303 Wollombi Road, Farley

Traffic and Parking Impact Assessment

Prepared for:

Vivacity Properties Pty Ltd

16 August 2023

The Transport Planning Partnership

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Client: Vivacity Properties Pty Ltd

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1 Introduction

1.1 Background

Vivacity is seeking to develop a lifestyle community, to be known as 'Farley Lifestyle Resort', located at 283 and 303 Wollombi Road, Farley. A development application (DA) is to be lodged with Maitland City Council (Council) for the proposed development. When fully developed, the development will comprise approximately 254 home sites for moveable dwellings, communal open space, and associated community facilities.

A traffic and parking impact assessment (TIA) is required to support the DA and this will be submitted to the relevant authorities. The Transport Planning Partnership (TTPP) has prepared this TIA report to assess the traffic and parking implications of the proposed development on the surrounding localities.

The remaining sections of the report are set out as follows:

- Chapter 2 discusses the existing conditions including a description of the subject site.
- Chapter 3 provides a brief description of the proposed development and its vehicle access arrangements.
- Chapter 4 assesses the proposed on-site parking provision and internal site layout.
- Chapter 5 examines the traffic generation and its impacts.
- Chapter 6 presents the conclusions of the assessment.

1.2 Strategic Context

Relevant planning context and guidelines, which apply to the subject site, includes Hunter Regional Plan 2036, Maitland Local Strategic Planning Statement 2020, and Maitland Urban Settlement Strategy 2010.

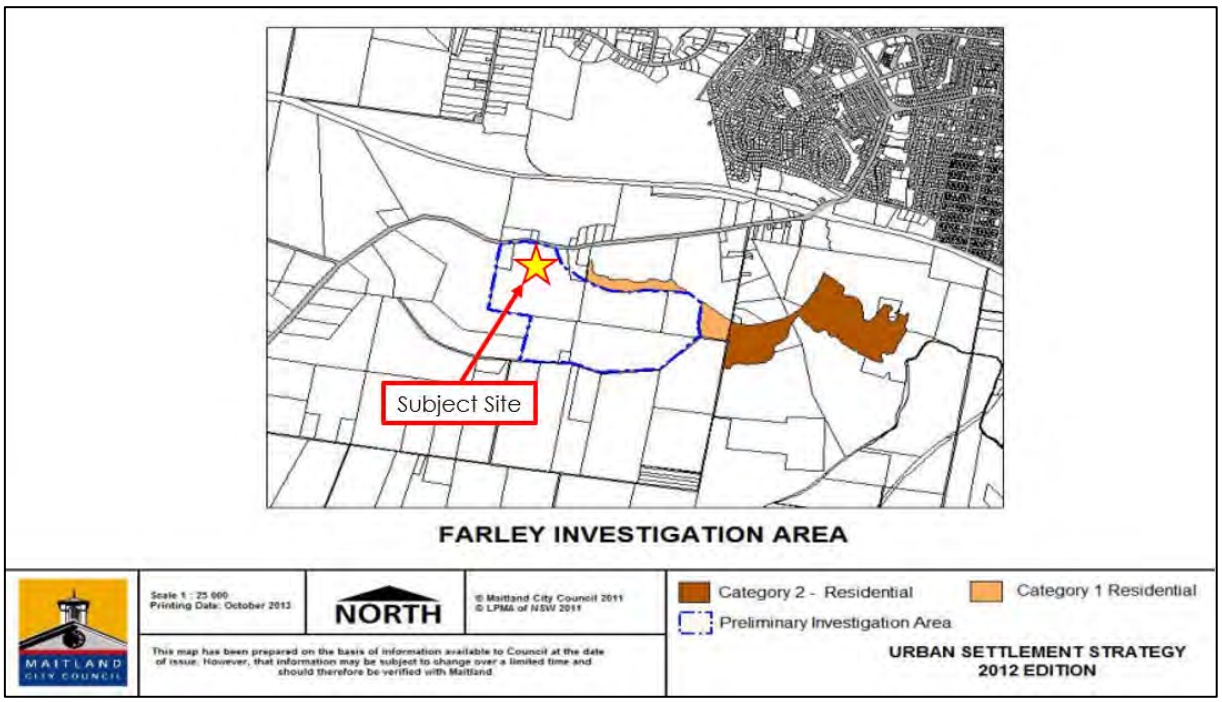
Hunter Regional Plan 2036 sets out NSW Government's strategy for land use planning for the Hunter Region, aiming to establish the Hunter Region as a leading regional economy within Australia, with a vibrant metropolitan city at the heart. The following focus goals have been established to achieve the vision.

- The leading regional economy of Australia
- A biodiversity-rich natural environment
- Thriving communities
- Greater housing choice and jobs

One of the goals involves promoting housing diversity, which includes providing housing for the ageing community, and social and affordable housing. The proposed development aligns with this goal and would contribute to help the Hunter Region achieve the vision.

