

MEMO

TO: Lashta Haidari, Steven Findlay
FROM: Ody Murlianto, Richard West, Ryan Miller
SUBJECT: Meriton Dee Why Review of Traffic Matters
OUR REF: 2196969A-ITP-MEM-RPT RevA.docx
DATE: 28 March 2017

Northern Beaches Council has engaged WSP | Parsons Brinckerhoff to undertake a review of the Traffic Impact Assessment undertaken to support the Development Application submission for the subject development.

To date, WSP | Parsons Brinckerhoff has provided four (4) reviews of the Development Application in relation to the traffic and parking matters on 7 April 2016, 21 November 2016, 8 February 2017 and most recently on 13 March 2017 to advise Council of a number of outstanding issues associated with the subject development.

to address a number of outstanding issues associated with traffic and parking matters of the proposed development a meeting was held on 17 March 2017 between representatives of the Northern Beaches Council, WSP | Parsons Brinckerhoff, Meriton and its representing traffic engineer.

This memorandum provides Council with the following:

- Assessment of the Development Application in the context of the traffic and parking impact to the surrounding road network,
- Consideration of safety in the design elements of the development.
- Consideration of appropriate access arrangements to service the subject development.
- Provide Council with a direction in structuring a draft *Condition of Consent* with regards to traffic and parking matters.

1. PROPOSED DEVELOPMENT

It is to WSP | Parsons Brinckerhoff's understanding that the proposed mixed use development comprises of 350 residential dwellings, 4,500m² of commercial space, 9,230m² of retail floor space, and a child care centre proposed to accommodate 130 students. Car parking for some 1,035 vehicles over three levels is proposed with two ground floor level delivery dock areas accessed from driveways on Oaks Road and Howard Avenue.

2. PARKING

2.1 Supply

The proposed development includes 1,035 parking spaces across three (3) basement levels with the following allocation:

- 547 retail parking spaces; and
- 488 residential spaces (including 35 residential visitor)

It is understood that Council has agreed to reduce the number of residential visitor car parking spaces by 50%. This is considered acceptable considering the mixed-use nature of the development.

With consideration of the floor space uses proposed for the subject development, it was assessed in WSP | Parsons Brinckerhoff's referral dated 21 November 2016, that 1,035 car parking spaces of which 547 spaces are proposed to be allocated for non-residential uses and the remainder (488 spaces) for residents and resident visitors are adequate for the size and uses of the development. It has been further clarified that 24 of the retail car parking spaces are to be allocated for the use of the Child Care Centre during its operating hours.

Where required, Council may wish to request the applicant to detail the allocation of staff car parking spaces in the Car Park Management Plan or in the subsequent Development Application submitted to Council for the uses within the Meriton site.

Bicycle Parking - It is to our understanding that the subject development proposes to provide 208 bicycle car parking spaces with the following allocation:

- 178 bicycle parking spaces for residential uses
- 15 bicycle parking spaces for residential visitors
- 15 bicycle parking spaces for retail uses.

2.2 Car Park Layout

A number of issues were raised with regards to the design of the car park circulation, particularly the manoeuvrability of vehicles at a number of intersection including at ramp landing and parking aisles. The issues were raised as the vehicle paths travelling in the opposite direction were shown to overlap and therefore requiring drivers to give-way to one another when arriving at the intersection. This design was therefore not complying with Clause 2.5.2(c) of AS/NZS 2890.1:2004 which states:

- (c) *Intersections - Intersections between circulation roadways and ramps, and with parking aisles shall be designed so that both the approach roadways and the intersection area are wide enough to accommodate turning vehicles and there is adequate intersection sight distance.*

On 17 February 2017, the applicant submitted a number of revised drawings (Ref: 16.367 drawing number TX.11-TX.19) to address the above issues and demonstrate compliance with the abovementioned Clause 2.5.2(c) of AS/NZS 2890.1:2004. Copies of the referenced drawings have been provided in Appendix A.

2.3 Car Park Access Control

In the review dated 21 November 2016, a concern was raised with regards to the lack of provision required for traffic queuing (36 metres) approaching the access boom gate.

To address the concerns associated with the required queuing space, the applicant proposed the use of an Automatic Number Plate Recognition (ANPR) system to increase the capacity and reduce the delay for vehicles to enter the car park. The use of ANPR would significantly improve lane capacity to levels similar to a free-flow entrance. As a comparison, according to Appendix D of AS/NZS 2890.1:2004, a free-flow car park entry can service a maximum of 600 vehicles/hour/lane and a boom-gate controlled car park entry can service a maximum of 300 vehicles/hour/lane.

The proposed use of ANPR system for the car park is therefore considered acceptable to minimise the potential impact of inbound traffic queue to the surrounding road network.

2.4 Pedestrian Safety at Access Driveway

2.4.1 Pedestrian Sight Lines

Reviews undertaken on 21 November 2016 and 8 February 2017 raised a pedestrian safety issue associated with the lack of provision of an appropriate pedestrian sight line resulting from the location of the proposed columns adjacent to the car park access driveway at the boundary. This issue was

identified in both Oaks Avenue and Howard Avenue access driveway. Failure to provide the appropriate pedestrian sight line would impact on the safety of pedestrians at the proposed development's access driveways.

In the response dated 22 March 2017, the applicant has indicated the modification to the location of the columns and design of the access driveways at Oaks Avenue and Howard Avenue to improve the egressing vehicles' sight lines to pedestrians. The applicant had also indicated their intention of providing different colour pavements to indicate pedestrians' right of way at the footpath, and convex mirrors with a view to provide some improvement to the sight line.

The proposed design as shown in the drawing number 0007 Revision K (attached in Appendix B) and the additional treatments proposed at the access driveway to indicate the right of way for pedestrians are considered acceptable.

2.4.2 Length of Driveway Crossing

Reviews undertaken on 21 November 2016 and 8 February 2017 raised a pedestrian safety issue associated with the locations of the driveways to the car park, loading dock and neighbouring property's access driveway which would require pedestrians to cross a driveway crossing in excess of 20 metres wide. To put it into perspective, a typical wide collector road is approximately 12.8 metres wide.

A meeting was held between Northern Beaches Council, WSP | Parsons Brinckerhoff, Meriton and its representing traffic engineer, Traffix on 17 March 2017 which discussed the most viable option to reduce the conflict.

It was agreed that to reduce the length of the pedestrian crossing, a driveway separation be installed between the access driveway to the loading dock and the access driveway to the basement car park. The implementation of this treatment was agreed for both driveways at Oaks Avenue and Howard Avenue and are considered satisfactory to achieve the objective of reducing the crossing distance at which pedestrians are required to cross at both access driveways. A copy of the amended drawings and the relevant turning path assessments undertaken by Traffix can be found in Attachment C.

2.5 Access Driveway Width

Reviews undertaken on 8 February 2017 raised the issue of non-compliance of the access driveways to the basement car park at both Oaks Avenue and Howard Avenue.

To service 1,035 car parking spaces proposed for the development, and assuming an equal proportion of use between the two driveways, the driveways at both Oaks Avenue and Howard Avenue would be considered as Category 4 facilities as per Table 3.1 of AS/NZS2890.1:2004. This driveway category requires a minimum egress and ingress driveway widths of 6.0 to 8.0 metres with a separation of 1 to 3 metres. The application proposed a driveway with a combined width of approximately 6 metres at both locations.

In the meeting held on 17 March 2017 the Applicant maintained their position to deviate from the Australian Standards by proposing to provide a combined 6 metres access driveways at both locations, however with the provision of the following actions:

- Implementation of a left-in/left-out arrangement at the access driveways fronting Howard Avenue. This would restrict the right movements out of the access driveway and therefore the need to have an additional approach lane exiting the driveway.
- Undertake intersection modelling of the Oaks Driveway to assess the likely performance of the access driveway and determine the need to ban any traffic movements into and out of the driveway in order to ensure a satisfactory performance of the access driveway.

Following this meeting Traffix had undertaken a traffic modelling assessment, submitted as part of the report on 24 March 2017, which investigated the operation of the driveway as a "Stop" controlled

intersection. The modelling indicates that a satisfactory performance at the driveway on Oaks Avenue can be achieved with all turning movements permitted.

As the driveway on Oaks Avenue is still considered a deviation from the Australian Standards, and that there had been no comparative site assessment, Council may wish to condition for a report to be submitted to review the operation of this driveway six (6) months following the completion of the development to ensure a satisfactory and safe operation is achieved.

