.*

The table above presents the requirements based on standardised guidelines for the PDA, however the site is located in the south westernmost corner of the PDA and as identified in Section 3. It is therefore more appropriate to apply the TAPS PSP rates for sites that are within 400m of a public transport terminal – in this case, Bretts Wharf ferry terminal.

It is also noted that a total of 84 of the short-term accommodation rooms (64%) are interconnected allowing for family/group occupation of adjoining rooms. This enhances the expected occupation of the hotel by families and groups rather than singles and couples.

This leads to a lower parking demand, as 3-4 persons (2 adults, 2 children for example) across two rooms would travel in a single vehicle. It is also expected that the site would operate a parking booking system, whereby parking is 'opted in' at the time of booking, such that the operator can manage on site space occupation. The resulting short term accommodation 'unit' count is therefore assessed as 88 units.

Table 2 below sets out the parking requirement on the basis of this.

Table 2: Performance Outcome Car Parking Supply Requirement

Land Use	Parking Rates	Extent	Min Required Spaces
Rooming accommodation (BCC TAPS)	0.25 spaces per room	107 rooms	27
Short term accommodation (BCC TAPS)	0.25 spaces per room, unit, or cabin, plus 1 space per 20 rooms for staff	88 units	27 (22 + 5)
*Commercial **	*Max. 2 spaces per 100m²*	*628m²*	*13*
		Total	**54**

** commercial parking is a maximum rate and is therefore not included within the minimum required spaces.*

The site provides 62 car parking spaces – of which 25 are hotel reserved and 22 are rooming accommodation reserved. These are supported by 2 PWD spaces, 8 visitor spaces and 5 commercial spaces.

The number of car parking spaces proposed reflects the expected demand for the development based on the site's location and proximity to public transport facilities.

6. Car Park Layout

The characteristics of the proposed car parking area with respect to the EDQ requirements are reviewed against AS2890.1. The key aspects of the parking area comply with the following designs standards:

- User class 1A resident bays – 5.4m x 2.4m
- User class 3 visitor bays – 5.4m x 2.6m
- User class 4 PWD bays – 5.4m x 2.4m plus 5.4m x 2.4m adjacent shared area
- Parking and circulation aisles – 5.8m (minimum)
- One way ramps – minimum 3.0m plus 0.3m clearance to walls
- Ramp grades – 1:5 (20%) with 1:8 (12.5%) summit and sag transitions
- Height clearances shall comply with the minimum 2.2m over aisles and standard spaces, and 2.5m over PWD spaces and adjacent shared area.

7. Ramp Operation

The site proposes a one way ramp between ground and podium. The ramp will be signal controlled due to its single lane width. It is proposed that inbound vehicles have priority, meaning outbound vehicles will be required to stop at a signal-controlled hold points on the podium level to allow inbound vehicles to enter.

The entry signal from Main Street will be default green to prioritise entry movements. When a vehicle on the podium approaches to exit, the ground entry signal will revert to red to allow the podium vehicle to exit. Upon exit the ground signal will revert back to green.

TTM have undertaken swept path analysis of the podium ramp entry and exit movement to demonstrate suitability of the proposed arrangement – refer to TTM Drawings 20GCT0017-05 to 07 attached.

Single lane ramps are also proposed between podium levels 1 and 2. These ramps will also be controlled via a signal system. Vehicles on an upper level (relative to the immediately lower level) will be stopped to allow upper level podium vehicles to exit – and in reverse for the opposite direction. These signals will operate independent of the ground level system. For those spaces located in front of hold points, the signal system is triggered by way of push buttons mounted on the columns/walls adjacent to the spaces. These button activations include additional timing to allow for users to access their vehicles. Proximity sensors over the spaces identify the vehicle is present (to avoid misuse) and the system is triggered to allow them to exit.

On entry from Main Street, the site provides a hold point that accommodates two queuing vehicles within the property boundary, whilst allowing vehicles to pass to exit.

To calculate the amount of queuing space required the probability of a number of vehicles in a queue *n* exceeding a specified number of vehicles *N* (ie. the design queue) at any instant must be calculated. This is achieved by the following formula, which is deconstructed in Table 3.

$$Pr\ (n > N) = \rho^{N+1} \leq \alpha$$

The 98th percentile queue is considered an adequate measure of an acceptable queue at access driveways where mechanical equipment is utilised. This infers that there is a 2% probability that the queue length will be exceeded.

