



TRAFFIC IMPACT ASSESSMENT

**16330 Newell Highway, Gillenbah
Proposed Service Station Development**

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Suite 2.08, 50 Holt St
Surry Hills, NSW 2010

t: (02) 8324 8700
w: www.traffix.com.au

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v03	10/04/2024	Andersont Suriono	Ben Liddell	

CONTENTS

1. Introduction	1
2. Location and Site	2
3. Existing Traffic Conditions	5
3.1 Road Network	5
3.2 Approved Road Train Routes	7
3.3 Key Intersection	7
3.4 Existing Intersection Volumes	8
3.5 Existing Traffic Volume Counter	8
3.6 Crash Data	8
3.7 Existing Intersection Performance	9
4. Description of Proposed Development	11
5. Parking Requirements	12
5.1 Car Parking	12
5.2 Accessible Parking	13
5.3 Caravan Parking	13
5.4 Truck Parking	13
5.5 Motorcycle Parking	13
5.6 Bicycle Parking	13
6. Traffic and Transport Impacts	14
6.1 Existing Site Generation	14
6.2 Development Trip Generation	14
7. Access and Internal Design Aspects	17
7.1 Vehicle Access	17
7.2 Internal Design	17
7.3 Summary	18

8. Austroads Compliance	19
8.1 Vehicle Access to Sturt Highway	19
8.2 B-triple Access	19
8.3 Sight Distances	19
8.4 Turn Warrant Assessment	21
9. Conclusions	25

Appendices

- Appendix A: SIDRA Outputs
- Appendix B: Architectural Plans
- Appendix C: Swept Path Analysis
- Appendix D: Sight Distance Assessments

1. INTRODUCTION

TRAFFIX has been commissioned by Ocon Property Pty Ltd to undertake a Traffic Impact Assessment for a proposed service station development at 16330 Newell Highway, Gillenbah. The development is located within the Narrandera Shire Council Local Government Area and has been assessed under the Narrandera Shire Development Control Plan (DCP) 2013.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects prepared separately. The proposed development requires referral to Transport for New South Wales (TfNSW) under the provisions of the State Environmental Planning Policy (Transport and Infrastructure) 2021.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Discusses Austroads Requirements
- Section 9: Presents the overall study conclusions

2. LOCATION AND SITE

The subject site is known as 16330 Newell Highway, Gillenbah and is located on the south-western corner of the intersection of Stuart Highway and Newell Highway. In a regional context, it is located about 2.9 kilometres south-west of Narrandera Railway Station.

The site has an irregular configuration and has a site area of approximately 26,908m². It has a northern frontage to Newell Highway measuring approximately 120 meters and an eastern frontage to Stuart Highway measuring approximately 192 meters. The site is otherwise bounded by the existing “Narrandera Caravan Park” to the west and vacant land to the south.

The site is currently vacant and does not provide any vehicle access points.

A Location Plan is presented in **Figure 1** and a Site Plan is presented in **Figure 2** which provide an appreciation of the general character of roads and other key attributes in proximity to the site.



Figure 1: Location Plan



Figure 2: Site Plan

3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- Newell Highway: forms part of a TfNSW Highway (HW17) that traverses north-south between the Queensland border in the north and the Victorian border in the south. Within the vicinity of the site, it is subject to 60km/h speed zoning and accommodates a single lane of traffic in each direction. Sealed shoulders are generally provided along both sides of the Highway.
- Stuart Highway: forms part of a TfNSW Highway (HW14) that traverses east-west between Hume Highway in the east and the Victorian border in the west. Within the vicinity of the site, it is subject to 60km/h speed zoning and accommodates a single lane of traffic in each direction. Sealed shoulders are generally provided along both sides of the Highway.

It is evident from Figure 3 that the site is ideally located with respect to Newell Highway and Stuart Highway, with excellent opportunities to service vehicles (particularly heavy vehicles) travelling past the site.

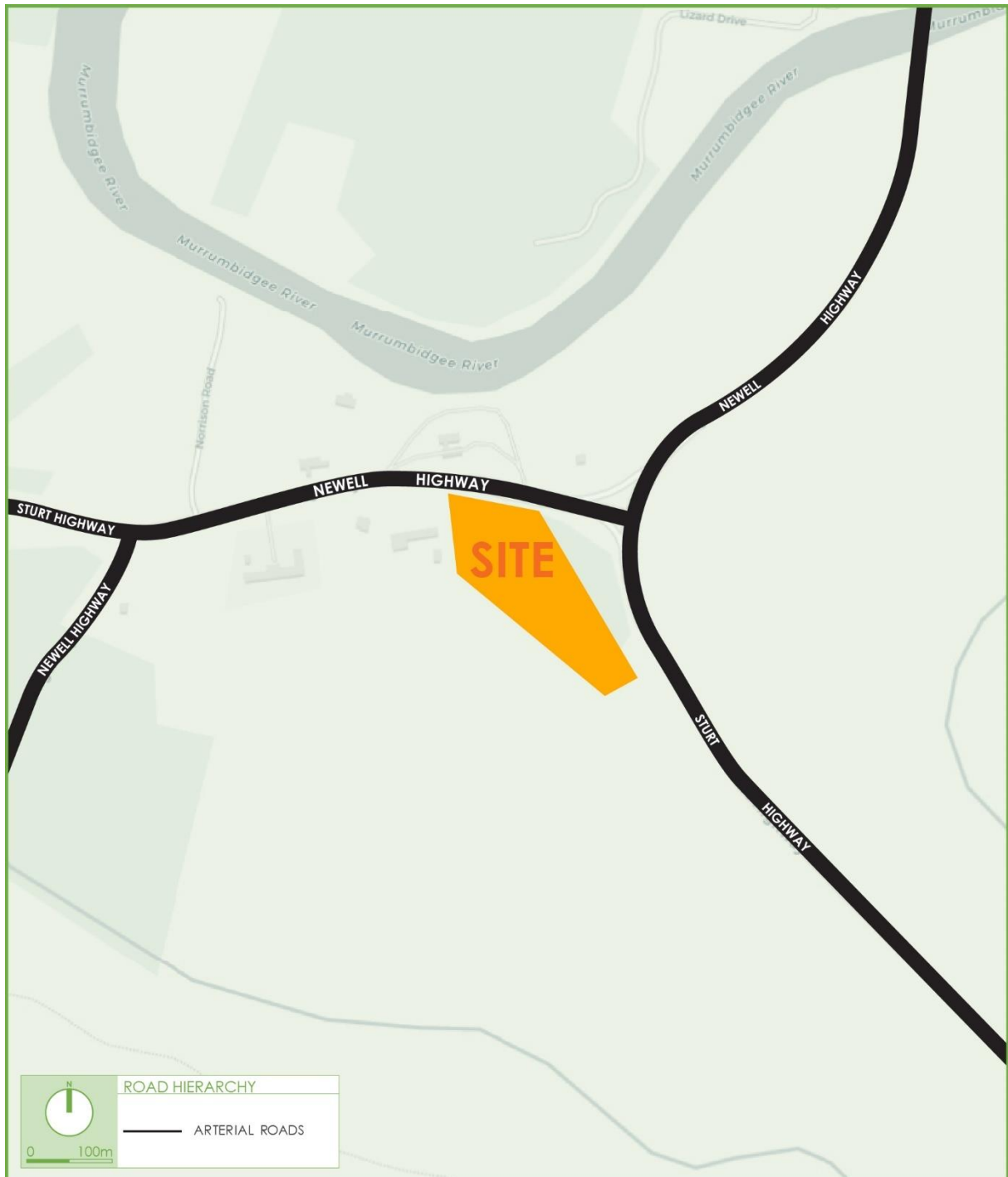


Figure 3: Road Hierarchy

3.2 Approved Road Train Routes

It is noteworthy that Newell Highway and Sturt Highway are approved General Mass Limit (GML), Concessional Mass Limit (CML), and Higher Mass Limit (HML) routes for A-doubles, Modular B-triples, B-triples, and AB-triples under the NHVR National Network. Some routes are approved with conditions.

