ML
Traffic Engineers

TRAFFIC AND PARKING IMPACT ASSESSMENT

Proposed Showroom and tasting area

45 Mitchell Road in Brookvale

Prepared for: Dad & Dave's Brewing

A1916314N (1a)

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Suite 195, 79-83 Longueville Road, Lane Cove NSW 2066

Telephone: 0418 256 674 ***Facsimile: 1300 739 523***
sydney@mltraffic.com.au *www.mltraffic.com.au*

ABN 69 981 485 197

1. INTRODUCTION

ML Traffic Engineers was commissioned by Dad & Dave's Brewing to prepare a traffic and parking impact assessment for a proposed Showroom and tasting area in 45 Mitchel Road in Brookvale. Currently, the site is vacant.

The proposed Showroom and tasting area will be relocated from Unit 2, 1 Chard Road Brookvale to 45 Mitchel Road in Brookvale. Vehicle access and egress is via Mitchel Road.

This traffic report focuses on the proposed development and changes in car usage and car park utilisation and additional trips from the proposed development.

In the course of preparing this assessment, the subject site and its environs have been inspected, plans of the development examined, and all relevant traffic and parking data collected and analysed.

The Scope of Works is as follows for preparing a traffic and parking impact based on qualitative assessment:

- Assess the traffic impacts usage of the proposed development day on the local road network upon the external road network including nearby intersections
- Assess the parking demand and the parking requirements of the proposed development
- Provide a parking certification for the car area (all infrastructure are existing) according to Australian Standards

2. BACKGROUND AND EXISTING CONDITIONS

2.1 Location and Land Use

The proposed development is located in the industrial area of Brookvale with Freshwater Senior Campus on the east. Residential buildings are primarily located at least 209metres away to the south. Denzil Joyce Oval is located west of the proposed development.

Currently the site is a small industrial building.

Figures 1 and 2 shows the location of the proposed showroom and tasting area from the aerial and street map perspective respectively.

Figures 3 shows the existing site.

Figure 1: Location of the Subject Site on Aerial

Figure 2: Street Map of the Location of the Proposed showroom and tasting area

Figure 3: Proposed showroom and tasting area from Mitchell Road

2.2 Road Network

This section describes the roads near the proposed development.

Orchard Road is a local road with one lane each way with a speed limit of 50km/hr. Unrestricted Parking is permitted on both side of the road.

Mitchell Road is a local road with one lane each way with a sign posted speed limit of 50km/hr. Unrestricted Parking is permitted on both side of the road. Figure 4 shows a photograph of Mitchell Road.

Wattle Road is a local road with one lane each way with a speed limit of 50km/hr. 2 hour restricted on street parking is permitted on the north side of intersection between Wattle Road and Mitchell Road.

Figure 4: Mitchell Road facing South

2.3 Intersection Description

As part of this traffic impact assessment two intersections are assessed:

- Roundabout intersection of Mitchell Road with Orchard Road
- Priority intersection of Mitchell Road with Wattle Road

External travel to and from the proposed Showroom and tasting area are most likely to travel through one of the above intersections. The intersections are assessed for the weekday PM hour (5pm to 6pm) and Saturday PM peak hour (6pm to 7pm)

when the proposed Showroom and tasting area is at its busiest on the weekday and on a weekend.

The roundabout intersection of Mitchell Road with Orchard Road is a four-leg intersection with all turn movements permitted. The roundabout has one circulating lane. Figure 5 presents the layout of this intersection using SIDRA – an industry standard intersection software. The numbers on the roundabout island represent the diameter of the island in metres.

The priority intersection of Mitchell Road with Wattle Road is a three-legged intersection with all turn movements. Traffic on Mitchell Road must give way to traffic on Wattle Road. Figure 6 presents the layout of this intersection using SIDRA – an industry standard intersection software

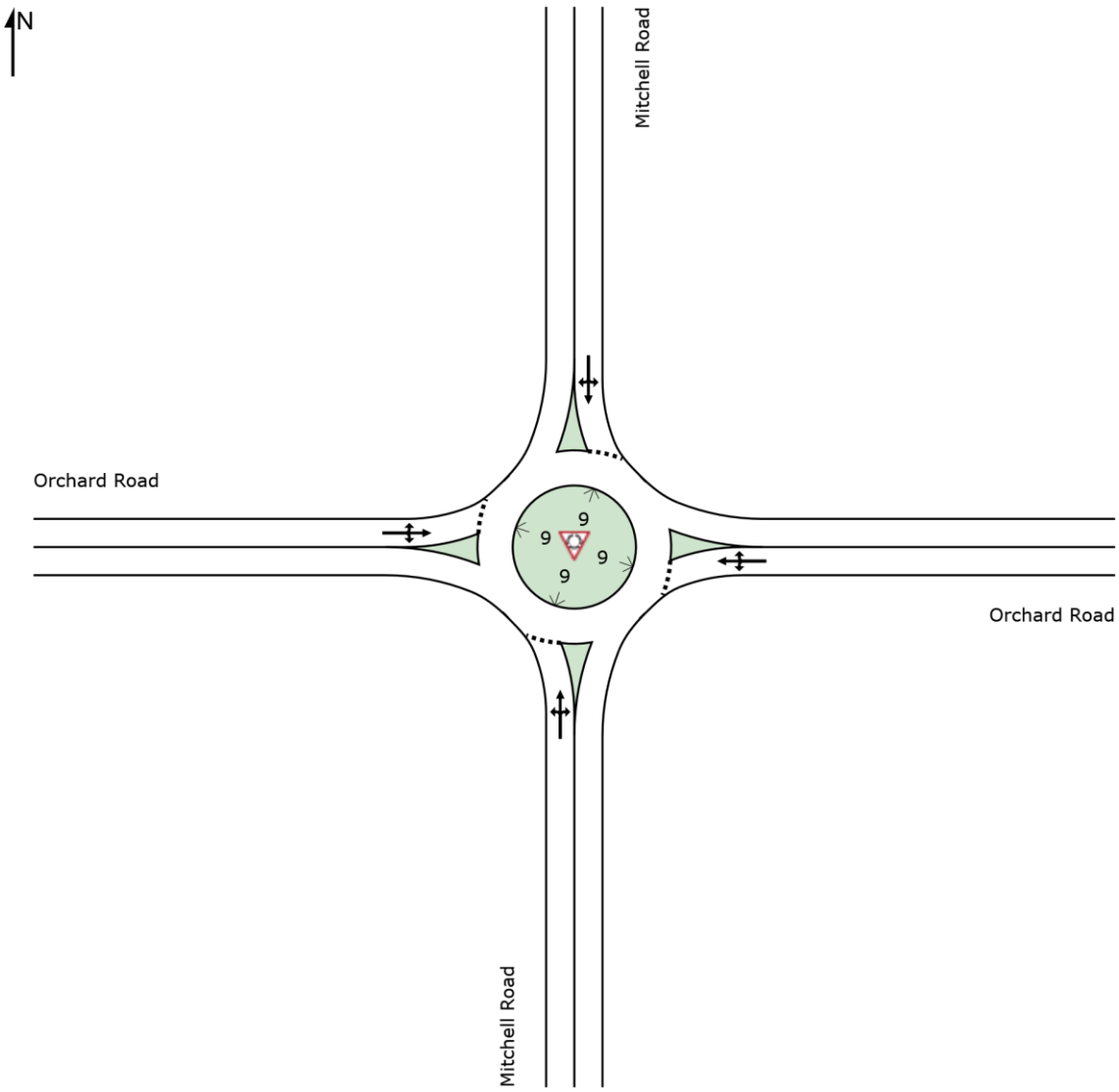


Figure 5: Roundabout Intersection Layout of Mitchell Road with Orchard Road (SIDRA)

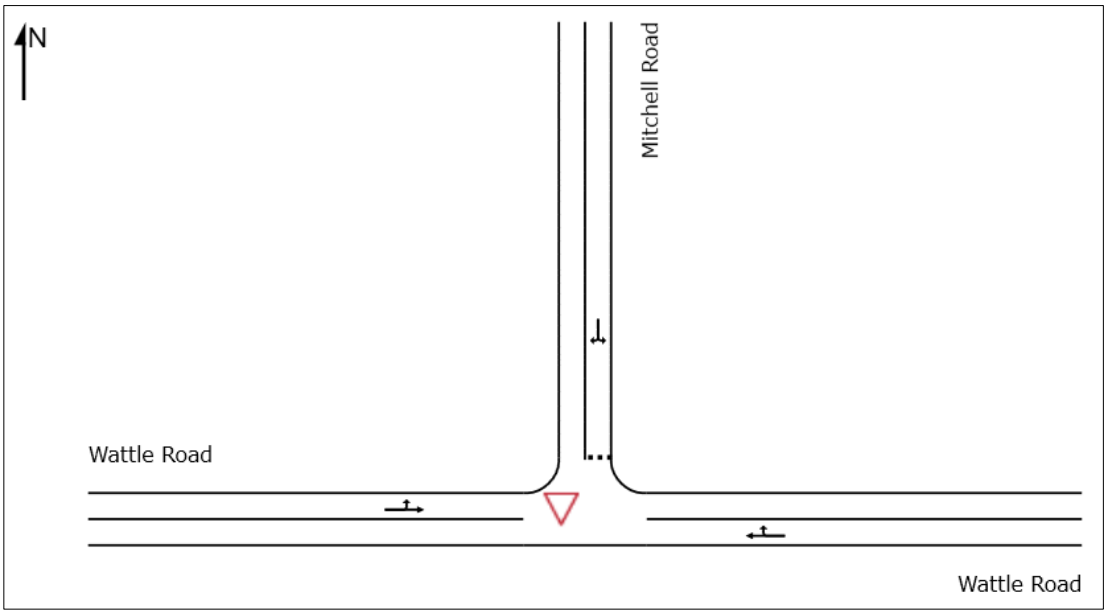


Figure 6: Priority Intersection Layout of Mitchell Road with Wattle Road (SIDRA)

2.4 Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the adjacent intersections for the weekday and Saturday PM peak period. The PM peak hour were 6 PM to 7 PM for Saturday.

The traffic volumes are presented in the following Figures in vehicle numbers.