The worst-case scenario of delay at the site is associated with the travel between ground and podium levels. The below table shows the calculation of time in which the worst-case movement takes. This is known as the service rate of the queuing system. This is based on a 10kph travel speed and a 60m clear distance between the hold point at ground and the hold point at podium level.

Table 3: Car park entry queue analysis

PM Peak - Trips based on trips						
Description	**Calculation**	**Rate**	**Inbound**		**Outbound**	
Arrival Ratio	r		8	vph	2	vph
Service rate	s		22	s	22	s
			166	vph	166	vph
Utilisation Factor	$\rho = r/s$		4.8%		1.2%	
98th Percentile design queue	$N = [\log(\alpha) / \log(\rho)] - 1$ Where $\alpha = 0.02$ (ie. 2%)		0.3		0.0	
Proportion of time during which ground signal is in use	$\rho_{total} = \rho_{in} + \rho_{out}$		6.0%			
Proportion of time during which an inbound queue of exactly *n* vehicles occurs	$P_n = \rho_{total}\, \rho_{in}^{n}\, (1-\rho_{in})$	n =1	0.28%			
		n = 2	0.01%			
		n = 3	0.00%			

The development should be designed to allow for an inbound queue of 1 vehicle in the 98th percentile design and it is identified that the probability of a 2 vehicle inbound queue is only 0.01%. The development provides for a 2 vehicle queue within the site boundary. This provision is sufficient for the site.

The development trip generation during the PM peak hours provide the highest inbound flow of traffic. As identified within this letter (see Section 11), a conservative maximum of 10vph is expected to be generated by this development. This is equivalent to 1 vehicle every 6 minutes. The travel time between the ground and next level is limited to less than 1 minute, therefore the potential for more than one vehicle queue at any one time is unlikely. Additionally, the signal defaults in the peak periods give priority to the peak flow movement further limiting incidents of queuing in the driveway.

8. Cycle Parking

The development cycle parking identified in the current development scheme as a deemed-to-comply outcome and is presented in Table 4 below. The October amendment to the Hamilton UDA notes that cycle parking rates are to conform to BCC bicycle parking rates – noting that BCC do not specify rates for the proposed non-commercial land uses and therefore reference to Austroads has been made.

The combined area of the commercial area does not exceed 1,000m² - therefore as per Table 21 of TAPS PSP for office/shop – no dedicated cycle parking is required for the commercial tenancies.

Table 4: Current Development Scheme Cycle Parking Supply Requirement

Land Use applied	Bicycle Parking Rates	Extent	Spaces
Flat – Resident (rooming acc)	1 per 3 flats	107	36
Flat – Visitor (rooming acc)	1 per 12 flats	107	9
Hotel – Staff (short term acc)	1 per 100m² lounge/ beer garden	220m²	3
Hotel – Visitor (short term acc)	1 per 100m² lounge/ beer garden	220m²	3
		Total	**51**

A total of 46 bicycle parking spaces are identified on the plans plus a 48m² bike store at ground level – therefore the minimum requirement of 51 spaces is readily achieved. All access to cycle parking beyond ground floor are for resident or staff which are securely accessed via lifts which accommodate minimum internal dimension of 1.8m to accommodate a bicycle.

Cycle parking layout shall accord by standard with AS2890.3 requirements of a 500mm wide envelope per cycle and 1.5m access aisles.

The PDA advises provision be in accordance with Austroads Guie to Traffic Management Part 11 (Table 5.4) which for 3 long term bicycle spaces requires 3-5 lockers and 1 shower. End of trip (EOT) facilities are provided on level 2 for staff and include 2 showers with additional adjacent area for lockers. On this basis the EOT provision is compliant.

9. Site Access Arrangements

The site is accessed from a local road and serves 154 low turnover car park spaces. The proposed access driveway requirements are identified in Table 5.