3.3 Key Intersection

It can be seen from **Figure 4** that the intersection of Newell Highway and Sturt Highway is a priority-controlled three-legged intersection. The main attributes of each approach are outlined below:

- Newell Highway southbound approach provides a single through lane and a designated right turn lane onto the Newell Highway (westbound);
- Sturt Highway northbound approach provides a single through lane and a left turn slip lane onto the Newell Highway (westbound); and
- Newell Highway eastbound approach provides a single approach lane which permits right turns onto the Sturt Highway (southbound), and a left turn slip lane onto the Newell Highway (northbound).



Figure 4: Intersection of Newell Highway and Sturt Highway

3.4 Existing Intersection Volumes

TRAFFIX has obtained intersection survey data at the intersection of Newell Highway and Sturt Highway. The following intersection traffic volumes (total throughput) were recorded during the weekday peak periods (8:00-9:00am and 4:15-5:15pm).

- 383 vehicles in the AM peak hour period; and
- 410 vehicles in the PM peak hour period.

3.5 Existing Traffic Volume Counter

There is currently one (1) permanent TfNSW traffic volume counter within vicinity of the site, located on the Sturt Highway, approximately 20-kilometres west of the subject site. This traffic counter recorded a 2022 average daily traffic count of 1,374 vehicles with 40% commercial vehicles.

3.6 Crash Data

TRAFFIX has reviewed publicly available crash data at the intersection of Newell Highway and Sturt Highway over a five (5) year period between 2019 and 2023. The crash data was analysed in the following degree categories:

- **Fatal** – a crash in which at least one person was killed.
- **Serious injury** – a crash involving at least one person identified in a police report and matched to a health record indicating a hospital stay due to injuries sustained in a crash, or is identified as an iCare (Lifetime Care) participant AND no one was killed in the crash.
- **Moderate injury** – a crash involving at least one person identified in a police report who is matched to a health record that indicates that they were treated at an emergency department but were not admitted for a hospital stay, or is matched to a CTP claim indicating a moderate or higher injury AND no one was killed or seriously injured.
- **Minor/Other injury** – a crash involving at least one person identified as an injury in a police report who is not matched to a health record that indicates the level of injury severity, or is matched to a minor injury CTP claim AND no one was killed, seriously injured or moderately injured.

- **Non-casualty (towaway)** – a crash in which no one was killed or injured but at least one motor vehicle was towed away.

The recorded crashes are detailed in **Table 1** below:

Table 1: Recorded Crashes 2019-2023

Year	Crash ID	Degree of Crash	RUM Code	Natural Lighting	No. Killed	No. Injured
2019	1219422	Non-casualty (towaway)	21	Daylight	0	0
2020	1238503	Moderate Injury	85	Daylight	0	1
2023	1319516	Non-casualty (towaway)	81	Daylight	0	0
2023	1320382	Non-casualty (towaway)	21	Daylight	0	0

As can be seen from Table 1, no of the recorded crashes involved deaths and only 1 had a moderate injury.

3.7 Existing Intersection Performance

The intersection of Newell Highway and Sturt Highway as analysed using the SIDRA 9.1 computer program to determine its performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend

on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below in **Table 2**:

Table 2: TfNSW Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	<14	Good Operation	Good Operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

A summary of the modelled results is provided below in **Table 3** and the SIDRA Outputs are presented in **Appendix A**.

Table 3: Existing Intersection Performance

Intersection	Control Type	Period	Degree of Saturation (DoS)	Intersection Delay	Level of Service
Newell Highway / Sturt Highway	Give-way	AM	0.086	10.8	A
		PM	0.108	12.4	A

It can be seen from Table 3 that the intersection of Newell Highway / Sturt Highway currently operates with a Level of Service 'A' in the AM and PM peak periods with spare capacity. The worse performing movements are the right turns from Newell Highway (western leg) onto Sturt Highway (southern leg) which require drivers to yield to multiple opposing vehicle movements.

4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development application seeks approval for the construction of a service station comprising the following:

- Two (2) light vehicle service channels;
- Four (4) heavy vehicle service channels;
- 13 car parking spaces, including a single accessible space;
- Two (2) caravan spaces;
- Four (4) truck parking bays;
- One (1) loading bay;
- Outdoor seating;
- Ancillary shop;
- Left-in vehicle entry via Sturt Highway; and
- Left-out vehicle exit via Sturt Highway.

The parking requirements and traffic impacts arising from the proposed development are discussed in **Section 5** and **Section 6**, respectively. Reference should be made to the architectural drawings in **Appendix B**.

5. PARKING REQUIREMENTS

5.1 Car Parking

Section 6.2.2 of the Narrandera Shire Council's Development Control Plan (2012) does not provide car parking rates for unmanned service stations or traditional service stations. Council's DCP states that *"Land uses not referred to in the Table should utilise the provisions of Section 5 of the Guidelines for Traffic Generating Development."*

It is noted that the RTA Guide to Traffic Generating Developments v2.2 (2002) was superseded in November 2024 and is now referred to as the Guide to Transport Impact Assessment v1.1 (2024).

The updated Guide to Transport Impact Assessment provides the following parking rates for standard petrol stations and their ancillary components:

- 6 spaces per work bay;
- 5 spaces per 100m² GFA for convenience stores; and
- 15 spaces per 100m² GFA or 1 space per 3 seats (whichever is greater) for restaurants.

Noting the subject DA does not provide workshops, a convenience store, or a restaurant/fast food premises, the parking demands are expected to be minimal, and largely associated with customers re-fuelling and resting for a short period of time. In addition, the expected number of customers at any given hour (See Section 6.2 below) is less than the on-site parking provisions, suggesting that even if 100% of customers (unlikely) choose to fill up and park, there is sufficient parking provided.

The proposed ancillary shop is not expected to attract significant parking demands. Nevertheless, the on-site parking provision complies with Council's retail parking rate of 3 spaces per 100m² GFA, which when applied to the shop GFA, requires approximately five (5) retail spaces. The provision of 13 spaces for the ancillary shop and other refuelling customers is considered appropriate for the nature of the development.

Noting the above, the provision of 13 light vehicle, four (4) truck, and two (2) caravan parking spaces is considered acceptable for the proposed service station.

5.2 Accessible Parking

Council's DCP does not prescribe accessible parking rates. Notwithstanding, the Building Code of Australia (BCA) has been referenced, which specifies a rate of 1 space for every 50 car parking spaces or part thereof for a Class 6 buildings, which includes service stations. In response, the proposed development provides a single accessible car parking space in accordance with BCA requirements.

5.3 Caravan Parking

The development provides two (2) caravan vehicle parking bays. This is considered an appropriate provision noting the frequency of caravan visitors.

5.4 Truck Parking

The development provides four (4) truck parking bays. The applicant has confirmed this is an appropriate provision for the proposed development.

5.5 Motorcycle Parking

Council's DCP does not stipulate any motorcycle parking requirements for service stations. As such, no motorcycle parking spaces have been provided.

5.6 Bicycle Parking

Council's DCP does not stipulate any bicycle parking requirements for service stations. As such, no bicycle parking spaces have been provided.

6. TRAFFIC AND TRANSPORT IMPACTS

6.1 Existing Site Generation

The site is currently vacant and does not generate any traffic movements.

6.2 Development Trip Generation

The TfNSW Guide to Traffic Impact Assessment v1.1 (2024) provides vehicle trip generation rates for standard services stations. The data is based on surveys undertaken in 2013 which included nine (9) metropolitan sites and one site outside the Sydney metropolitan area.

The 2024 Guide recommends the following AM and PM peak hour rates:

- Vehicle trips during AM peak hour

$$= 0.2815(N)^2 + 14.047(N) + 16.715$$

- Vehicle trips during PM peak hour

$$= 0.0205(S) + 88.52$$

Where, N = Service Channels, and S = Total Site Area

The site has a total site area of 26,908m² and is proposing six (6) service channels. Application of the above equations results in the following AM and PM traffic generation:

- 111 vehicle trips during the AM peak hour (55 in, 56 out); and

- 640 vehicle trips during the PM peak hour (320 in, 320 out).

It is clear from the above that the generic TfNSW service station rates, which are largely based on Sydney Metropolitan sites, do not reflect the rural nature of Gillenbah, surrounding population, or consider the existing vehicle volumes adjacent to the site.

