34 Wyndella Road, Lochinvar

Traffic Impact Assessment

Prepared for:

Commercial 7 Pty Ltd ATF
Commercial 7 Investment Trust

PROJECT INFORMATION

Project Name:	34 Wyndella Road, Lochinvar
Client:	Commercial 7 Pty Ltd ATF Commercial 7 Investment Trust
Project Number:	2450
Prepared By:	JMT Consulting

DOCUMENT HISTORY

Document Title	Revision	Date issued	Author
34 Wyndella Road TIA	Issue	02.05.25	JM

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1 Introduction

1.1 Background

This traffic impact assessment report has been prepared by JMT Consulting to support the proposed development of the site located at 34 Wyndella Road, Lochinvar. The proposal will provide approximately 182 home sites with associated community and recreational facilities including bowling green, swimming pool, tennis court and leisure club. The development is for a manufactured home estate for over 50s.

1.2 Site description

The property is located on the eastern side of Wyndella Road, approximately 350m to the north of its intersection with the New England Highway and 8.5km from Maitland City Centre. The Site is a rectangular shape with dimensions of approx. 135.7m x 797.3m yielding an area of 10.75ha. It has a gradual fall, undulating from north to south (approx 3m) and along the Site east to west. Vehicular access is from Wyndella Road and an existing dwelling located toward the eastern section of the Site.

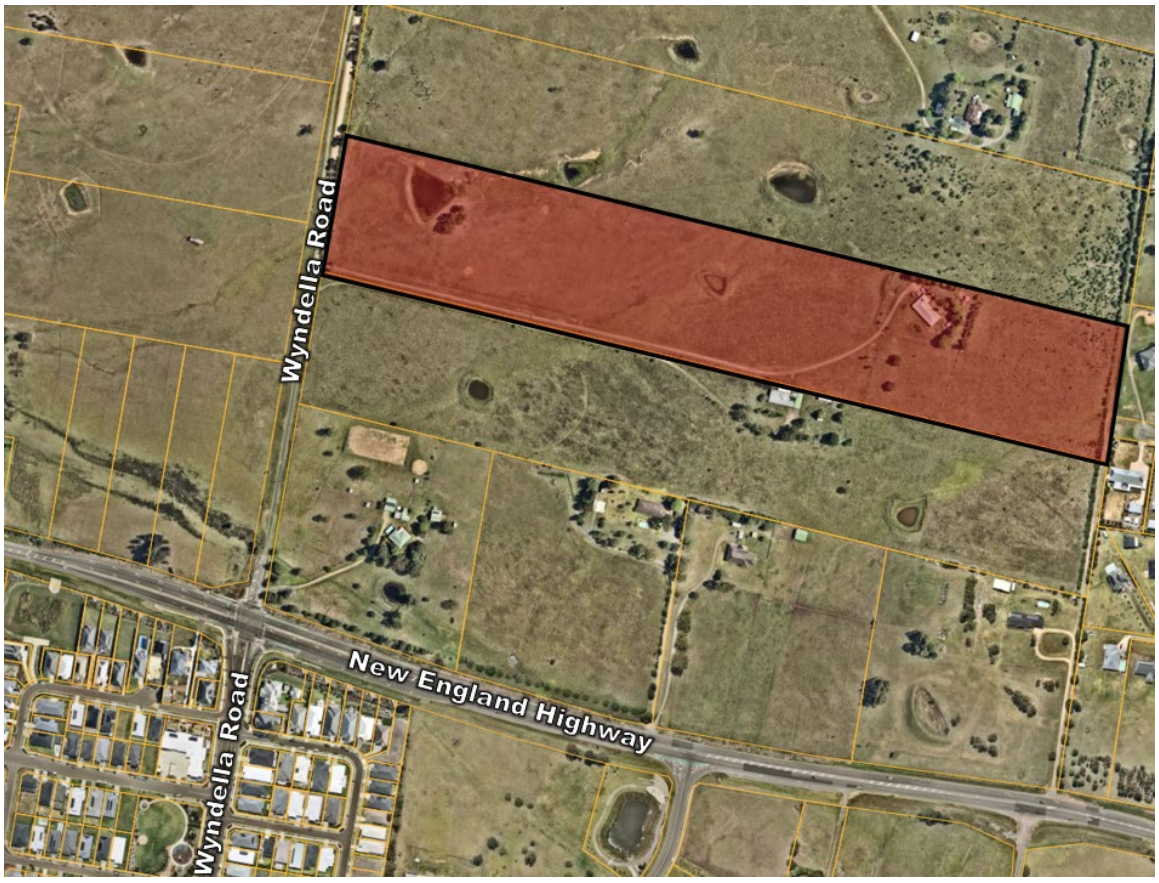


Figure 1 Site location

1.3 Document purpose

A traffic impact assessment for the site was prepared in January 2024 by Intersect Traffic Pty Ltd for the purposes of the submission of the Development Application. This document covered a range of matters relating to traffic and transport including site access, internal circulation and external traffic impacts.

This traffic impact assessment prepared by JMT Consulting provides an update to the document prepared by Intersect Traffic in January 2024 to reflect the following:

- Contemporary transport conditions around the site;
- The most recent development proposal following discussions between Council and the applicant; and
- Revised vehicle access arrangements following discussions with Council's traffic and engineering experts.

2 Existing Conditions

2.1 Road network

To manage the extensive network of roads for which councils are responsible under the Roads Act 1993, Transport for NSW (TfNSW) in partnership with local government established an administrative framework of *State, Regional,* and *Local Road* categories. State Roads are managed and financed by TfNSW and Regional and Local Roads are managed and financed by councils.

Regional Roads perform an intermediate function between the main arterial network of State Roads and council controlled Local Roads. Key State and Regional roads which provide access to the site are illustrated in Figure 2 below.

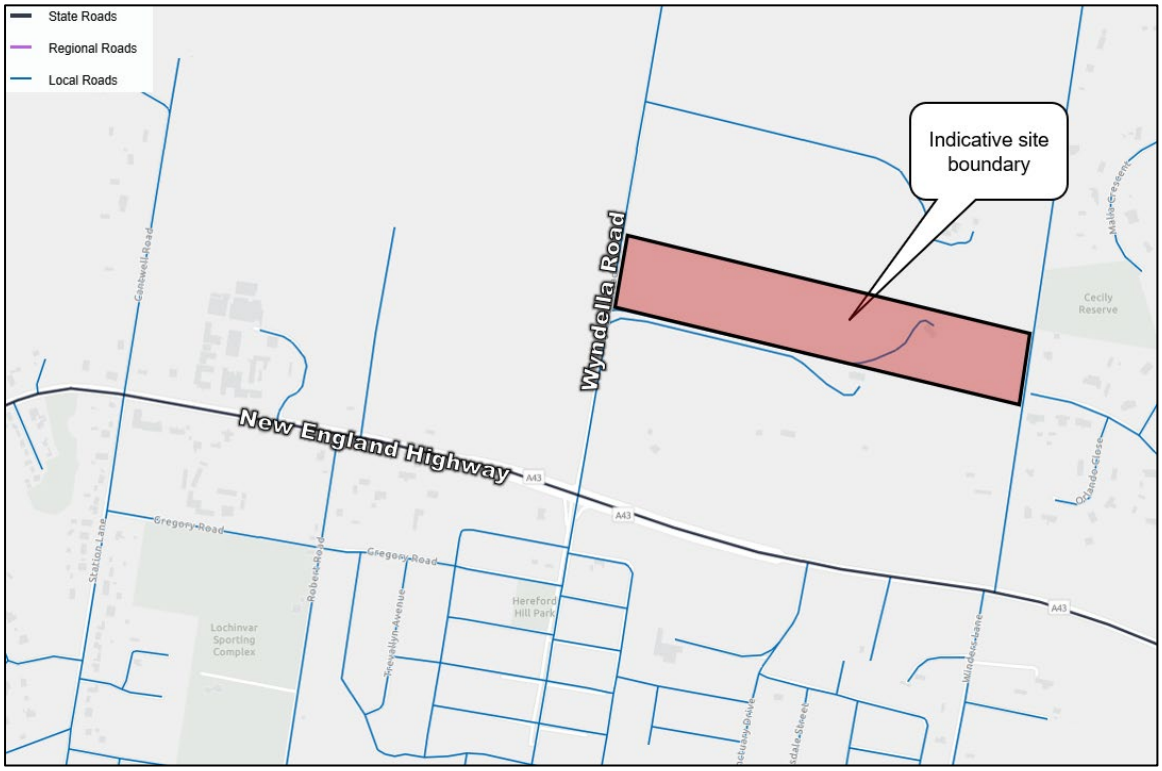


Figure 2 Road network serving the site

The **New England Highway** is part of the classified State Highway network and is a major subarterial road in the region. It is currently under the care and control of Transport for NSW (TfNSW). With the opening of the Hunter Expressway, it now performs the function of a sub-arterial road connecting Maitland to the rural areas of Lochinvar, Greta, and Branxton. Through Lochinvar the New England Highway is generally a two-lane two-way sealed urban road constructed to highway standards however an overtaking lane for eastbound traffic is provided between Robert Street and east of Wyndella Road.

Wyndella Road fronting the site is a local rural access road under the care and control of Maitland City Council with its primary function providing access to properties on its length. From the New England Highway to the entrance to the site it is a narrow sealed rural road approximately 3.5 metres wide with unsealed shoulders / verges providing up to 5.5 metres of clearance for vehicles.

Figure 3 New England Highway at Wyndella Road

Source: Google Street View

Figure 4 Wyndella Road fronting the site

Source: Google Street View

2.2 Public transport services

The site is located north of New England Highway, which carries bus services to Maitland and Stockland Green Hills. Bus routes 179 and 180 follow a similar route towards Maitland.

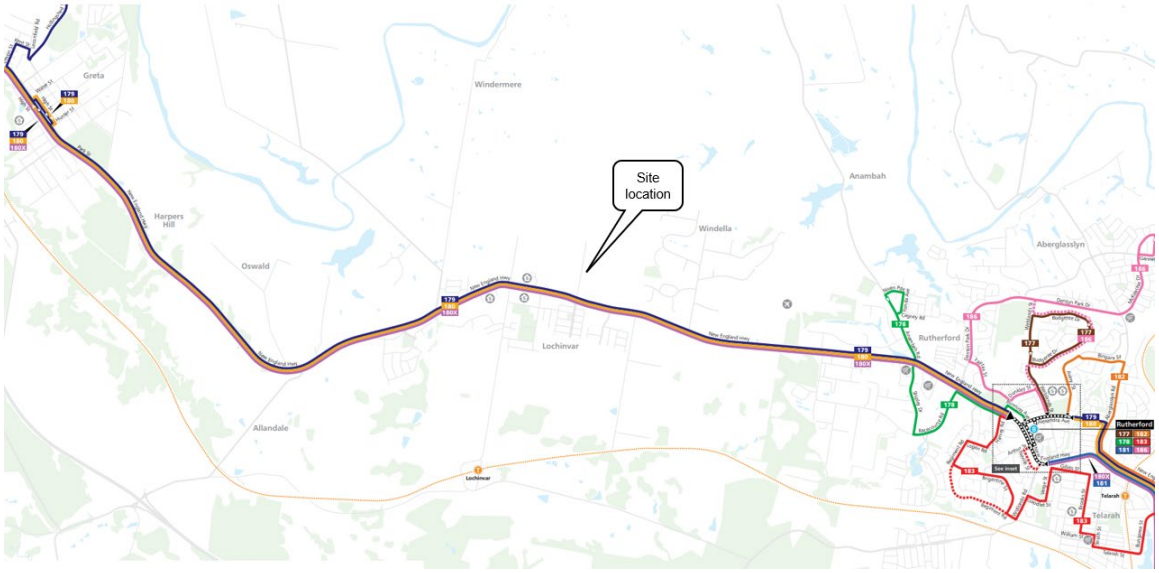


Figure 5 Local bus routes

The site benefits from being within easy walking distance (approximately 400m) of two public bus stops on either side of the New England Highway as indicated in Figure 6. These bus stops service the 179 and 180 bus routes which provide connections to nearby centres such as Rutherford, Maitland and Green Hills Shopping Centre.