Table 5: Driveway requirements

Design Aspect	Requirement	Main Access	Compliance
Distance from a minor intersection	6m (min) from tangent point.	20m	Compliant
Distance from another driveway	3.0m (min)	10m	Compliant
Sight Distance – 30kph (estimated for low speed road)	Desirable – 42m Minimum – 17m	60m in both directions	Compliant
Driveway Design Type (Local road, 25-100 spaces)	Category 2	Category 2	Compliant
Driveway Width	6.0m - 9.0m combined	6.35m	Compliant
Pedestrian Sight Triangle	2.5m by 2.0m	2.5m by 2.0m	Compliant

The site access arrangements are considered to be appropriate for the site use and location.

10. Service Vehicle Arrangements

The proposed development is comprised of rooming accommodation, short-term accommodation and commercial land uses. Standing room for an MRV (8.8m L x 2.5m W x 4.5m H) on site is provided in the driveway – refer to TTM Drawing 20GCT0017-08 attached.

The site provides a 4.5m height clearance over the driveway which is sufficient to accommodate an MRV.

The bin room is located at ground level adjacent to the driveway. It is proposed that for collection, bins be moved to the temporary storage area and also collected through the roller doors adjacent to the ground floor loading bay. Collection from the Hercules Street frontage is not considered appropriate due to the presence of the cycle network at this frontage.

Refuse Collections

All refuse will be collected on-site. Refuse collection vehicles will enter the site via Main Street and park in the loading bay on the ground floor, the gradient of the loading bay is at most 1:20. Residential and commercial bins are collected from their respective storage areas adjacent to the loading area for emptying and returned once emptied.

Residential bins will be serviced by Council whilst commercial bins will be serviced by a private contractor.

Refer to site specific waste management plan for details of quantities, room arrangements and servicing frequency.

11. Impact Assessment

TTM are aware that comprehensive planning was undertaken to inform the design of the upgraded road network in the vicinity of the site, which included accounting for traffic generated by the land uses and developments outlined within the sub-precinct plan. These upgrades were based on a Transport Study for the Hamilton Northshore PDA undertaken by Cardno in February 2016. The Transport Study details the Brookfield, Peleton, Pamada, Citimark, Wentworth (Precinct 3c) as generating a total of 1,020vph (including 306vph for residential, 221vph for commercial use, 359vph for retail use and 134vph for hotel) during the peak hour periods.

In the undertaken study, Cardno adopted the traffic generation rates outlined in RMS' Supplementary Guide to Traffic Generating Developments to calculate the traffic generating potential of the precinct. The AM and PM peak hour traffic generation rates adopted for the proposed residential land use were 0.19vph per unit.

The 306vph identified in the Cardno report represents 1,609 units, of which 132 units (25vph) were 'anticipated' across the development site.

TTM have made reference to the RMS Guide to Traffic Generating Developments Update traffic surveys 2013/04a. In lieu of any specific short term or rooming accommodation rates, TTM have adopted the rate from high density residential flat building, as these are similar in regard to density of the site. The applied rate is based on trips per car space (0.15 trips/space and 0.12 trips/space in the AM and PM peaks respectively), given the managed level of access to cars of the site.

The development proposes 62 spaces, which equates to a total trip generation in peak periods of 10vph in the AM peak and 8 in the PM peak. This is up to 15vph less than that previously anticipated across the site. The development is therefore considered to be provided at an acceptable limit and is not expected to impact on the design horizon of the local road network for which it has been designed. A detailed impact assessment is not warranted or required.

12. Conclusion

The development proposes commercial uses on the ground level and mezzanine level, with 107 rooming accommodation units, 130 (88) short term accommodation units accommodated within the tower above.

TTM have reviewed the traffic and transport aspects of the development throughout this report and provide the following conclusions.