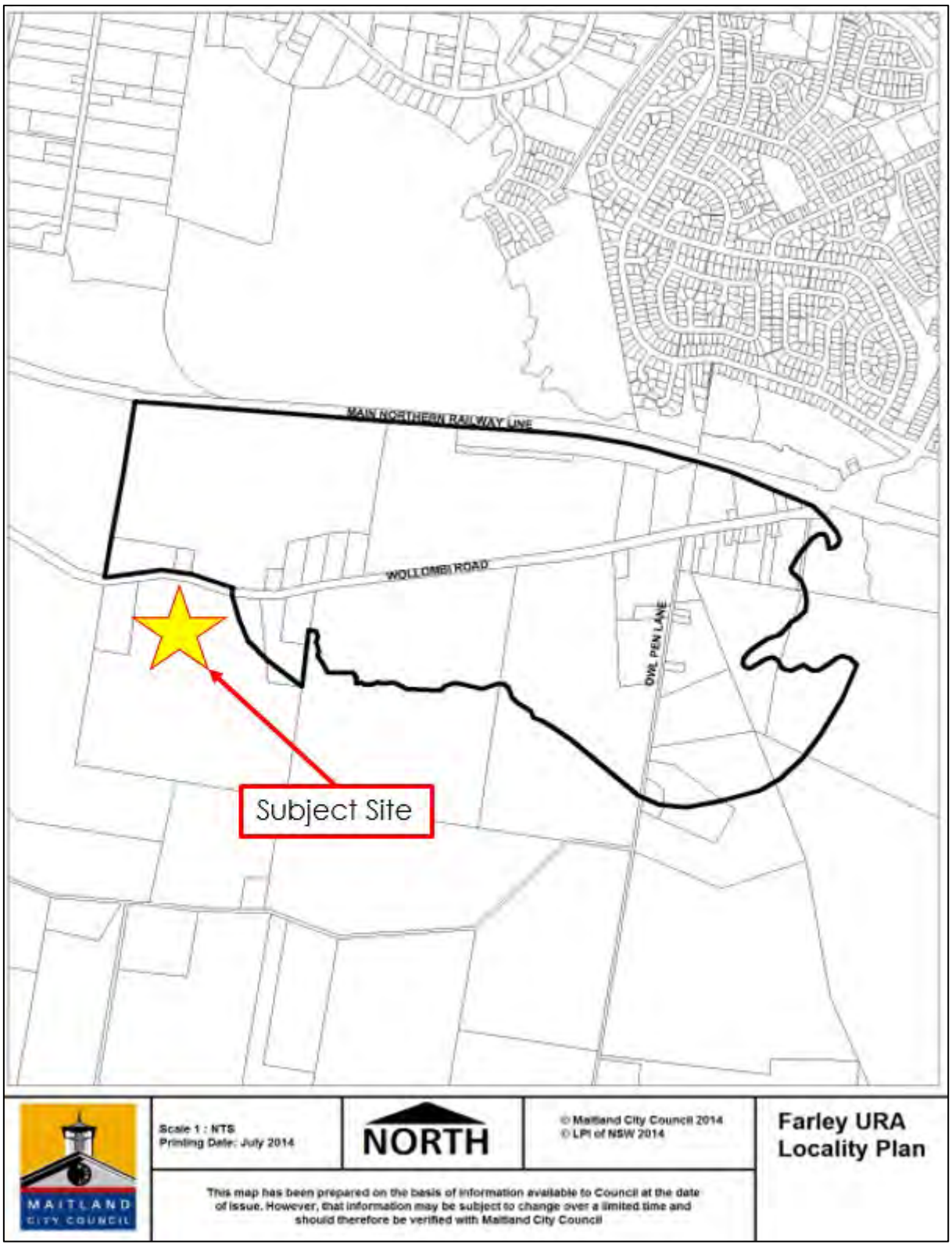
According to the Maitland Urban Settlement Strategy (2012), the subject site is identified as part of the preliminary investigation area for Farley Urban Release Area (URA), as shown in Figure 1.1. The strategy identifies the subject site and land area to form a logical extension to the Farley URA for residential purposes in the long term. The approved Farley URA is illustrated in Figure 1.2.

Figure 1.1: Farley Investigation Area



Source: Maitland Urban Settlement Strategy (2012)

Figure 1.2: Farley Urban Release Area



Source: Maitland Urban Settlement Strategy (2012)