Hunter Valley Buses run bus services in the area. The nearest bus stops are located within convenient walking distance of the site (approx. 400 metres) on the New England Highway, immediately west of Wyndella Road as shown in Figure 6. Routes 179, 180 and 180x (Singleton to Maitland) run along the New England Highway through Lochinvar with 7 to 12 bus services each day.

Figure 6 Existing bus stops near Wyndella Road

2.3 Pedestrian infrastructure

There are footpaths on both sides of the New England Highway to the south of the site. Formal pedestrian crossing opportunities are provided at the New England Highway / Wyndella Road intersection. No footpath infrastructure is currently available on Wyndella Road adjacent to the subject site.

3 Traffic Assessment

3.1 Vehicle site access

Vehicle access to the site will be via a single driveway access towards the northern end of Wyndella Road as indicated in Figure 7.

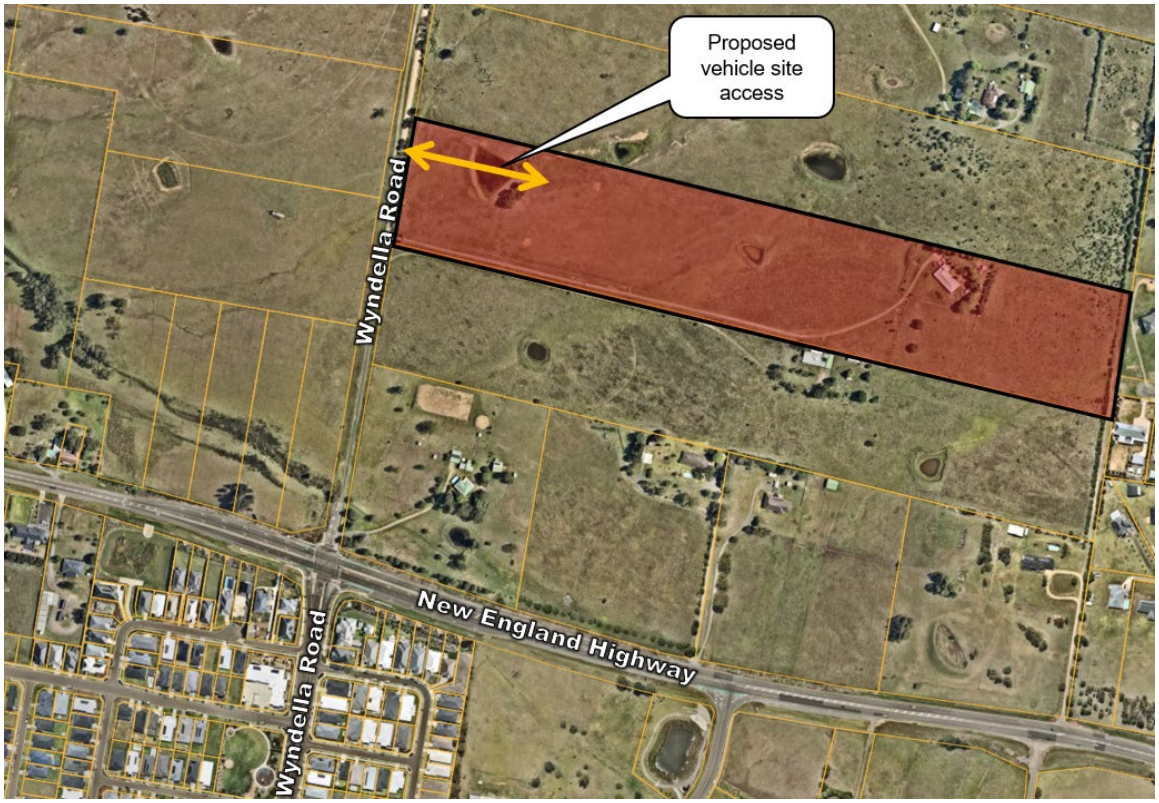


Figure 7 Proposed vehicle site access

The civil engineering drawings show a 45m long, 3.5m wide channelised right turn bay for northbound traffic to enter the site from Wyndella Road. This entry treatment will provide a safe and efficient means for traffic to enter the site. This intersection treatment would be delivered in any one of the following ways:

- Roche Group undertakes a full upgrade of Wyndella Road as part of works required to support the Anambah release area which would include the right turn bay.
- The developer of the site at 2 Wyndella Road Lochinvar (Roche Group) first completes their half road construction, then the applicant completes their half road construction which also incorporates the right turn bay.
- The applicant undertakes the road upgrade in isolation of any other party, completes the half road construction as well as increased widening adjacent to their property boundary to allow sufficient space for the right turn bay

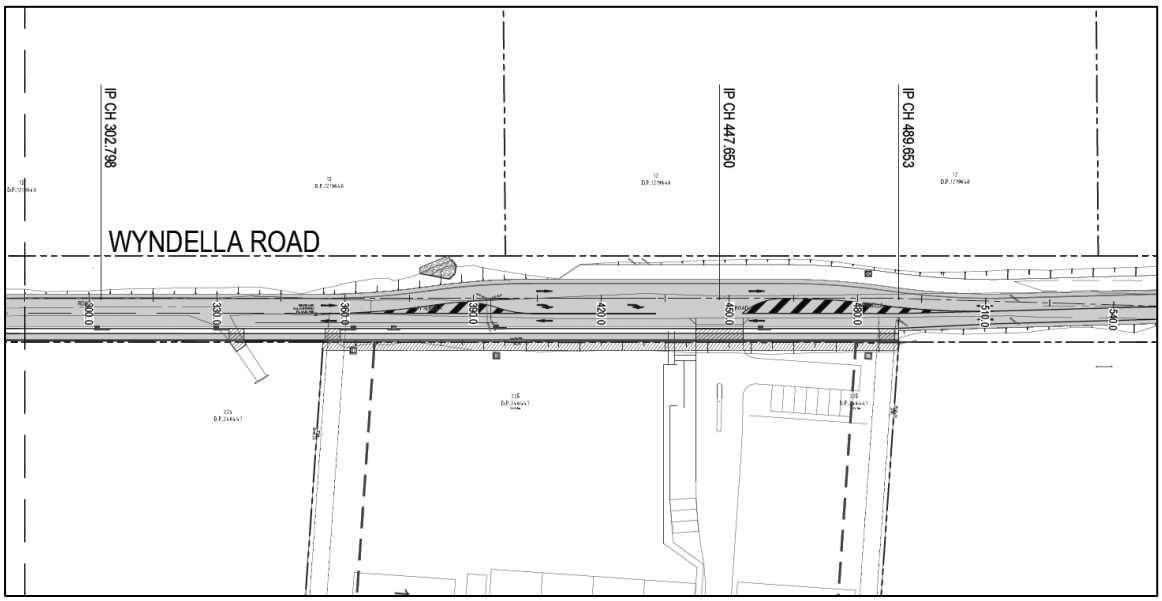


Figure 8 Proposed right turn bay on Wyndella Road

Source: Wallace Infrastructure Design Pty Ltd

The access driveway from Wyndella Road into the site is approximately 14m wide and has been designed in accordance with AS2890.1 and AS2890.2 – allowing for the design vehicle (B99) to pass a large garbage truck entering the site as shown in the swept paths provided as Figure 9.

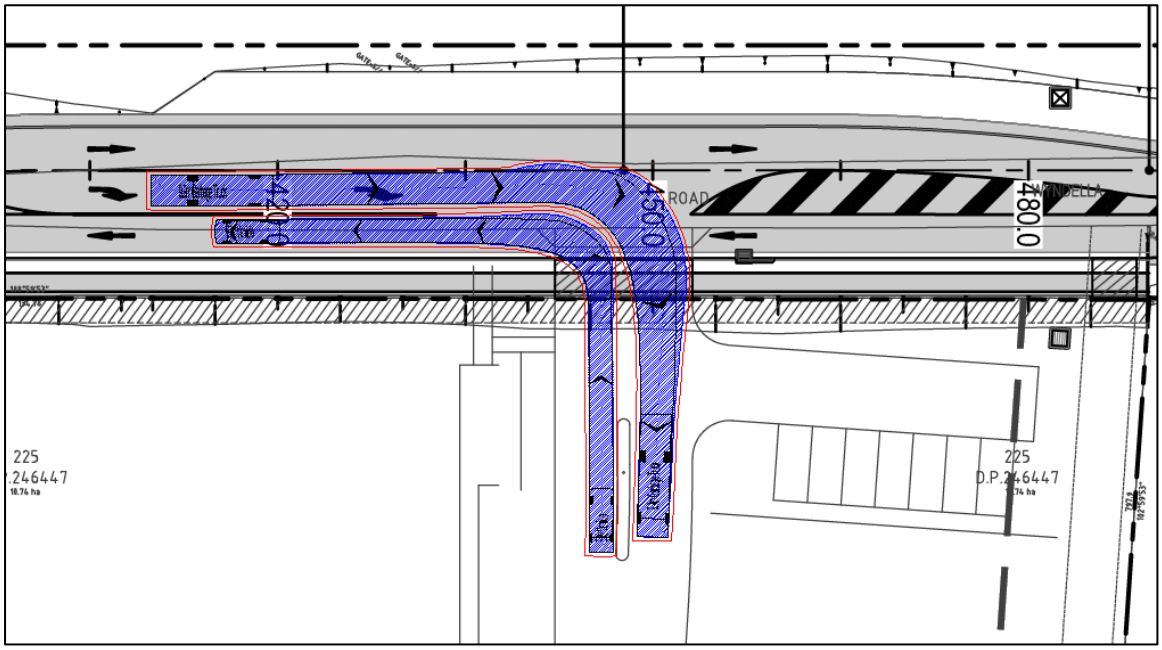


Figure 9 Swept paths – vehicle access point

3.2 Wyndella Road design

Wydnella Road along the site frontage is to be upgraded to include 11.5m width of sealed road. The design will provide for the following:

- Provide for a full half road construction from the northern boundary of the applicant's site through to the New England Highway.
- Include two * 3.5m wide travel lanes, a 3.5m turning bay, 1.0m wide shoulder and a 1.5m wide footpath from the frontage of the site through to the New England Highway.