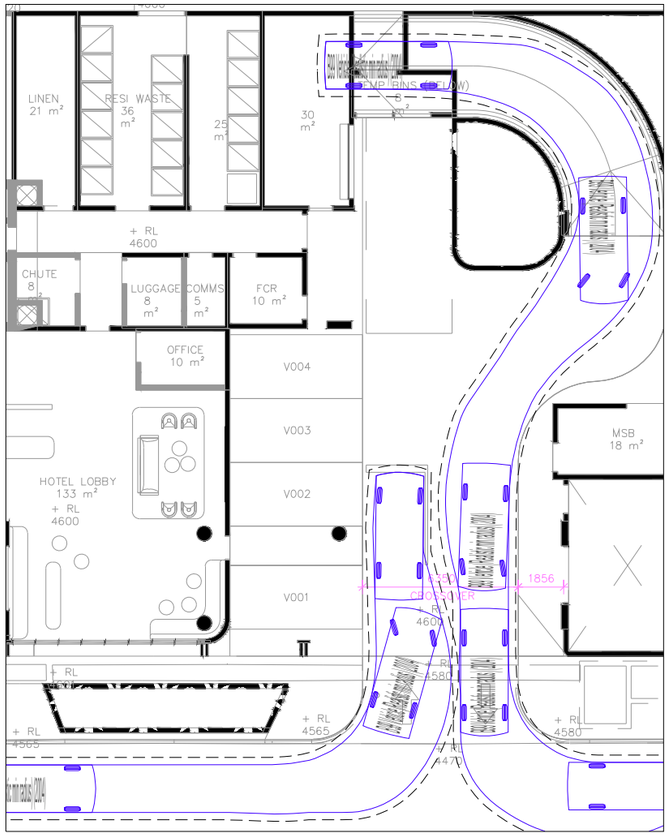
- The car parking provisions are demonstrated to be suitable for the expected site demand and location.
- Car parking layout is geometrically compliant.
- The internal ramps and access will be controlled via a series of hold points and stop/go signals.
- The cycle parking provisions are considered suitable for the site and location.
- The site access arrangements are geometrically compliant with requirements.
- Service requirements for the site can be achieved via vehicles up to and including size MRV to stand on site.

Based on this assessment, TTM see no traffic engineering reason why the relevant Development Approval cannot be granted.

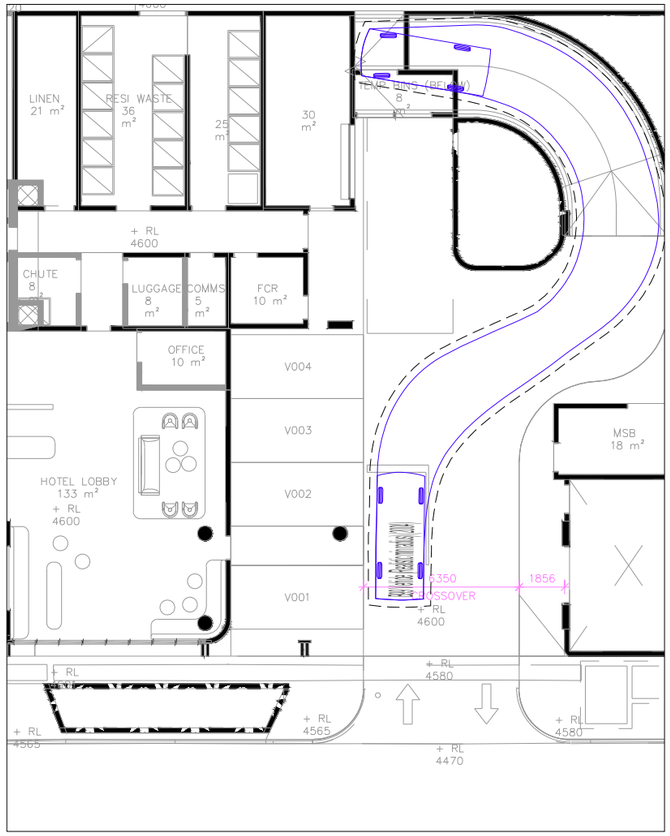
Yours sincerely,

Ilona Blackburn
Senior Associate Director | RPEQ 16879
TTM Consulting Pty Ltd

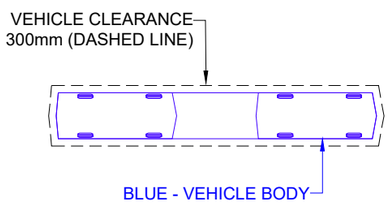
Attachment 1 – Swept Path Analysis

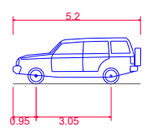


ENTRY TO HOLD POINT AND PODIUM EXIT



GROUND FLOOR RAMP ACCESS
FROM HOLD POINT





B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m
Design Speed Forward	5.0km/h