2 Existing Conditions

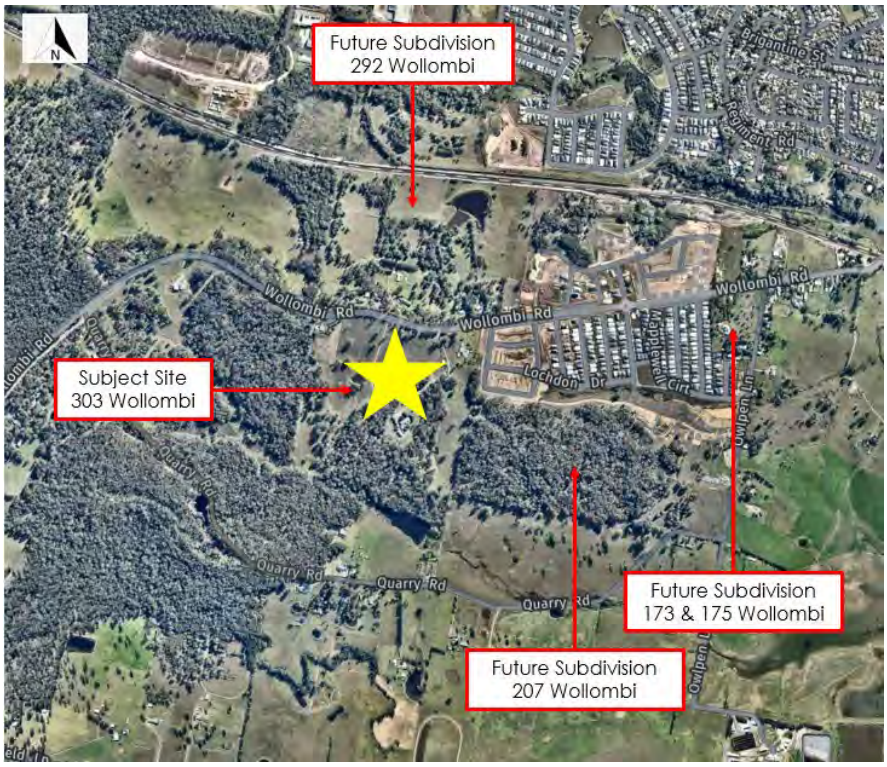
2.1 Site Context

The subject site is located at 283 and 303 Wollombi Road, Farley (Lot 4 DP 810894), which falls within Maitland City Council Local Government Area (LGA). The site has frontage to Wollombi Road along its northern boundary. The site currently has land use classifications as RU2 Rural Landscape and R1 General Residential. It is noted that the subject site is identified as an extension to the Farley URA.

The surrounding land uses predominantly comprise undeveloped land parcels, including the southern and western boundary of the site. Wollombi Road is directly north of the site and a future residential subdivision at 292 Wollombi Road. Ravensfield Estate, which is under construction, is located directly east of the site, with a future residential development located directly north and south of the Ravensfield Estate.

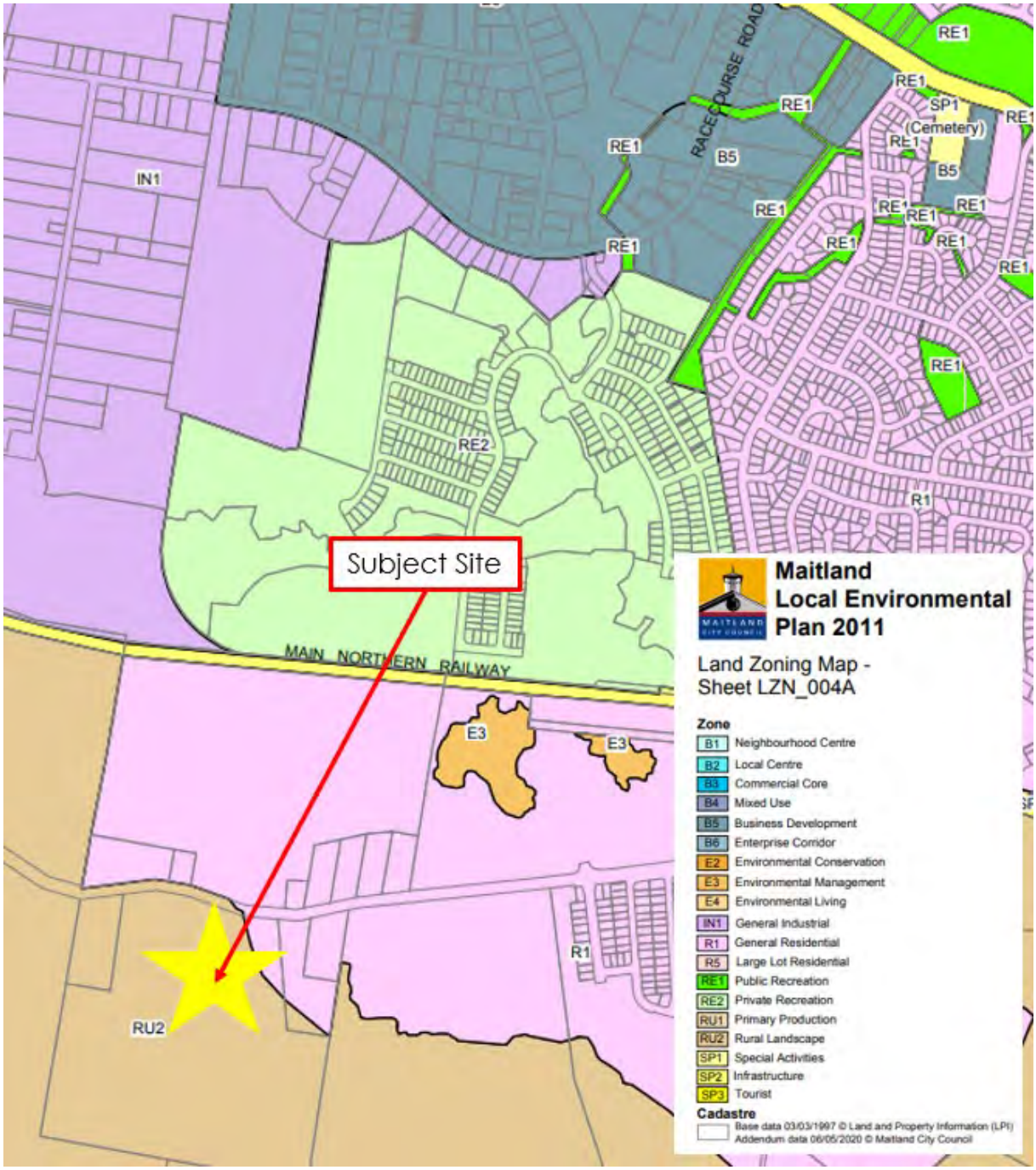
The site is currently occupied by single dwelling with no rural agricultural activities undertaken at the site. The location of the subject site and its surrounding environment is shown in Figure 2.1, while the LEP land use map is shown in Figure 2.1.