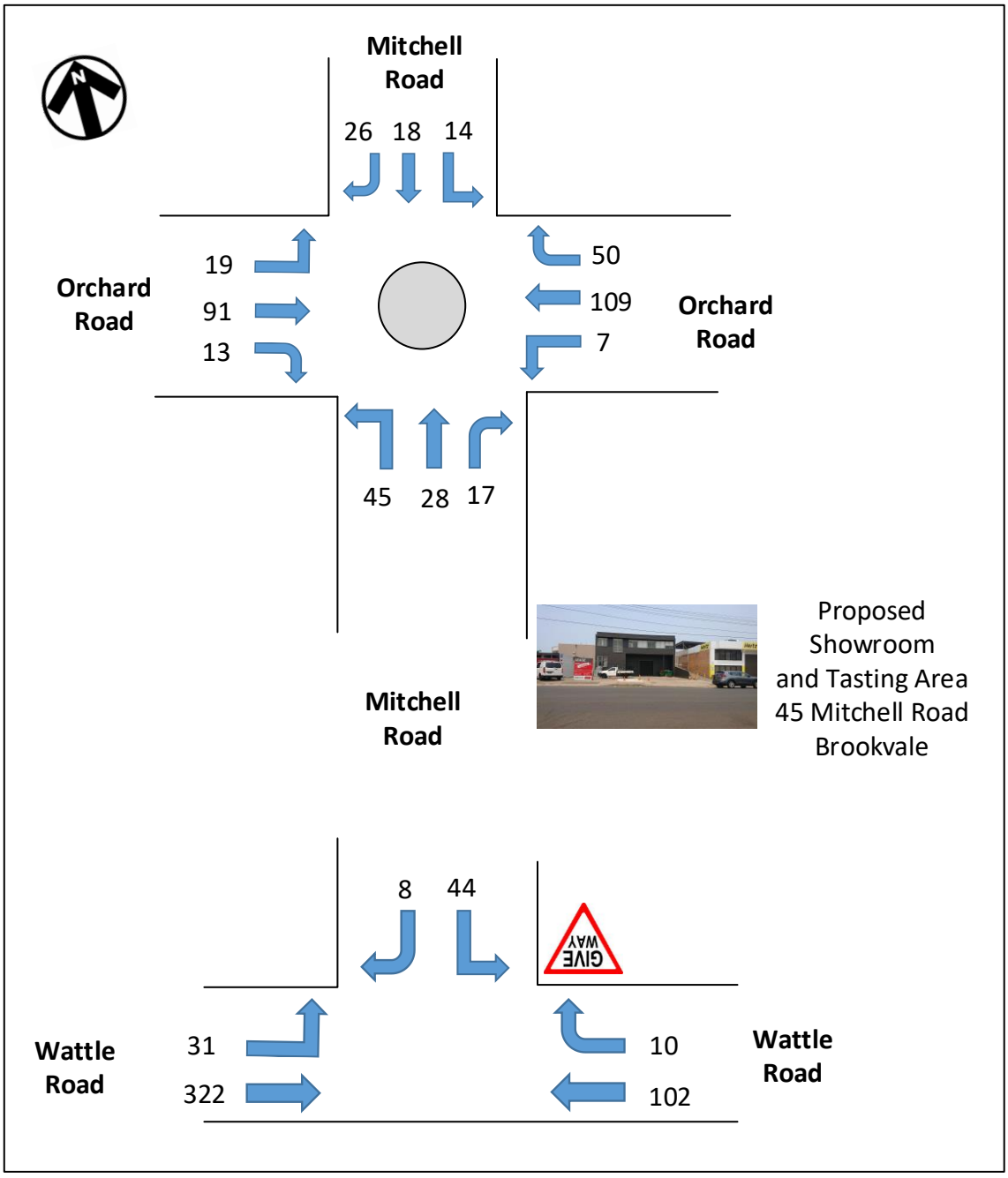


Figure 7: Existing Weekday PM Peak Hour Traffic Volumes

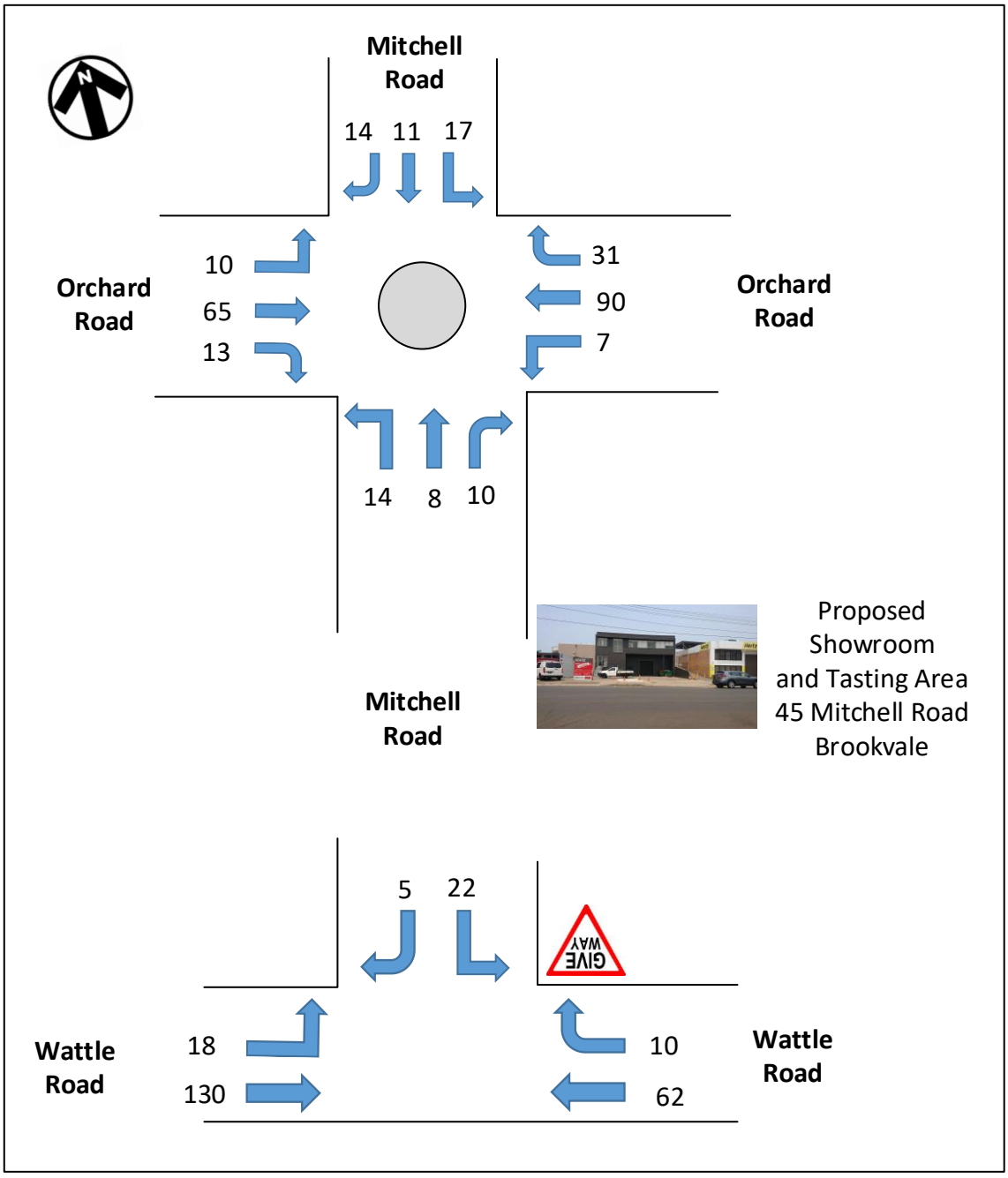


Figure 8: Existing Saturday PM Peak Hour Traffic Volumes

2.5 Intersection Assessment

This section assesses the two surveyed intersections.

The existing intersection operating performance was assessed using the SIDRA software package (version 6) to determine the Degree of Saturation (DS), Average Delay (AVD in seconds) and Level of Service (LoS) at each intersection. The SIDRA program provides Level of Service Criteria Tables for various intersection types. The key indicator of intersection performance is Level of Service, where results are placed on a continuum from 'A' to 'F', as shown in Table 1.

LoS	**Traffic Signal / Roundabout**	**Give Way / Stop Sign / T-Junction control**
A	Good operation	Good operation
B	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but accident study required
D	Operating near capacity	Near capacity & accident study required
E	At capacity, at signals incidents will cause excessive delays.	At capacity, requires other control mode
F	Unsatisfactory and requires additional capacity, Roundabouts require other control mode	At capacity, requires other control mode

Table 1: Intersection Level of Service

The Average Vehicle Delay (AVD) provides a measure of the operational performance of an intersection as indicated below, which relates AVD to LOS. The AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route). For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections (sign control) the critical movement for level of service assessment should be that movement with the highest average delay.

LoS	Average Delay per Vehicles (seconds/vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	>70

Table 2: Intersection Average Delay (AVD)

The degree of saturation (DS) is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals both queue length and delay increase rapidly as DS approaches 1. It is usual to attempt to keep DS to less than 0.9. Degrees of Saturation in the order of 0.7 generally represent satisfactory intersection operation. When DS exceed 0.9 queues can be anticipated.

Roundabout intersection of Mitchell Road with Orchard Road

- The overall intersection has a LoS A for the PM peak hours on the weekday and Saturday
- There is spare capacity at this intersection

Priority intersection of Mitchell Road with Wattle Road

- All turn movements have a LoS A or B for the PM peak hour on weekday and Saturday
- There is spare capacity at this intersection

The full Sidra results are presented in Appendix A.

2.6 Public Transport

The nearest bus stop to the proposed showroom and tasting area is 400 metres away on Pittwater Road. This stop is serviced by Bus Route 193. This public transport service provides access to a range of suburbs including Austlink, Warringah Mall, Frenchs Forest, Belrose, Narraweena, and Beacon Hills.

The proposed development has access to public bus services.