SENIOR ASSOCIATE DIRECTOR
ILONA BLACKBURN
RPEQ 16879
APPROVED 6 Dec 2024

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
D	06-12-24	CLIENT UPDATE	IB	IB	IB
C	29-11-24	CLIENT UPDATE	IB	IB	IB
B	26-04-24	RFI ISSUE	JS	IB	IB
A	06-12-23	ORIGINAL ISSUE	JS	IB	IB

SCALE 0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE
NORTH
CLIENT: LIMITLESS AUSTRALIA PTY LTD

TTM CONSULTING PTY LTD
ABN 65 010 868 621
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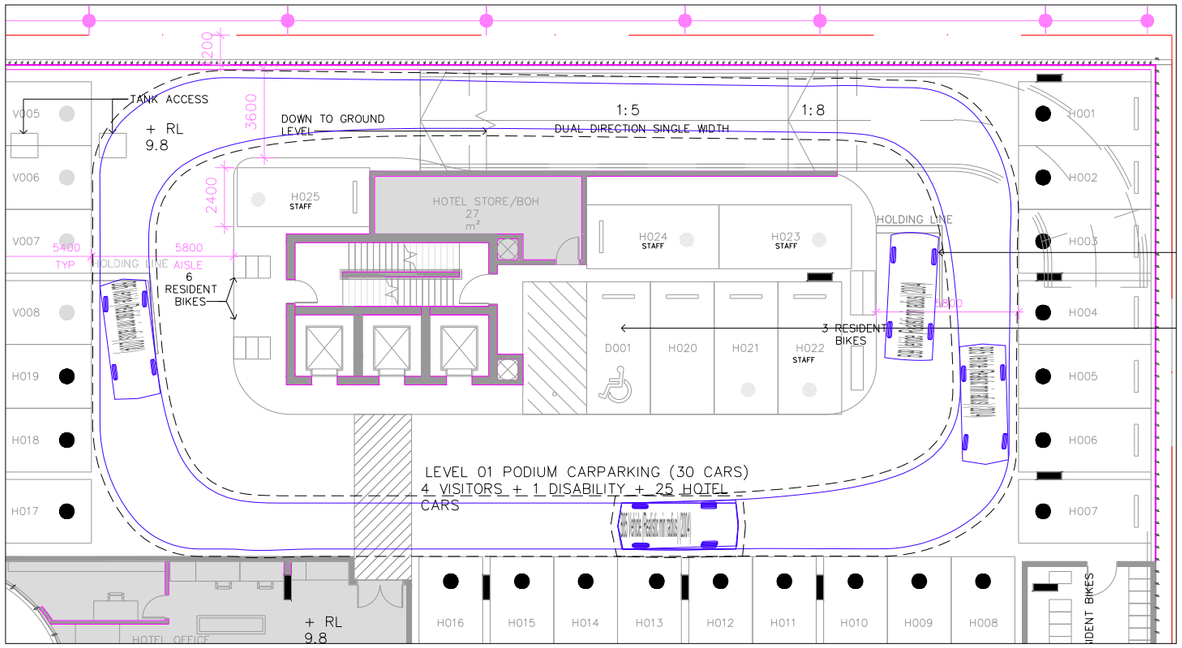
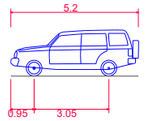
PROJECT: **5 HERCULES ST, HAMILTON**
DRAWING TITLE: **SWEPT PATH ANALYSIS**
GROUND LEVEL - RAMP HOLD POINT OPERATION

PROJECT NUMBER	ORIGINAL SIZE
20GCT0106	A3
DRAWING NUMBER	REVISION
20GCT0106-05	D
DATE	SHEET
6 Dec 2024	1 OF 1



PODIUM LEVEL 1



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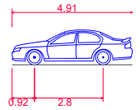
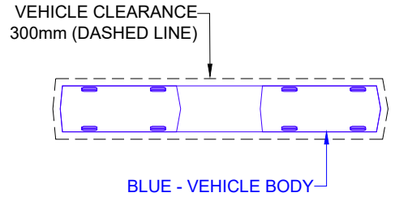