2.6 Recommendation

With regards to the parking provision and access arrangement to the car park, it is recommended for the following conditions to be imposed:

2.6.1 Car Parking

547 car parking spaces shall be provided on-site for the commercial /retail uses of the development with the allocation identified below. Each space shall be permanently line marked and maintained free from obstruction at all times.

- 512 car parking spaces to be allocated for use for commercial/retail uses of the development.
- Eleven (11) car parking spaces shall be allocated for the use as disabled car parking spaces to comply with the Disability (Access to Premises – Buildings) Standards, 2010. Disabled car parking space shall not form as part of a tandem car parking layout.
- Twenty-four (24) car parking spaces shall be allocated and sign-posted for use for the Child Care Centre during its approved operating hours. These car parking spaces shall be located within the immediate vicinity of the retail elevator within building block D located at the south-eastern end of the development which provides direct access to the Child Care Centre.

Additionally, 488 car parking spaces (including 94 pairs of tandem car parking spaces) shall be provided on-site with secured access for the residential uses of the development with the allocation identified below. Each space shall be permanently line marked and maintained free from obstruction at all times.

- Thirty-five (35) car parking spaces shall be allocated for use as visitor car parking spaces. All visitor car parking spaces are to be appropriately delineation to indicate its use.
- Thirty-six (36) car parking spaces shall be allocated for the use as disabled car parking spaces. Disabled car parking space shall not form as part of a tandem car parking layout.
- Provision of any pair of tandem car parking spaces shall be allocated to the same residential units.

Design of car parking modules, circulation roadways, ramps and headroom shall comply with AS/NZS 2890.1: 2004. All disabled car parking spaces shall comply with AS/NZS2890.6:2009.

A Car Park Management Plan and its relevant condition of entry shall be submitted to detail the proposed operation of the car park and the allocation of car parking spaces prior to the issue of Construction Certificate.

2.6.2 Bicycle Parking

208 bicycle car parking spaces shall be provided on-site with the allocation identified below. Each space shall be permanently line marked and maintained free from obstruction at all times.

- 178 bicycle parking spaces for residential uses.
- 15 bicycle parking spaces for residential visitors.
- 15 bicycle parking spaces for retail uses.

2.6.3 Car Park Access

Vehicles entering the car park access at Howard Avenue and Oaks Avenue shall comply with the following requirement:

- a) All vehicular entries and exits shall be made in a forward direction.
- b) That accesses to the basement car park and loading dock at the driveways on Howard Avenue and Oaks Avenue be separated by a concrete island measuring 2.0 metres at the property boundary. The driveway separation shall be installed with a suitable non-mountable kerb profile not exceeding 0.150 metres in height and shall not protrude onto the public footpath. Relevant set out and engineering detail plans of the driveway separation shall be submitted to Council prior to the Construction Certificate being issued.
- c) No other movements other than left-in and left-out are permitted at the access driveway fronting Howard Avenue. A suitable raised non-mountable median island shall be installed on Howard Avenue to physically restrict unpermitted movements into/out of the driveway. Relevant set out plans, engineering details and delineation plans of the median island shall be submitted to Council for approval prior to installation.
- d) That a review of the operation of the access driveway at Oaks Avenue be undertaken six (6) months after the completion of the development. The review report shall be submitted to Council for consideration.
- e) Car Park Access Control - A suitably designed Automatic Number Plate Recognition (ANPR) system shall be installed and maintained at the ingress and egress access to the off-street car park of the development.

3. TRIP GENERATION

Concerns had been raised with regards to the trip generation rate proposed in the Traffic Impact Assessment submitted on 19 September 2016 which showed a trip generation of 2.7 and 1.8 times more than those modelled in the holistic traffic assessment for the Dee Why Town Centre and a number of studies the applicant had prepared for previous submissions of the subject development.

A summary of the differences in the traffic volumes are summarised in Table 3.1 below. A calculation table summarising the differences in trip generation calculation over a number of years this development had been considered is further detailed in Appendix D.

Table 3.1 - Summary of Differences in Trip Generation

REPORT	AM PEAK	PM PEAK	SATURDAY PEAK
TIA 19/09/16 <i>prepared by Traffix</i>	725	998	Not Provided
TIA 2/11/15 <i>prepared by GTA Consultants</i>	238	572	627
PARAMICS	269	569	466
Δ to Trip Generation detailed in GTA Report	487	426	N/A
Δ to Trip Generation in PARAMICS	456	429	N/A

The significant increase in traffic volumes generated out of the development would result in adverse consequences to the road network.

In the meeting held on 17 March 2017, the following issues relating to traffic generation were discussed:

- That the applicant review and confirm that the floor space uses of the proposed development are in-line with those considered in the PARAMICS traffic modelling of the Dee Why Town Centre

and a number of studies the applicant had prepared for previous submissions of the subject development.

- That the applicant review the trip generation rate used in the Traffic Impact Assessment report submitted to Council on 19 September 2016 to be more in-line with those considered in the PARAMICS traffic modelling of the Dee Why Town Centre and a number of studies the applicant had prepared for previous submissions of the subject development.

In the report prepared by Traffix on 24 March 2017 the following assessment has been provided to Council:

Table 3.2 Trip Generation (Traffix, March 2017)

USE	AREA	UNITS	AM RATE	PM RATE	WEEKEND RATE	AM TRIPS	PM TRIPS	WEEKEND TRIPS
Dwellings	350	Per unit	0.19	0.15	0.25	66.5	52.5	87.5
Supermarket	4,200	Retail trips						
Shop	4,700							
Restaurant	330							
Retail	9,230	Per 100m ²	0.8	3.9	5.2	73.84	359.97	479.96
Commercial	4,500	Per 100m ²	1.6	1.2	0	72	54	0
Childcare	130	Per student	0.6	0.525	0	78	68.25	0
					TOTAL	290	535	567

The revised floor space has excluded the floor uses proposed for gymnasium and medical centre. The traffic generation calculation has also combined the floor spaces marked for us as supermarket, shop and restaurant as retail.

Based on the above trip generation provided by the Applicant, it is considered that the proposed development generates and attracts traffic movements in-line with those investigated in the Dee Why Town Centre traffic modelling with a total of 269, 569 and 466 trips in the respective AM, PM and Saturday peak.

4. LOADING DOCK

4.1 Overhead Clearance and Operational Issues

An issue was raised with regards to the non-compliance of the overhead clearance proposed at the loading dock at Oaks Avenue. The largest design vehicle of a Medium Rigid Vehicle (MRV) was selected in a number of turning path assessments submitted for review including the drawings prepared on 17 February 2017. The minimum overhead clearance required for a Medium Rigid Vehicle is 4.5 metres as per Table 2.1 of AS 2890.2:2002.

The overhead clearance proposed for the development was measured at 3.286 metres. This was later reviewed to show 3.615 metres in the drawing (Ref: Sec-01) prepared by the Applicant in March 2017.

It was noted that the loading dock will also consist of garbage rooms and provide access for the delivery to the retail developments of the westernmost building blocks of the development. A non-compliance of the overhead clearance would result in loading/unloading and the servicing of the development to be carried out on-street.

In the meeting held on 17 March 2017, the following options were discussed:

- That the overhead clearance of the loading dock be checked with a Medium Rigid Vehicle with a reduced overhead clearance height of 3.6 metres. This is in line with a number of loading docks provided in the Sydney CBD and allows access for certain types of service vehicles.
- That a Loading Dock Management Plan be prepared as a viable alternative for vehicles requiring an overhead clearance of 3.6 metres to utilise the loading dock at Howard Avenue.

In the report prepared by Traffix on 22 March 2017 the following assessment have been provided to Council:

Oaks Avenue Loading Dock

The Oaks Avenue loading dock has been provided with a head height clearance of 3.6m. The ramp grades and geometry is fully compliant (sic) with AS2890.2 (2002). Vertical clearance tests have also been undertaken using an MRV (with a reduced head height of 3.6m) and show satisfactory operation of the loading dock entry ramp with no head height or bottom scraping. The vertical clearance tests are presented in Appendix B.

Architectural design has been proposed to suit the 3.6 metres overhead clearance and is shown in drawing number TX.01 prepared on 21 March 2017. A copy of the drawing is attached in Appendix E.