Figure 9 shows the proximity of the site to public transport services

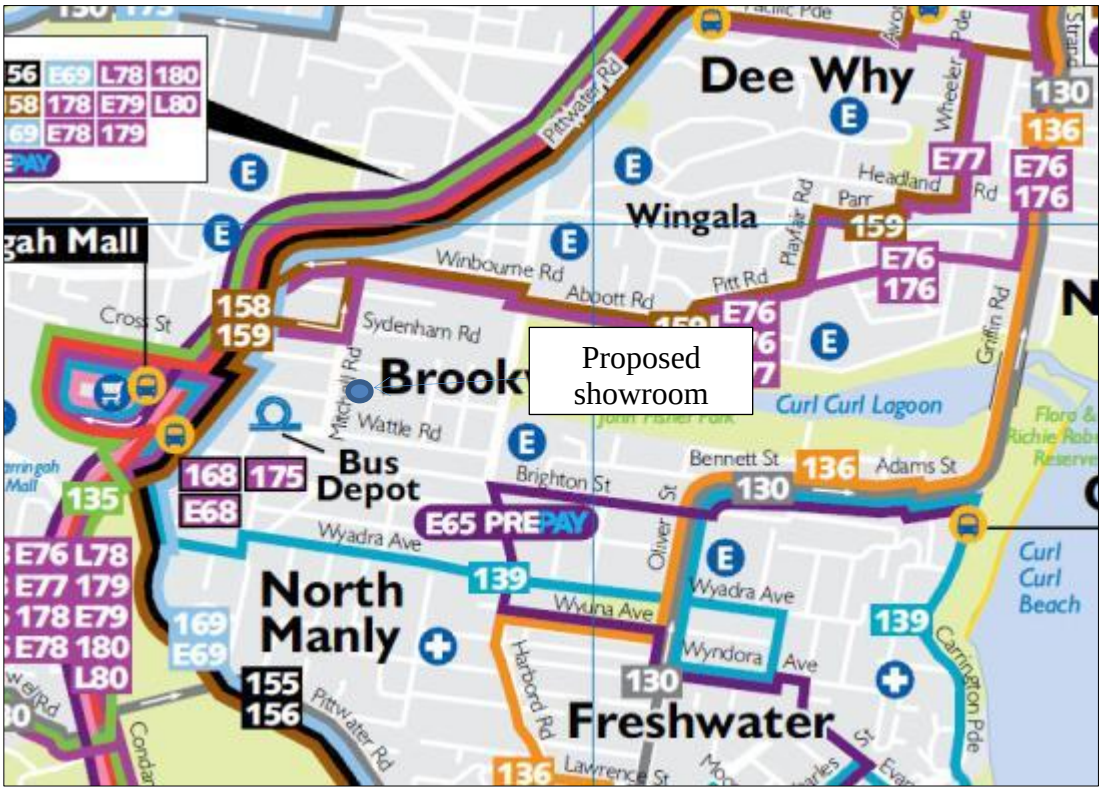


Figure 9: Nearby Public Bus Services

2.7 Public Parking

On street parking is permitted on Mitchell Road and Orchard Road and surrounding roads near the site. A parking survey was undertaken on the weekday and Saturday in December 2019. The extent of the parking survey is shown in Figure 10.

The results of the parking survey are presented in Tables 3 and 4 for the weekday and Saturday respectively. The Saturday has a moderate number of vacant car spaces available during the business hours (between 10am to 5pm). There is a larger number of vacant car spaces after 5pm for both weekdays and on the weekend.

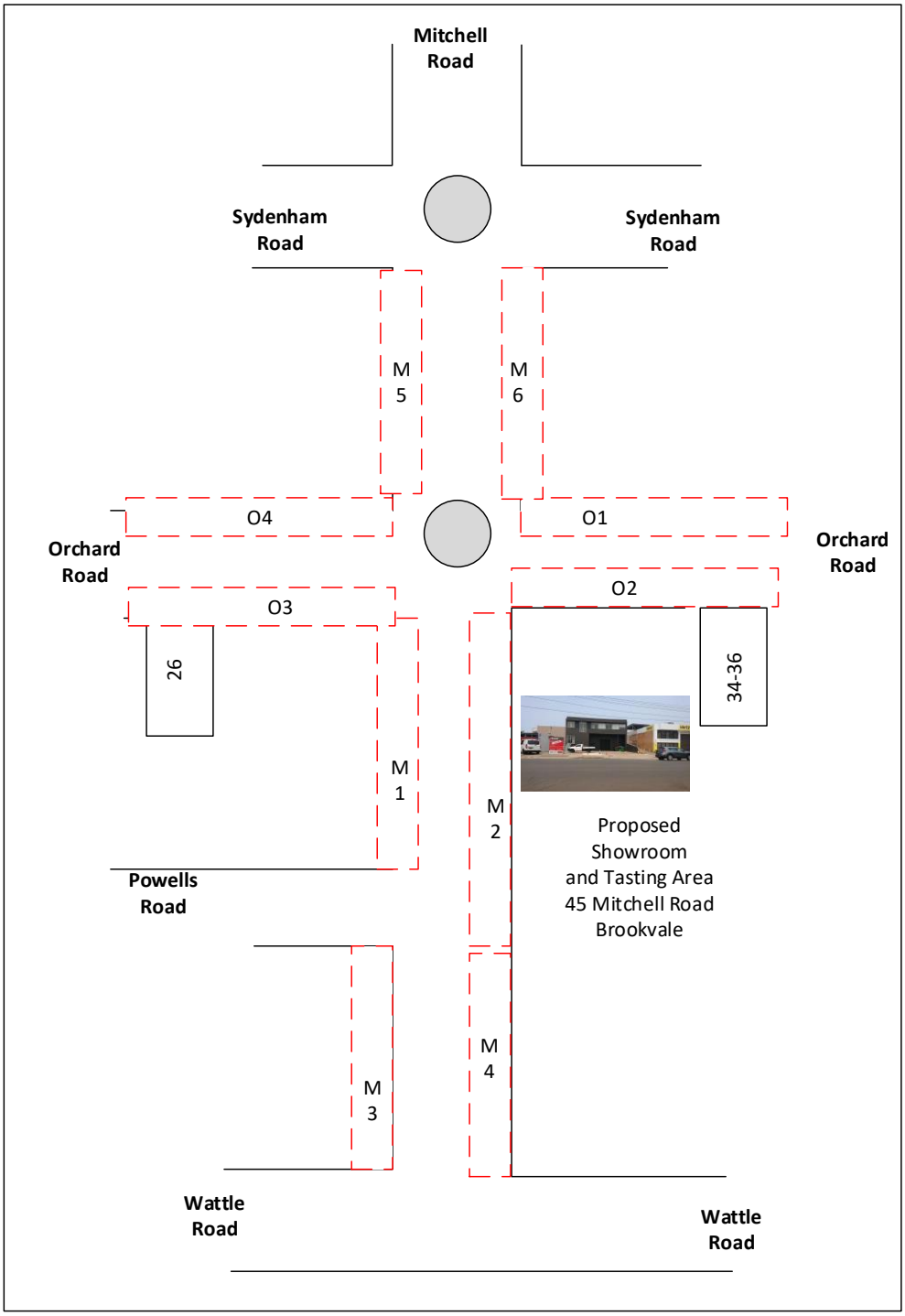


Figure 10: Public Parking Survey Area

		weekday					
Area	Car Spaces	4pm	5pm	6pm	7pm	8pm	10pm
M1	12	10	8	5	3	2	2
M2	8	7	5	3	4	2	2
M3	12	10	9	4	3	3	3
M4	14	12	11	6	4	2	3
M5	12	11	8	6	5	3	1
M6	7	7	7	6	5	2	2
O1	6	6	6	4	2	1	1
O2	8	7	6	5	4	2	1
O3	8	7	8	4	4	4	3
O4	6	6	6	3	2	1	0
Total	93	83	74	46	36	22	18
Vacant car spaces		10	19	47	57	71	75

Table 3: Results of the Parking Survey on a Weekday

		Saturday									
Area	Car Spaces	10am	11am	midday	1pm	2pm	4pm	6pm	7pm	8pm	10pm
M1	12	10	11	11	10	8	5	4	2	2	2
M2	8	6	6	8	6	6	3	1	1	1	1
M3	12	8	10	11	10	11	5	2	1	1	1
M4	14	11	12	11	10	11	4	3	2	0	0
M5	12	10	11	12	11	8	6	5	4	4	2
M6	7	6	7	7	7	5	2	2	2	0	0
O1	6	5	6	6	6	6	2	2	2	2	1
O2	8	6	7	7	6	5	3	2	1	2	2
O3	8	8	8	8	7	7	3	4	2	2	3
O4	6	6	6	6	5	5	4	4	4	4	3
Total	93	76	84	87	78	72	37	29	21	18	15
Vacant car spaces		17	9	6	15	21	56	64	72	75	78

Table 4: Results of the Parking Survey on a Saturday

2.8 Conclusions

The two surveyed intersections have sufficient spare capacity to accommodate additional traffic.

The carpark survey conducted show that there are at least ten and six vacant car spaces during the weekday and Saturday peak hours respectively

There are vacant public car spaces nearby on a weekday and a Saturday and on surrounding streets.

The site has access to public transport.

3. PROPOSED DEVELOPMENT

Details of the proposed development are as follows:

Ground Level and First Level

- The floor space to be used for retail area (tasting area and showroom) is approximately 89 m^2
- The storage and industry area is approximately 269 m^2

Car Spaces

- Four car spaces are provided on ground level with vehicle entry and egress via Mitchell Road

The details of operation are as follows:

- The business will run as a retail area in accordance with the new Artesian Food and Beverage planning controls and the Micro-Brewery/Distillery Liquor licence
- Trade and public customers will be able to taste the beer
- Public customers will be restricted to selective time periods
- Trade customers will be able to sample the beer and discuss commercial arrangements for purchasing beer in a confidential manner
- Public customers will be able to purchase packaged beer
- Brewery hours 6am to 5pm, Monday to Friday, 8am to 12pm Saturday (not operating on Sunday)
- The tasting hours of operation are 4 PM to 10 PM on weekdays, 12 PM to 10 PM on Weekends.
    - Maximum attendance 100 people
    - 4 staff serving tasting room
- Staff will be parking in the on-site parking area where possible
- Loading and unloading times are 6am to 12pm on weekdays, 8am to 12 pm on Saturday (none on Sunday). Loading/unloading will be rare on Saturday
- Customers will need to rely on public parking
- A maximum of two staff will be present on site for the Showroom and tasting area.
- Storage and industry areas will not be active during peak customer periods
- Loading and unloading is mainly small deliveries in and out daily estimated 5 small deliveries via van or ute day to day. We estimate we will receive 1 – 2 large trucks per week. Delivery times for these will be early morning to reduce the effect on parking at the premises. No large deliveries which require a forklift will be accepted during showroom/cellar door hours when customers are present on site.