B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m
Design Speed Forward	5.0km/h



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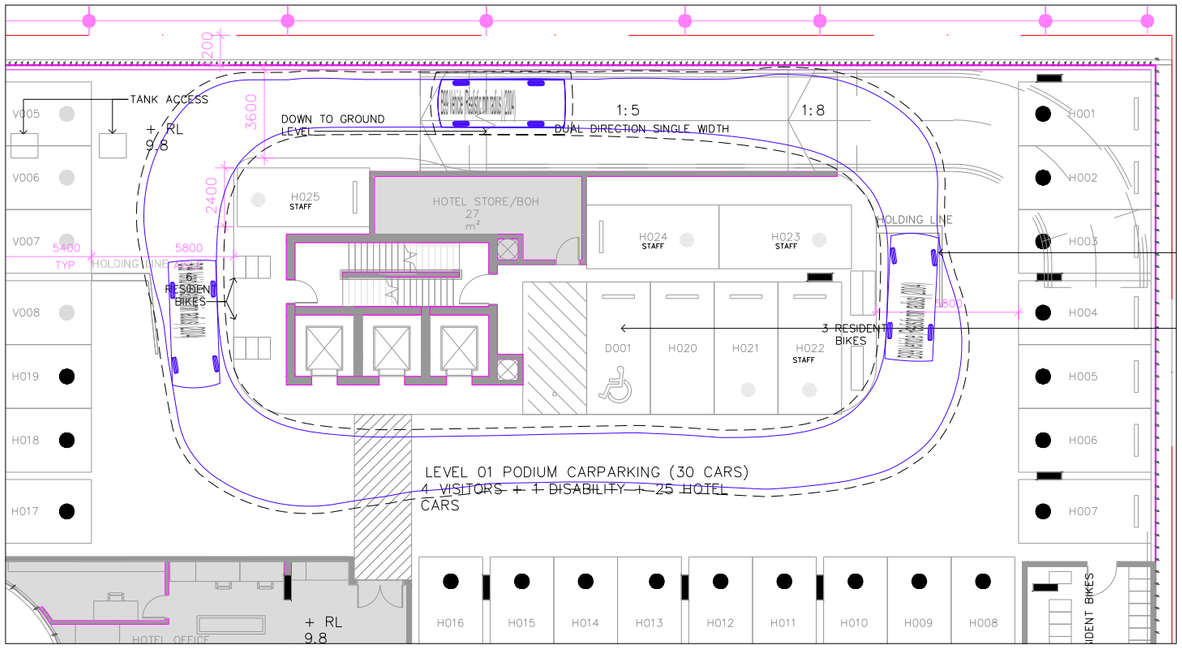

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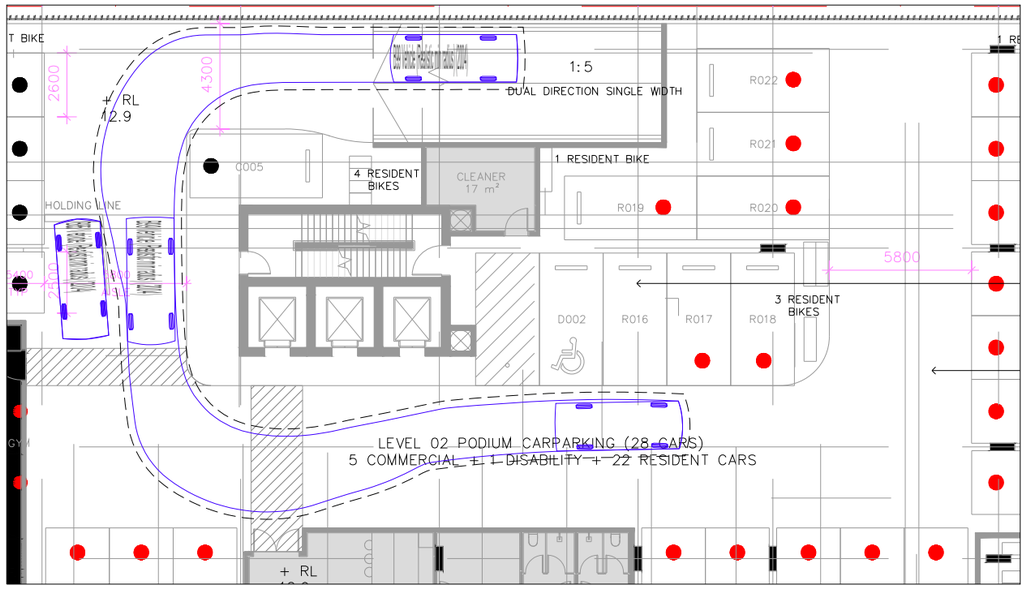