Further, the report also details the preparation of a Loading Dock Management Plan which would outline the following:

- *Location of the loading bays, truck routes and size of vehicles that can use the loading docks.*
- *Servicing arrangements, including hours of operation, frequency and types of deliveries and information regarding the transport of goods within the development.*
- *Management procedures including details of the loading dock manager, loading dock booking arrangements, induction, driver responsibilities, complaints management systems and monitoring.*
- *Importantly to this development in particular, the loading dock management plan will outline the procedure for vehicles with a greater height than 3.6m requiring use of the Howard Avenue loading dock, and also maps for the transport of goods from this loading dock to the residential, retail and commercial tenancies*

The response provided by the applicant in the report prepared on 22 March 2017 is considered in-line with the discussion held on 17 March 2017 to address the issues associated with the overhead clearance for the loading dock at Oaks Avenue to ensure its functionality.

4.2 Conditions

The following Conditions are recommended for the operation of the delivery docks:

4.2.1 Howard Avenue Deliveries Dock

Vehicles servicing the site shall comply with the following requirements:

- a) All vehicular entries and exits shall be made in a forward direction.
- b) All deliveries to the premises shall be made to the loading bays provided
- c) All vehicles awaiting loading or unloading shall be parked on-site and not on adjacent or nearby public roads
- d) No vehicle over 15.0 metres long shall access the access driveway to the delivery dock with access to Howard Avenue.

- e) No vehicles over 12.5 metres long are to access the delivery dock within the business hours of the retail developments on weekdays.
- f) No other movements other than left-in and left-out are permitted at the access driveway to the loading dock fronting Howard Avenue. A suitable raised non-mountable median island shall be installed to physically restrict unpermitted movements into/out of the driveway. Relevant plans and engineering details of the median island shall be submitted to Council for approval prior to installation.

4.2.2 Oaks Avenue Deliveries Dock

Vehicles servicing the site shall comply with the following requirements:

- a) All vehicular entries and exits shall be made in a forward direction.
- b) All deliveries to the premises shall be made to the loading bay provided
- c) All vehicles awaiting loading or unloading shall be parked on-site and not on adjacent or nearby public roads
- d) No vehicle over 8.8 metres long and 3.6 metres high shall access the access driveway. Appropriate regulatory and warning signs shall be installed to indicate the available clearance prior to the loading dock entrance.
- e) That a review of the operation of the loading dock access driveway at Oaks Avenue be undertaken six (6) months after the completion of the development. The review report shall be submitted to Council for consideration.

4.2.3 Loading Dock Management Plan

A Loading dock Operational Management Plan shall be submitted to Council detailing the operation of the loading docks outlining the following:

- Location of the loading bays, truck routes and size of vehicles that are permitted at the loading docks.
- Servicing arrangements, including hours of operation, frequency and types of deliveries and information regarding the transport of goods within the development.
- Management procedures including details of the loading dock manager, loading dock booking arrangements, induction, driver responsibilities, complaints management systems and monitoring.
- The procedure for vehicles with a greater height than 3.6m requiring use of the Howard Avenue loading dock, and internal circulation map for the transport of goods from this loading dock to the residential, retail and commercial tenancies.

5. CONSTRUCTION TRAFFIC MANAGEMENT PLAN

The condition below has been drafted to assist Council with the conditioning of a Construction Traffic Management Plan for the subject development.

Condition of Consent to read:

A Construction Traffic Management Plan (CTMP) shall be submitted and approved by Council prior to the issue of a Construction Certificate to address the impact resulting from the construction activities of the subject development. The CTMP shall be developed in accordance with AS1742.3-2009 Traffic Control for Works on Roads and the RMS Traffic Control at Work Sites v4.

Should Council wishes to include further details of the items to be included in the CTMP, the following may be included:

The CTMP shall include:

- a) Details of the type and expected number of truck movements in conjunction with the construction program proposed for the subject development. No Articulated Vehicles or Truck and Dog shall be used prior to Council's approval.
- b) Vehicle Movement Plan (VMP) to detail construction vehicles haulage route to and from the proposed site access and laydown area. A road dilapidation report shall be submitted to survey the condition of any local roads impacted by the proposed haulage route. Loading Zone shall not be installed prior to Council's approval.
- c) Relevant Traffic Control Plan (TCP) to demonstrate the appropriate traffic management to address the impact resulting from works undertaken during the construction of the subject development.
- d) Relevant Pedestrian Management Plan (PMP) to demonstrate the appropriate management of pedestrians at areas affected by the construction of the subject development.
- e) Stakeholder Communication Plan which would detail the appropriate communication methods with any stakeholders affected by the construction of the subject development. Stakeholders may include however not limited to:
 - Northern Beaches Council
 - Emergency services
 - Property owners
 - Business owners
 - Residents
 - Public transport providers
 - Any community groups affected by the construction activities.

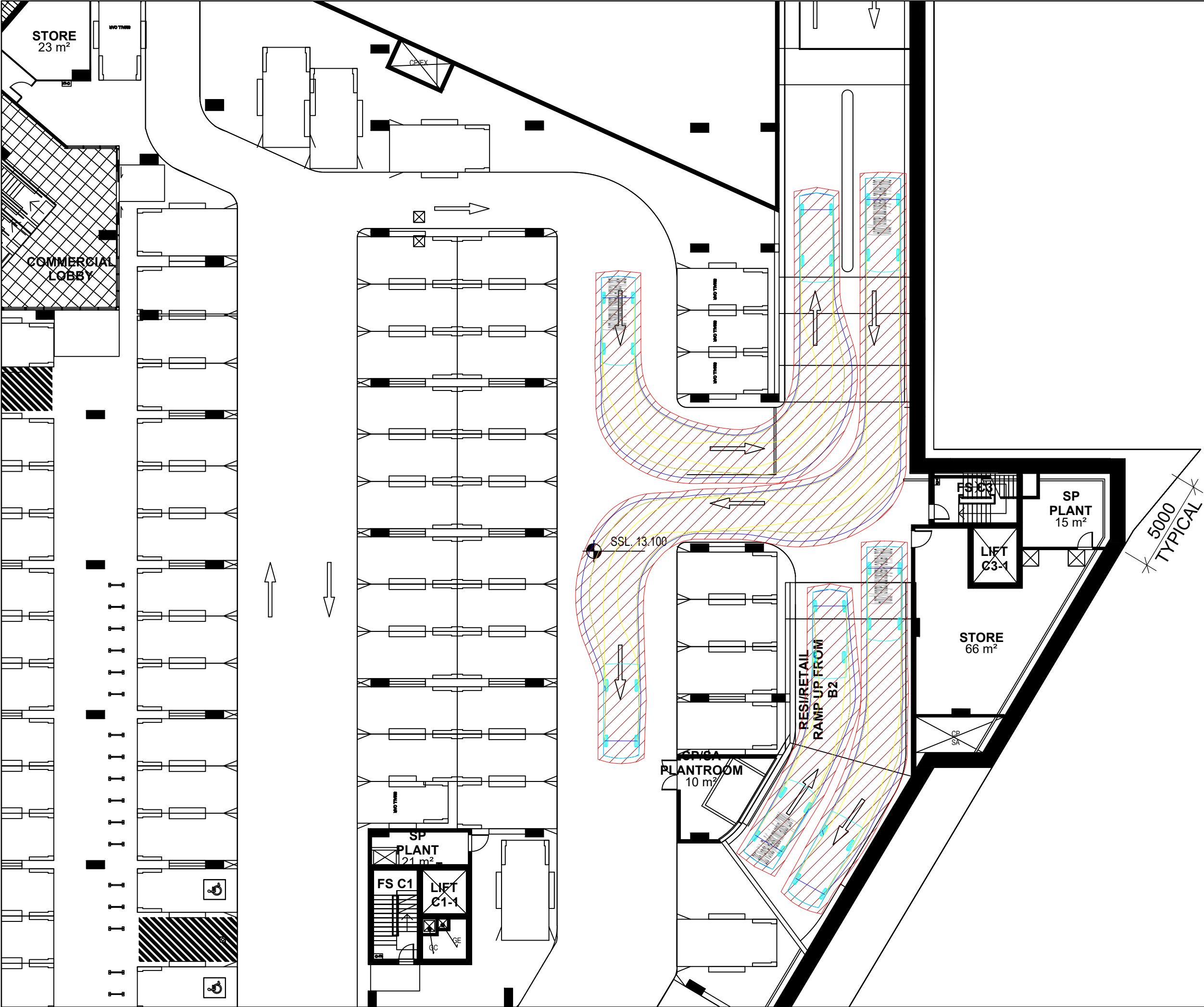


Ody Murlianto
Traffic Engineer

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APPENDIX A

Internal Circulation Assessment (Traffix, 17 February 2017)