This interim road cross section is shown in Figure 10 and is considered appropriate to accommodate expected traffic flows.

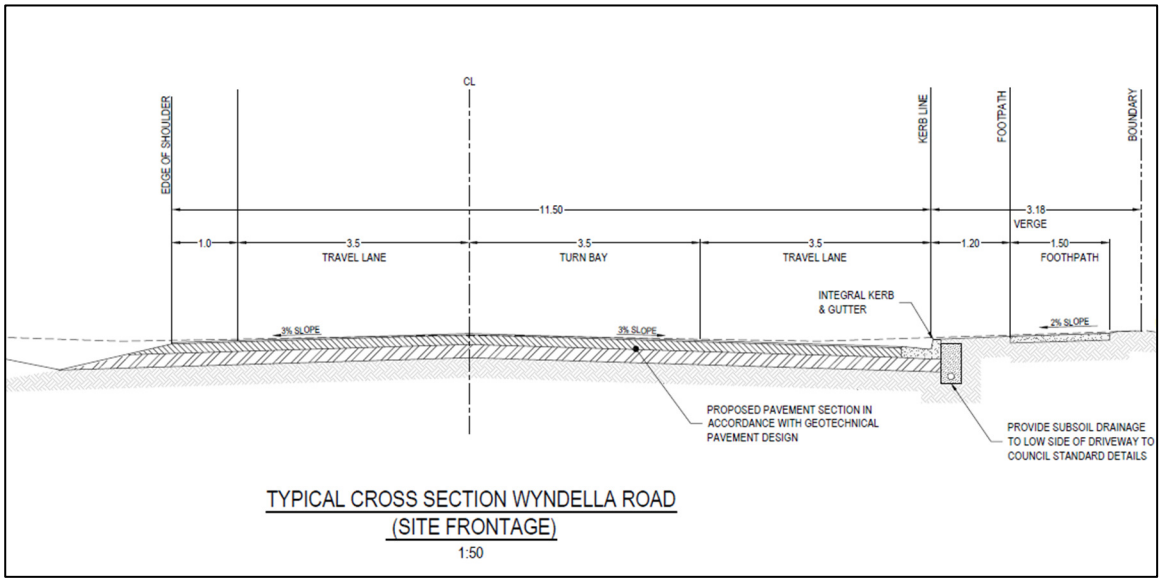


Figure 10 Proposed Wyndella Road cross section

Source: Wallace Infrastructure Design Pty Ltd

Ultimately the road will be further upgraded to full width (15m pavement or more) following the development of the development of the site at 2 Wyndella Road Lochinvar.

3.3 Traffic generation

Following discussions with TfNSW in August 2024 a revised traffic generation rate for the homes within the estate of 0.60 trips / dwelling was adopted. This traffic generation rate aligns with that recommended for medium density dwellings as noted in the TfNSW Guide to Transport Impact Assessment (GTIA) document. The resultant traffic generation during peak hours is summarised in Table 1.

Table 1 Forecast traffic generation

Peak Hour	Traffic Generation Rate	Traffic Distribution		Traffic Generation		
		% into site	% out of site	Into site	Out of site	Total
AM Peak Hour	0.60 / dwelling	25%	75%	27	82	109
PM Peak Hour	0.60 / dwelling	75%	25%	82	27	109

3.4 Traffic impacts

JMT Consulting consulted with TfNSW in August 2024 to discuss the matters raised in the TfNSW submission to the DA dated 13 March 2024. During this meeting the following items were noted by TfNSW:

- 100% of traffic movements entering and exiting the subject site at 34 Wyndella Road should be assumed to travel through the signalised intersection of the New England Highway and Wyndella Road, given the uncertainty around the delivery of the northern ring road.
- A 3% per annum traffic growth rate for the New England Highway should be adopted as part of any traffic modelling undertaken for the project.
- Revised rate of traffic generation to be considered which is equivalent to that of a medium density dwelling (rather than Seniors Living dwelling).
- Traffic modelling should be undertaken to consider two scenarios:
    1. Interim scenario whereby existing signalised intersection of New England Highway and Wyndella Road remains unaltered
    2. Ultimate scenario which considers the future upgrade of the New England Highway and Wyndella Road intersection along with potential traffic flows from the Anambah URA.

JMT Consulting has undertaken traffic modelling of the New England Highway and Wyndella Road intersection to incorporate all of the above advice provided by TfNSW. Key assumptions / inputs to the modelling are described in Table 2.

Table 2 Traffic modelling assumptions

Metric	Input / Assumption
Existing year traffic flows	As per traffic counts undertaken in 2023 as detailed in the original TIA prepared by Intersect Traffic as well as the TIA* for the neighbouring site on the western side of Wyndella Road (DA/2023/415).
Background traffic growth	• New England Highway – 3% per annum growth adopted as per TfNSW advice • Wyndella Road – As per forecast traffic volumes noted in the TIA* for the neighbouring site on the western side of Wyndella Road (DA/2023/415).
Traffic distribution	100% of traffic travelling to and from 34 Wyndella Road to travel through the New England Highway and Wyndella Road intersection – as per TfNSW advice

Metric	Input / Assumption
Traffic generation rate	Peak hour traffic generation rate of 0.65 vehicles / dwelling adopted – consistent with the upper end of traffic forecasts for townhouses noted in the RMS Guide to Traffic Generating Developments document.
Interim year intersection layout	As per existing configuration, refer to Figure 11.
Ultimate year intersection layout	As per Anambah Urban Release Area intersection overlay, refer to Figure 12.
Traffic modelling scenarios	For both the AM and PM peak hours: (i) Existing conditions (ii) Future base – no development (iii) Future base – with development

** Transport Impact Assessment Wyndella Road Lochinvar Development Application, 20 June 2024, SCT Consulting*

Figure 11 Existing intersection layout

Source: NearMap

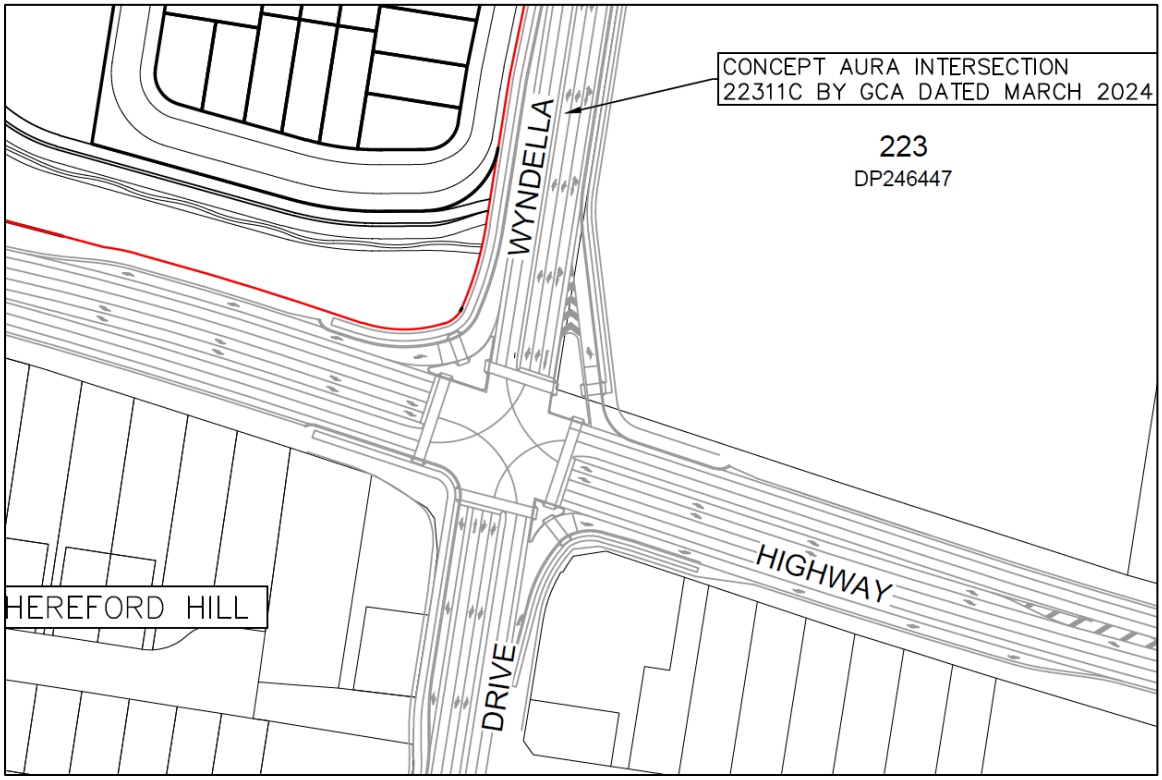


Figure 12 Ultimate year intersection layout

Source: ADW Johnson

Traffic modelling has been undertaken using the TfNSW approved SIDRA Network (Version 9.1) modelling software package to consider the operation of Wyndella Road to accommodate the forecast traffic movements.

The modelling parameters used to analyse the performance of the intersections are as follows:

Level of Service (LoS) - a measure that uses the average delay experienced by vehicles to categorically assign each approach and movement with a qualitative ordinal grade (A through F, with A being the best and F being the worst). RMS Traffic Modelling Guidelines indicate the average delay relating to each grade, this is outlined in Table 3.

Table 3 Level of service grades / description

Level of service grade	Average delay (seconds)	Description
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode
F	Greater than 71	Unsatisfactory with excessive queuing

Degree of Saturation (DoS) - Another common measure of intersection performance is the degree of saturation, which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DOS of 1.0 indicates that an intersection is operating at capacity.

The results of the intersection modelling are summarised in Table 4 and Table 5 - demonstrating that the New England Highway / Wyndella Road intersection would continue to perform at acceptable levels in both the AM and PM peak hours with the proposed development in place. The advent of the proposed development at 34 Wyndella Road does not alter the level of service of the intersection when compared to a 'no nothing' scenario.

As previously noted this traffic modelling takes into consideration background traffic growth on the New England Highway as well as traffic movements from future development in the Lochinvar Release Area. The modelling does not assume any upgrade of the signalised intersection and assumes a more conservative rate of traffic generation when compared with that noted in the original TIA prepared by Intersect Traffic.

The findings of this traffic modelling are consistent with the outputs presented in the Traffic Impact Assessment report prepared by Intersect Traffic dated January 2024 to support the original DA submission. Detailed modelling outputs are provided in Appendix A of this document.