PODIUM LEVEL 2

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
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C	29-11-24	CLIENT UPDATE	IB	IB	IB
B	26-04-24	RFI ISSUE	JS	IB	IB
A	06-12-23	ORIGINAL ISSUE	JS	IB	IB

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PROJECT
5 HERCULES ST, HAMILTON

DRAWING TITLE
SWEPT PATH ANALYSIS
PODIUM LEVELS - CIRCULATION AND HOLD POINT OPERATION

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20GCT0106	A3
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20GCT0106-06	D
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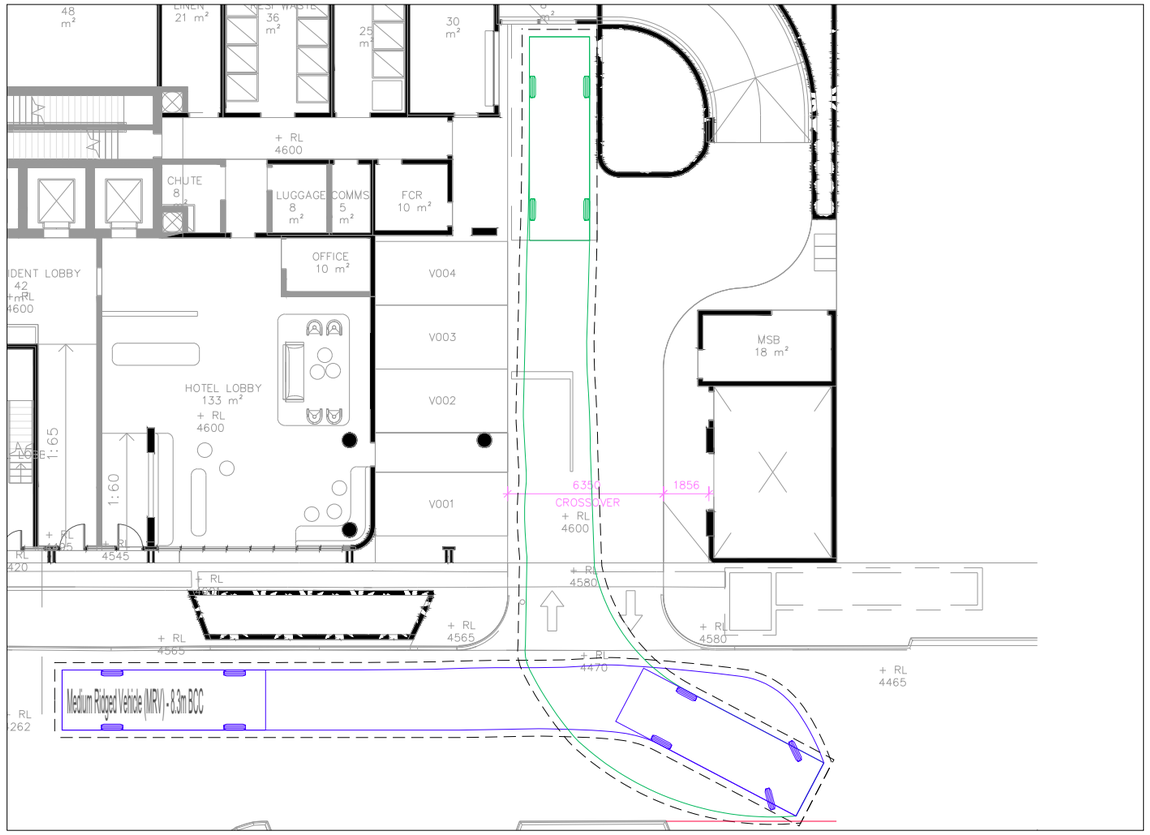