4. CAR PARKING ASSESSMENT

The requirements for car parking for a general club are presented in Warringah Council's Development Control Plan (2011) in Appendix 1.

The parking requirements are as follows as it applies to this development is as follows:

Shop (showroom and tasting area)

- 6.1 car space per GFA 100m^2

Industry

- 1.3 car space per 100m^2 where the ancillary office is less than 20 percent of the GFA

The floor space to be used for tasting area and showroom is approximately 89 m^2 and the storage and industry area are approximately 269 m^2. Based on the above then the car space requirement is tabulated as follows:

Use	Area (m²)	Car Parking Rate	Car Spaces Required	Car Spaces Provided
Shop (showroom and tasting area)				
Retail (showroom and tasting area)	89	6.1 per 100m²	5	4
Industry	269	1.3 per 100m²	3	
Total			**8**	**4**

Table 5: Parking Requirement and Provision

As discussed previously, there are four allocated car spaces. The proposed development is four car space short of meeting Council's car parking requirements.

The public parking survey (see Section 2.7) on the nearby streets (Mitchell Road and Orchard Road) showed that there are minimum 10 vacant car spaces during the weekday and minimum six vacant car spaces during Saturday.

5. VEHICLE TRAFFIC ASSESSMENT

The RTA *Guide to Traffic Generating Developments Version 2.2* publishes trip rates for showroom and tasting areas as follows for the evening peak hour:

Specialised Retail (showroom and tasting area)

- 5.6 car trip per 100m^2 GFA for weekdays PM peak hour
- 10.2 trips per 100m^2 GFA for Saturday PM peak hour

The storage and industry area are assumed to be not active in the weekday and Saturday peak hours when customers are at the proposed showroom and tasting area.

It is assumed that the staff arrive outside of the peak hours.

Table 6 shows the trip generation for the proposed showroom and tasting areas. The site is a modest trip generator.

	Peak Hour	Use	Area (m²)	Trip Generation Rate per 100m²	Trips Generated
Weekday	PM	Showroom and tasting area	89	5.6	5
Saturday				10.2	9

Table 6: Trip Generation for the Proposed Showroom and Tasting Area for the Weekday Peak Hours

Table 7 shows the trip distribution for the generated trips. It is assumed that more people will be driving into the showroom and tasting area in the evening peak hour.

	Peak Hour	Origin	Destination	Total Trips
Weekday	PM	0	5	5
Saturday		0	9	9

Table 7: Trip Distribution for the Proposed Showroom and Tasting Area

Figure 11 and 12 present the existing with the development trips in red for origin trips and blue for destination trips for the weekday PM peak hour and Saturday peak hour respectively. The net increase of trips onto the gateway intersection is modest compared to the existing traffic volumes.

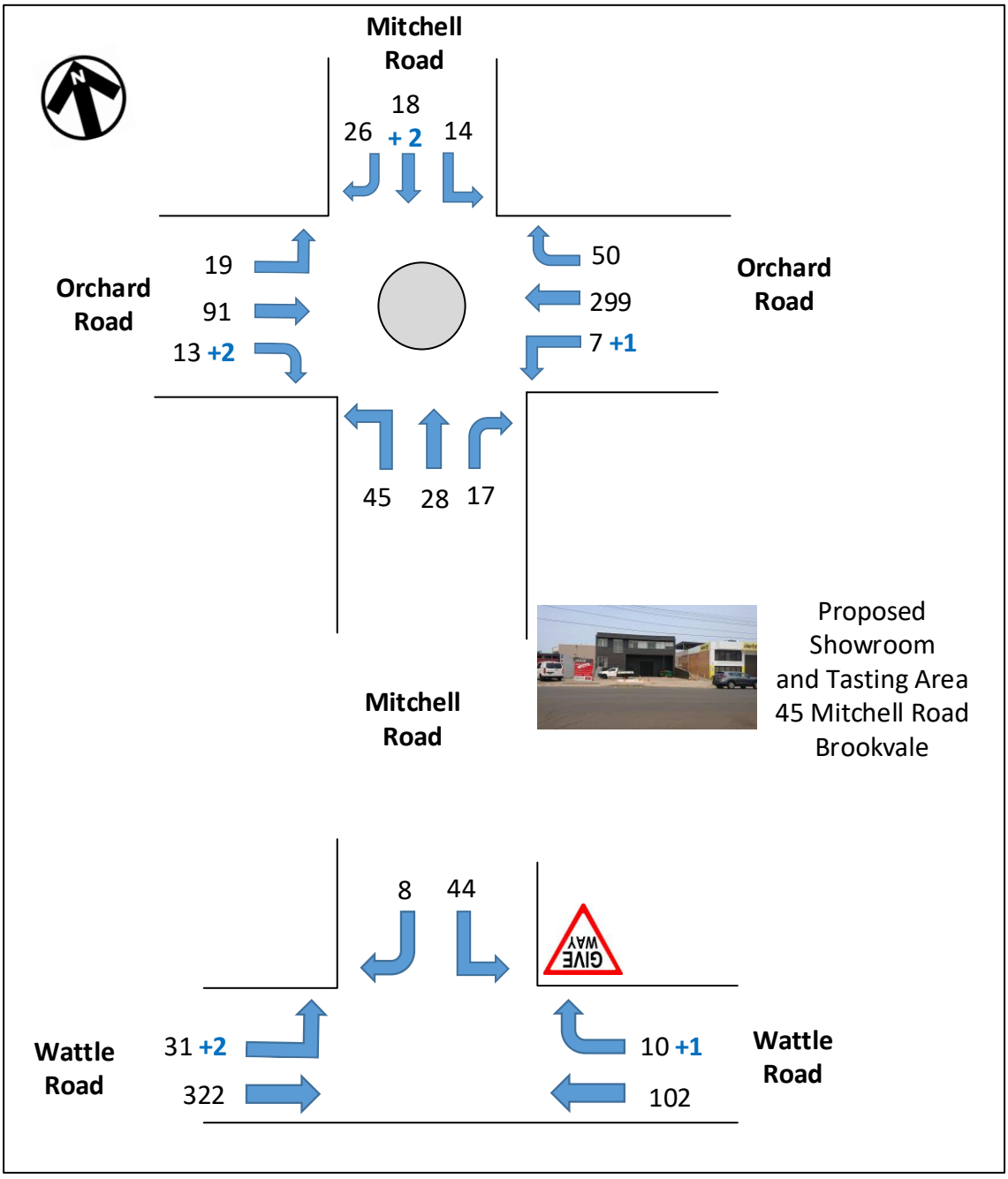


Figure 11: Weekday PM Peak Hour Car Trip Distribution (Development origin trips in red and destination trips in blue)

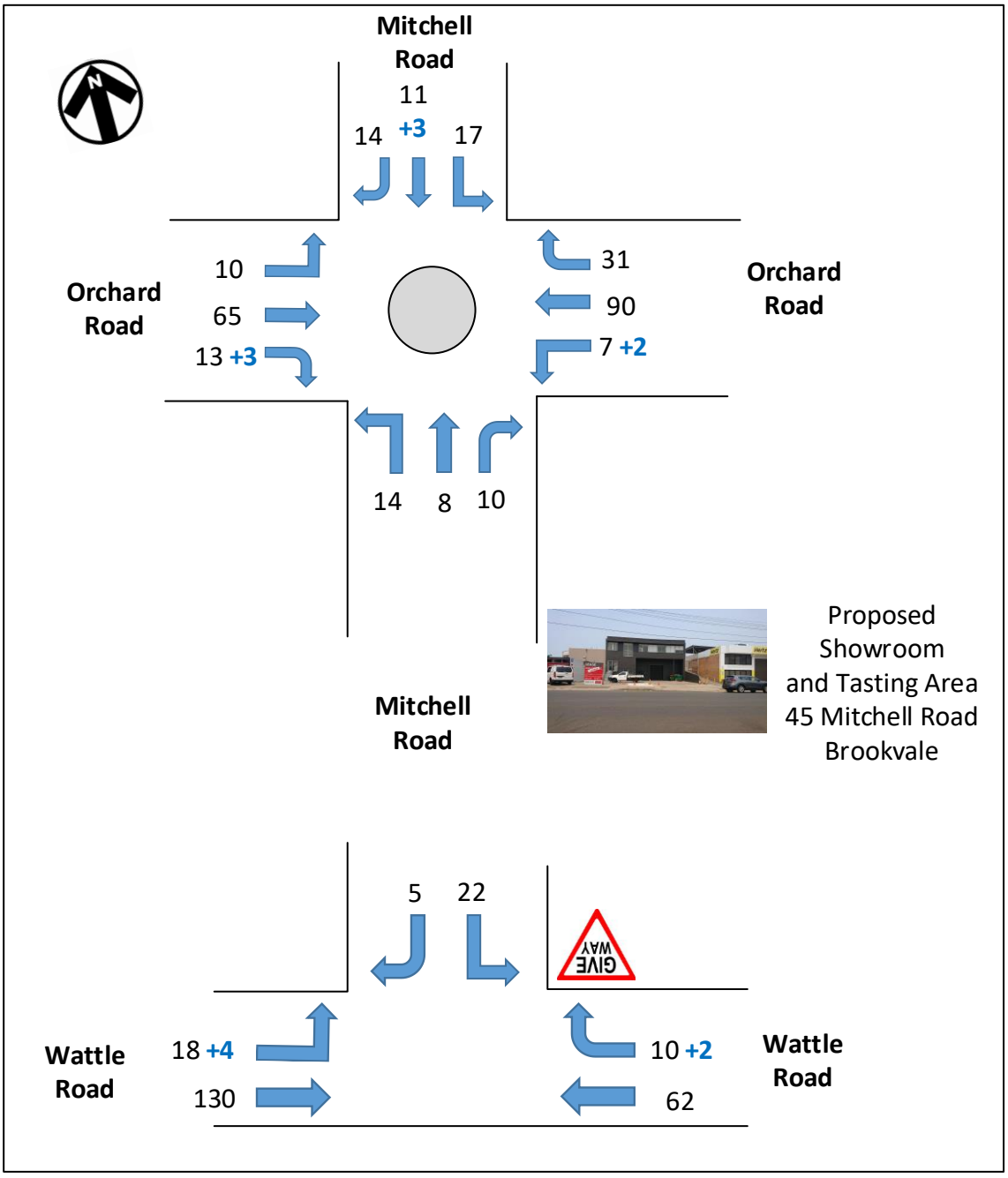


Figure 12: Saturday Peak Hour Car Trip Distribution (Development origin trips in red and destination trips in blue)

The trip distribution onto the local road and intersections show a small increase in trip numbers and represents a low percentage of the estimated capacity of the intersections concerned. For most drivers the increase in trips will not be noticeable.