Table 4 Intersection performance (current intersection layout)

Time Period	Traffic Modelling Scenario					
	2031 - Background Traffic Growth Only			2031 - Background Traffic Growth + Development at 34 Wyndella Road		
	Level of Service	Degree of Saturation	Average Delay (s)	Level of Service	Degree of Saturation	Average Delay (s)
AM Peak Hour	C	0.79	29	C	0.79	36
PM Peak Hour	C	0.81	35	C	0.81	36

Table 5 Intersection performance (future intersection layout)

Time Period	Traffic Modelling Scenario					
	2031 - Background Traffic Growth Only			2031 - Background Traffic Growth + Development at 34 Wyndella Road		
	Level of Service	Degree of Saturation	Average Delay (s)	Level of Service	Degree of Saturation	Average Delay (s)
AM Peak Hour	B	0.75	24	B	0.75	25
PM Peak Hour	B	0.70	26	B	0.70	26

3.5 Internal vehicle circulation

3.5.1 Operational vehicles

Swept path analysis has been undertaken for the internal road network for passenger vehicles and waste collection vehicles as requested by Council. Given waste collection will typically be weekly, and certainly less than once per day on average, the waste vehicle qualifies as an 'occasional service' vehicle as defined in AS2890.2. This means that the full width of the access driveway or roadway can be used for the waste vehicle, with no requirement to accommodate passing at all times of a waste vehicle with a passenger vehicle.

Swept path analysis is provided in Appendix B and demonstrates:

- A B99 vehicle can adequately pass a B85 vehicle through the estate; and
- A typical waste collection vehicle can pass a B85 vehicles for all straight roadways within the estate. On bends in the road the swept paths indicate a very minor clash between vehicles, however as previously noted the waste vehicle is infrequent and continuous passing does not need to be provided. Appropriate lines of sight are provided on all bends in the road via the verges and front setback so drivers can adequately view any oncoming vehicle.

The proposal therefore provides an appropriate design response.

3.5.2 Construction vehicles

As requested by Council swept path analysis has been undertaken for the internal road network and specifically for 15.3m long articulated vehicles. These vehicles would transport the manufactured homes into the estate and therefore travel on the internal road network.

Swept path analysis for construction vehicles manoeuvring within the estate is provided in Appendix B. The paths demonstrate that the construction vehicle will be able circulate entirely within the road carriageway or adjacent verge. Prior to the delivery of the relevant stage of the estate the road verge will have a gravel base suitable for travel by large vehicles. Street landscaping, including verge treatments, will be installed after deliveries are completed. Any impacts to the verge as a result of manoeuvring vehicles can be quickly repaired by on-site staff.

All construction vehicles are shown to be exiting via a temporary driveway at the southern end of the site and turning left onto Wyndella Road. This is an appropriate response which will provide safety benefits in separating construction vehicle traffic from residents of the estate.

3.6 Proposed bus services

3.6.1 Public bus services

The site benefits from being within easy walking distance of two public bus stops on either side of the New England Highway. These bus stops service the 179 and 180 bus routes which provide connections to nearby centres such as Rutherford, Maitland and Green Hills Shopping Centre.

From the occupation of the first home a 1.5m wide footpath will be provided down provided from the northern boundary of the site all the way down to the existing bus stops on the New England Highway. This provides frequent and regular public transport services from the site to the major retail, commercial and health services in Singleton, Rutherford, Maitland, and Greenhills as well as connection to the

heavy rail services at Maitland Railway Station. From public transport connections (bus and rail) are available to all facilities in the Newcastle, Central Coast and Sydney areas.

3.6.2 Resort bus services

From the date of occupation of the first home, the applicant will provide a Resort Bus. The Resort Bus will be maintained and serviced by the applicant, and residents will have the opportunity to book the bus for day trips. The Resort Bus can be driven by either a qualified bus driver, resort staff or residents who have passed relevant health and safety checks and completed the induction process.

A notice of scheduled outings for the Resort Bus will be displayed on the noticeboard or in the Community App. The Resort Bus will be a wheelchair accessible bus with a minimum capacity of 10 people.

At a minimum, the applicant will facilitate two weekly shopping trips in the Resort Bus which will be driven by either a designated resident driver, a member of the resort staff or a contractor. The destination of the trips will be decided by the Residents Association based on resident feedback and demand. It is anticipated that two trips will likely alternate between Rutherford Shopping Centre (which is next to Rutherford Marketplace and provides residents with the choice of Woolworths or Coles and other specialty retailers and services) and the future Lochinvar Shopping Village (Woolworths, medical centre and other small retailers).

3.7 Car parking

The proposed development will generate an on-site parking demand. Therefore, on-site parking in accordance with the Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021 will need to be provided. The relevant requirements within the Regulation are as follows:

Resident parking

- 1 resident parking space per dwelling and camping site

Visitor parking

- 1 visitor parking space for each 10 (and any remaining fraction of 10) long-term sites and 1 visitor car parking space for each 20 (and any remaining fraction of 20) short term sites

Resident and visitor parking is to be 6.1 metres x 2.5 metres while the accessible visitor car parks are to comply with Australian Standard AS2890.6-2009 Parking facilities Part 6: Off-street parking for people with disabilities

The proposal meets the above requirements by providing for:

- Sufficient space on each residential lot to provide at least one car parking space
- 47 visitor parking spaces throughout the estate, including 4 accessible spaces designed in accordance with AS/NZS 2890.6:2009. All spaces measure 6.1m x 2.5m, exceeding the minimum dimensions under the Regulation.

The on-site parking provision is therefore considered appropriate to accommodate future demands.

3.8 Pedestrian and cycling infrastructure

The proposal will provide for a significant enhancement in pedestrian infrastructure around the site through the delivery of a 1.5m wide footpath on the eastern side of Wyndella Road between the site boundary and the New England Highway as indicated in Figure 13. This future footpath will provide connectivity for residents of the site to the existing bus stops on the New England Highway.

As part of the ultimate planned upgrade of Wyndella Road there is understood to be provision for cycling infrastructure to provide connectivity between the subject site and the New England Highway.

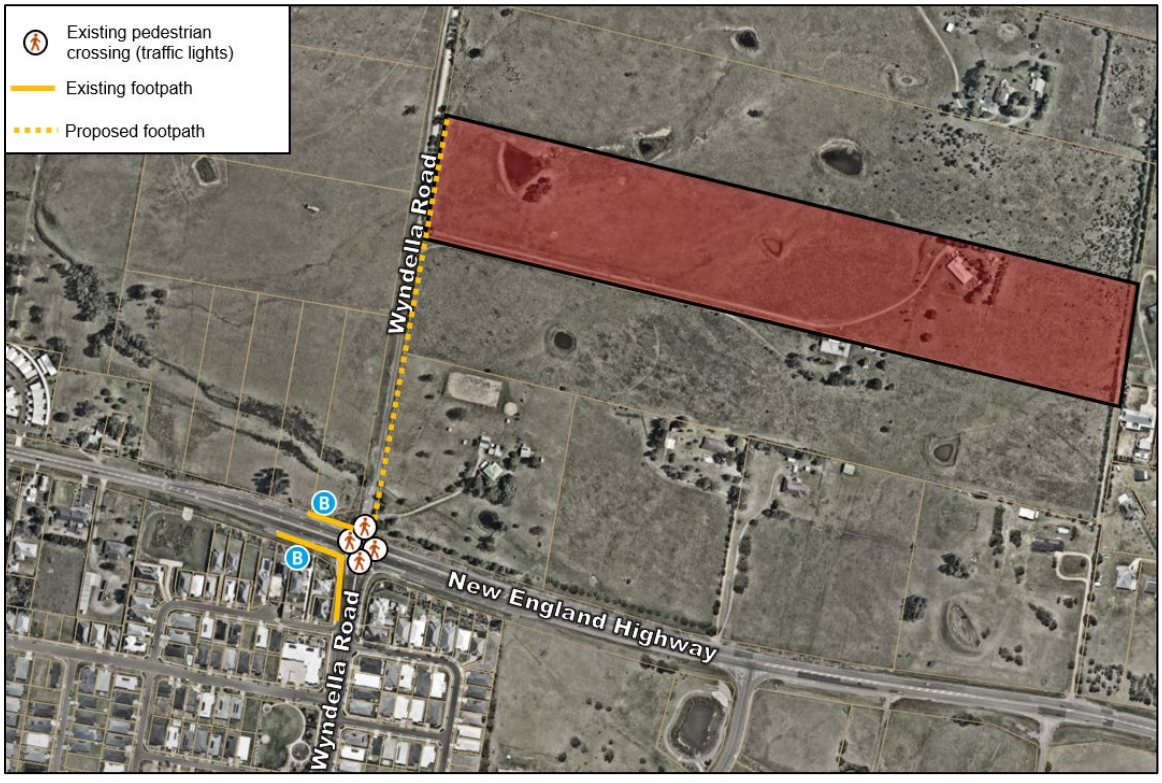


Figure 13 Proposed pedestrian infrastructure

3.9 Penparc Drive connection

The Pennparc Drive allotment extends all the way to the eastern boundary of the subject site as shown in Figure 14. No public access to the subject site would be provided in future via Penparc Drive – with all vehicle access occurring via Wyndella Road. The exception to this is in the event of a bushfire emergency where bushfire services vehicles could gain access to the subject site via Penparc Drive as set out in the Bushfire Assessment Report.

Figure 14 Penparc Drive connection

4 Summary

This traffic impact assessment has been prepared by JMT Consulting to support a proposed manufactured home estate for over 50's on the site at 34 Wyndella Road, Lochinvar. The assessment has concluded that, subject to the implementation of road upgrade works on Wyndella Road along with the provision of a suitably designed internal road system as described in this document, the development can function efficiently and safely without adversely impacting the operation of the surrounding road network.

Appendix A: Traffic Modelling Outputs

MOVEMENT SUMMARY

Site: 101 [2031 AM Future Base (current layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	310	2.7	310	2.7	0.424	18.1	LOS B	7.3	52.5	0.59	0.72	0.59	47.0
2	T1	1	0.0	1	0.0	*0.794	53.4	LOS D	7.7	54.6	1.00	0.95	1.25	28.0
3	R2	291	1.4	291	1.4	0.794	57.9	LOS E	7.7	54.6	1.00	0.95	1.25	30.2
Approach		602	2.1	602	2.1	0.794	37.4	LOS C	7.7	54.6	0.79	0.83	0.91	37.0
East: New England Highway														
4	L2	87	3.6	87	3.6	0.056	8.3	LOS A	0.4	3.2	0.18	0.65	0.18	53.2
5	T1	942	7.9	942	7.9	0.643	21.5	LOS B	21.3	159.0	0.74	0.66	0.74	57.0
6	R2	14	0.0	14	0.0	0.126	59.8	LOS E	0.7	4.8	0.98	0.69	0.98	30.8
Approach		1043	7.4	1043	7.4	0.643	20.9	LOS B	21.3	159.0	0.70	0.66	0.70	55.0
North: Wyndella Road														
7	L2	45	0.0	45	0.0	0.764	56.8	LOS E	7.4	51.7	1.00	0.91	1.20	30.4
8	T1	1	0.0	1	0.0	*0.764	52.4	LOS D	7.4	51.7	1.00	0.91	1.20	28.2
9	R2	96	0.0	96	0.0	0.764	56.8	LOS E	7.4	51.7	1.00	0.91	1.20	30.4
Approach		142	0.0	142	0.0	0.764	56.8	LOS E	7.4	51.7	1.00	0.91	1.20	30.4
West: New England Highway														
10	L2	25	0.0	25	0.0	0.793	20.9	LOS B	23.7	254.3	0.89	0.86	0.95	41.9
11	T1	1069	65.0	1069	65.0	*0.793	26.0	LOS B	23.8	259.4	0.89	0.86	0.96	51.0
12	R2	81	3.9	81	3.9	*0.747	63.2	LOS E	4.3	31.3	1.00	0.86	1.25	29.6
Approach		1175	59.4	1175	59.4	0.793	28.5	LOS B	23.8	259.4	0.90	0.86	0.98	48.4
All Vehicles		2962	26.6	2962	26.6	0.794	29.0	LOS C	23.8	259.4	0.81	0.78	0.88	46.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
East: New England Highway												
P2	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01