The intersection volume data demonstrates there is approximately 383 vehicles traversing the intersection in the AM peak and 410 vehicles in the PM peak. As a percentage, the above traffic generation equates to 14.3% and 78% of the total AM and PM throughput of the intersection. This is significantly higher than the expected percentage of customers captured by the operator and does not account for the proposed left-in/left-out access arrangement

onto Sturt Highway. Realistically, only northbound vehicles along the Sturt Highway are potential customers (113 veh in AM and 139 veh in PM).

In order to provide a more accurate estimate of the daily and peak hour traffic volumes generated by the proposed development, the operator has provided a “turn-in” rate (includes light and heavy vehicles) taking into consideration an industry standard business model assessment and Average Annual Daily Traffic (AADT) volumes adjacent to the site.

In order to estimate the AADT volumes adjacent to the site on Sturt Highway (northbound only), reference is made to *Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management*, which states that peak hourly volumes are approximately 11 to 16% of the AADT for rural situations. This provides the following volumes:

- | | | | |
|-----------|------------|------|---------------------|
| ➤ AM Peak | 113 veh/hr | AADT | 706 – 1,027 veh/day |
| ➤ PM Peak | 139 veh/hr | AADT | 869 – 1,264 veh/day |

For the purpose of assessment, an AADT value of 1,264 vehicles per day is adopted, which is in the higher range of the AADT estimates determined using the peak hour volumes.

The operator has advised that an industry standard turn in rate of 5% is adopted for petrol purposes only. The 5% turn in rate is applied to the total number of vehicles that pass the property along the Sturt Highway (northbound only). Application of the 5% turn in rate to the total AADT (1,264 veh/day) results in the following volumes:

- 126 vehicle movements per day (63 in, 63 out)
 - 100 light vehicle movements per day (50 in, 50 out) (80%); and
 - 26 heavy vehicle movements per day (13 in, 13 out) (20%).

The operator has advised that the AM and PM peak hour volumes would equate to 10% of the daily traffic volumes, thus resulting in the following volumes:

- 10 light vehicle movements in the AM peak (5 in, 5 out);
- 10 light vehicle movements in the PM peak (5 in, 5 out);
- 3 heavy vehicle movements in the AM peak (2 in, 1 out); and
- 3 heavy vehicle movements in the PM peak (2 in, 1 out).

The peak hour traffic volumes are considered minimal and equate to a vehicle movement every 4-5 minutes. This conservative assessment is expected to have negligible performance impacts to the intersection of Newell Highway and Sturt Highway, noting it currently operates at a LoS 'A' in the AM and PM peak periods.

It is emphasised that service station developments draw heavily upon existing traffic on the road network. That is, the proposed development would form part of a linked trip for the majority of customers enroute to a final destination. The actual increase in trip generation would therefore only comprise of local customers seeking to fill up petrol.

As such, no further SIDRA modelling is considered necessary, and the proposed development is supportable from a traffic planning perspective.

7. ACCESS AND INTERNAL DESIGN ASPECTS

7.1 Vehicle Access

The proposed development provides separated entry/exit driveways to the Sturt Highway, avoiding the existing truck rest area on the Newell Highway (located on northern boundary of subject site). The proposed development proposes a left-in/left-out arrangement to improve safety along the State Highway system and compliance with Austroads requirements is discussed in Section 8 below.

Whilst AS2890.2 (2018) provides generic driveway widths for vehicles up to 20m articulated vehicles, the development will accommodate 36.5m B-triples, as permitted under the existing approved road train routes along Sturt Highway.

In order the design satisfactory driveway access, swept path analysis has been undertaken using 36.5m B-triple vehicles in accordance with Austroads. This swept path is presented in **Appendix C**.

7.2 Internal Design

The car parking and truck parking areas generally comply with the requirements of AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2022) with the following noteworthy:

7.2.1 Parking Modules

- All service station parking spaces have been designed in accordance with a Class 3A user and are provided with a minimum space width of 2.6m, space length of 5.4m and aisle width of 6.6m.
- Accessible parking spaces have been designed in accordance with AS2890.6 (2022) and are provided with a minimum space width of 2.4m, space length of 5.4m and is adjacent to a shared area with a width of 2.4m.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- Dead-end aisles are to be provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004). Turning bays have been provided for all blind aisles exceeding 6 parking spaces.

7.2.2 Head Height Clearance

- A minimum head height clearance of 2.2m is to be provided for all circulation and parking areas, in accordance with AS2890.1 (2004).
- A minimum head height clearance of 2.5m is to be provided above all accessible parking spaces and shared areas in accordance with AS2890.6 (2022).
- A minimum head height clearance of 4.5m is to be provided for all heavy vehicle parking spaces and circulation areas in accordance with AS2890.2 (2018).

7.3 Summary

In summary, the internal configuration of the car park and truck parking areas has generally been designed in accordance with AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009). It is however envisaged that a standard condition of consent could be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of any Construction Certificate.

8. AUSTRROADS COMPLIANCE

8.1 Vehicle Access to Sturt Highway

The following points are noteworthy:

- Sturt Highway has a posted speed limit of 60km/h (within the vicinity of the site) and therefore has a design speed of 70km/hr;
- The proposed development provides an 'ENTRY ONLY' driveway onto the Sturt Highway, which is restricted to left-in movements;
- The proposed development provides an 'EXIT ONLY' driveway onto the Sturt Highway, which is restricted to left-out movements;
- No right-turn lane is required, as no vehicles will be permitted to enter from the north;
- No acceleration lane is considered necessary, noting there are multiple nearby public road intersections that do not incorporate acceleration lanes. This is also consistent with nearby petrol station approvals on Newell Highway; and
- Appropriate traffic signage will be installed at the driveways to ensure drivers are aware of their restrictions.

The above point should be taken into consideration when review the proposed access arrangements and the compliance with Austroads Guidelines.

8.2 B-triple Access

The access driveways and internal circulation roads have been designed to accommodate a 36.5m B-triple vehicle.

8.3 Sight Distances

8.3.1 Approach Sight Distance

As defined by Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections 2023 (AGRD04A 2023), Approach Sight Distance (ASD) is *"the minimum level of sight distance which must be available on the minor road approaches to all intersections to ensure drivers are aware of the presence of an intersection"*.

Noting this definition, the minor road will be the internal circulation area within the subject site. Noting the low-speed limit within private developments (~10km/h), the proliferation of signage/line marking etc., and the fact that drivers decided to enter the property in the first place, drivers will be well aware they are exiting a private development onto the public road system. As such, no further assessment in accordance with Austroads requirements is considered warranted in this situation.

8.3.2 Safe Intersection Sight Distance (Exit Driveway Only)

As defined by Austroads (AGRD04A 2023), Safe Intersection Sight Distance (SISD) is “the minimum sight distance which should be provided on the major road at any intersection”.

The following equation is used to determine SISD:

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

Where;

SISD = Safe Intersection Sight Distance (m)

D_T = Decision time (sec)

V = operating (85th percentile) speed (km/h)

d = coefficient of deceleration

a = longitudinal grade on %

The following values were adopted:

D_T = 5 sec

V = 70km/h

d = 0.24 (truck value from Table 3.3)

a = Approx 0% south of access

The resultant SISD requirements equate to 177m south of the access. A SISD assessment plan is presented in **Appendix D**, demonstrating that SISD can be provided at the proposed exit driveway location.

8.3.3 Minimum Gap Sight Distance

As defined by Austroads (AGRD04A 2023), Minimum Gap Sight Distance (MGSD) is “based on distances corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a cross or turning manoeuvre at intersections”.

Noting the left turn onto Sturt Highway, a critical acceptable gap of 5 seconds has been adopted (See 3.5 of AGRD04A 2023). This correlates to a minimum gap sight distance value of 97 metres (See Table 3.6 of AGRD04A 2023). This is clearly less than the SISD requirements, and as such, the requirement is considered met.

8.4 Turn Warrant Assessment

Noting the proposed entry driveway is restricted to left-in movements only, the below turn warrant assessment will be conducted for the left-turn movement from Sturt Highway into the development.