Notes

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TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1-2004 *Parking facilities - Off-street car parking*, and/or AS 2890.2-2002 *Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no. revision note

TY

by. date

TY 17-02-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

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project

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drawing title

Parking Level 1 - Swept Path Analysis
B85 & B99 Vehicle

drawn: TY

checked: MM

date: 17-02-2017

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TX.11

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Parking Level 1 - Swept Path Analysis
B85 & B99 Vehicle

drawn: TY

checked: MM

date: 17-02-2017

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checked: MM

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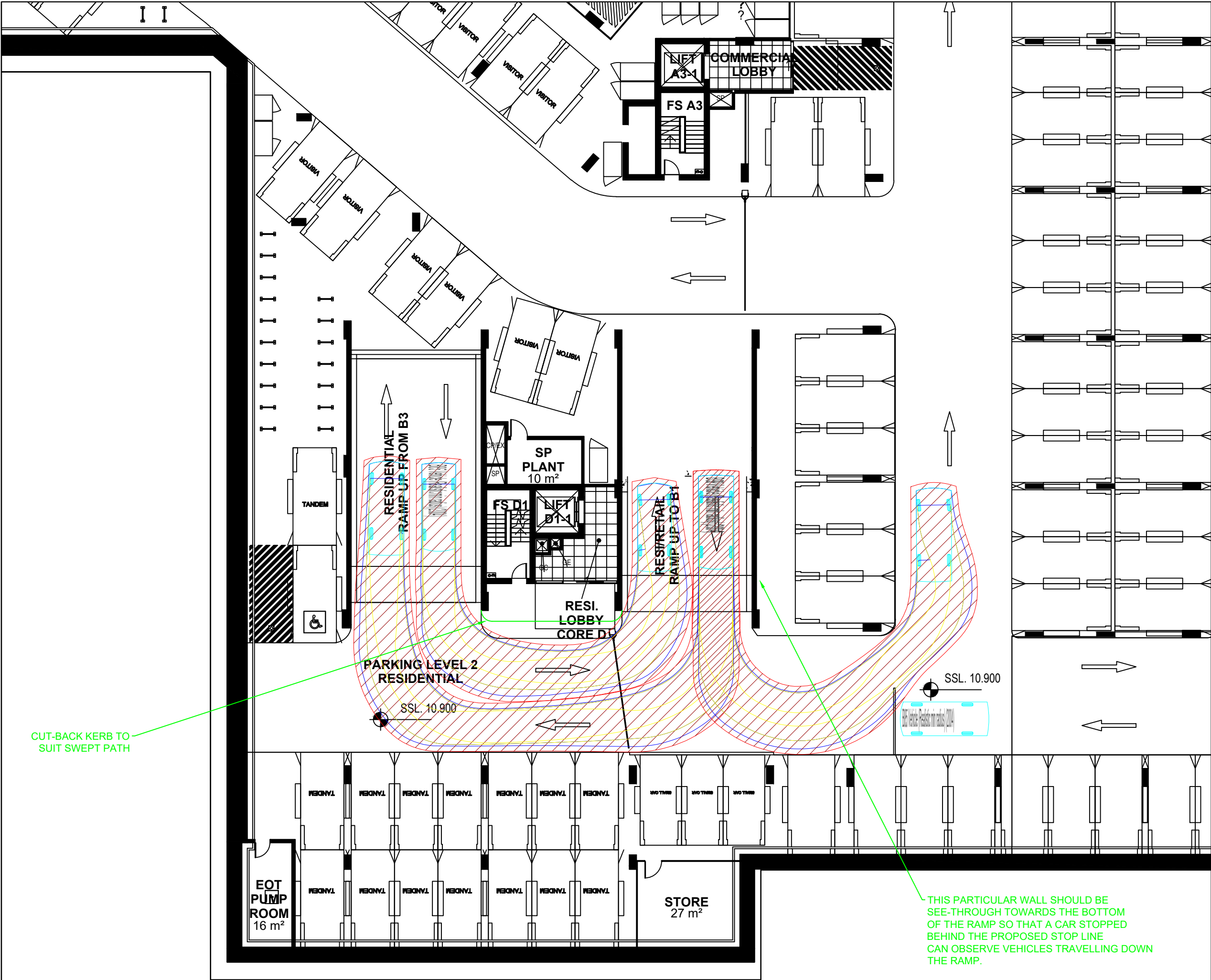
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drawing title

Parking Level 2 - Swept Path Analysis
B85 & B99 Vehicle

drawn: TY

checked: MM

date: 17-02-2017

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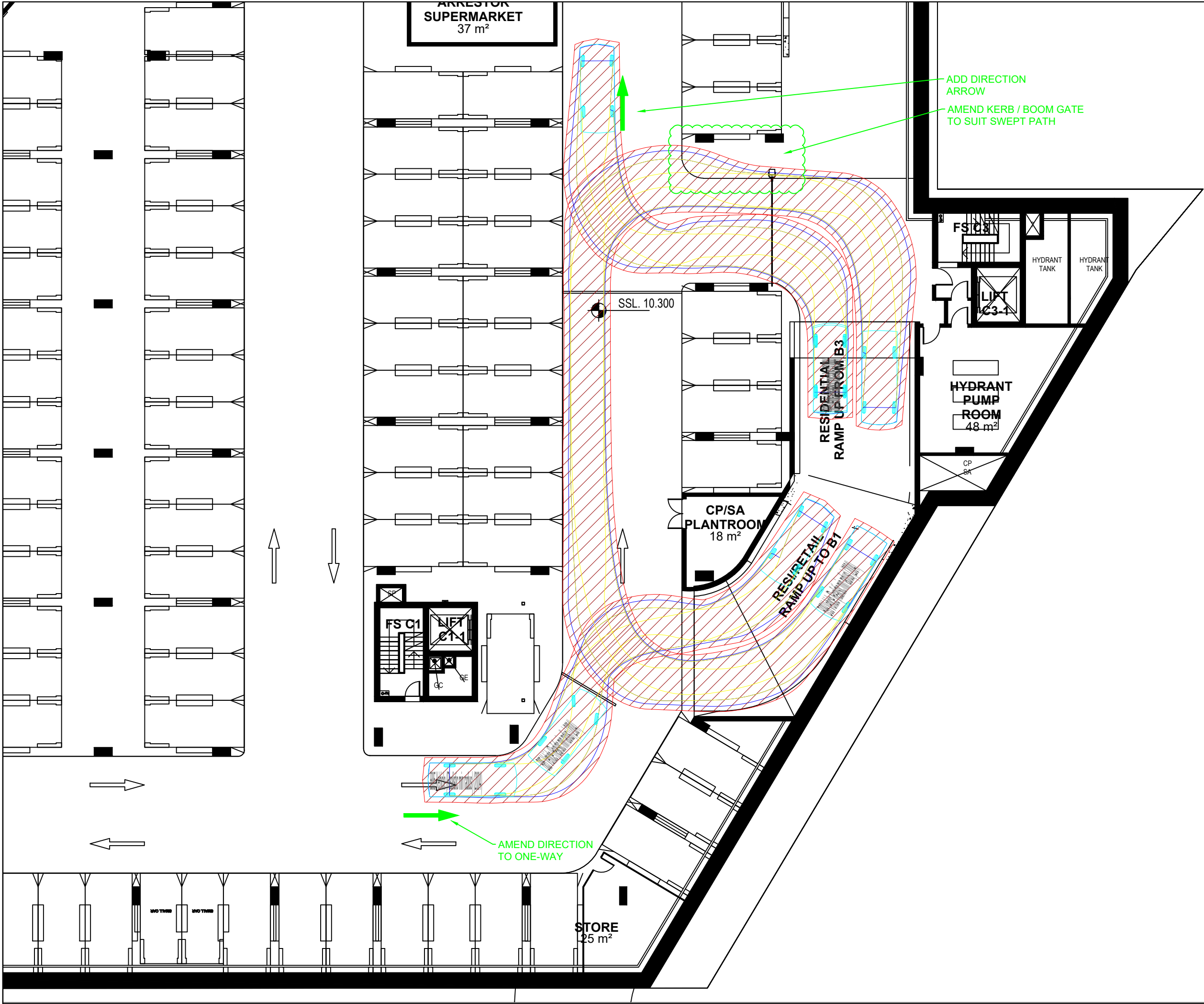
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CUT-BACK KERB TO
SUIT SWEEP PATH

THIS PARTICULAR WALL SHOULD BE
SEE-THROUGH TOWARDS THE BOTTOM
OF THE RAMP SO THAT A CAR STOPPED
BEHIND THE PROPOSED STOP LINE
CAN OBSERVE VEHICLES TRAVELLING DOWN
THE RAMP.