North: Wyndella Road											
P3	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
West: New England Highway											
P4	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
All Pedestrians		40	40	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 AM Future Base (future layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	310	2.7	310	2.7	0.386	9.3	LOS A	5.3	37.9	0.45	0.67	0.45	50.5
2	T1	1	0.0	1	0.0	*0.722	50.2	LOS D	7.4	52.6	1.00	0.88	1.14	28.7
3	R2	291	1.4	291	1.4	0.722	54.7	LOS D	7.4	52.6	1.00	0.88	1.14	31.3
Approach		602	2.1	602	2.1	0.722	31.3	LOS C	7.4	52.6	0.72	0.77	0.78	38.9
East: New England Highway														
4	L2	87	3.6	87	3.6	0.056	8.3	LOS A	0.4	3.2	0.18	0.64	0.18	54.5
5	T1	942	7.9	942	7.9	0.479	15.8	LOS B	14.3	107.2	0.68	0.60	0.68	59.6
6	R2	14	0.0	14	0.0	0.063	57.3	LOS E	0.3	2.4	0.97	0.66	0.97	31.5
Approach		1043	7.4	1043	7.4	0.479	15.7	LOS B	14.3	107.2	0.64	0.60	0.64	58.5
North: Wyndella Road														
7	L2	45	0.0	45	0.0	0.404	56.9	LOS E	2.3	15.9	1.00	0.74	1.00	30.8
8	T1	1	0.0	1	0.0	0.009	48.9	LOS D	0.0	0.3	0.96	0.56	0.96	30.1
9	R2	96	0.0	96	0.0	*0.431	57.0	LOS E	2.4	17.0	1.00	0.74	1.00	30.7
Approach		142	0.0	142	0.0	0.431	56.9	LOS E	2.4	17.0	1.00	0.74	1.00	30.7
West: New England Highway														
10	L2	25	0.0	25	0.0	0.021	14.1	LOS A	0.4	2.9	0.37	0.66	0.37	50.9
11	T1	1069	65.0	1069	65.0	*0.736	19.8	LOS B	20.3	221.3	0.83	0.75	0.84	56.0
12	R2	81	3.9	81	3.9	*0.747	63.0	LOS E	4.3	31.3	1.00	0.84	1.26	29.9
Approach		1175	59.4	1175	59.4	0.747	22.7	LOS B	20.3	221.3	0.83	0.76	0.85	52.7
All Vehicles		2962	26.6	2962	26.6	0.747	23.6	LOS B	20.3	221.3	0.75	0.70	0.77	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	211.3	217.2	1.03
East: New England Highway												
P2	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	216.4	223.8	1.03

North: Wyndella Road											
P3	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	214.8	221.8	1.03
West: New England Highway											
P4	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	213.8	220.5	1.03
All Pedestrians		40	40	44.2	LOS E	0.0	0.0	0.94	0.94	214.1	220.8	1.03

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 AM Future Base + Development (current layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	310	2.7	310	2.7	0.459	22.6	LOS B	9.1	65.2	0.65	0.74	0.65	45.0
2	T1	1	0.0	1	0.0	*0.873	63.8	LOS E	8.9	63.1	1.00	1.06	1.43	26.0
3	R2	291	1.4	291	1.4	0.873	68.3	LOS E	8.9	63.1	1.00	1.06	1.43	27.8
Approach		602	2.1	602	2.1	0.873	44.7	LOS D	9.1	65.2	0.82	0.89	1.03	34.6
East: New England Highway														
4	L2	87	3.6	87	3.6	0.056	8.2	LOS A	0.4	3.2	0.16	0.64	0.16	53.2
5	T1	942	7.9	942	7.9	0.670	26.9	LOS B	24.2	180.8	0.77	0.69	0.77	54.2
6	R2	23	0.0	23	0.0	0.227	68.9	LOS E	1.3	8.8	0.99	0.71	0.99	29.2
Approach		1052	7.4	1052	7.4	0.670	26.3	LOS B	24.2	180.8	0.73	0.68	0.73	51.0
North: Wyndella Road														
7	L2	73	0.0	73	0.0	0.822	59.5	LOS E	13.5	94.8	1.00	0.95	1.21	29.7
8	T1	1	0.0	1	0.0	*0.822	55.1	LOS D	13.5	94.8	1.00	0.95	1.21	27.6
9	R2	162	0.0	162	0.0	0.822	59.5	LOS E	13.5	94.8	1.00	0.95	1.21	29.7
Approach		236	0.0	236	0.0	0.822	59.5	LOS E	13.5	94.8	1.00	0.95	1.21	29.7
West: New England Highway														
10	L2	47	0.0	47	0.0	0.836	23.6	LOS B	29.1	308.3	0.93	0.93	1.04	38.4
11	T1	1069	65.0	1069	65.0	*0.836	34.1	LOS C	29.1	315.9	0.93	0.93	1.04	45.9
12	R2	81	3.9	81	3.9	*0.822	71.1	LOS F	4.9	35.2	1.00	0.90	1.39	27.8
Approach		1197	58.3	1197	58.3	0.836	36.2	LOS C	29.1	315.9	0.94	0.93	1.06	43.7
All Vehicles		3087	25.5	3087	25.5	0.873	36.3	LOS C	29.1	315.9	0.85	0.84	0.95	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
East: New England Highway												
P2	Full	10	10	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99

North: Wyndella Road											
P3	Full	10	10	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
West: New England Highway											
P4	Full	10	10	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
All Pedestrians		40	40	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 AM Future Base + Development (future layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	310	2.7	310	2.7	0.391	10.1	LOS A	5.7	40.8	0.48	0.68	0.48	49.9
2	T1	1	0.0	1	0.0	*0.722	50.2	LOS D	7.4	52.6	1.00	0.88	1.14	28.7
3	R2	291	1.4	291	1.4	0.722	54.7	LOS D	7.4	52.6	1.00	0.88	1.14	31.3
Approach		602	2.1	602	2.1	0.722	31.7	LOS C	7.4	52.6	0.73	0.77	0.80	38.7
East: New England Highway														
4	L2	87	3.6	87	3.6	0.056	8.3	LOS A	0.4	3.2	0.18	0.64	0.18	54.5
5	T1	942	7.9	942	7.9	0.479	15.8	LOS B	14.3	107.2	0.68	0.60	0.68	59.6
6	R2	23	0.0	23	0.0	0.103	57.8	LOS E	0.6	3.9	0.97	0.68	0.97	31.4
Approach		1052	7.4	1052	7.4	0.479	16.1	LOS B	14.3	107.2	0.64	0.60	0.64	58.0
North: Wyndella Road														
7	L2	73	0.0	73	0.0	0.655	58.8	LOS E	3.8	26.7	1.00	0.82	1.13	30.3
8	T1	1	0.0	1	0.0	0.009	48.9	LOS D	0.0	0.3	0.96	0.56	0.96	30.1
9	R2	162	0.0	162	0.0	*0.727	59.9	LOS E	4.3	30.1	1.00	0.86	1.22	30.0
Approach		236	0.0	236	0.0	0.727	59.5	LOS E	4.3	30.1	1.00	0.84	1.20	30.1
West: New England Highway														
10	L2	47	0.0	47	0.0	0.039	14.2	LOS A	0.8	5.6	0.38	0.67	0.38	50.8
11	T1	1069	65.0	1069	65.0	*0.736	19.8	LOS B	20.3	221.3	0.83	0.75	0.84	56.0
12	R2	81	3.9	81	3.9	*0.747	63.0	LOS E	4.3	31.3	1.00	0.84	1.26	29.9
Approach		1197	58.3	1197	58.3	0.747	22.5	LOS B	20.3	221.3	0.82	0.76	0.85	52.7
All Vehicles		3087	25.5	3087	25.5	0.747	24.9	LOS B	20.3	221.3	0.76	0.71	0.79	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	211.3	217.2	1.03
East: New England Highway												
P2	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	216.4	223.8	1.03

North: Wyndella Road											
P3	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	214.8	221.8	1.03
West: New England Highway											
P4	Full	10	10	44.2	LOS E	0.0	0.0	0.94	0.94	213.8	220.5	1.03
All Pedestrians		40	40	44.2	LOS E	0.0	0.0	0.94	0.94	214.1	220.8	1.03

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 PM Future Base (current layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 115 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	116	8.1	116	8.1	0.154	17.1	LOS B	2.6	19.7	0.49	0.65	0.49	46.0
2	T1	1	0.0	1	0.0	*0.445	56.3	LOS D	3.9	28.2	0.99	0.76	0.99	27.4
3	R2	140	2.8	140	2.8	0.445	60.8	LOS E	3.9	28.2	0.99	0.76	0.99	29.4
Approach		257	5.2	257	5.2	0.445	41.0	LOS C	3.9	28.2	0.76	0.71	0.76	35.1
East: New England Highway														
4	L2	217	0.0	217	0.0	0.153	10.4	LOS A	2.5	17.7	0.28	0.68	0.28	51.9
5	T1	1047	4.1	1047	4.1	*0.800	36.1	LOS C	32.4	234.7	0.86	0.78	0.88	49.5
6	R2	49	0.0	49	0.0	0.152	61.2	LOS E	2.4	16.5	0.88	0.74	0.88	32.7
Approach		1313	3.3	1313	3.3	0.800	32.8	LOS C	32.4	234.7	0.77	0.76	0.78	45.5
North: Wyndella Road														
7	L2	14	0.0	14	0.0	0.254	59.5	LOS E	2.2	15.6	0.97	0.73	0.97	29.8
8	T1	1	0.0	1	0.0	*0.254	55.4	LOS D	2.2	15.6	0.97	0.73	0.97	27.6
9	R2	26	0.0	26	0.0	0.254	59.5	LOS E	2.2	15.6	0.97	0.73	0.97	29.8
Approach		41	0.0	41	0.0	0.254	59.4	LOS E	2.2	15.6	0.97	0.73	0.97	29.7
West: New England Highway														
10	L2	106	0.0	106	0.0	0.680	23.6	LOS B	25.0	182.6	0.86	0.78	0.86	40.9
11	T1	1024	6.1	1024	6.1	0.680	28.3	LOS B	25.1	184.9	0.86	0.77	0.86	49.8
12	R2	257	2.0	257	2.0	*0.807	61.9	LOS E	15.1	107.3	1.00	0.91	1.16	29.9
Approach		1387	4.9	1387	4.9	0.807	34.2	LOS C	25.1	184.9	0.88	0.80	0.91	43.7
All Vehicles		2998	4.1	2998	4.1	0.807	34.5	LOS C	32.4	234.7	0.82	0.78	0.84	43.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97
East: New England Highway												
P2	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97