5.1 Intersection Assessment for Showroom and Tasting Area Traffic Volumes

An intersection with the additional trips for the weekday PM and Saturday peak hours has been undertaken for the four surveyed intersections

.

The results of the intersection analysis are as presented below:

Roundabout intersection of Mitchell Road with Orchard Road

- The overall intersection has a LoS A for the PM peak hours on the weekday and Saturday
- The additional trips do not change the LoS of the intersection

Priority intersection of Mitchell Road with Wattle Road

- All turn movements have a LoS A or B for the PM peak hour on weekday and Saturday
- The additional trips do not change the LoS for any turn movement

6. CONCLUSIONS

The traffic and parking assessment of the proposed showroom and tasting area development showed the following:

Car Parking

- The proposed showroom and tasting area development is deficit of four car spaces short of meeting Council's car parking requirements
- The parking survey shows that there are sufficient vacant car spaces nearby to accommodate the additional car space for the showroom and tasting area customers
- Hours of operation of the tasting area is limited so that it operates outside of times of peak demand for on-street car parking

Traffic

- The proposed development is a modest net trip generator
- The expected trips from the proposed showroom and tasting area during the weekday PM and Saturday peak hours are modest and can be accommodated within the local road network and intersections.
- There are no traffic engineering reasons why a development consent for the proposed showroom and tasting area development at 45 Mitchell Road in Brookvale should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mitchell Road												
1	L2	47	0.0	0.107	6.3	LOS A	0.6	3.9	0.53	0.64	0.53	45.2
2	T1	29	0.0	0.107	5.9	LOS A	0.6	3.9	0.53	0.64	0.53	45.7
3	R2	18	0.0	0.107	9.0	LOS A	0.6	3.9	0.53	0.64	0.53	45.5
Approach		95	0.0	0.107	6.7	LOS A	0.6	3.9	0.53	0.64	0.53	45.4
East: Orchard Road												
4	L2	7	0.0	0.282	4.3	LOS A	1.7	12.2	0.23	0.47	0.23	46.1
5	T1	315	0.0	0.282	4.0	LOS A	1.7	12.2	0.23	0.47	0.23	46.7
6	R2	53	0.0	0.282	7.0	LOS A	1.7	12.2	0.23	0.47	0.23	46.5
Approach		375	0.0	0.282	4.4	LOS A	1.7	12.2	0.23	0.47	0.23	46.7
North: Mitchell Road												
7	L2	15	0.0	0.055	4.6	LOS A	0.3	1.9	0.29	0.55	0.29	45.5
8	T1	19	0.0	0.055	4.3	LOS A	0.3	1.9	0.29	0.55	0.29	46.1
9	R2	27	0.0	0.055	7.3	LOS A	0.3	1.9	0.29	0.55	0.29	45.9
Approach		61	0.0	0.055	5.7	LOS A	0.3	1.9	0.29	0.55	0.29	45.8
West: Orchard Road												
10	L2	20	0.0	0.113	4.5	LOS A	0.6	4.1	0.27	0.48	0.27	46.0
11	T1	96	0.0	0.113	4.2	LOS A	0.6	4.1	0.27	0.48	0.27	46.6
12	R2	14	0.0	0.113	7.2	LOS A	0.6	4.1	0.27	0.48	0.27	46.5
Approach		129	0.0	0.113	4.6	LOS A	0.6	4.1	0.27	0.48	0.27	46.5
All Vehicles		660	0.0	0.282	4.9	LOS A	1.7	12.2	0.29	0.50	0.29	46.4

Table A1: Weekday Roundabout Intersection Performance of Mitchell Road with Orchard Road PM Peak Hour

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Wattle Road												
5	T1	107	0.0	0.064	0.2	LOS A	0.1	0.6	0.10	0.05	0.10	49.4
6	R2	11	0.0	0.064	5.9	LOS A	0.1	0.6	0.10	0.05	0.10	48.5
Approach		118	0.0	0.064	0.7	NA	0.1	0.6	0.10	0.05	0.10	49.4
North: Mitchell Road												
7	L2	46	0.0	0.049	5.7	LOS A	0.2	1.3	0.39	0.59	0.39	45.7
9	R2	8	0.0	0.049	6.6	LOS A	0.2	1.3	0.39	0.59	0.39	45.3
Approach		55	0.0	0.049	5.8	LOS A	0.2	1.3	0.39	0.59	0.39	45.7
West: Wattle Road												
10	L2	33	0.0	0.191	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	49.2
11	T1	339	0.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach		372	0.0	0.191	0.4	NA	0.0	0.0	0.00	0.05	0.00	49.7
All Vehicles		544	0.0	0.191	1.0	NA	0.2	1.3	0.06	0.10	0.06	49.2

Table A2: Weekday Priority Intersection Performance of Mitchell Road with Wattle Road PM Peak Hour

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mitchell Road												
1	L2	15	0.0	0.031	4.7	LOS A	0.1	1.0	0.30	0.53	0.30	45.7
2	T1	8	0.0	0.031	4.3	LOS A	0.1	1.0	0.30	0.53	0.30	46.2
3	R2	11	0.0	0.031	7.4	LOS A	0.1	1.0	0.30	0.53	0.30	46.1
Approach		34	0.0	0.031	5.4	LOS A	0.1	1.0	0.30	0.53	0.30	45.9
East: Orchard Road												
4	L2	7	0.0	0.104	4.2	LOS A	0.5	3.7	0.15	0.48	0.15	46.1
5	T1	95	0.0	0.104	3.8	LOS A	0.5	3.7	0.15	0.48	0.15	46.7
6	R2	33	0.0	0.104	6.9	LOS A	0.5	3.7	0.15	0.48	0.15	46.5
Approach		135	0.0	0.104	4.6	LOS A	0.5	3.7	0.15	0.48	0.15	46.7
North: Mitchell Road												
7	L2	18	0.0	0.038	4.4	LOS A	0.2	1.3	0.24	0.52	0.24	45.8
8	T1	12	0.0	0.038	4.1	LOS A	0.2	1.3	0.24	0.52	0.24	46.3
9	R2	15	0.0	0.038	7.1	LOS A	0.2	1.3	0.24	0.52	0.24	46.1
Approach		44	0.0	0.038	5.2	LOS A	0.2	1.3	0.24	0.52	0.24	46.0
West: Orchard Road												
10	L2	11	0.0	0.075	4.2	LOS A	0.4	2.5	0.18	0.47	0.18	46.2
11	T1	68	0.0	0.075	3.9	LOS A	0.4	2.5	0.18	0.47	0.18	46.8
12	R2	14	0.0	0.075	6.9	LOS A	0.4	2.5	0.18	0.47	0.18	46.6
Approach		93	0.0	0.075	4.4	LOS A	0.4	2.5	0.18	0.47	0.18	46.7
All Vehicles		305	0.0	0.104	4.7	LOS A	0.5	3.7	0.19	0.49	0.19	46.5

Table A3: Saturday Roundabout Intersection Performance of Mitchell Road with Orchard Road PM Peak Hour

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Wattle Road												
5	T1	65	0.0	0.040	0.1	LOS A	0.1	0.5	0.08	0.08	0.08	49.3
6	R2	11	0.0	0.040	5.0	LOS A	0.1	0.5	0.08	0.08	0.08	48.4
Approach		76	0.0	0.040	0.8	NA	0.1	0.5	0.08	0.08	0.08	49.2
North: Mitchell Road												
7	L2	23	0.0	0.021	4.9	LOS A	0.1	0.5	0.23	0.51	0.23	46.1
9	R2	5	0.0	0.021	5.3	LOS A	0.1	0.5	0.23	0.51	0.23	45.7
Approach		28	0.0	0.021	5.0	LOS A	0.1	0.5	0.23	0.51	0.23	46.0
West: Wattle Road												
10	L2	19	0.0	0.080	4.6	LOS A	0.0	0.0	0.00	0.07	0.00	49.1
11	T1	137	0.0	0.080	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	49.6
Approach		156	0.0	0.080	0.6	NA	0.0	0.0	0.00	0.07	0.00	49.6
All Vehicles		260	0.0	0.080	1.1	NA	0.1	0.5	0.05	0.12	0.05	49.0

Table A4: Saturday Priority Intersection Performance of Mitchell Road with Wattle Road PM Peak Hour

APPENDIX B

SIDRA Intersection Results for Existing Traffic Conditions with Showroom and Tasting Area Trips