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Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

0m

2

4

6

8

1

project

Dee Why Town Centre

drawing prepared by

TRAFFIX

traffic and transport planners

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traffix

traffic & transport planners

drawing title

Parking Level 2 - Swept Path Analysis
B85 & B99 Vehicle

drawn: TY

checked: MM

date: 17-02-2017

16.36703v01 TRAFFIX Dee Why Design Review [20170215 Plans].dwg

16.367

-

TX.15

A

project no.

drawing phase.

drawing no.

rev





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no. revision note

A Swept Path Analysis + Design Review

by. date

TY 17-02-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

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project

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drawing title

Parking Level 3 - Swept Path Analysis
B85 & B99 Vehicle

drawn: TY

checked: MM

date: 17-02-2017

16.36703v01 TRAFFIX Dee Why Design Review [20170215 Plans].dwg

16.367

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TX.18

A

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drawing phase.

drawing no.

rev



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no. revision note

A Swept Path Analysis + Design Review

by. date

TY 17-02-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

0m

2

4

6

8

1

project

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drawing title

Parking Level 3 - Swept Path Analysis
B85 & B99 Vehicle

drawn: TY

checked: MM

date: 17-02-2017

16.367d03v01 TRAFFIX Dee Why Design Review [20170215 Plans].dwg

16.367

-

TX.19

A

project no.

drawing phase.

drawing no.

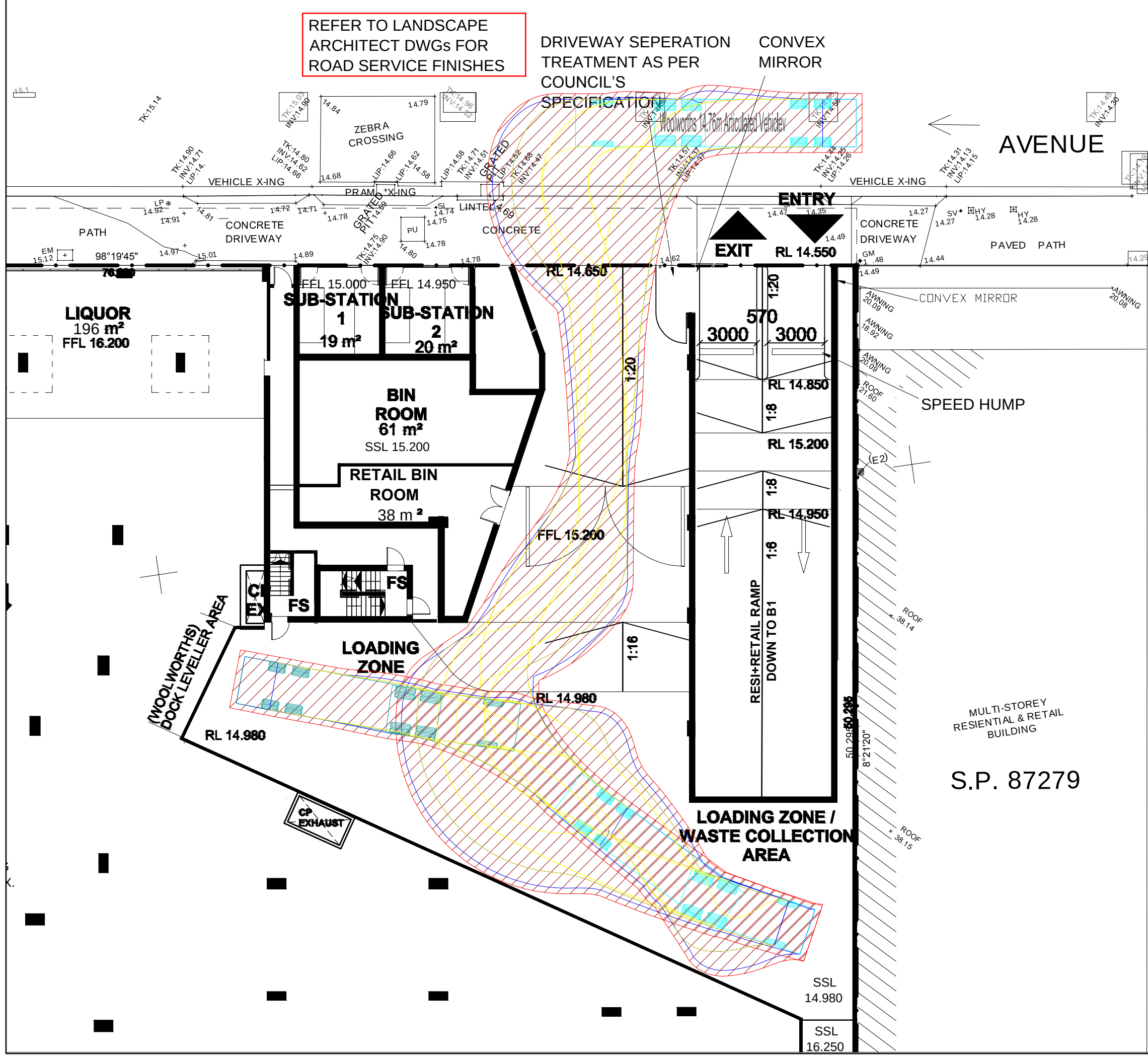
rev

APPENDIX B

Revised Ground Floor Plan (Crone Architects, 1 March 2017)

APPENDIX C

Access Driveway Detail (Traffix, 24 March 2017)



Print Date: 01/03/2017

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no. revision note

no.	revision note	by.	date
A	Swept Path Analysis + Design Review	TY	17-02-2017
B	Revised Ramp Design	TY	27-02-2017
C	Vertical Clearance Test	TY	01-03-2017
D	Swept Path (Beam Encroachment)	TY	02-03-2017
E	Swept Path Analysis	TY	09-03-2017
F	Swept Path Analysis + Recommended Median & Kerb Arrangements	TY	20-03-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