The Austroads Guide to Traffic Management – Part 6: Intersections, Interchanges and Crossings Management, Section 3.3.6 provides the warrants for basic (BA), auxiliary lane (AU) and channelised (CH) turn treatments. More specifically, Figure 3.25 provides the warrants for turn treatments on major roads at unsignalised intersections with a design speed of less than or equal to 70km/h, as presented in **Figure 5** below. Figure 3.26 of the Guide also provides the major road volume calculations, and this is presented in **Figure 6**.

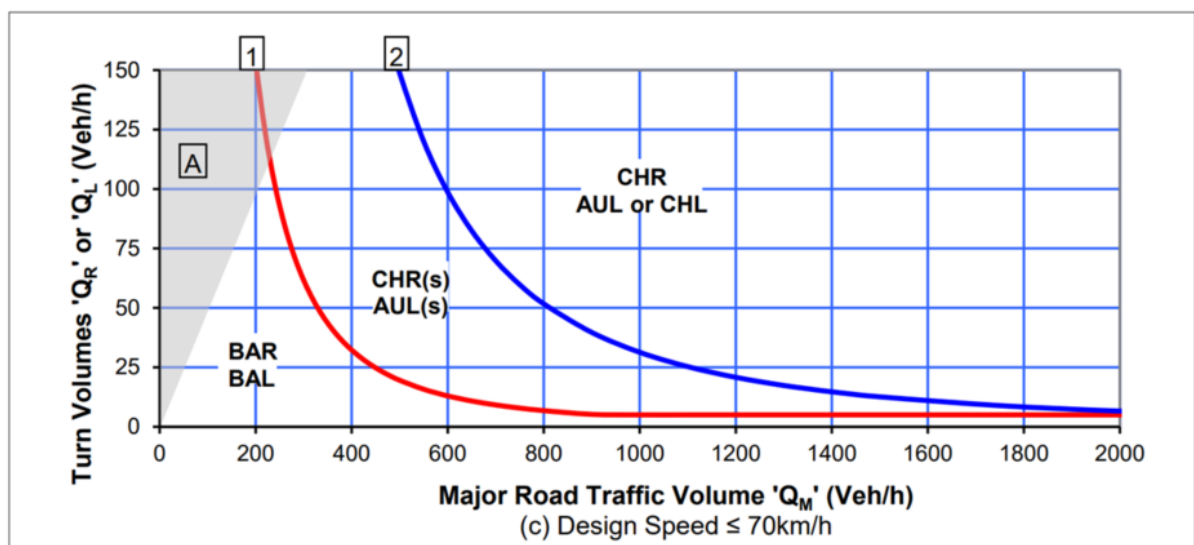


Figure 5: Warrants for Turn Treatments on the Major Road

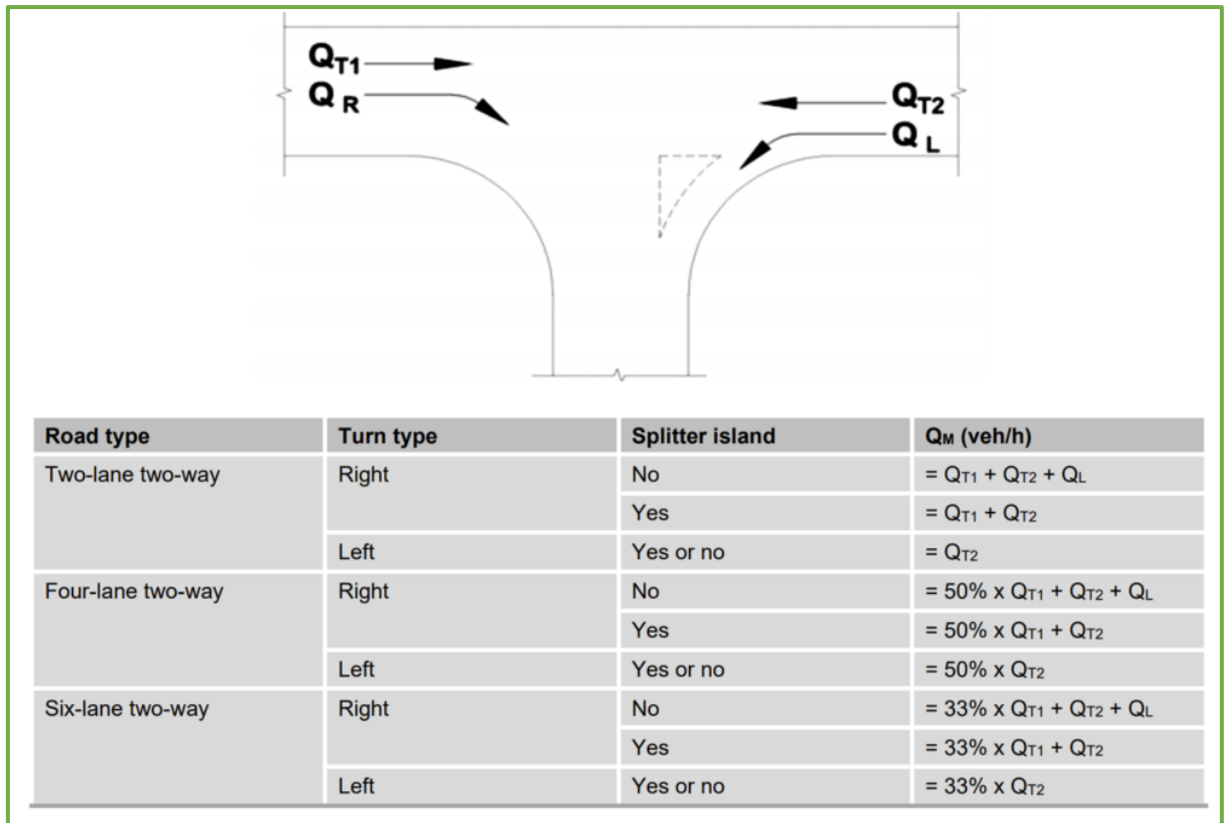


Figure 6: Calculation of the Major Road Volumes

It can be seen from Figure 5 that the type of turn treatment required is based on the major road traffic volume (Q_M) and turn volumes (Q_L) at the subject driveway. The following Q_M and Q_L values have been adopted:

- $Q_M = Q_{T2} = 139$ veh/hr (Northbound PM Peak Volume on Sturt Highway)
- $Q_L = 7$ veh/hr (Inbound vehicles from Sturt Highway)

Application of the above major road traffic volume (Q_M) and turn volumes (Q_L) to Figure 3.25, results in the following required turn treatments:

- Basic left turn (BAL) treatment ($Q_L = 7$ veh/hr and $Q_M = 139$ veh/hr)

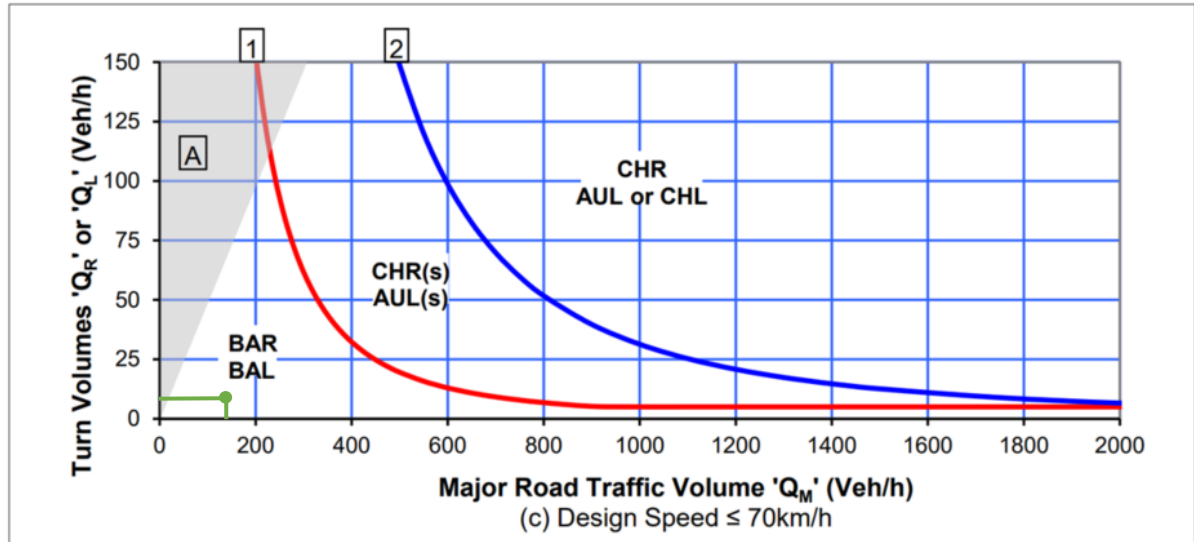


Figure 7: Volume Plots on Figure 3.25

Noting the above, a BAL treatment for left turn vehicles is considered acceptable. The BAL will be designed in accordance with Figure 8.2 of AGRD04A, as reproduced below.