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mitchell Road												
1	L2	47	0.0	0.107	6.3	LOS A	0.6	3.9	0.53	0.64	0.53	45.2
2	T1	29	0.0	0.107	5.9	LOS A	0.6	3.9	0.53	0.64	0.53	45.7
3	R2	18	0.0	0.107	9.0	LOS A	0.6	3.9	0.53	0.64	0.53	45.5
Approach		95	0.0	0.107	6.7	LOS A	0.6	3.9	0.53	0.64	0.53	45.4
East: Orchard Road												
4	L2	8	0.0	0.285	4.3	LOS A	1.8	12.4	0.24	0.47	0.24	46.1
5	T1	315	0.0	0.285	4.0	LOS A	1.8	12.4	0.24	0.47	0.24	46.7
6	R2	53	0.0	0.285	7.0	LOS A	1.8	12.4	0.24	0.47	0.24	46.5
Approach		376	0.0	0.285	4.4	LOS A	1.8	12.4	0.24	0.47	0.24	46.6
North: Mitchell Road												
7	L2	15	0.0	0.057	4.7	LOS A	0.3	1.9	0.30	0.54	0.30	45.5
8	T1	21	0.0	0.057	4.3	LOS A	0.3	1.9	0.30	0.54	0.30	46.1
9	R2	27	0.0	0.057	7.3	LOS A	0.3	1.9	0.30	0.54	0.30	45.9
Approach		63	0.0	0.057	5.7	LOS A	0.3	1.9	0.30	0.54	0.30	45.9
West: Orchard Road												
10	L2	20	0.0	0.114	4.5	LOS A	0.6	4.1	0.27	0.48	0.27	46.0
11	T1	96	0.0	0.114	4.2	LOS A	0.6	4.1	0.27	0.48	0.27	46.6
12	R2	16	0.0	0.114	7.2	LOS A	0.6	4.1	0.27	0.48	0.27	46.4
Approach		132	0.0	0.114	4.6	LOS A	0.6	4.1	0.27	0.48	0.27	46.5
All Vehicles		665	0.0	0.285	4.9	LOS A	1.8	12.4	0.29	0.50	0.29	46.4

Table B1: Weekday Roundabout Intersection Performance of Mitchell Road with Orchard Road PM Peak Hour with Showroom and Tasting Area Trips

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Wattle Road												
5	T1	107	0.0	0.065	0.2	LOS A	0.1	0.7	0.11	0.06	0.11	49.4
6	R2	12	0.0	0.065	5.9	LOS A	0.1	0.7	0.11	0.06	0.11	48.4
Approach		119	0.0	0.065	0.8	NA	0.1	0.7	0.11	0.06	0.11	49.3
North: Mitchell Road												
7	L2	46	0.0	0.049	5.7	LOS A	0.2	1.3	0.39	0.59	0.39	45.7
9	R2	8	0.0	0.049	6.6	LOS A	0.2	1.3	0.39	0.59	0.39	45.3
Approach		55	0.0	0.049	5.8	LOS A	0.2	1.3	0.39	0.59	0.39	45.7
West: Wattle Road												
10	L2	35	0.0	0.193	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	49.2
11	T1	339	0.0	0.193	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach		374	0.0	0.193	0.4	NA	0.0	0.0	0.00	0.05	0.00	49.6
All Vehicles		547	0.0	0.193	1.1	NA	0.2	1.3	0.06	0.11	0.06	49.1

Table B2: Weekday Priority Intersection Performance of Mitchell Road with Wattle Road PM Peak Hour with Showroom and Tasting Area Trips

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mitchell Road												
1	L2	15	0.0	0.031	4.7	LOS A	0.1	1.0	0.30	0.53	0.30	45.7
2	T1	8	0.0	0.031	4.3	LOS A	0.1	1.0	0.30	0.53	0.30	46.2
3	R2	11	0.0	0.031	7.4	LOS A	0.1	1.0	0.30	0.53	0.30	46.1
Approach		34	0.0	0.031	5.4	LOS A	0.1	1.0	0.30	0.53	0.30	45.9
East: Orchard Road												
4	L2	9	0.0	0.107	4.2	LOS A	0.5	3.8	0.17	0.48	0.17	46.1
5	T1	95	0.0	0.107	3.9	LOS A	0.5	3.8	0.17	0.48	0.17	46.7
6	R2	33	0.0	0.107	6.9	LOS A	0.5	3.8	0.17	0.48	0.17	46.5
Approach		137	0.0	0.107	4.6	LOS A	0.5	3.8	0.17	0.48	0.17	46.6
North: Mitchell Road												
7	L2	18	0.0	0.041	4.5	LOS A	0.2	1.4	0.25	0.52	0.25	45.8
8	T1	15	0.0	0.041	4.1	LOS A	0.2	1.4	0.25	0.52	0.25	46.4
9	R2	15	0.0	0.041	7.1	LOS A	0.2	1.4	0.25	0.52	0.25	46.2
Approach		47	0.0	0.041	5.2	LOS A	0.2	1.4	0.25	0.52	0.25	46.1
West: Orchard Road												
10	L2	11	0.0	0.077	4.2	LOS A	0.4	2.6	0.18	0.47	0.18	46.2
11	T1	68	0.0	0.077	3.9	LOS A	0.4	2.6	0.18	0.47	0.18	46.8
12	R2	17	0.0	0.077	6.9	LOS A	0.4	2.6	0.18	0.47	0.18	46.6
Approach		96	0.0	0.077	4.5	LOS A	0.4	2.6	0.18	0.47	0.18	46.7
All Vehicles		314	0.0	0.107	4.7	LOS A	0.5	3.8	0.20	0.49	0.20	46.5

Table B3: Saturday Roundabout Intersection Performance of Mitchell Road with Orchard Road PM Peak Hour with Showroom and Tasting Area Trips

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Wattle Road												
5	T1	65	0.0	0.042	0.1	LOS A	0.1	0.6	0.10	0.09	0.10	49.2
6	R2	13	0.0	0.042	5.0	LOS A	0.1	0.6	0.10	0.09	0.10	48.3
Approach		78	0.0	0.042	0.9	NA	0.1	0.6	0.10	0.09	0.10	49.1
North: Mitchell Road												
7	L2	23	0.0	0.021	4.9	LOS A	0.1	0.5	0.23	0.51	0.23	46.1
9	R2	5	0.0	0.021	5.3	LOS A	0.1	0.5	0.23	0.51	0.23	45.7
Approach		28	0.0	0.021	5.0	LOS A	0.1	0.5	0.23	0.51	0.23	46.0
West: Wattle Road												
10	L2	23	0.0	0.083	4.6	LOS A	0.0	0.0	0.00	0.08	0.00	49.1
11	T1	137	0.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	49.5
Approach		160	0.0	0.083	0.7	NA	0.0	0.0	0.00	0.08	0.00	49.5
All Vehicles		266	0.0	0.083	1.2	NA	0.1	0.6	0.05	0.13	0.05	49.0

Table B4: Saturday Priority Intersection Performance of Mitchell Road with Wattle Road PM Peak Hour with Showroom and Tasting Area Trips

CARPARK AND DRIVEWAY CERTIFICATION OF A PROPOSED SHOWROOM AND TASTING AREA

45 Mitchell Road in Brookvale

Prepared for: Dad & Dave's Brewing

A1916314N (version 1a)

February 2020

Suite 195, 79-83 Longueville Road, Lane Cove North NSW 2066

Telephone: 0418 256 674 ***Facsimile: 1300 739 523***
sydney@mltraffic.com.au *www.mltraffic.com.au*

ABN 69 981 485 197

1. INTRODUCTION

ML Traffic Engineering was commissioned by Dad & Dave's Brewing to prepare a traffic and parking impact assessment for a proposed Showroom and tasting area in 45 Mitchell Road in Brookvale. It has frontage to Mitchell Road. The car park is on the hard stand (concrete sealed) in front of the building.

A porte cochere is proposed with three formal car spaces provided.

Reference is made to AS2890.1 (2004), AS2890.6 (2009) and Council's Development Control Plan for compliance.

2. DRIVEWAY

The entry and exit is 3 metres wide.

3. CAR SPACES

The car spaces are 5.4 metres long and 2.4 metres wide.

A passing bay is proposed and only suits a small car.

4. SWEPT PATHS

A swept turning path analysis is performed using a B85 car with 4.9 metres in length, as set in the Australian Standards to confirm that vehicle movements are adequate for all of the three car spaces , as well as a car traveling through the pore cochere.

A passing bay is proposed and only suits a small car.

Entry and exit of the three formal car spaces show acceptable manoeuvrability.

The swept paths are provided in the Appendix A of this report.

5. SIGHT DISTANCE

The car driver's vehicle sight distance requirement to enter the external road is stated in Figure 3.2 of AS2890.1.

The sight distance varies according to the speed of the external road. Mitchell Road has a sign-posted speed limit of 50 km/hr.

The minimum vehicle sight distance required is 45 metres. Site measurements showed that the minimum sight distance looking left and right is met.

The pedestrian sight distance as set out in Figure 3.3 of AS2890.1 is met as well.

6. CONCLUSIONS AND RECOMMENDATIONS

The car parking area and driveway is generally compliant with Australian Standards and Council's DCP.

APPENDIX A
Swept Paths

INTERNAL STAIR

STORE

WC

ROLLER DOOR

KERB

BUILDING OVER DOTTED

KERB

EXTERNAL STAIR

3000

B85 (AU_NZ)

STANDARDS 2004

PASSING BAY

2720

3699mm

B85 (AU_NZ)

STANDARDS 2004

5400

B85 (AU_NZ)

STANDARDS 2004

2400

2400

2400

3000

IN

OUT

STANDARDS 2004 (AU – NZ)