0m

2

4

6

8

project

Dee Why Town Centre

drawing prepared by

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drawing title

Swept Path Analysis
14.8m Woolworths Semi-Trailer

drawn: TY

checked: MM

date: 20-03-2017

16.367

-

TX.01

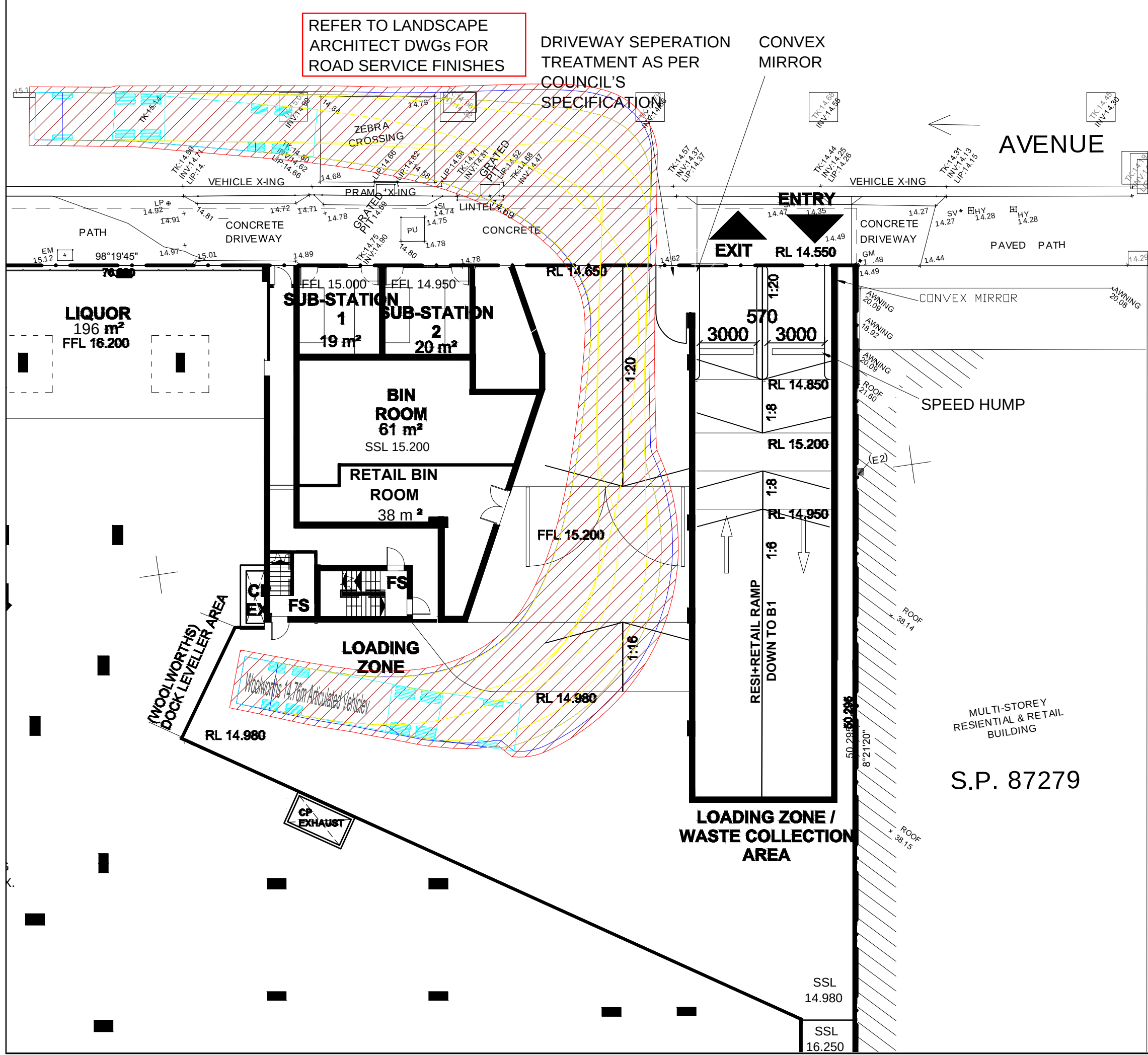
A

project no.

drawing phase.

drawing no.

rev



REFER TO LANDSCAPE
ARCHITECT DWGs FOR
ROAD SERVICE FINISHES

DRIVEWAY SEPERATION
TREATMENT AS PER
COUNCIL'S
SPECIFICATION

CONVEX
MIRROR

AVENUE

ENTRY

EXIT

RL 14.550

LIQUOR
196 m²
FFL 16.200

SUB-STATION
1

19 m²

SUB-STATION
2

20 m²

BIN
ROOM
61 m²
SSL 15.200

RETAIL BIN
ROOM
38 m²

LOADING
ZONE

LOADING ZONE /
WASTE COLLECTION
AREA

MULTI-STOREY
RESIDENTIAL & RETAIL
BUILDING

S.P. 87279

Print Date: 01/03/2017

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E	Swept Path Analysis	TY	09-03-2017
F	Swept Path Analysis + Recommended Median & Kerb Arrangements	TY	20-03-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

0m

2

4

6

8

project

Dee Why Town Centre

drawing prepared by

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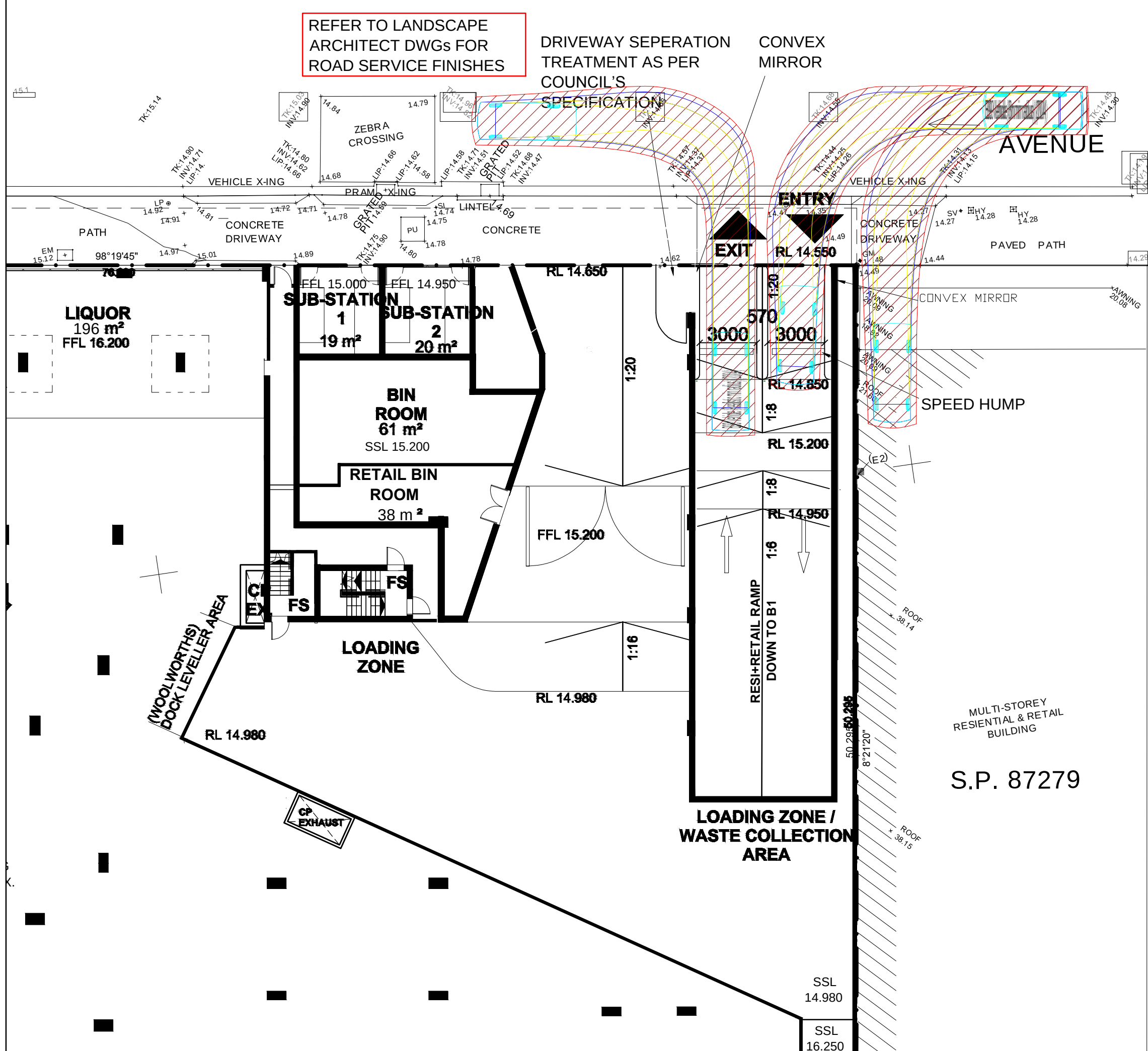
drawing title

Swept Path Analysis
14.8m Woolworths Semi-Trailer

drawn: TY	checked: MM	date: 20-03-2017
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16.36709v01 TRAFFIX Dee Why Design Review [20170310 Ground Plans] - Revised Separator.dwg

16.367	-	TX.02	A
project no.	drawing phase.	drawing no.	rev



REFER TO LANDSCAPE
ARCHITECT DWGs FOR
ROAD SERVICE FINISHES

DRIVEWAY SEPERATION
TREATMENT AS PER
COUNCIL'S
SPECIFICATION

CONVEX
MIRROR

AVENUE

Print Date: 01/03/2017

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E	Swept Path Analysis	TY	09-03-2017
F	Swept Path Analysis + Recommended Median & Kerb Arrangements	TY	20-03-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