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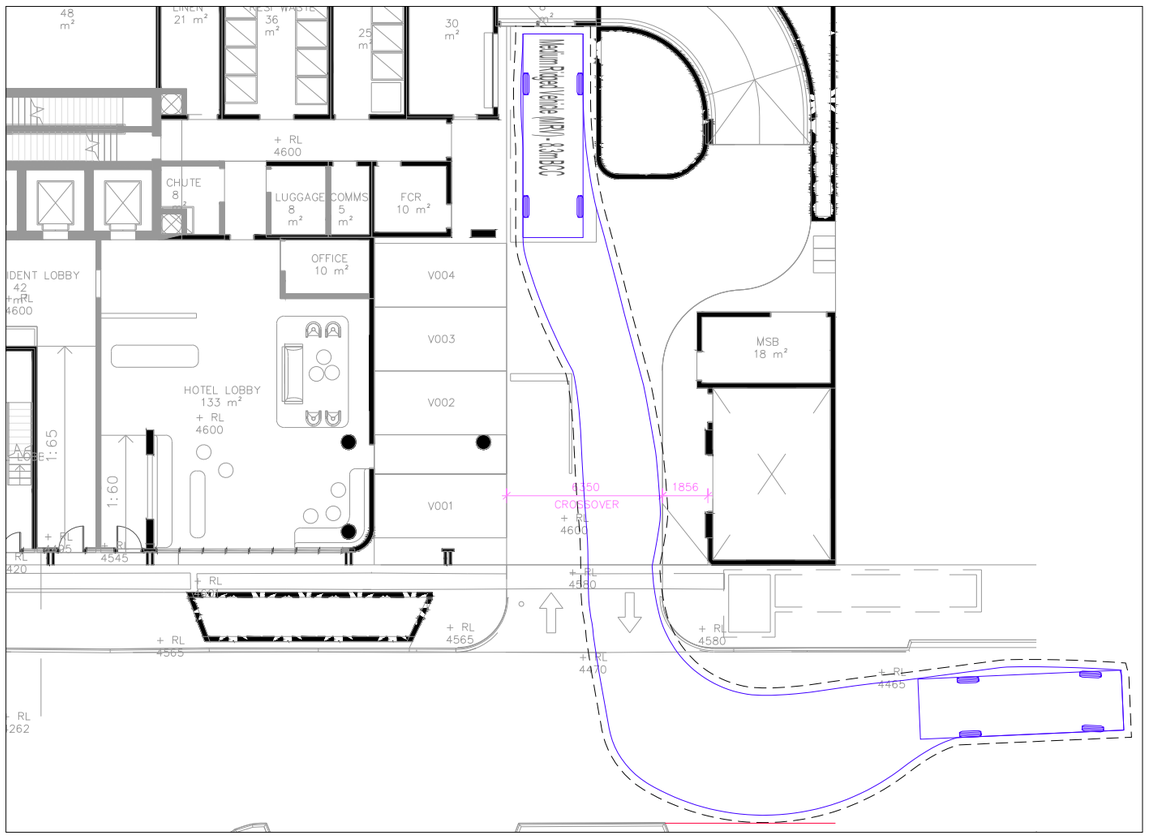
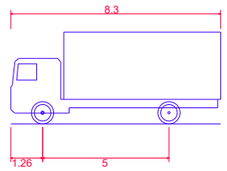
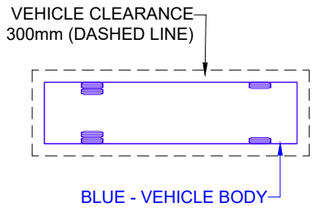


FORWARD-OUT EGRESS



MRV - 8.3m BCC	
Overall Length	8.300m
Overall Width	2.450m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.450m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m
Design Speed Forward	5.0km/h



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PROJECT NUMBER	ORIGINAL SIZE
20GCT0106	A3
DRAWING NUMBER	REVISION
20GCT0106-08	D
DATE	SHEET
6 Dec 2024	1 OF 1