Figure 2.1: Subject Site Context



Basemap Source: Nearmap, last accessed on 26/05/23

Figure 2.2: Subject Site Land Zoning Map



Source: Maitland LEP 2011 – Land Zoning Map, last accessed on 26/05/23

2.2 Surrounding Road Network

Wollombi Road is a two-lane, two-way local road, which is aligned in an east-west direction, in the vicinity of the site, and north-south direction in its entirety. To the north, it intersects with New England Highway via a signalised intersection whereas to the south, it transitions into Old

Maitland Road before connecting with Sawyers Gully Road. The posted speed limit is 80km/h along the site frontage and to the west of the site, and 60km/h to the east of the site.

Harlington Avenue / McGillivray Street is a two-lane, two-way local road, providing connection to the residential dwelling precincts to the north and south of Wollombi Road respectively. These roads intersect with Wollombi Road at a roundabout. Kerbside parking is generally available on both sides of the roads.

Green Street / Regiment Road is a two-way, two-lane local road, aligned in an east-west direction. Both roads intersects with Wollombi Road via a roundabout. Kerbside parking is available on both sides of the roads. Shared cycle paths are provided along these roads.

New England Highway, in the vicinity of the site, is a four-lane, two-way classified State road, separated by a central median. New England Highway provides a key connection between Branxton and Tarro. It connects with Pacific Highway to the east, and Hunter Expressway to the west. Kerbside parking is generally prohibited along New England Highway. New England Highway intersects with Wollombi Road via a signalised intersection, with slip lanes provided onto and from Wollombi Road at the intersection.

2.3 Public Transport Infrastructure

The closest bus stop is located on Regiment Road, which is approximately 2.2km from the subject site. This bus stop is serviced by bus route 183, which provides connection between Rutherford and Tenambit via Maitland and Green Street shopping centre. The service runs every 30 – 60 minutes.

Train stations near the subject site includes Lochinvar and Telarah. Telarah train station is located approximately 4.4km (6-minute drive) from the subject site whereas Lochinvar train station is approximately 5.5km away (5-minute drive) from the subject site. These train stations are serviced by Hunter Line, which provides connections between Dungog / Scone and Newcastle via Maitland. The service runs every 30-60 minutes, with Telarah train station being one of the express service stops.

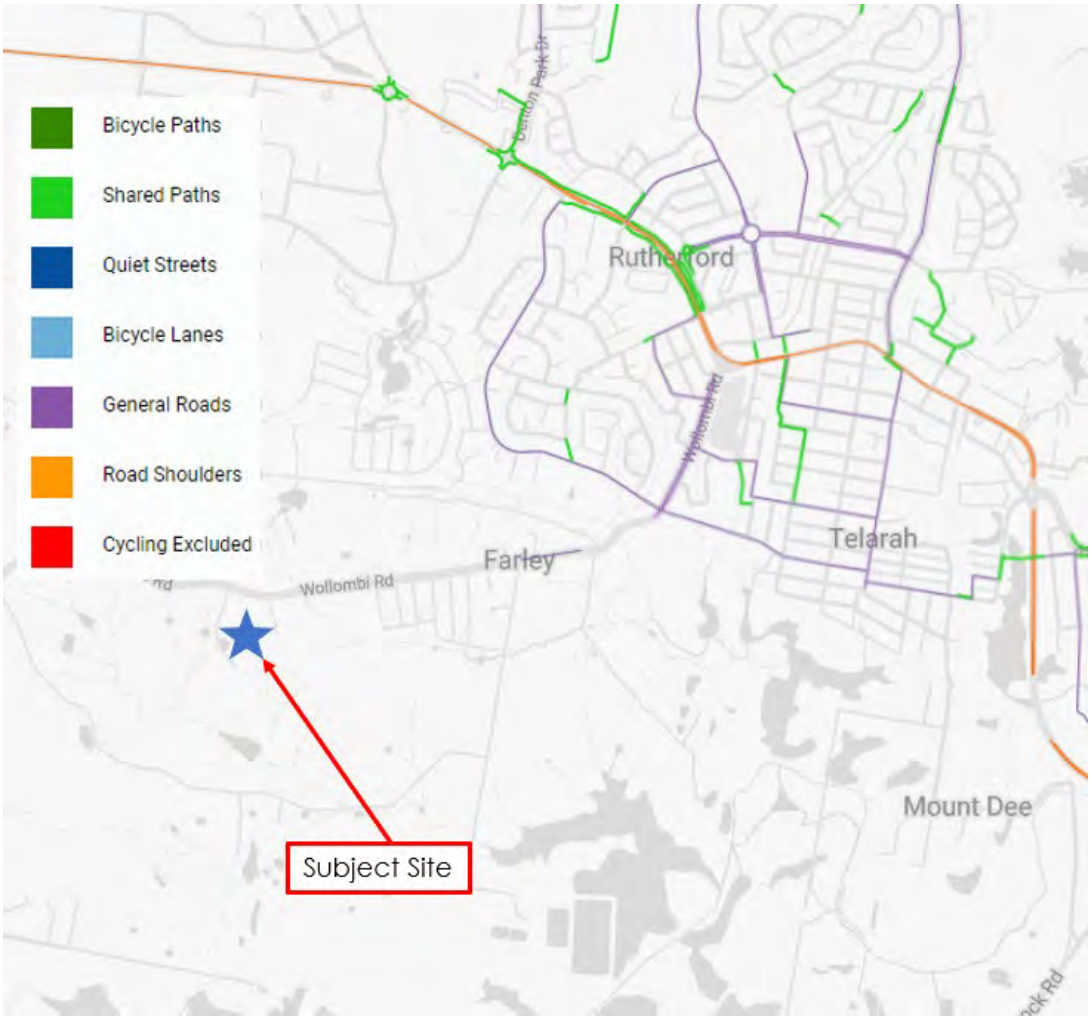
2.4 Pedestrian and Cyclist Infrastructure