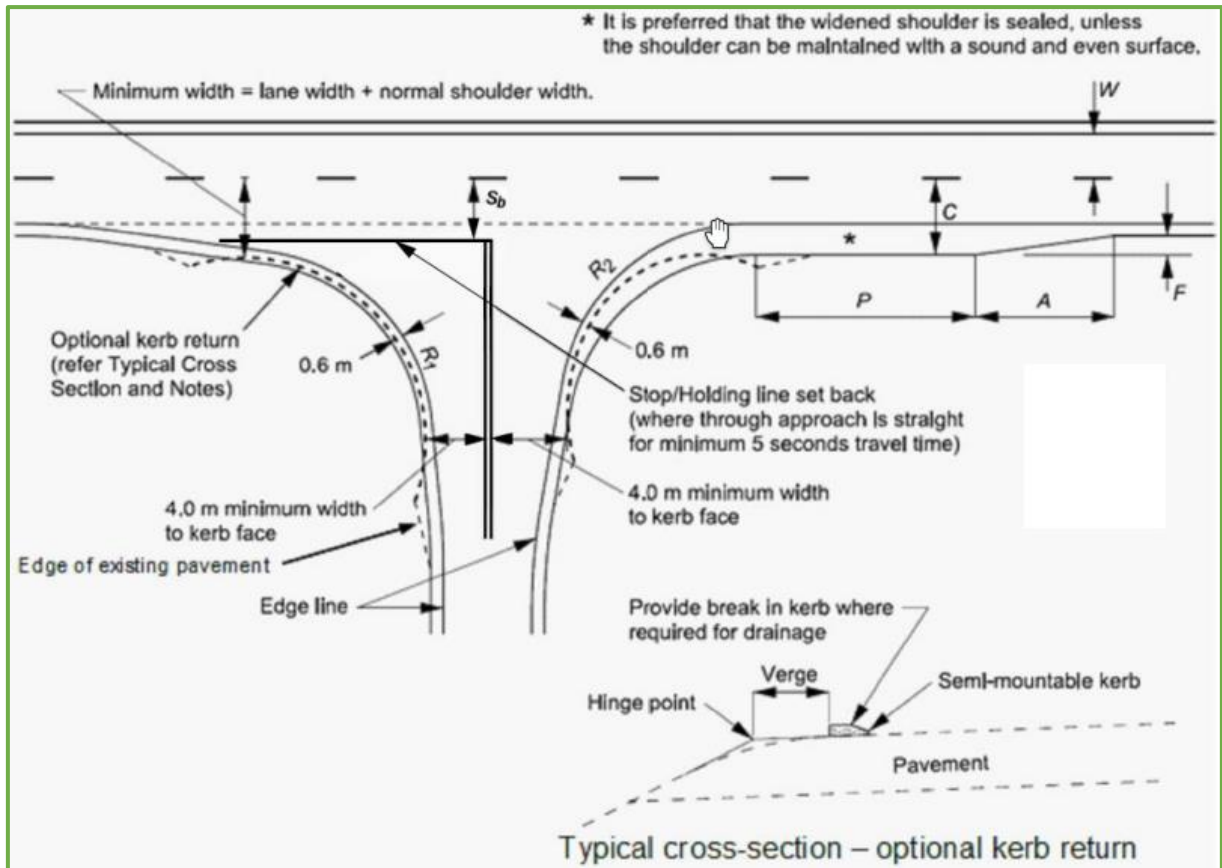


Figure 8: Rural Basic Left-Turn Treatment

Based on the preliminary design factors, the following 'P' and 'A' values are considered appropriate:

- 'P' = 10m (See Table 8.1 of AGRD04A)
- 'A' = Approx 10m (See 'A' equation under Figure 8.1)

The subject BAL treatment can be further refined in response to a suitable condition of consent.

9. CONCLUSIONS

The following is noteworthy:

- The development application seeks approval for the construction of a service station on the corner of Newell Highway and Sturt Highway, Gillenbah. The development will include fuel dispensers, light vehicle, truck, and caravan parking, a small travellers lounge, and access via Sturt Highway (left-in/left-out only).
- The Narrandera Shire Council's Development Control Plan (2012) nor the TfNSW Guide to Transport Impact Assessment provide parking rates for petrol stations without work bays, convenience stores or restaurants. The car parking demands are expected to be minimal, and largely associated with customers re-fuelling and resting for a short period of time. The provision of 13 light vehicle, four (4) truck, and two (2) caravan parking spaces is considered acceptable for the proposed service station for the reasons outlined in Section 5.1.
- The peak hour traffic volumes are considered minimal and equate to a vehicle movement every 4-5 minutes. This conservative assessment is expected to have negligible performance impacts to the intersection of Newell Highway and Sturt Highway, noting it currently operates at a LoS 'A' in the AM and PM peak periods. It is emphasised that service station developments draw heavily upon existing traffic on the road network. That is, the proposed development would form part of a linked trip for the majority of customers enroute to a final destination. The actual increase in trip generation would therefore only comprise of local customers seeking to fill up petrol.
- The design of car park, caravan parking, and truck parking generally comply with AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2022), with a swept path analysis undertaken for critical movements. It is however envisaged that a standard condition of consent could be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of any Construction Certificate.
- The proposed access arrangements have been designed to minimise impacts to the operation of the Sturt Highway.
- Sight distance at the proposed Sturt Highway exit driveway has been assessed in accordance with Austroads Guidelines and plans demonstrate sufficient sight distance is provided.

This Traffic Impact Assessment therefore demonstrates that the subject application is supportable on transport planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