B85

3000

2400

2400

2400

5400

3000

2720

3000

PASSING BAY

BUILDING OVER DOTTED

KERB

KERB

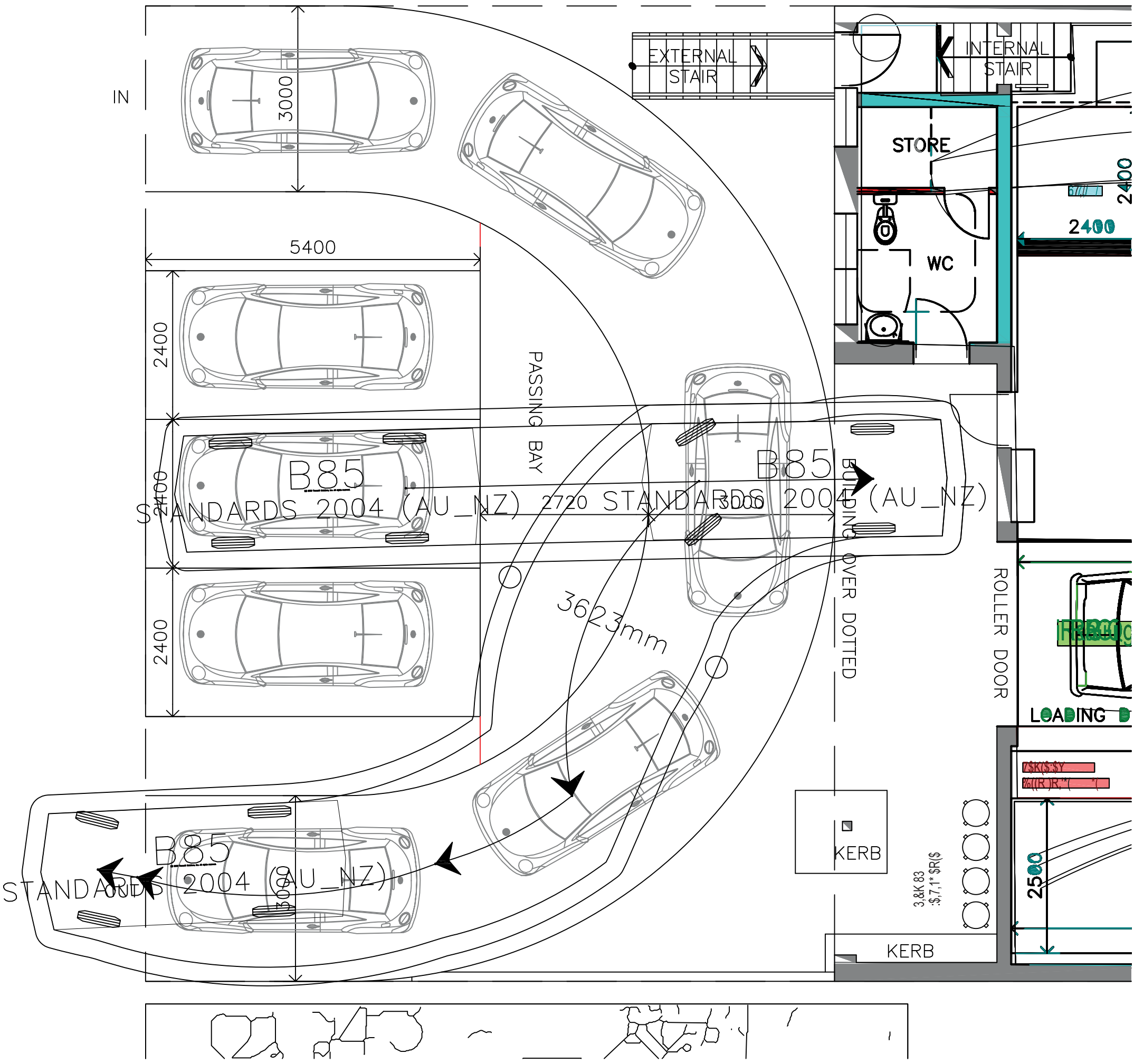
ROLLER DOOR

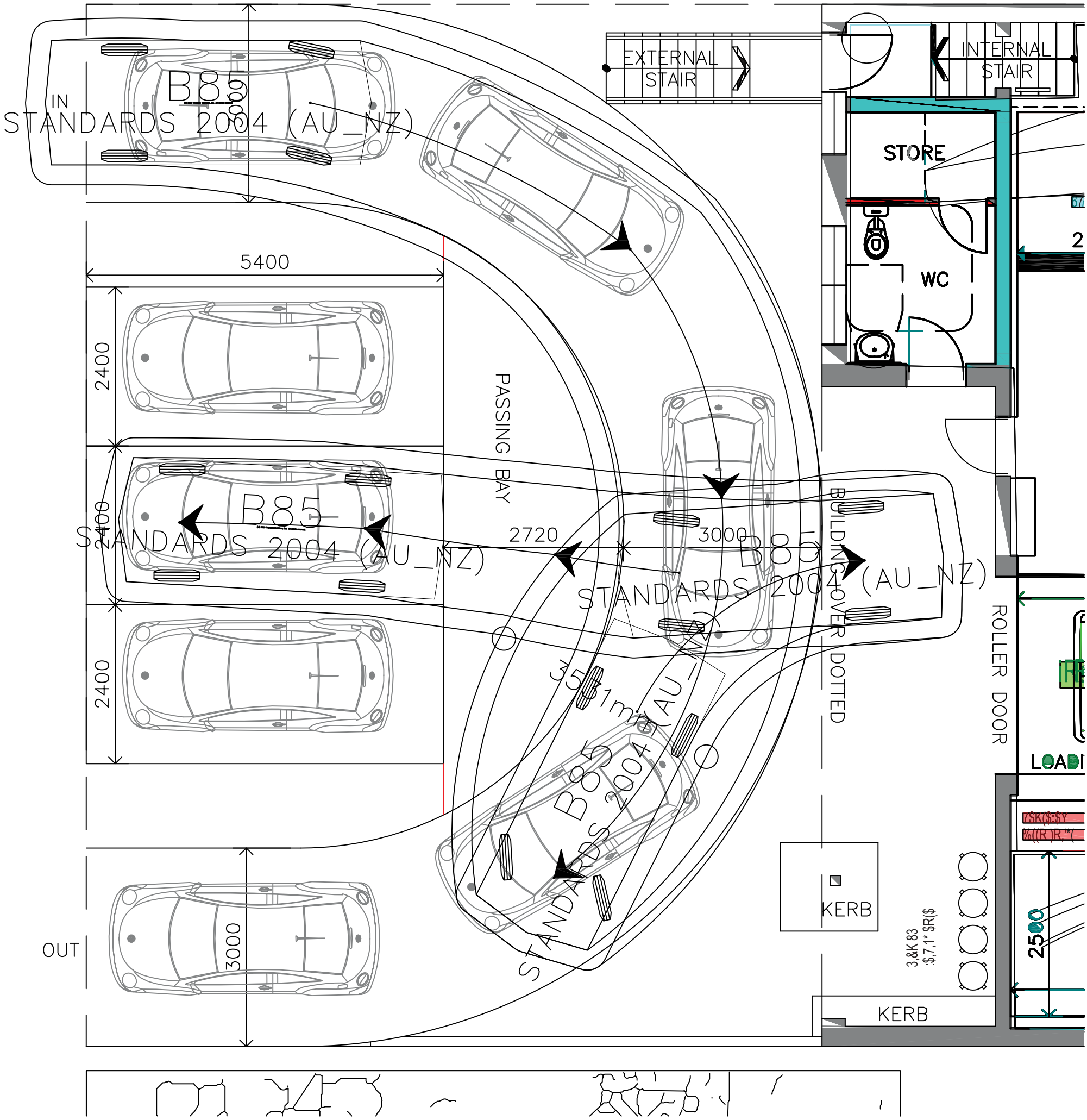
EXTERNAL STAIR

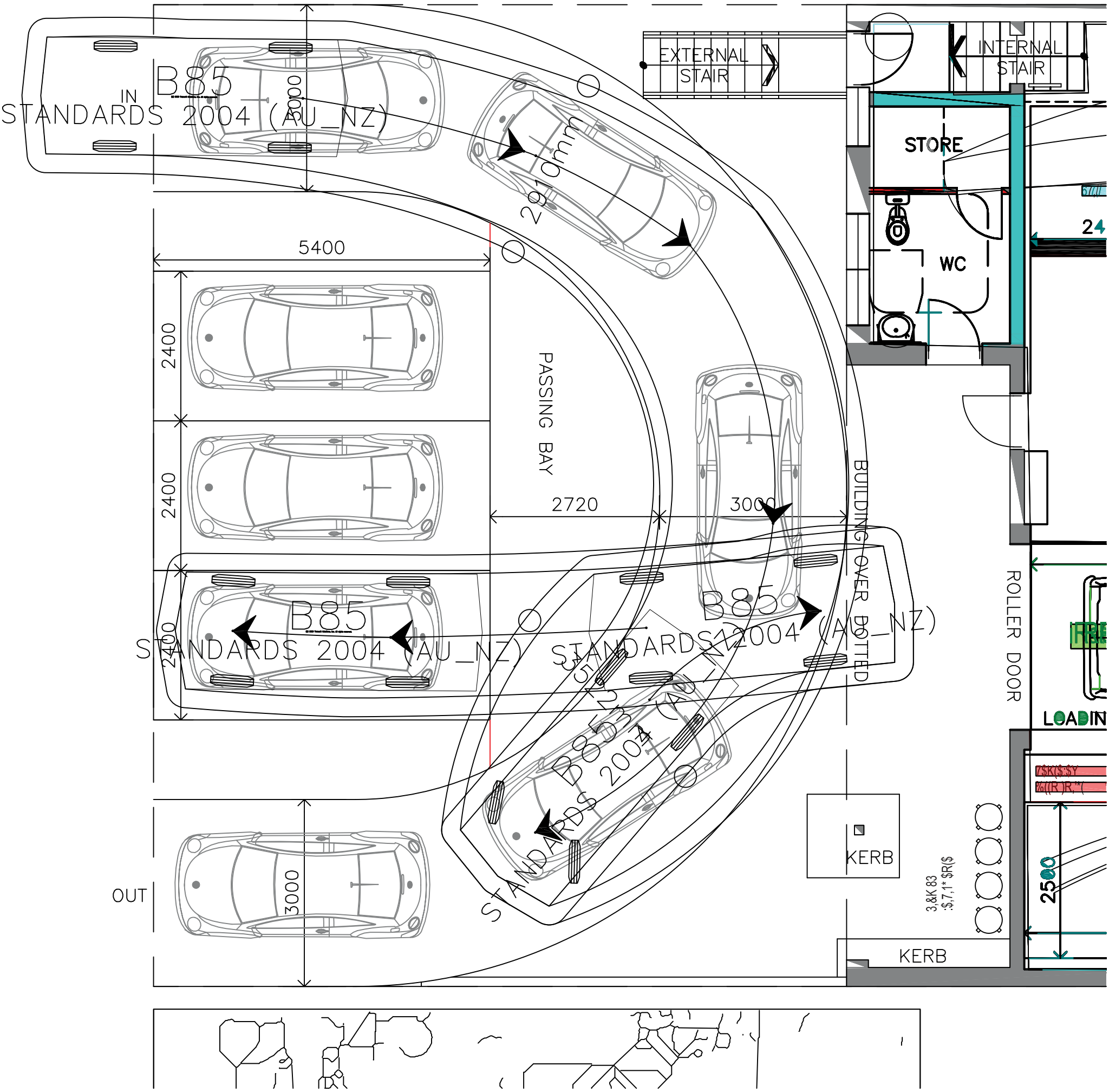
WC

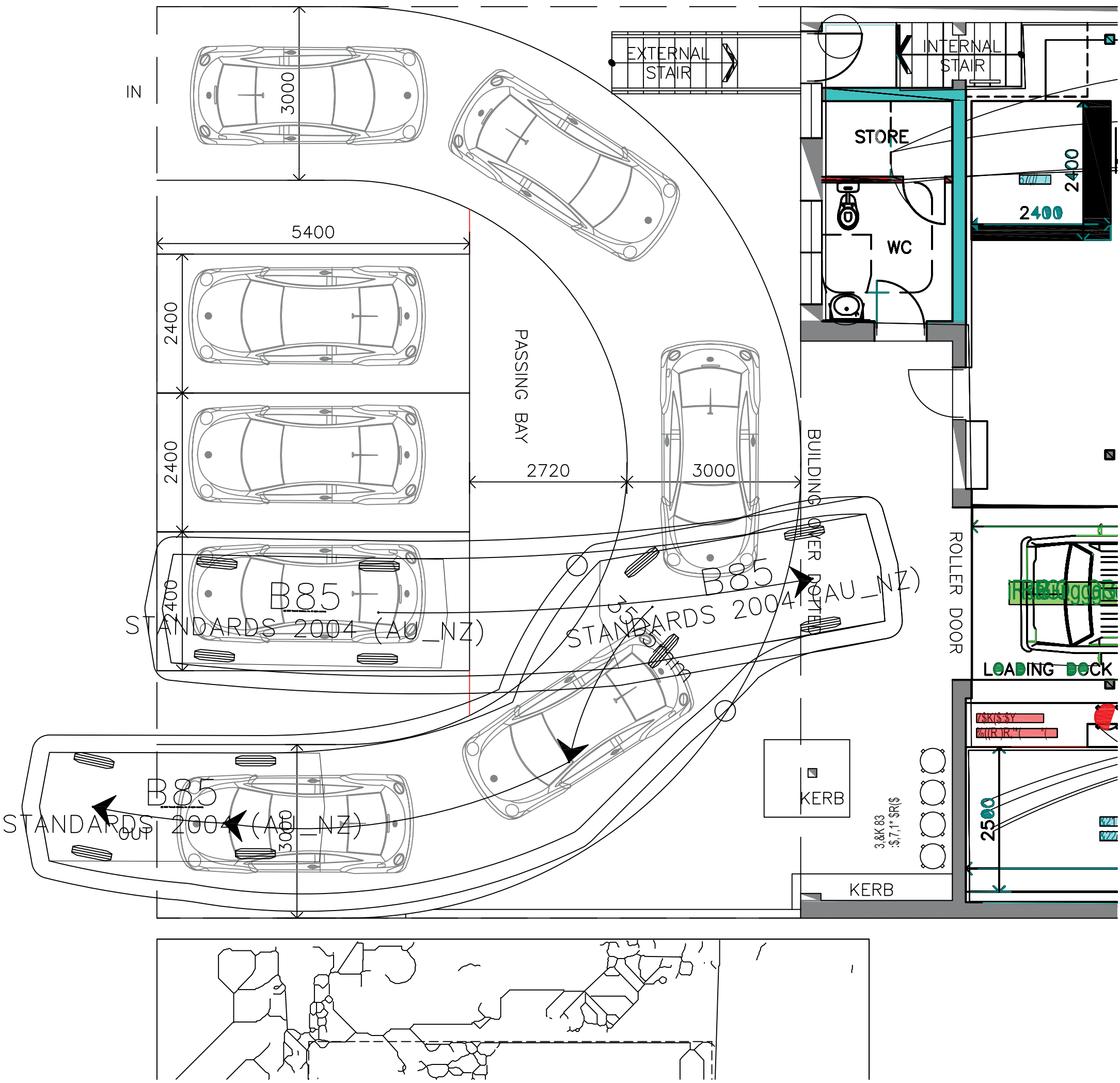
STORE

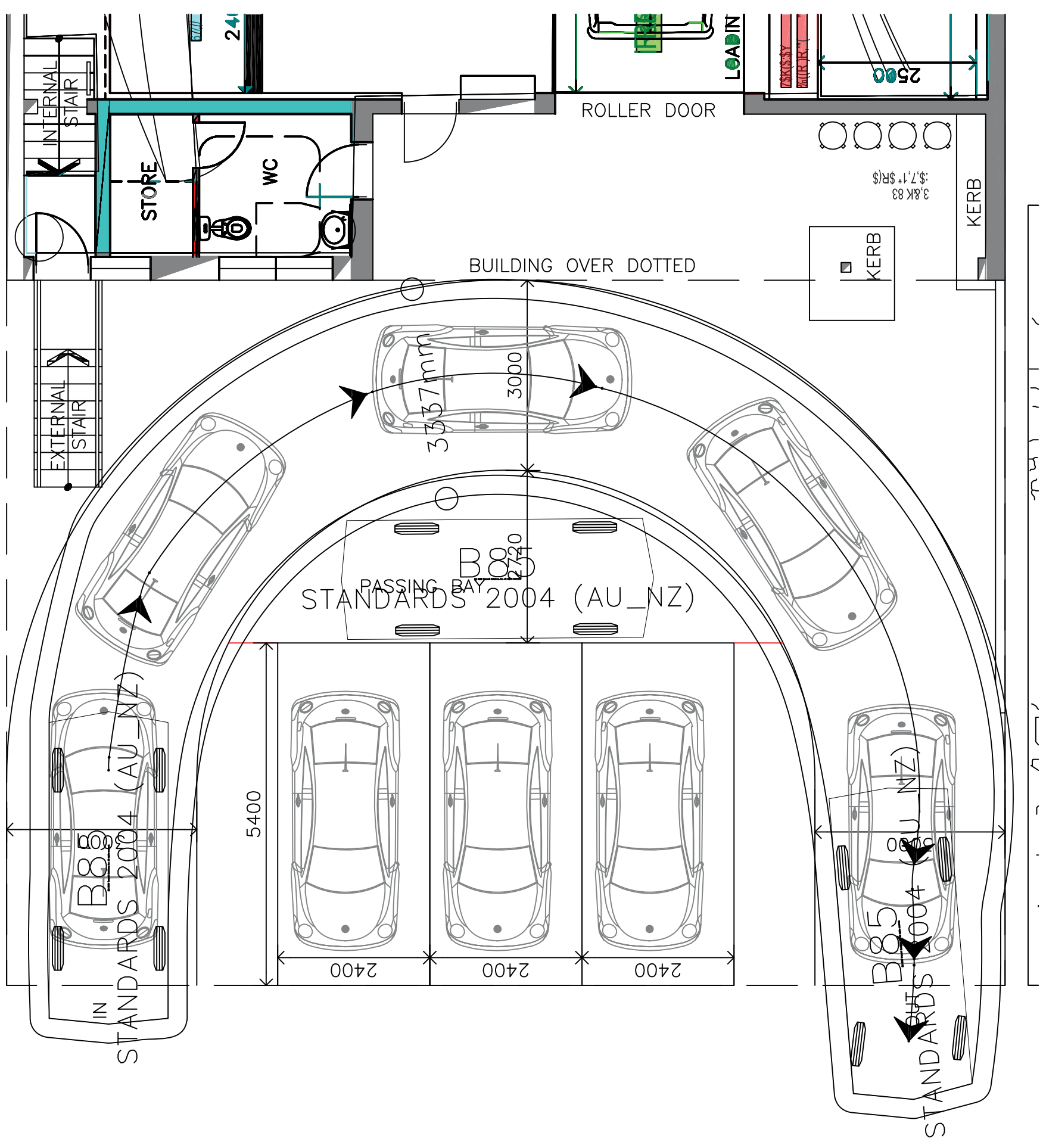
INTERN
STAIR


IN
3000
5400
2400
2400
2400
B85
STANDARDS 2004 (AU_NZ)
2720
B85
STANDARDS 2004 (AU_NZ)
3000
B85
STANDARDS 2004 (AU_NZ)
3623mm
PASSING BAY
BUILDING OVER DOTTED
EXTERNAL STAIR
INTERNAL STAIR
STORE
WC
2400
2400
ROLLER DOOR
LOADING
KERB
KERB
2500


EXTERNAL STAIR
INTERNAL STAIR
STORE
WC
ROLLER DOOR
B85 IN STANDARDS 2004 (AU_NZ)
5400
2400
2400
2400
PASSING BAY
2720
3000