No dedicated pedestrian footpaths are provided along the Wollombi Road frontage, in the vicinity of the site. Pedestrian footpaths are provided at the vicinity of Ravensfield Estate residential dwellings, which services the local residents.

According to TfNSW's cycleway finder, no cycling infrastructure is available in the vicinity of the site. Cycling facilities are available further east of the site, along Green Street, Regiment Road, Wollombi Road, and New England Highway.

The surrounding cycling infrastructure near the subject site is shown in Figure 2.3.

Figure 2.3: Surrounding Cycling Infrastructure



Reference: TfNSW Cycleway Finder

2.5 Traffic Survey Data

TTPP commissioned turning movement surveys at the key intersections along Wollombi Road on 10th May 2023 during the following peak periods:

- 6:00am and 9:00am
- 3:00pm and 6:00pm.

The surveyed key intersections include:

- Wollombi Road / Harlington Avenue / McGillivray Street (Roundabout)
- Wollombi Road / Green Street / Regiment Road (Roundabout)
- Wollombi Road / New England Highway (Signalised)

The AM peak hour for all intersections is consistent and occurs from 8:00am to 9:00am. The PM peak hour differs across the surveyed intersections, which is observed as follows:

- Wollombi Toad / Harrington Avenue / McGillivray Street (4:00pm – 5:00pm)
- Wollombi Road / Green Street / Regiment Road (3:15pm – 4:15pm)
- Wollombi Road / New England Highway (3:30pm – 4:30pm)

The intersection performance is modelled and analysed using the corresponding peak hour for each intersection.

3 Proposed Development

3.1 Proposal Description

It is proposed to develop a lifestyle community in the form of manufactured home estate (Estate) at 283 and 303 Wollombi Road, Farley, which falls within Maitland City Council Local Government Area (LGA). When fully developed, the Estate will comprise of the following:

- Approx. 254 home sites for moveable dwellings
- Communal open space
- A clubhouse building (including indoor pool / sauna, gym, craft room, lounge area, cinema, and library)
- Community facilities (including bowling green, tennis courts, BBQ area)

The home sites will be varied in terms of site area with home designs to cater to different residents / buyers needs. The site area for each moveable dwelling will be between 250m^2 to 300m^2, with all dwellings in the form of two-bedroom, two-bathroom home with associated single / double garage.

The use of the clubhouse and community facilities will be exclusively restricted to the Estate residents and would not generate any visitor trips from outside the Estate.

The Estate will be developed under a staged approach. The existing residential dwelling, located centrally within the site, will be maintained, and may be used in the future as the managers residence.

The proposed concept masterplan is illustrated in Figure 3.1.

Figure 3.1: Proposed Site Layout

DWELLING LOTS - MANUF HOME	QTY	% OF YIELD
LARGE LOT (HOUSE TYPE A)	92	44.4%
MEDIUM LOT (HOUSE TYPE B)	91	44%
SMALL LOT (HOUSE TYPE C)	13	6.3%
CUSTOM LOT	11	5.3%
TOTAL	207 LOTS	
DWELLING LOTS - MUTLI DWELLING		
LARGE LOT (HOUSE TYPE A)	14	30%
MEDIUM LOT (HOUSE TYPE B)	23	49%
SMALL LOT (HOUSE TYPE C)	10	21%
TOTAL	47 LOTS	
SITE TOTAL	254 LOTS	

Reference:

3.2 Vehicle Access Arrangements

The internal roads are to be designed as per the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* (LGR), which stipulate the following minimum road widths in Clause 20 and 21:

- 8m wide road for the entrance road
- 6m wide road within an 8.5m wide road reserve for the major access roads
- 4m wide road within a 6m wide road reserve for the minor access roads.

Access to the Estate will be provided off Wollombi Road, with connection to two-way internal circulation roads, which run throughout the site. These roads will provide access to the dwellings, communal open space, the clubhouse, and the community facilities. The existing access off 283 Wollombi Road will be removed.