0m 2 4 6 8

project

Dee Why Town Centre

drawing prepared by

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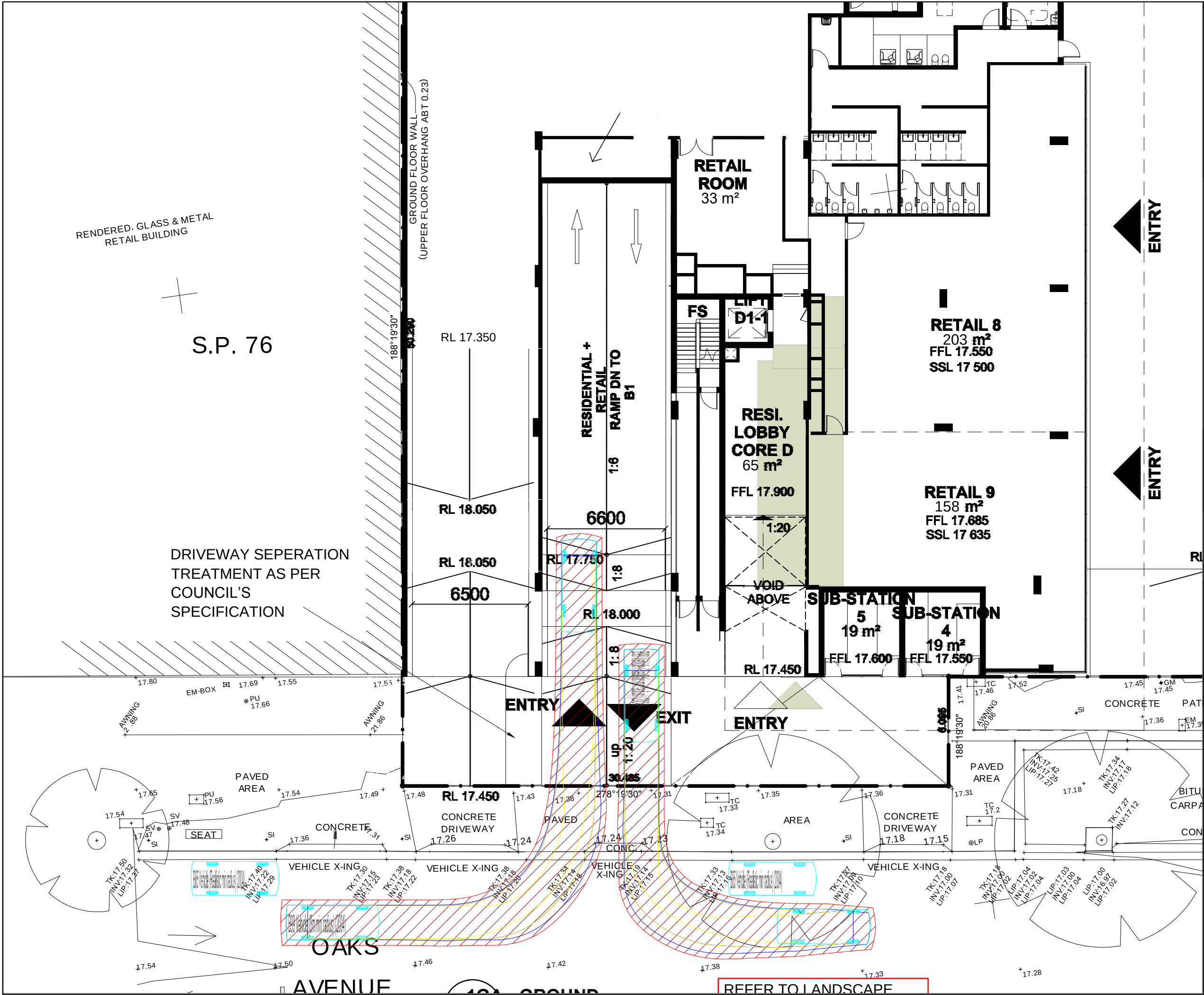
drawing title

Swept Path Analysis
B99 Vehicle

drawn: TY	checked: MM	date: 20-03-2017
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16.36709v01 TRAFFIX Dee Why Design Review [20170310 Ground Plans] - Revised Separator.dwg

16.367	-	TX.03	A
project no.	drawing phase.	drawing no.	rev



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F	Swept Path Analysis + Recommended Median & Kerb Arrangements	TY	20-03-2017

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3

0m

2

4

6

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project

Dee Why Town Centre

drawing prepared by

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traffic and transport planners

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traffix

traffic & transport planners

drawing title

Swept Path Analysis
B99 Vehicle

drawn: TY	checked: MM	date: 20-03-2017
16.367009v01 TRAFFIX Dee Why Design Review [20170310 Ground Plans] - Revised Separator.dwg		
16.367	-	TX.05
project no.	drawing phase.	drawing no.
		rev

APPENDIX D

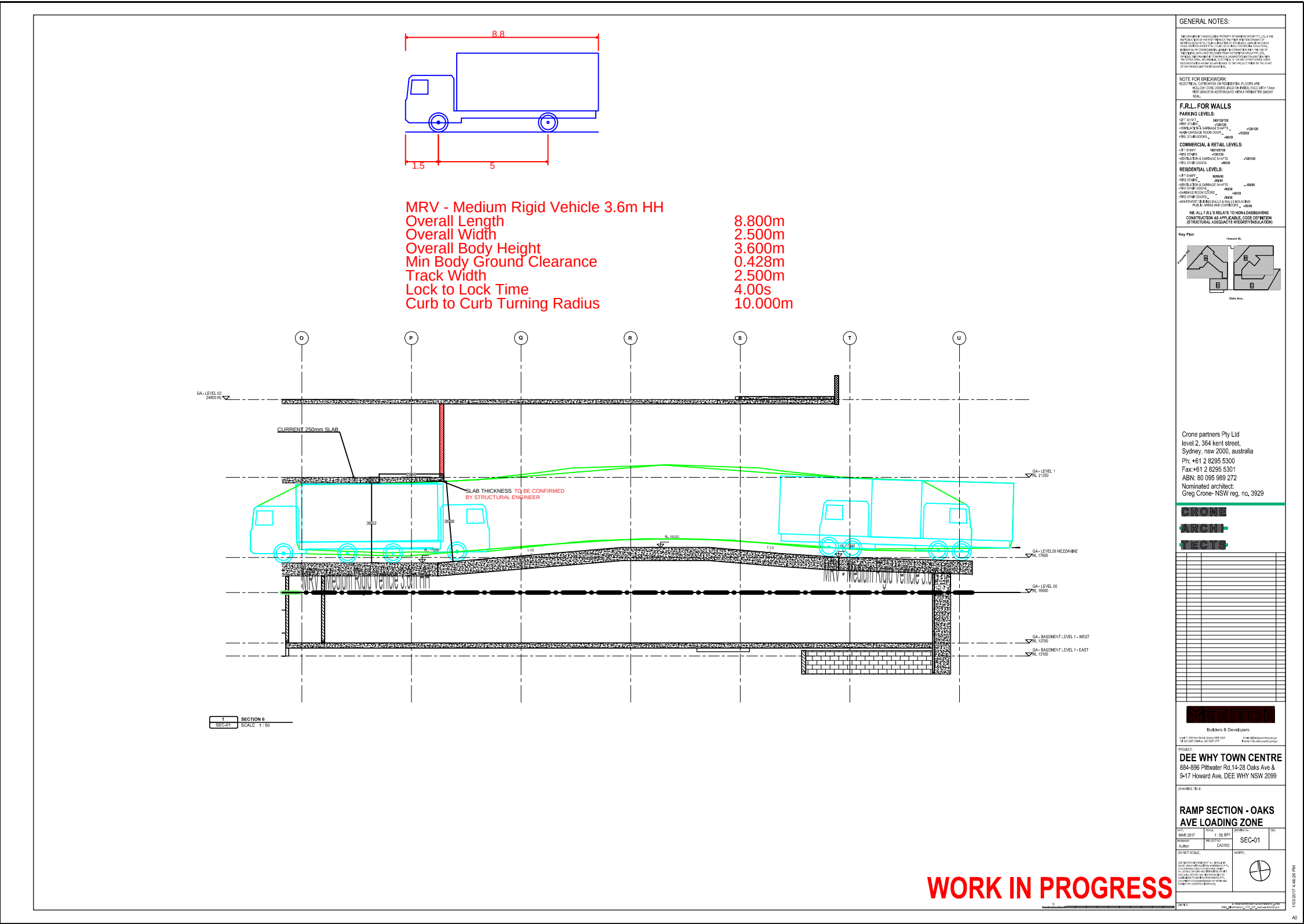
Trip Generation Comparison Table (WSP | Parsons Brinckerhoff, 13 March 2017)