APPENDIX A

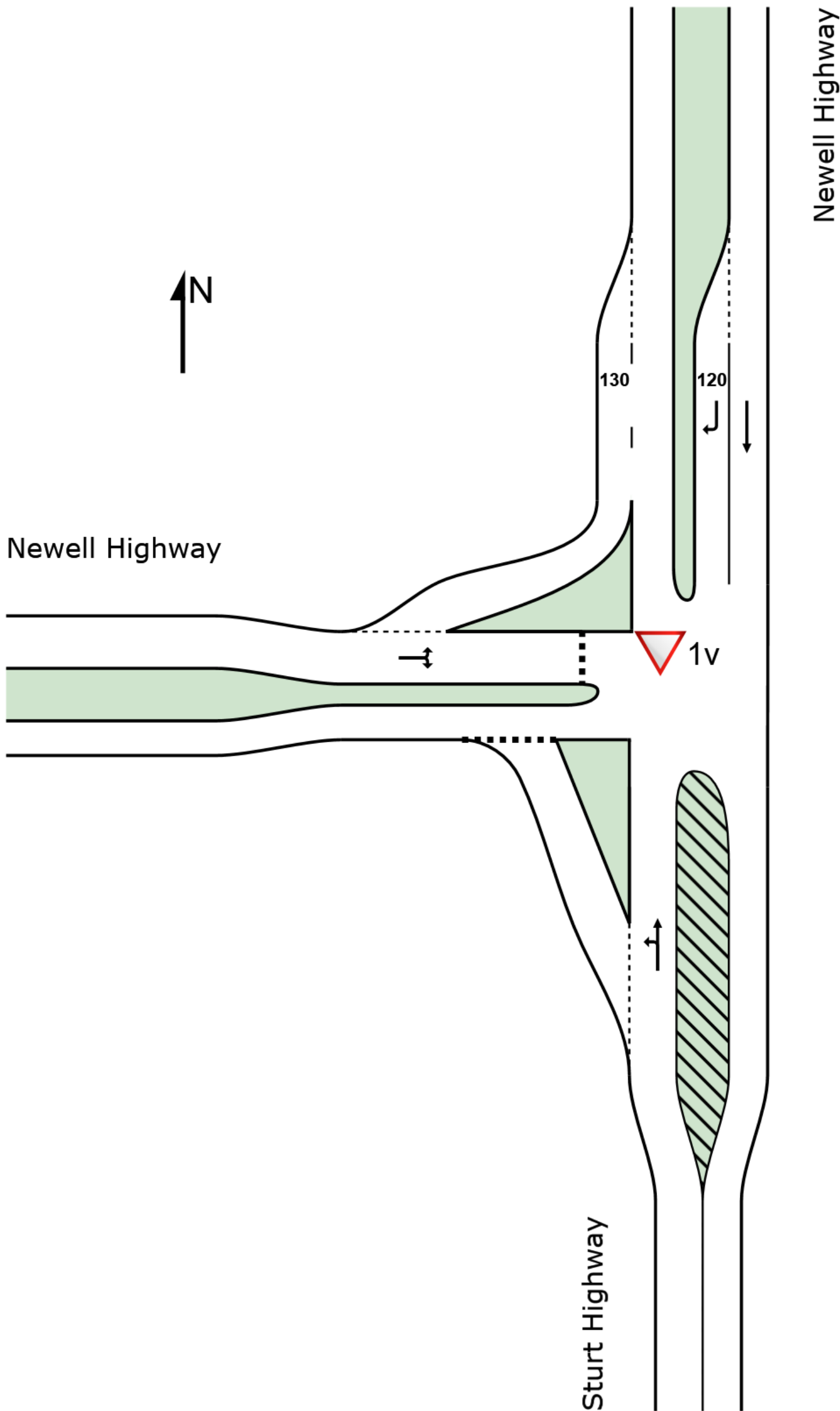
SIDRA Outputs

SITE LAYOUT

▽ Site: 1v [Sturt Highway/ Newell Highway Existing - AM (Site Folder: General)]

Sturt Highway/ Existing - AM
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

▼ Site: 1v [Sturt Highway/ Newell Highway Existing - AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Sturt Highway/ Existing - AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand	Flows	Arrival	Flows	Deg. Satn	Aver. Delay	Level of Service	95% Back Of	Queue	Prop. Que	Eff. Stop	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]		Rate		
			veh/h	%	veh/h	%		sec		veh	m				
South: Sturt Highway															
3	L2	All MCs	40	37.5	40	37.5	0.084	6.7	LOS A	0.3	2.4	0.12	0.21	0.12	54.4
4	T1	All MCs	76	14.5	76	14.5	0.084	0.0	LOS A	0.3	2.4	0.12	0.21	0.12	58.0
Approach			116	22.4	116	22.4	0.084	2.3	NA	0.3	2.4	0.12	0.21	0.12	56.7
North: Newell Highway															
5	T1	All MCs	105	7.6	105	7.6	0.057	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	52	25.0	52	25.0	0.035	6.2	LOS A	0.2	1.4	0.19	0.52	0.19	51.4
Approach			157	13.4	157	13.4	0.057	2.0	NA	0.2	1.4	0.06	0.17	0.06	56.8
West: Newell Highway															
1	L2	All MCs	81	27.2	81	27.2	0.086	6.1	LOS A	0.3	2.7	0.26	0.56	0.26	51.6
2	R2	All MCs	26	23.1	26	23.1	0.086	10.8	LOS A	0.3	2.7	0.26	0.56	0.26	54.8
Approach			107	26.2	107	26.2	0.086	7.2	NA	0.3	2.7	0.26	0.56	0.26	52.3
All Vehicles			380	19.7	380	19.7	0.086	3.6	NA	0.3	2.7	0.14	0.29	0.14	55.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 1v [Sturt Highway/ Newell Highway Existing - PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

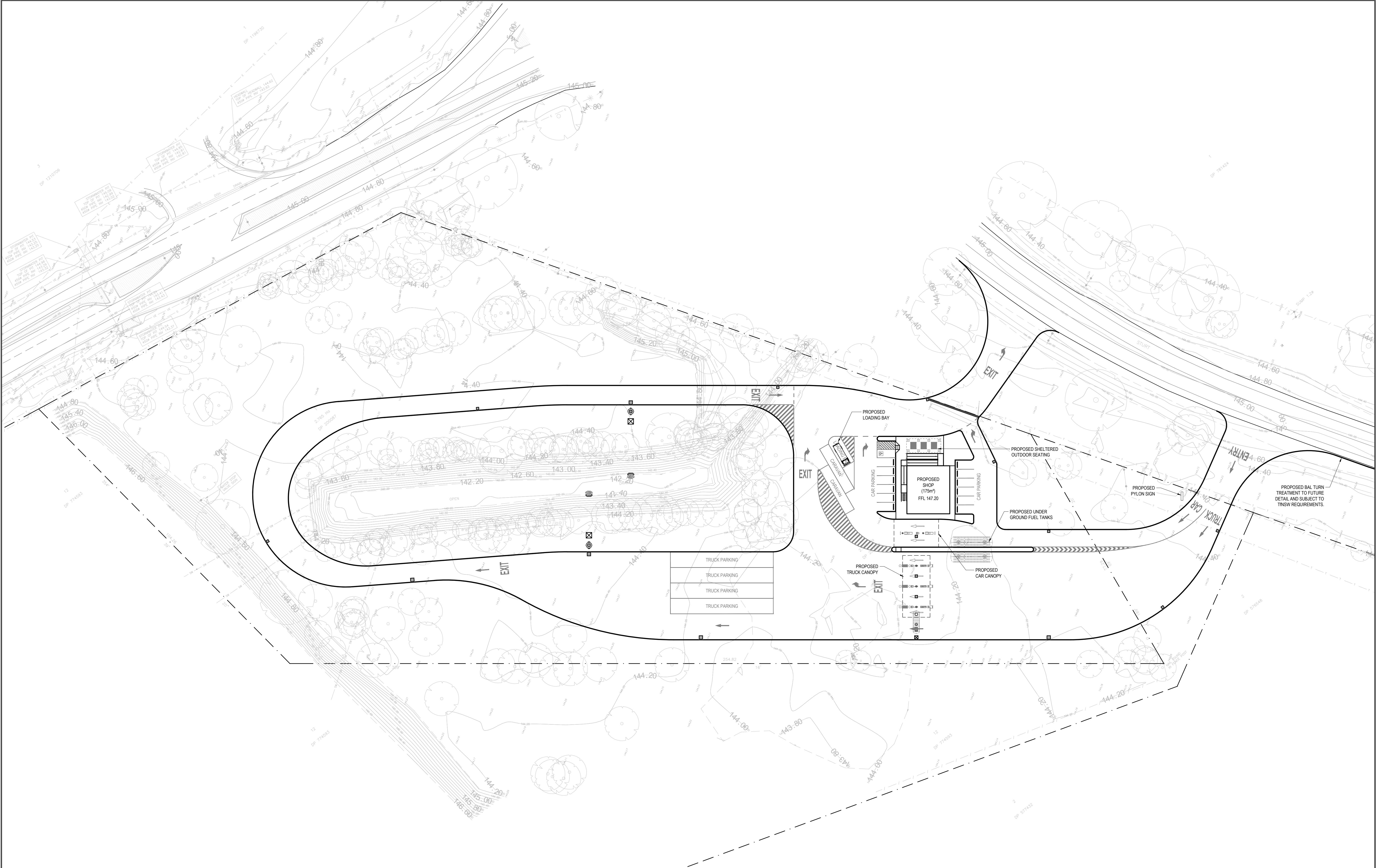
Sturt Highway/ Newell Highway Existing
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand	Flows	Arrival	Flows	Deg. Satn	Aver. Delay	Level of Service	95% Back Of	Queue	Prop. Que	Eff. Stop	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]		Rate		
			veh/h	%	veh/h	%		sec		veh	m				
South: Sturt Highway															
3	L2	All MCs	37	21.6	37	21.6	0.093	6.6	LOS A	0.3	2.1	0.11	0.16	0.11	55.4
4	T1	All MCs	111	6.3	111	6.3	0.093	0.0	LOS A	0.3	2.1	0.11	0.16	0.11	58.4
Approach			148	10.1	148	10.1	0.093	1.7	NA	0.3	2.1	0.11	0.16	0.11	57.6
North: Newell Highway															
5	T1	All MCs	66	15.2	66	15.2	0.038	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	60	36.7	60	36.7	0.045	6.5	LOS A	0.2	1.9	0.24	0.53	0.24	50.8
Approach			126	25.4	126	25.4	0.045	3.1	NA	0.2	1.9	0.12	0.25	0.12	55.2
West: Newell Highway															
1	L2	All MCs	84	27.4	84	27.4	0.108	6.1	LOS A	0.5	4.2	0.33	0.58	0.33	51.2
2	R2	All MCs	34	44.1	34	44.1	0.108	12.4	LOS A	0.5	4.2	0.33	0.58	0.33	50.6
Approach			118	32.2	118	32.2	0.108	8.0	NA	0.5	4.2	0.33	0.58	0.33	51.0
All Vehicles			392	21.7	392	21.7	0.108	4.0	NA	0.5	4.2	0.18	0.32	0.18	54.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPENDIX B