The intersection treatment of the proposed access driveway is assessed and discussed in Section 5.5. Approaching vehicles would turn left or turn right into the Estate while departing vehicles would turn left or turn right out of the Estate.

The internal circulation roads will be provided with a 6.0m wide carriageway, within a 9.0m wide road reserve which complies with the LGR.

Swept path analysis of the roads is included at Appendix A.

4 Parking Assessment

4.1 Car Parking Requirements

The Housing SEPP (2021) (Chapter 3, Part 8) stipulates the requirements for manufactured home estates, which applies for the proposed development. No specific car parking requirements are stipulated within the Housing SEPP.

Reference is made to the *Maitland Council Development Control Plan 2011* (Council DCP), which stipulates the car parking requirements for multi-dwelling houses, as one resident space for each dwelling (one-bedroom or two-bedroom) and 1 visitor space for the first three dwellings and 1 space for every five thereafter or part thereof.

The *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* (LGR) stipulates visitor parking requirements for Manufactured Home Estates, which is required in addition to the resident parking stipulated by the DCP. Clause 23 of the LGR specifies that a manufactured home estate containing more than 105 sites, must contain at least 20 visitor car spaces plus 1 additional space for every 7 sites above 140 sites.

Access to the clubhouse, communal open space, and community facilities (including swimming pool / sauna, gym, bowling green and tennis courts) would be restricted exclusively for the residents living within the Estate. These residents are expected to walk from their home estates to the facilities.

The car parking requirements of the proposed development are summarised in Table 4.1.

Table 4.1: Car Parking Requirements

Land Use	Yield	Minimum Car Parking Rate	Car Parking Requirement
Manufactured Home/ Multi-Dwelling House Resident	254 dwellings	DCP: 1 space per each dwelling	254
Multi-Dwelling Housing Visitor	47 dwellings	DCP: 1 visitor space for the first three dwellings and 1 space for every five thereafter or part thereof	10
Manufactured Home Visitor	207 dwellings	LGR: 20 spaces plus 1 additional space for every 7 sites above 140 sites	29
Total			**293 spaces**

The proposed development would require a car parking provision of 293 parking spaces, with 254 parking spaces for residents and 39 parking spaces for visitors.

Each moveable dwelling will be provided with an individual garage, in a form of single garage or double garage, depending on the unit types. A single garage would be able to

accommodate one car space whereas a double garage would be able to accommodate two car spaces. Hence, the development would comprise a minimum of 254 car parking spaces for the residents of the 254 moveable dwellings.

Visitor parking is provided on-street, as 90-degree angled spaces and is distributed throughout development road network. In total 56 visitor parking spaces is provided including three accessible spaces which are located near the community club house.

In addition to the above, the development includes the provision of 12 caravan parking spaces.

Based on the above basis, the proposed parking provision for the proposed development is considered satisfactory and sufficient in terms of resident parking and visitor parking.

4.2 Accessible Parking Requirements

Reference is made to the LGR, which stipulates the accessible car parking requirements for visitors. For a manufactured home estate with more than 100 sites, at least one accessible parking space for the first 100 sites and one space for every further 100 sites, and one space for remaining part of 100 sites This needs to be provided as accessible parking spaces for visitors.

The proposed 254 manufactured homes would require three accessible parking spaces.

It is anticipated that the three accessible car parking spaces would be provided in compliance with the LGR requirements.

4.3 Bicycle Parking Requirements

The Council DCP, the Housing SEPP and LGR do not stipulate specific bicycle parking requirements for manufactured home estates and multi-dwelling houses. It is not proposed to provide any bicycle parking at the subject site, noting that cycling activities are anticipated to be minimal given the nature of aged living community. In addition, given the cycling infrastructure surrounding the site is not well-established, the cycling activities are expected to be low, and it is anticipated the bicycle storage would be facilitated and contained primarily within the garage of an individual dwelling.

4.4 Motorcycle Parking Requirements

The Council DCP, the Housing SEPP and LGR do not stipulate specific motorcycle parking requirements for manufactured home estates and multi-dwelling houses.

It is not proposed to provide any motorcycle parking at the Estate, noting that motorcycle parking can be accommodated at the car parking spaces at the individual garages, private access driveways and internal circulation road.

4.5 Loading Bay Requirements

For residential components, service vehicles are expected to be predominantly waste collection vehicles. It is proposed to undertake residential waste collection along the kerbside of the internal circulation road. Delivery and associated moving activities, which are expected to be infrequent, could also be accommodated along the kerbside of the internal roads or each moveable dwelling driveway.

The clubhouse and associated community facilities may require loading facilities to accommodate delivery activities. It is anticipated that loading would be undertaken within the club house porte-cochere. Deliveries and waste collection arrangements for the clubhouse would be undertaken by vehicle up to and including an 8.8m Medium Rigid Vehicle (MRV).

All roads have been designed to accommodate Council's 8.5m waste truck and Fire NSW's general fire appliance (a 10m long MRV). Swept paths of both vehicles are provided in Appendix A.

4.6 Parking Layout

The residential garage will be designed to comply with the Council DCP requirements. A minimum internal width of 3.5m is provided for a single garage whereas a minimum internal width of 6m is provided for a double garage, as stipulated in the Council DCP.