Table 2.3 - Trip Rate Comparison

Land Use	MWT Report (12 July 2007)		GTA Consultants (2 November 2015)				PARAMICS (calculation prepared by GHD)				Traffix (19 September 2016)				Simplified Trip Generation based on Floor Area in latest submission*			
	Thurs PM		AM	PM	Sat	units	AM	PM	Sat	units	AM	PM	Saturday	units	AM	PM	Sat	units
Residential	0.29	veh trip/unit	0.19	0.15	0.075	veh trip/unit	0.19	0.15	0.075	veh trip/unit	0.19	0.15	not calculated	veh trip/unit	0.19	0.15	0.25	veh trip/unit
Retail	4.0	veh trip/100m ²	0.8	3.9	5.2	veh trip/100m ²	2.3	4.6	6.1	veh trip/100m ²	see below		not calculated	veh trip/100m ²	0.8	3.90	5.2	veh trip/100m ²
Commercial	2.0	veh trip/100m ²	0			veh trip/100m ²	1.6	1.6	1.6	veh trip/100m ²	1.6	1.2	not calculated	veh trip/100m ²	1.6	1.2	0	veh trip/100m ²
Childcare	-		0.6	0.525	0	trip/student	0.6	0.525	0	trip/student	0.8	0.7	not calculated	trip/student	0.6	0.525	-	trip/student
											Additional floor use							
										supermarket	9.38	12.5	not calculated	veh trip/100m ²	incl. as retail			
										shops	1.15	4.6	not calculated	veh trip/100m ²	incl. as retail			
										restaurants	1.25	5	not calculated	veh trip/100m ²	incl. as retail			
										fitness centre	3	3	not calculated	veh trip/100m ²	3	3	3	veh trip/100m ²
										medical centre	2.2	2.2	not calculated	veh trip/100m ²	2.2	2.2	-	veh trip/100m ²
	Notes: → Residential AM and PM peak traffic generation rate obtained from RMS Guide to Traffic Generation Developments (GtTGD), October 2002. *Please note that an updated survey for high-density residential developments was released by the RMS in 2013 which were subsequently applied throughout the TIA reports prepared following the release of this updated survey. → Trip generation rate of 4.0 was used for the PM Peak. This is assumed as a round-up from the 3.9 considered in the reports prepared thereafter. This rate was obtained from the RMS GtTGD, October 2002 with consideration of a shopping centre with 30,000-40,000 GFA and with 15% passing trade applied. → Commercial PM trip was calculated at 2 per100m ² as per the RMS GtTGD, October 2002.		Notes: → Residential AM and PM peak traffic generation rate obtained from RMS Guide to Traffic Generation Developments (GtTGD) Updated traffic survey, August 2013 (TDT 2013/04a). Source of the Saturday residential peak hour trip is not clarified however it appears that this rate is obtained as 50% of the trips made in the PM peak. → Trip generation rate of 3.9 and 5.2 were used for the respective PM Peak and Saturday Peak. This was obtained from the RMS GtTGD, October 2002 with consideration of a shopping centre with 30,000-40,000 GFA and with 15% passing trade applied. Whilst the retail floor area of this development may warrant a higher trip generation rate from the RMS GtTGD, the use of the trip generation of a shopping centre with 30,000-40,000 GFA had been approved for use by the Council. → Retail AM trip calculated as 20% of PM trip → Childcare centre trip generation used the rate provided for long-day care centres of 0.8 and 0.7 in the respective AM and PM peak. A 25% reduction factor has been applied to reflect the RMS' GtTGD guide which indicates the mean proportion of 75% of children are transported to each centre type by car.				Notes: → The trip generation noted above are estimated only, obtained from the spreadsheet understood to have been prepared by GHD in direct consultation with Council. This spreadsheet is known as “GHD AM Approved and Pending DA Demands with 105%FSR_PB_Corrected v6 revised meriton yields childcare and 139 car(GM)” The resulting trips extracted out of the PARAMICS model are detailed further in Table 2.6.				Notes: → Saturday peak vehicle trip was not calculated in the report. → Residential AM and PM peak traffic generation rate obtained from RMS Guide to Traffic Generation Developments Updated traffic survey, August 2013 (TDT 2013/04a). → Supermarket AM trip calculated as 75% of PM trip → Shops and Restaurant AM trip calculated as 25% of PM trip → Childcare centre trip generation rate appears to have had 25% reduction factor to reflect the RMS' GtTGD guide indicating the mean proportion of 75% of children are transported to each centre type by car. → The trip generation associated with the supermarket, shops and restaurants are extracted from the Peak Period Traffic Generation formula detailed in the GtTGD Section 3.6.1 as follows: Thursday V(P) = 20 A(S) + 51 A(F) + 155 A(SM) + 46 A(SS) + 22 A(OM) Saturday PVT= 38 A(S) + 13 A(F) + 147 A(SM) + 107 A(SS) where: A(S): Slow Trade gross leasable floor area (Gross Leasable Floor Area in square metres) includes major department stores such as David Jones and Grace Bros., furniture, electrical and whitegoods stores. A(F): Faster Trade GLFA - includes discount department stores such as K-Mart and Target, together with larger specialist stores such as Fosseys. A(SM): Supermarket GLFA - includes stores such as Franklins and large fruit markets. A(SS): Specialty shops, secondary retail GLFA - includes specialty shops and take-away stores such as McDonalds. These stores are grouped as they tend to not be primary attractors to the centre.p A(OM): Office, medical GLFA: includes medical centres and general business offices. → The trip generation for the fitness centre is aligned with GtTGD rate of 3 trips per 100m ² GFA				Notes: → Average residential AM and PM peak traffic generation rate obtained from RMS Guide to Traffic Generation Developments Updated traffic survey, August 2013 (TDT 2013/04a). Similarly the average trip generation on Saturday was obtained from the RMS GtTGD updated traffic surveys. → Retail floor area includes supermarket, specialty shops and restaurants under the assumption that these floor areas will operate as part of a shopping centre and are accessible from the common floor area of the shopping centre. It is important that the condition of consent for the development reflects the integration of these uses within a shopping centre. → Retail AM trip generation is calculated at 20% of PM trip → Childcare centre trip generation rate to consist of a 25% reduction factor to reflect the mixed-use type of development which reduces car-trips. This is in line with the RMS' GtTGD guide which indicates the mean proportion of 75% of children being transported to child care centre by car. See section 3.11.3 Child Care Centres of the RMS GtTGD, October 2002. → The trip generation associated with medical centre within the shopping centre are extracted from the Peak Period Traffic Generation formula detailed in the GtTGD Section 3.6.1. → The trip generation for the fitness centre is calculated as per the rate found in the GtTGD of 3 trips per 100m ² GFA			

APPENDIX E

Overhead Clearance Assessment (24 Traffix, March 2017)



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F.R.L. FOR WALLS

PARKING LEVELS:

GA - LEVEL 1
GA - LEVEL 0
GA - LEVEL 00
GA - LEVEL 01

COMMERCIAL & RETAIL LEVELS:

GA - LEVEL 1
GA - LEVEL 0
GA - LEVEL 00
GA - LEVEL 01

RESIDENTIAL LEVELS:

GA - LEVEL 1
GA - LEVEL 0
GA - LEVEL 00
GA - LEVEL 01

NE ALL F.R.L.'S RELATE TO NON-LOADING AREAS.
CONSTRUCTION AS APPLICABLE, CODE OF PRACTICE (STRUCTURAL ADEQUACY WITH VIBRATION)

Key Plan



Crone partners Pty Ltd
Level 2, 364 Kent street,
Sydney, new 2000, australia
Ph: +61 2 8295 5300
Fax: +61 2 8295 5301
ABN: 80 095 989 272
Nominated architect:
Greg Crone- NSW reg. no. 3929

CRONE
ARCHI-
TECTS

Builders & Developers
Unit 11, Meriton Road, Sydney 2000
Unit 11, Meriton Road, Sydney 2000

PROJECT:
DEE WHY TOWN CENTRE
884-886 Pittwater Rd, 14-28 Oaks Ave &
9-17 Howard Ave, DEE WHY NSW 2099

DRAWING TITLE:

RAMP SECTION - OAKS
AVE LOADING ZONE

DATE: 21-03-2017
DRAWN BY: 1:50
CHECKED BY: 1:50
AUTHOR: 1:50

DO NOT SCALE.
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no. revision note by. date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect

Dee Why Town Centre

client

Meriton Group
Level 1, Meriton Tower
528 Kent Street,
Sydney 2000

scale

1:200 @ A3



project

Dee Why Town Centre

drawing prepared by

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trafix
traffic & transport planners

drawing title

Loading Bay Vertical Clearance
MRV 3.6m Height Entry and Exit

drawn: HD checked: MM date: 21-03-2017

16.367d10v02 TRAFFIX Dee Why Verical Clearance Loading Bay.dwg

16.367 project no. - drawing phase. TX.01 drawing no. - rev