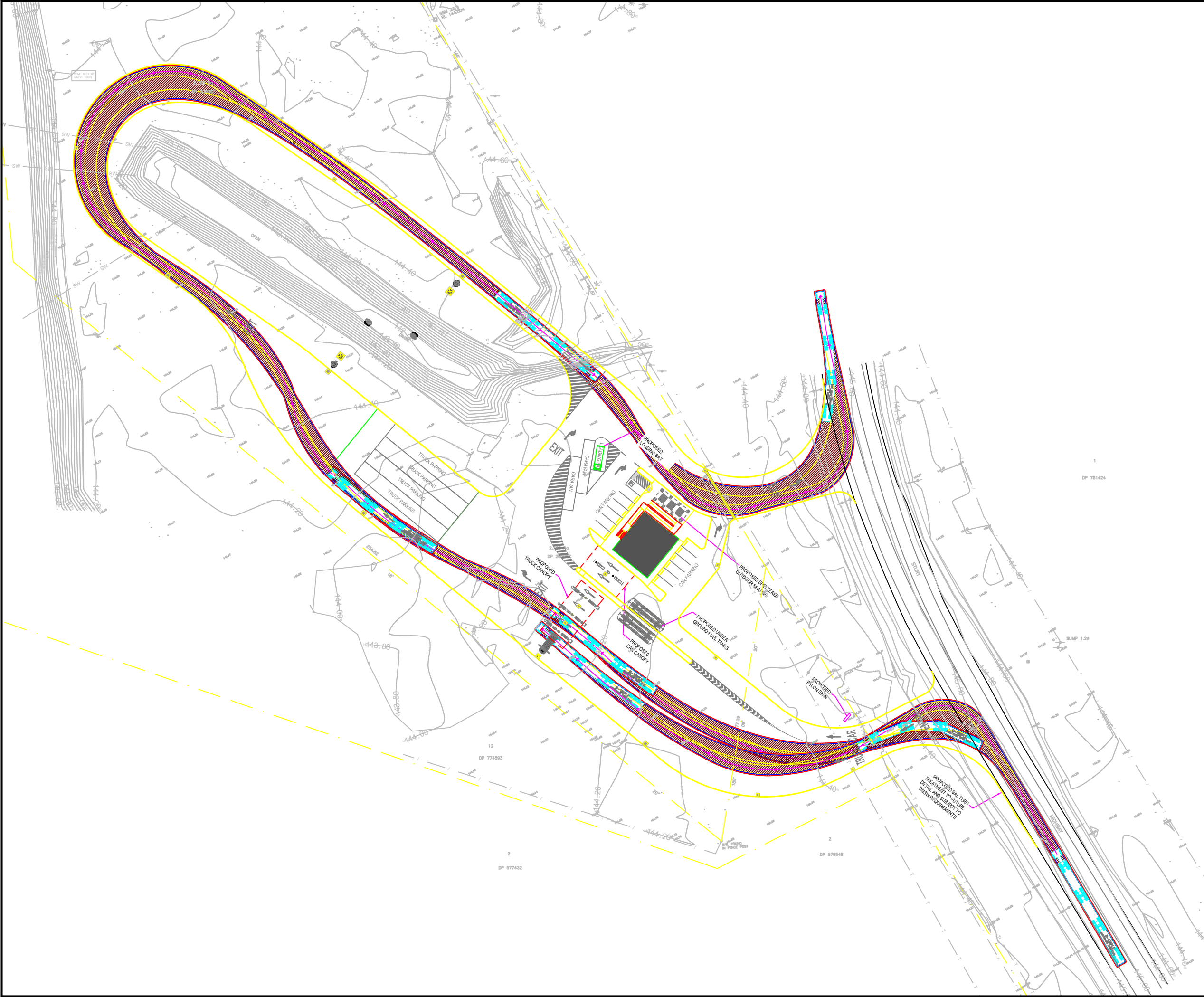
Architectural Plans



REV No.	COMMENTS	DATE	CHK	DRN	NOTES:	1000000005000020000300004000050000SCALE (mm) 1:500 DA ISSUE	NORTH:	PROJECT: GILLENBAH TRUCKSTOP 16330 NEWELL HIGHWAY GILLENBAH, NSW 2700 CLIENT: -	Richmond+Ross CONSULTING ENGINEERS AND PROJECT LEADERS ABN 34 001 485 436 38 WILLOUGHBY ROAD, CROWS NEST, NSW 2065 TEL : (02) 9490 9600 FAX : (02) 9438 1224	PROPOSED SITE PLAN		
A	DA ISSUE	11.02.25	HV	FS						DATE:	AUGUST 2024	DRG.No.
B	DA ISSUE	14.03.25	HV	JK						SCALE:	1:500 @ A1	A110 REV B
										JOB No.	240168	

APPENDIX C

Swept Path Analysis



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

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 AS2890.2:2002 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.

Rev.

Revision Note

By.

Date

A

Swept Path Analysis

BL

08-04-25

Swept Path Legend

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

Architect

Client

Ocon Property Pty Ltd

Scale / Plan Orientation

0

10

20

30

40m

1:1000 @ A3

Project Description

16330 Newell Highway, Gillenbah

Drawing Prepared By

TRAFFIX

TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012

t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title

Swept Path Analysis
36.5m B-Triple

Drawn:

BL

Checked:

-

Date:

08-04-25

21.617d02v02 TRAFFIX [250407 Plans] Design Review.dwg

Project No.

Drawing Phase

Drawing No.