This will also comply with Australian Standard AS2890.1:2004, which specifies the minimum internal width of 3m and 5.4m for single garage and double garage respectively. Each garage door would be 2.4m wide, in accordance with AS2890.1:2004.

The accessible parking space would be designed as per AS2890.6:2009 with dimensions, 2.4m wide and 5.4m long with an adjoining shared area of equal dimensions.

Visitor parking is to be provided as a AS2890.1 class 2 facility with dimensions, 2.5m wide and 5.4m long for angled spaces and 6.3m long for parallel spaces.

5 Traffic Assessment

5.1 Traffic Generation

5.1.1 Proposed Development Traffic Generation

Although the manufactured home estate is not restricted to older people over 50s, they are typically marketed toward this cohort. Reference is made to the TfNSW Technical Direction TDT 2013/04a, which stipulates the trip generation rate for senior housing. A trip generation rate of 0.4 vehicle trips per dwelling associated with senior housing during the weekday peak hour has been used for the purpose of this traffic assessment. It's considered that the multi-dwelling housing component of the development would generate the same level of traffic as the manufactured homes component, as both contain the same size and types of moveable dwellings.

Therefore, the proposed 254 dwellings would generate in the order of 102 vehicle trips during both the weekday AM peak and PM peak periods. This is equivalent to approximately 1-2 vehicle trip every minute.

It is noted in TDT 2013/04a that the morning peak hour of senior housing generally falls outside of the road network peak hour. Therefore, the AM peak hour trip generation estimate used in this analysis is considered to be conservative.

The community facilities and the clubhouse would be restricted for use by local residents within the Estate only. Therefore, no additional trip generation is expected from outside visitors for the clubhouse and the community facilities.

5.1.2 Traffic Generation of Nearby Developments

Review of the surrounding developments, within the vicinity of the Estate, has been undertaken to identify any overlapping traffic generation, which could impact the surrounding road network. This includes the developments, which are either in their planning stages and /or would be constructed in the near future, if approved.

The following nearby developments have been identified, which could have cumulative impacts on the road network along with the proposed development:

- 292 Wollombi Road – Residential Subdivision (254 dwellings)
- 173 & 175 Wollombi Road – Residential Subdivision (38 dwellings)
- 207 Wollombi Road – Manufactured Home Estate (295 dwellings)

These developments are located along Wollombi Road and have access and egress routes from the nearby town centres similar to those which would be enjoyed by the proposed

development. Vehicles would travel to access these sites from New England Highway and along Wollombi Road, which intersects with Green Street / Regiment Road roundabout and McGillivray Street / Harlington Avenue roundabout.

The TfNSW Technical Direction (TDT2013/04a) stipulates the trip generation rates for low density residential dwellings in regional areas, which is in the order of 0.78 vehicle trips per dwelling during the weekday AM peak hour and 0.71 vehicle trips per dwelling during the weekday PM peak hour.

The traffic generation of these developments have been estimated for inclusion in the SIDRA Modelling. The estimated traffic generation during the AM and PM peak hours is summarised in Table 5.1.

Table 5.1: Traffic Generation Estimates of Nearby Developments

Development	Land Use	Size	Vehicle Trip Generation Rate		Vehicle Trip Generation	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
292 Wollombi Road	Residential Subdivision	254 dwellings	0.78 per dwelling	0.71 per dwelling	198	180
173 & 175 Wollombi Road	Residential Subdivision	38 dwellings	0.78 per dwelling	0.71 per dwelling	30	27
207 Wollombi Road	Manufactured Home Estate	295 dwellings	0.4 per dwelling	0.4 per dwelling	118	118
Total					**346**	**325**

Table 5.1 indicates that the nearby developments could generate additional vehicle trips of approximately 346 during weekday AM peak hour and 325 during weekday PM peak hour.

5.1.3 Cumulative Traffic Generation

The cumulative traffic generation of the proposed manufactured home estate and the nearby developments is summarised in Table 5.2.

Table 5.2: Cumulative Traffic Generation

Development	Land Use	Size	Vehicle Trip Generation	
			AM Peak Hour	PM Peak Hour
303 Wollombi Road **(Subject Site)**	Manufactured Home Estate	254 dwellings	102	102
292 Wollombi Road	Residential Subdivision	254 dwellings	198	180
173 & 175 Wollombi Road	Residential Subdivision	38 dwellings	30	27
207 Wollombi Road	Manufactured Home Estate	295 dwellings	118	118
Total			**448**	**427**

Table 5.2 shows that there could be in the order of 448 cumulative vehicle trips during the AM peak hour and 427 cumulative vehicle trips during the PM peak hour. This traffic volume will be distributed to the surrounding roads, depending on their access arrangements on Wollombi Road, likely travel routes and proximity to arterial roads.

5.2 Trip Distribution

All development traffic would be travelling along Wollombi Road, with the majority of the traffic originating from / travelling to Rutherford town centre, where residents can shop for daily essentials. This would require them to travel eastbound through the Wollombi Road / Harlington Avenue / McGillivray Street roundabout intersection.

The trip generation at the proposed access driveway has been distributed as follows:

- 80% to / from the east on Wollombi Road
- 20% to / from the west on Wollombi Road

Traffic would then continue northbound on Wollombi Road through the Wollombi Road / Green Street / Regiment Road roundabout intersection before reaching the Wollombi Road / New England Highway signalised intersection.