North: Wyndella Road											
P3	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97
West: New England Highway											
P4	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97
All Pedestrians		40	40	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 PM Future Base (future layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	116	8.1	116	8.1	0.139	9.3	LOS A	1.6	12.2	0.41	0.63	0.41	49.5
2	T1	1	0.0	1	0.0	*0.581	47.8	LOS D	3.3	23.5	1.00	0.79	1.07	29.3
3	R2	140	2.8	140	2.8	0.581	52.3	LOS D	3.3	23.5	1.00	0.79	1.07	31.8
Approach		257	5.2	257	5.2	0.581	32.9	LOS C	3.3	23.5	0.73	0.71	0.77	37.9
East: New England Highway														
4	L2	217	0.0	217	0.0	0.157	10.1	LOS A	2.1	14.5	0.31	0.68	0.31	53.4
5	T1	1047	4.1	1047	4.1	*0.689	24.2	LOS B	19.1	138.5	0.89	0.78	0.89	52.5
6	R2	49	0.0	49	0.0	0.066	38.9	LOS C	0.9	6.2	0.84	0.71	0.84	37.4
Approach		1313	3.3	1313	3.3	0.689	22.4	LOS B	19.1	138.5	0.79	0.77	0.79	51.9
North: Wyndella Road														
7	L2	14	0.0	14	0.0	*0.113	49.5	LOS D	0.6	4.3	0.97	0.68	0.97	32.8
8	T1	1	0.0	1	0.0	0.008	43.8	LOS D	0.0	0.3	0.95	0.56	0.95	31.5
9	R2	26	0.0	26	0.0	0.105	49.4	LOS D	0.6	4.0	0.97	0.68	0.97	32.8
Approach		41	0.0	41	0.0	0.113	49.3	LOS D	0.6	4.3	0.97	0.68	0.97	32.8
West: New England Highway														
10	L2	106	0.0	106	0.0	0.107	18.6	LOS B	2.3	15.9	0.52	0.71	0.52	47.9
11	T1	1024	6.1	1024	6.1	0.682	24.1	LOS B	18.6	137.3	0.89	0.78	0.89	52.6
12	R2	257	2.0	257	2.0	*0.702	45.3	LOS D	11.1	78.8	0.99	0.85	1.05	34.9
Approach		1387	4.9	1387	4.9	0.702	27.6	LOS B	18.6	137.3	0.88	0.79	0.89	47.8
All Vehicles		2998	4.1	2998	4.1	0.702	26.1	LOS B	19.1	138.5	0.83	0.77	0.84	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	206.3	217.2	1.05
East: New England Highway												
P2	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	211.4	223.8	1.06

North: Wyndella Road											
P3	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	209.8	221.8	1.06
West: New England Highway											
P4	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	208.8	220.5	1.06
All Pedestrians		40	40	39.2	LOS D	0.0	0.0	0.93	0.93	209.1	220.8	1.06

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 PM Future Base + Development (current layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 115 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	116	8.1	116	8.1	0.157	18.1	LOS B	2.7	20.6	0.51	0.66	0.51	45.5
2	T1	1	0.0	1	0.0	*0.445	56.3	LOS D	3.9	28.2	0.99	0.76	0.99	27.4
3	R2	140	2.8	140	2.8	0.445	60.8	LOS E	3.9	28.2	0.99	0.76	0.99	29.4
Approach		257	5.2	257	5.2	0.445	41.5	LOS C	3.9	28.2	0.77	0.72	0.77	35.0
East: New England Highway														
4	L2	217	0.0	217	0.0	0.153	10.4	LOS A	2.5	17.7	0.28	0.68	0.28	51.9
5	T1	1047	4.1	1047	4.1	*0.807	36.5	LOS C	32.7	236.9	0.87	0.79	0.89	49.2
6	R2	77	0.0	77	0.0	0.238	61.9	LOS E	3.8	26.4	0.90	0.76	0.90	32.4
Approach		1341	3.2	1341	3.2	0.807	33.8	LOS C	32.7	236.9	0.77	0.77	0.79	44.9
North: Wyndella Road														
7	L2	23	0.0	23	0.0	0.446	60.8	LOS E	4.0	28.1	0.99	0.76	0.99	29.4
8	T1	1	0.0	1	0.0	*0.446	56.7	LOS E	4.0	28.1	0.99	0.76	0.99	27.3
9	R2	48	0.0	48	0.0	0.446	60.8	LOS E	4.0	28.1	0.99	0.76	0.99	29.5
Approach		72	0.0	72	0.0	0.446	60.7	LOS E	4.0	28.1	0.99	0.76	0.99	29.4
West: New England Highway														
10	L2	172	0.0	172	0.0	0.720	24.9	LOS B	27.2	197.3	0.88	0.81	0.88	40.2
11	T1	1024	6.1	1024	6.1	0.720	29.6	LOS C	27.3	201.0	0.88	0.80	0.88	49.2
12	R2	257	2.0	257	2.0	*0.807	61.9	LOS E	15.1	107.3	1.00	0.91	1.16	29.9
Approach		1453	4.7	1453	4.7	0.807	34.8	LOS C	27.3	201.0	0.90	0.82	0.93	43.1
All Vehicles		3123	4.0	3123	4.0	0.807	35.5	LOS C	32.7	236.9	0.84	0.79	0.86	42.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97
East: New England Highway												
P2	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97

North: Wyndella Road											
P3	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97
West: New England Highway											
P4	Full	10	10	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97
All Pedestrians		40	40	51.7	LOS E	0.0	0.0	0.95	0.95	205.5	200.0	0.97

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 PM Future Base + Development (future layout) (Site Folder: General)]

New England Hwy / Wyndella Road / Sprinfield Drive signals

Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sprinfield Drive														
1	L2	116	8.1	116	8.1	0.140	9.7	LOS A	1.7	12.7	0.42	0.63	0.42	49.2
2	T1	1	0.0	1	0.0	*0.581	47.8	LOS D	3.3	23.5	1.00	0.79	1.07	29.3
3	R2	140	2.8	140	2.8	0.581	52.3	LOS D	3.3	23.5	1.00	0.79	1.07	31.8
Approach		257	5.2	257	5.2	0.581	33.1	LOS C	3.3	23.5	0.74	0.72	0.78	37.8
East: New England Highway														
4	L2	217	0.0	217	0.0	0.157	10.1	LOS A	2.1	14.5	0.31	0.68	0.31	53.4
5	T1	1047	4.1	1047	4.1	*0.689	24.2	LOS B	19.1	138.5	0.89	0.78	0.89	52.5
6	R2	77	0.0	77	0.0	0.104	39.2	LOS C	1.4	9.8	0.85	0.73	0.85	37.2
Approach		1341	3.2	1341	3.2	0.689	22.8	LOS B	19.1	138.5	0.79	0.77	0.79	51.4
North: Wyndella Road														
7	L2	23	0.0	23	0.0	0.186	50.0	LOS D	1.0	7.1	0.98	0.70	0.98	32.6
8	T1	1	0.0	1	0.0	0.008	43.8	LOS D	0.0	0.3	0.95	0.56	0.95	31.5
9	R2	48	0.0	48	0.0	*0.194	50.1	LOS D	1.1	7.4	0.98	0.70	0.98	32.6
Approach		72	0.0	72	0.0	0.194	50.0	LOS D	1.1	7.4	0.98	0.70	0.98	32.6
West: New England Highway														
10	L2	172	0.0	172	0.0	0.174	19.1	LOS B	3.8	26.9	0.55	0.73	0.55	47.6
11	T1	1024	6.1	1024	6.1	0.682	24.1	LOS B	18.6	137.3	0.89	0.78	0.89	52.6
12	R2	257	2.0	257	2.0	*0.702	45.3	LOS D	11.1	78.8	0.99	0.85	1.05	34.9
Approach		1453	4.7	1453	4.7	0.702	27.3	LOS B	18.6	137.3	0.86	0.79	0.87	47.7
All Vehicles		3123	4.0	3123	4.0	0.702	26.3	LOS B	19.1	138.5	0.82	0.77	0.83	47.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinfield Drive												
P1	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	206.3	217.2	1.05
East: New England Highway												
P2	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	211.4	223.8	1.06

North: Wyndella Road											
P3	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	209.8	221.8	1.06
West: New England Highway											
P4	Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	208.8	220.5	1.06
All Pedestrians		40	40	39.2	LOS D	0.0	0.0	0.93	0.93	209.1	220.8	1.06

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2031 PM_Site Access (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wyndella Road (S)														
2	T1	950	3.0	1000	3.0	0.525	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
3	R2	94	3.0	99	3.0	0.067	6.1	LOS A	0.3	2.2	0.30	0.58	0.30	52.2
Approach		1044	3.0	1099	3.0	0.525	0.8	NA	0.3	2.2	0.03	0.05	0.03	58.8
East: Site Entry														
4	L2	31	3.0	33	3.0	0.038	8.9	LOS A	0.1	1.0	0.34	0.85	0.34	50.8
6	R2	1	3.0	1	3.0	0.038	44.3	LOS D	0.1	1.0	0.34	0.85	0.34	50.3
Approach		32	3.0	34	3.0	0.038	10.0	LOS A	0.1	1.0	0.34	0.85	0.34	50.8
North: Wyndella Road (N)														
7	L2	1	3.0	1	3.0	0.100	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	58.1
8	T1	180	3.0	189	3.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		181	3.0	191	3.0	0.100	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		1257	3.0	1323	3.0	0.525	0.9	NA	0.3	2.2	0.03	0.07	0.03	58.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2031 AM_Site Access (Site Folder: General)]