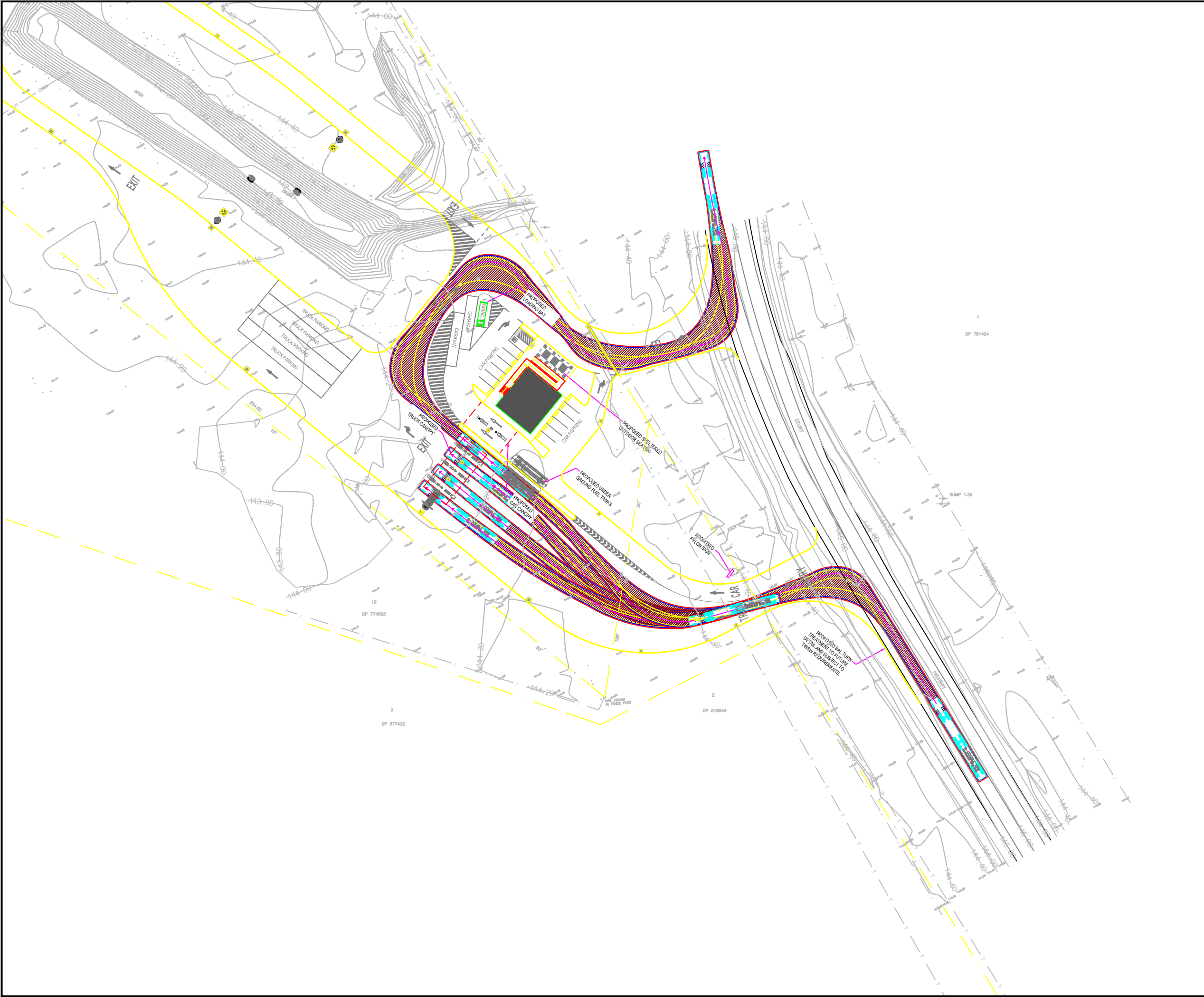
Rev.

21.617

DA

TX.01

A



Notes:

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Rev.	Revision Note	By.	Date
A	Swept Path Analysis	BL	08-04-25

Swept Path Legend

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

Architect

-

Client

Ocon Property Pty Ltd

Scale / Plan Orientation

0 10 20 30 40m

1:1000 @ A3

Project Description

16330 Newell Highway, Gillenbah

Drawing Prepared By

TRAFFIX

TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012

t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

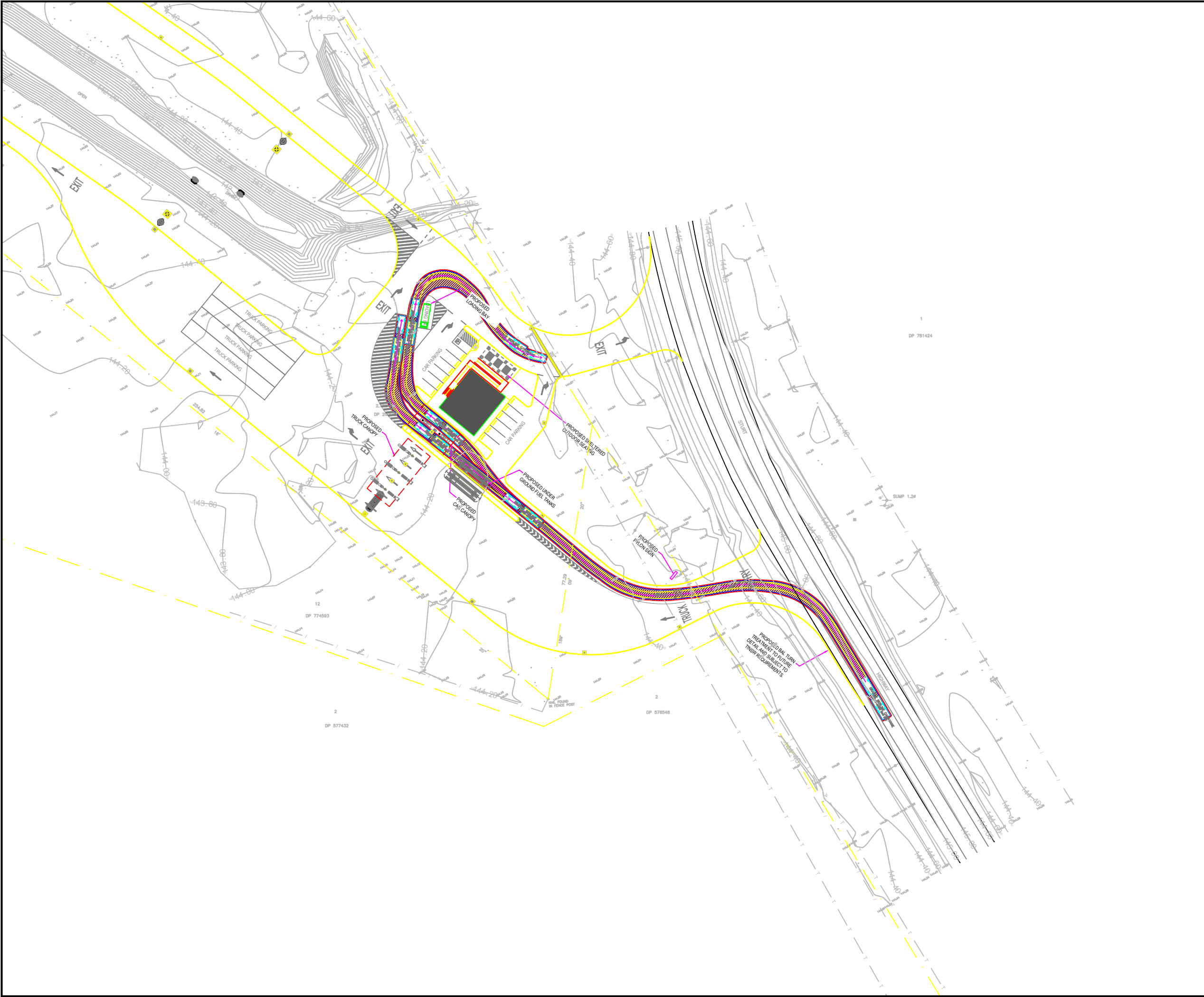
Drawing Title

Swept Path Analysis
26m B-Double

Drawn:	BL	Checked:	-	Date:	08-04-25
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21.617d02v02 TRAFFIX [250407 Plans] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
21.617	DA	TX.02	A



Notes:

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Rev.	Revision Note	By.	Date
A	Swept Path Analysis	BL	08-04-25

Swept Path Legend	
	Wheel Path
	Vehicle Body Envelope
	Clearance Envelope (300mm)

Architect

-

Client

Ocon Property Pty Ltd

Scale / Plan Orientation

0 10 20 30 40m

1:1000 @ A3

Project Description

16330 Newell Highway, Gillenbah

Drawing Prepared By

TRAFFIX

TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street t: +61 2 8324 8700
Surry Hills, NSW 2010 f: +61 2 9830 4481
PO Box 1124 w: www.traffix.com.au
Strawberry Hills, NSW 2012

Drawing Title

Swept Path Analysis
Car and Caravan

Drawn: BL Checked: - Date: 08-04-25

21.617d02v02 TRAFFIX [250407 Plans] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
21.617	DA	TX.03	A

APPENDIX D

Sight Distance Assessment



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

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 AS2890.2:2002 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.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	BL	08-04-25

Swept Path Legend	
	Wheel Path
	Vehicle Body Envelope
	Clearance Envelope (300mm)

Architect

-

Client

Ocon Property Pty Ltd

Scale / Plan Orientation

0

10

20

30

40m

1:1000 @ A3

Project Description

16330 Newell Highway, Gillenbah

Drawing Prepared By

TRAFFIX

TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012

t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title

Sight Distance Assessment
SISD = 177m

Drawn: BL	Checked: -	Date: 08-04-25
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21.617d02v02 TRAFFIX [250407 Plans] Design Review.dwg			
Project No.	Drawing Phase	Drawing No.	Rev.
21.617	DA	TX.04	A