B85 STANDARDS 2004 (AU_NZ)
BUILDING OVER DOTTED
B85 STANDARDS 2004 (AU_NZ)
OUT
3000
KERB
KERB
2500


IN
B85
STANDARDS 2004 (AU_NZ)
5400
2400
2400
2400
2720
3000
PASSING BAY
BUILDING OVER
ROLLER DOOR
EXTERNAL STAIR
INTERNAL STAIR
STORE
WC
KERB
KERB
OUT
3000
2500
LOADIN


IN
3000
5400
2400
2400
2400
EXTERNAL STAIR
INTERNAL STAIR
STORE
2400
2400
WC
PASSING BAY
2720
3000
BUILDING OVER ROTTED
ROLLER DOOR
LOADING DOCK
B85
STANDARDS 2004 (AU_NZ)
B85
STANDARDS 2004 (AU_NZ)
B85
STANDARDS 2004 (AU_NZ)
OUT
3000
KERB
KERB
2500


INTERNAL STAIR
STORE
WC
ROLLER DOOR
LOADIN
KERB
KERB
BUILDING OVER DOTTED
EXTERNAL STAIR
3337mm
3000
PASSING BAY
B85
STANDARDS 2004 (AU_NZ)
5400
2400
2400
2400
B85
STANDARDS 2004 (AU_NZ)
B85
STANDARDS 2004 (AU_NZ)