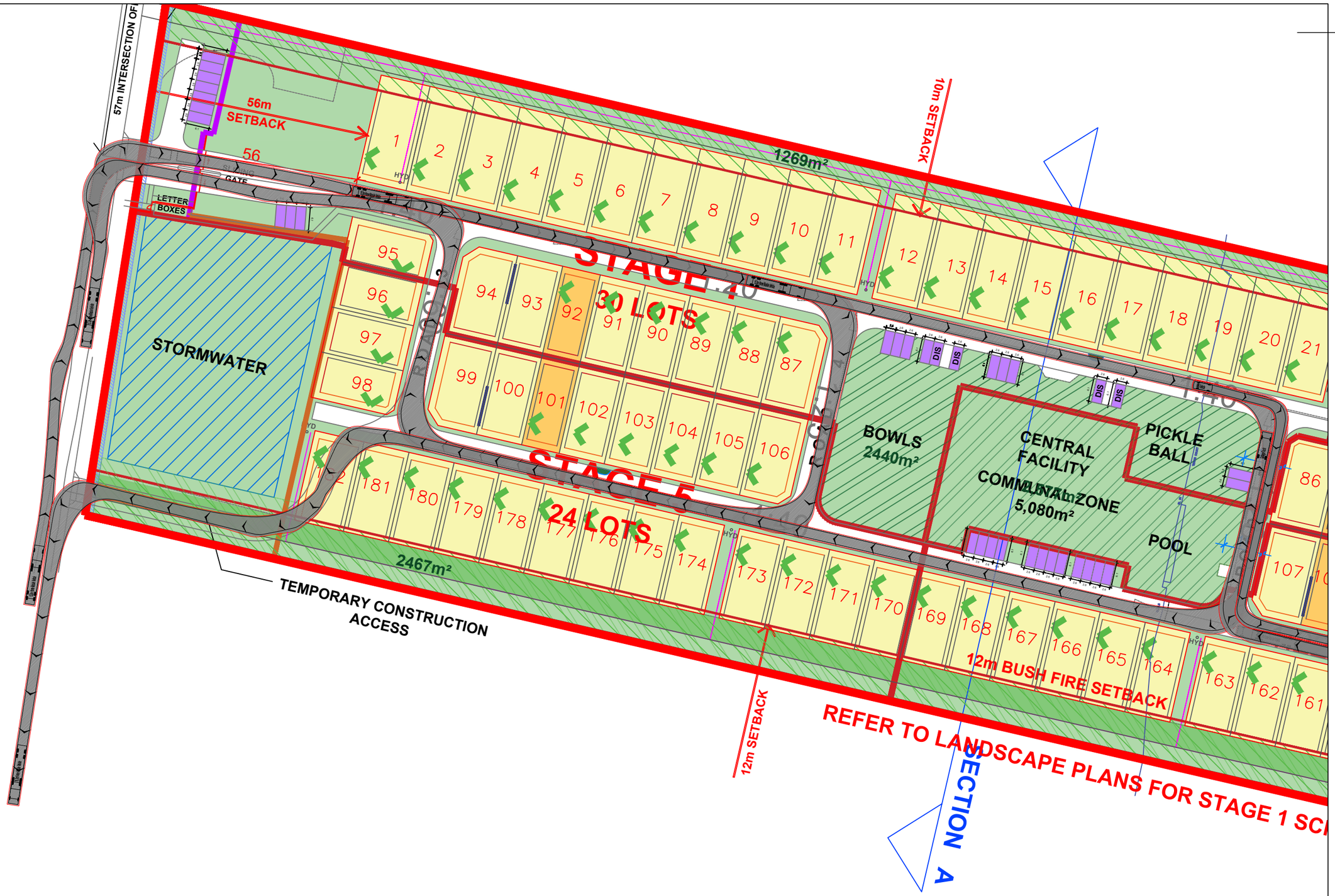
New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wyndella Road (S)														
2	T1	200	3.0	211	3.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	31	3.0	33	3.0	0.041	8.8	LOS A	0.2	1.1	0.59	0.75	0.59	50.6
Approach		231	3.0	243	3.0	0.111	1.2	NA	0.2	1.1	0.08	0.10	0.08	58.5
East: Site Entry														
4	L2	94	3.0	99	3.0	0.171	13.1	LOS A	0.6	4.5	0.63	1.00	0.63	49.1
6	R2	1	3.0	1	3.0	0.171	22.7	LOS B	0.6	4.5	0.63	1.00	0.63	48.6
Approach		95	3.0	100	3.0	0.171	13.2	LOS A	0.6	4.5	0.63	1.00	0.63	49.1
North: Wyndella Road (N)														
7	L2	1	3.0	1	3.0	0.358	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	58.0
8	T1	650	3.0	684	3.0	0.358	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		651	3.0	685	3.0	0.358	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles		977	3.0	1028	3.0	0.358	1.6	NA	0.6	4.5	0.08	0.12	0.08	58.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix B: Swept Path Analysis



Job Title

34 Wyndella Road, Lochinvar

Client

Commercial 7 Pty Ltd

Drawing Title

Turning Paths
Construction Vehicles

Drawing No

2450_01

Date

02.05.25

Legend

Body Envelope
300mm Envelope
Wheel Envelope

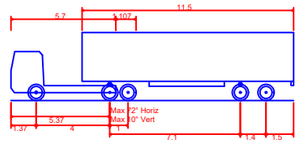
Job No

2450

Scale at A3

1:1000

Vehicle type(s)



15.3m Home Module Vehicle

Overall Length	15.370m
Overall Width	2.500m
Overall Body Height	3.695m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.000m

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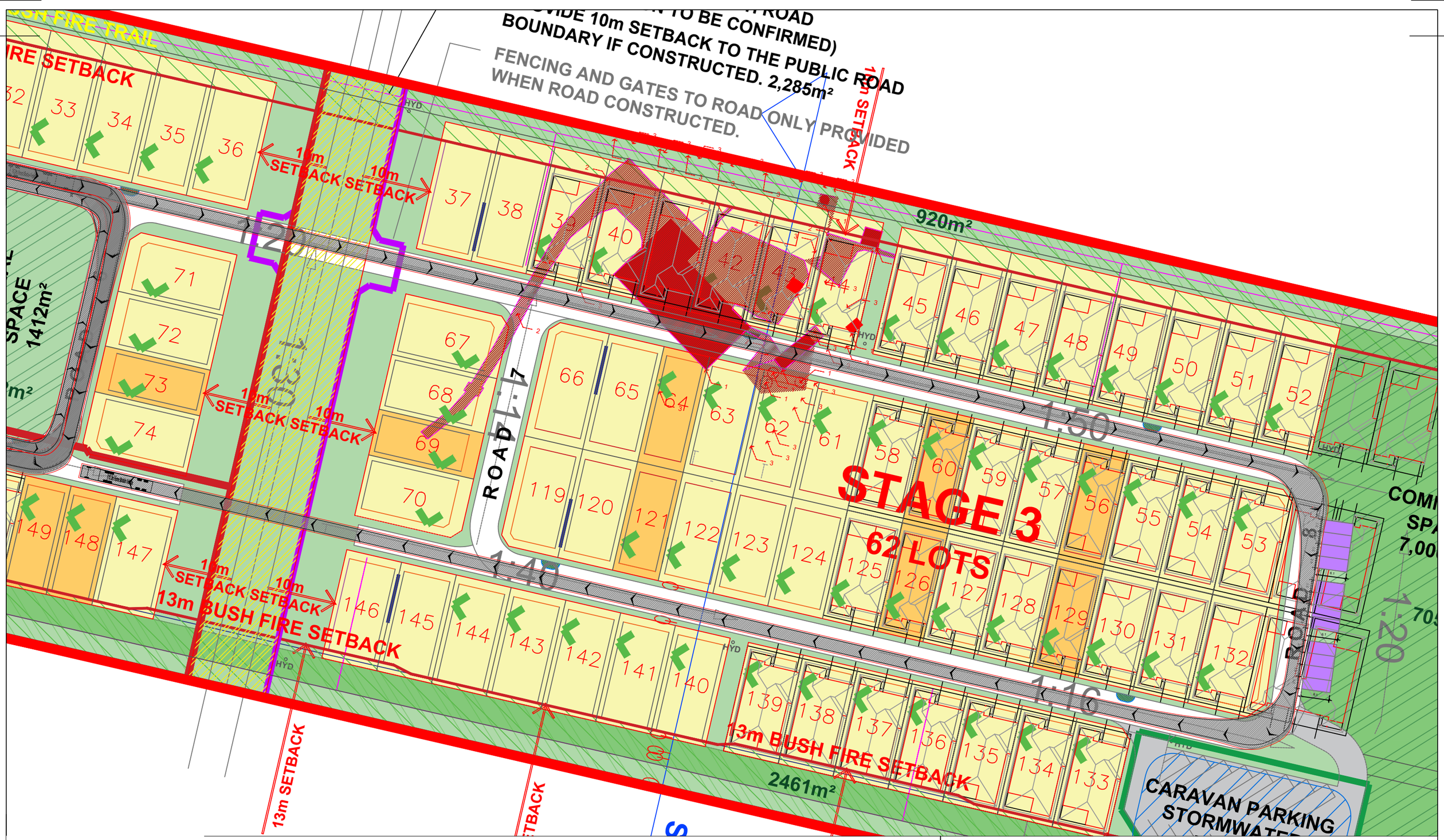

Job Title
34 Wyndella Road, Lochinvar

Client
Commercial 7 Pty Ltd

Drawing Title
Turning Paths
Construction Vehicles

Drawing No
2450_02

Date
02.05.25

Legend
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300mm Envelope
Wheel Envelope

Job No
2450

Scale at A3
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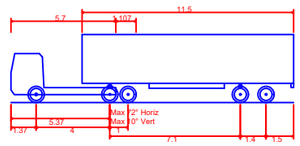
Vehicle type(s)



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Overall Width	2.500m
Overall Body Height	3.695m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.000m

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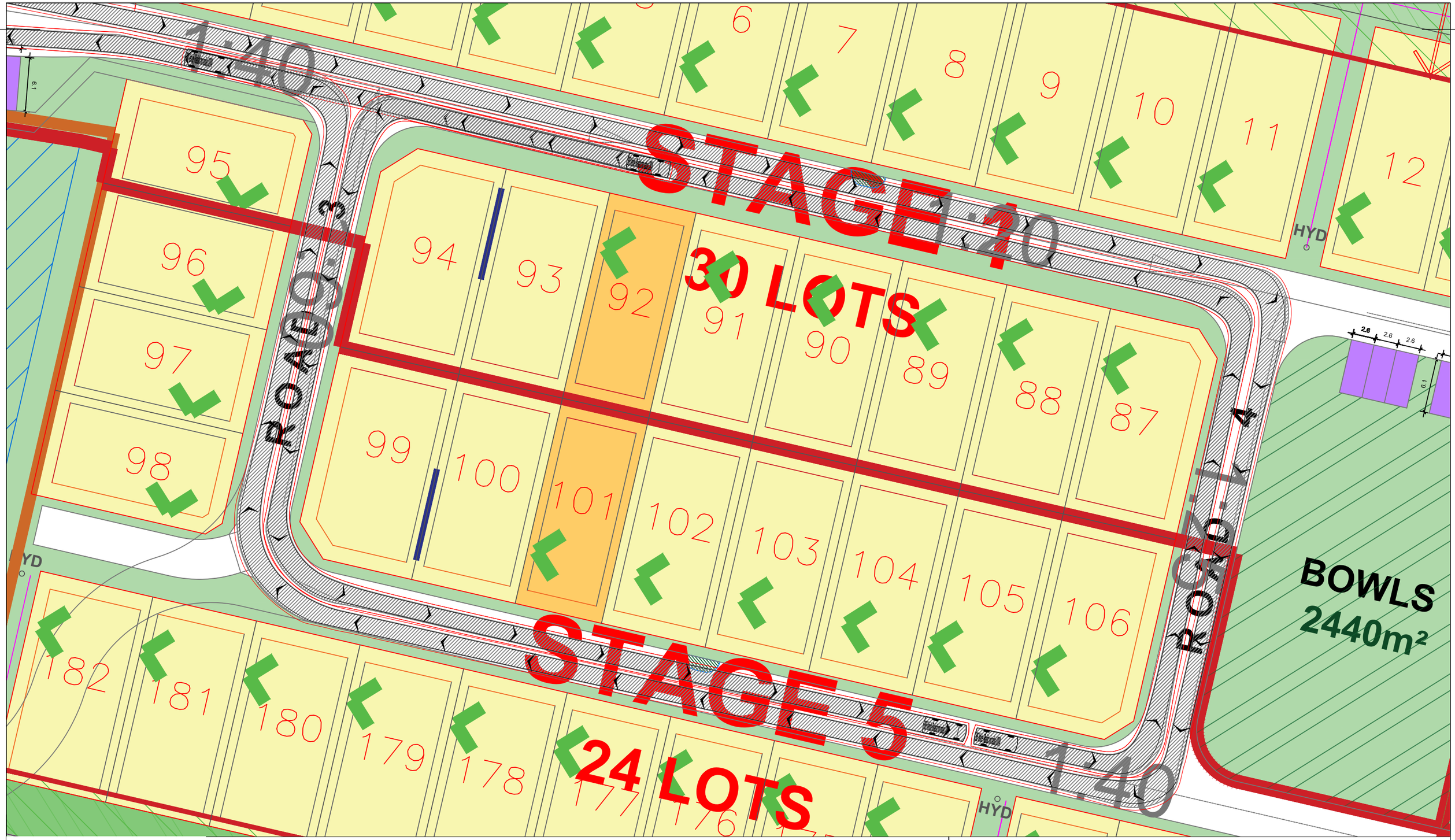

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Drawing Title
Turning Paths
Operational Vehicles

Drawing No
2450_03

Date
02.05.25

Legend
Body Envelope
300mm Envelope
Wheel Envelope

Job No
2450

Scale at A3
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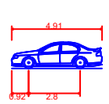
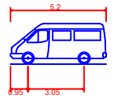
Vehicle type(s)



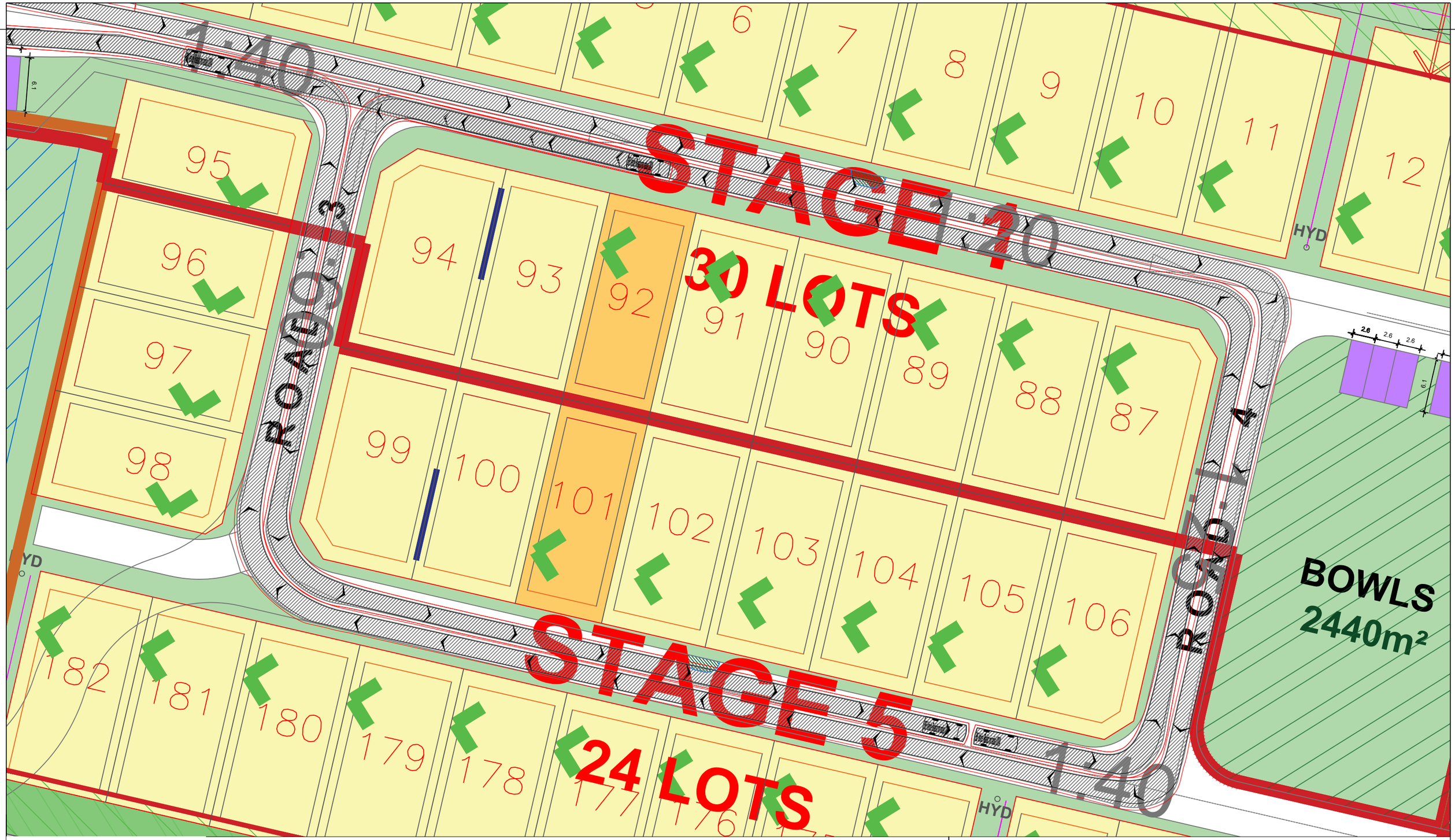
B85 Vehicle (AS2890.1)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.750m



B99 Vehicle

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m



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Job Title
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Drawing Title
Turning Paths
Operational Vehicles

Drawing No
2450_04

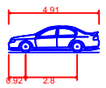
Date
02.05.25

Legend
Body Envelope
300mm Envelope
Wheel Envelope

Job No
2450

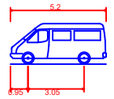
Scale at A3
1:400

Vehicle type(s)



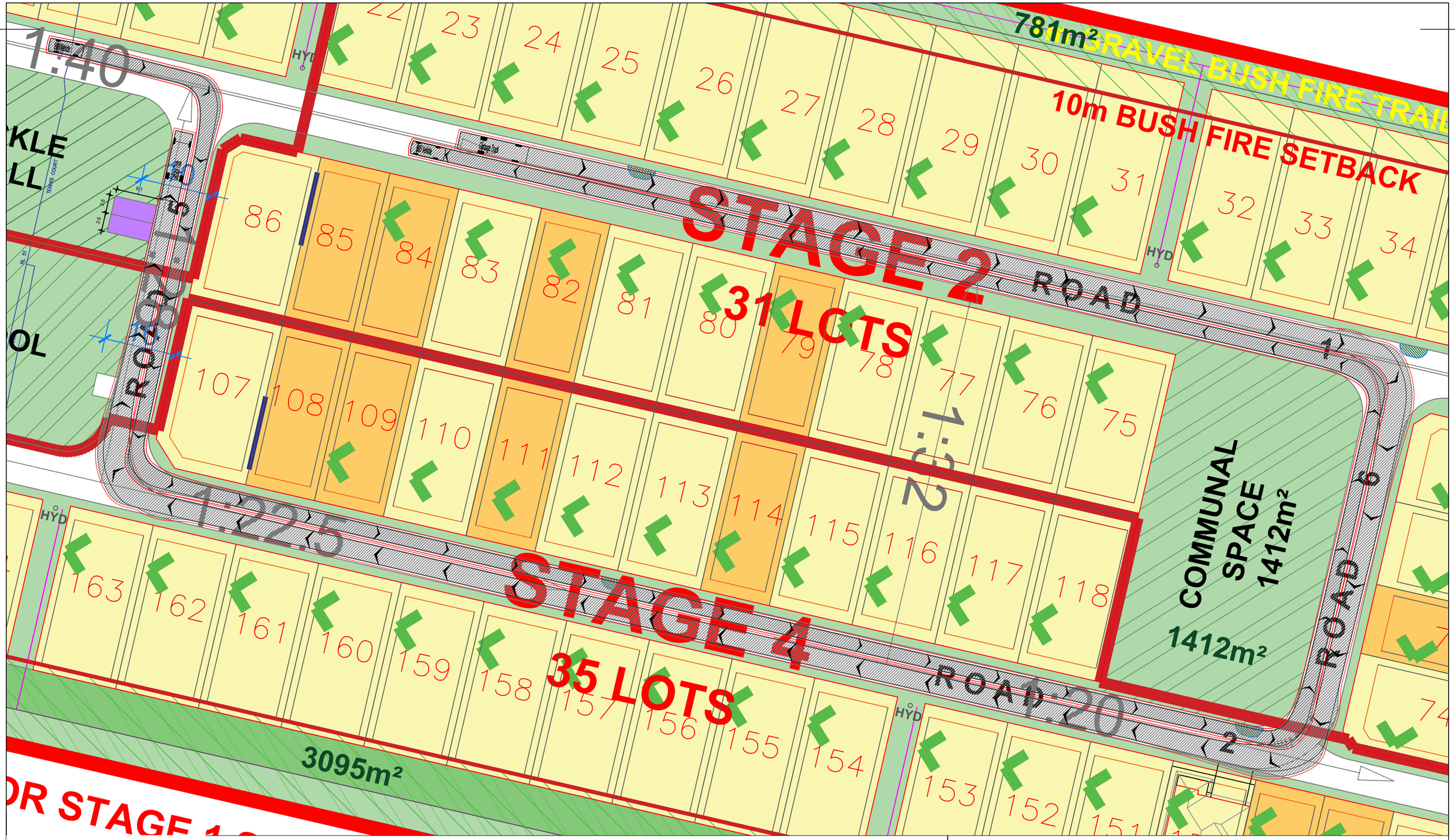
B85 Vehicle (AS2890.1)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.750m



B99 Vehicle

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m



Job Title
34 Wyndella Road, Lochinvar

Client
Commercial 7 Pty Ltd

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PO Box 199, Kingsford NSW 2032

Drawing Title
Turning Paths
Waste Vehicles

Drawing No
2450_05

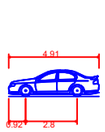
Date
02.05.25

Legend
Body Envelope
300mm Envelope
Wheel Envelope

Job No
2450

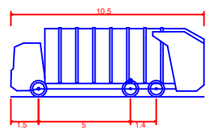
Scale at A3
1:500

Vehicle type(s)



B85 Vehicle (AS2890.1)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.750m



Garbage Truck

Overall Length	10.500m
Overall Width	2.500m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to Lock Time	5.00 sec
Curb to Curb Turning Radius	11.000m