At New England Highway, residents looking to travel to Rutherford (the nearest town centre) would turn left at the signalised intersection and residents travelling to Maitland, Newcastle and Sydney would turn right at the intersection. The trips at this intersection has been distributed as follows:

- 50% to / from the east on New England Highway
- 50% to / from the west on New England Highway

The ratio between inbound and outbound vehicle movements during the road network peak periods is referred to as the directional split. The following directional splits for the proposed development have been adopted:

- Residential Dwellings
  - AM Peak Period – 20: 80 (inbound: outbound).
  - PM Peak Period – 80: 20 (inbound: outbound).

Based on the above, the inbound/outbound split is as per Table 5.2.

Table 5.3: Traffic Generation Summary (vehicle trips per hour)

Peak Period	Inbound	Outbound	Total
AM Peak	20	82	102
PM Peak	82	20	102

5.3 Background Traffic Growth

Reference is made to the Maitland Council's Farley Section 94 Contributions Plan (2015), which states that the population growth rate in Maitland is currently 2% per annum and this rate is expected to continue.

Therefore, the estimated traffic flows for future model year of 2033, includes a 2% pa growth on all through traffic movements, in addition to the approved cumulative development traffic as noted in Section 5.1.3. As the background growth is likely to have taken into account the traffic from the developments described above, the future estimates may include an element of double counting.

5.4 Traffic Modelling

5.4.1 Level of Service Criteria

TfNSW uses level of service as a performance measure to indicate the operating efficiency of a given intersection. The level of service ranges from A to F. Levels of service between A and D indicate the intersection is operating within capacity, with LoS A providing exceptionally good performance to LoS D indicating satisfactory performance. LoS E and F indicate the intersection is operating at or near capacity and generally would require intersection improvement works to maintain reasonable performance.

The level of service is directly related to the average delay experienced by vehicles travelling through the intersection. At signalised intersections, the average delay is the volume weighted average delay over all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the movement with the highest average delay per vehicle.

Table 5.4 shows the criteria that TfNSW adopts in assessing the level of service at intersections.

Table 5.4: Intersection Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 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	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

5.4.2 Scenarios

The following scenarios have been modelled using SIDRA Intersection, an industry-standard software package that analyses the operating characteristics of intersections:

- Scenario 1 – Existing Base Conditions (Year 2023)
- Scenario 2 – 2023 Existing Base with Development Traffic
- Scenario 3 – Future Conditions (Year 2033), including approved surrounding developments
- Scenario 4 – 2033 Future Conditions with Development Traffic

The turning movement volumes for each scenario are presented in Appendix B.

5.4.3 Modelling Results

The modelling results for the existing base condition Year 2023 and Year 2033, with and without the development traffic are shown in Table 5.5 for the AM peak hour and in Table 5.6 for the PM peak hour.

The full SIDRA modelling outputs are provided in Appendix C.

Table 5.5: SIDRA Intersection Analysis Results – AM Peak

Approach	Scenario 1 (Year 2023 Base)		Scenario 2 (Year 2023 + Development)		Scenario 3 (Future Year 2033 Base)		Scenario 4 (Year 2033 + Development)	
	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS
Intersection: Wollombi Road / New England Highway (Signalised)								
South - Wollombi Road	33	C	28	B	29	C	31	C
East – New England Highway	8	A	15	B	19	B	20	B
West – New England Highway	6	A	11	A	13	A	13	A
Overall	10	A	15	B	18	B	18	B
Intersection: Wollombi Road / Green Street / Regiment Road (Roundabout)								
South - Wollombi Road	11	A	11	A	12	A	12	A
East – Green Street	8	A	8	A	9	A	9	A
North – Wollombi Road	11	A	11	A	11	A	11	A
West – Regiment Road	10	A	10	A	12	A	13	A
Intersection: Wollombi Road / Harlington Avenue / McGillivray Street (Roundabout)								
South – Harlington Avenue	9	A	9	A	9	A	10	A
East – Wollombi Road	9	A	9	A	9	A	9	A
North – McGillivray Street	9	A	9	A	10	A	11	A
West – Wollombi Road	9	A	9	A	10	A	10	A
Intersection: Wollombi Road / Site Access (CHR (S)) *								
South – Site Access	-	-	8	A	-	-	10	A
East – Wollombi Road	-	-	6	A	-	-	6	A
West – Wollombi Road	-	-	6	A	-	-	7	A

Note: The site access analysis is only applicable when considering the impacts of the proposed development (i.e. Scenario 2 and Scenario 4).

Table 5.6: SIDRA Intersection Analysis Results – PM Peak

Approach	Scenario 1 (Year 2023 Base)		Scenario 2 (Year 2023 + Development)		Scenario 3 (Future Year 2033 Base)		Scenario 4 (Year 2033 + Development)	
	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS
Intersection: Wollombi Road / New England Highway (Signalised)								
South - Wollombi Road	32	C	28	B	31	C	32	C
East – New England Highway	7	A	19	B	26	B	28	B
West – New England Highway	8	A	13	A	15	B	16	B
Overall	9	A	17	B	21	B	23	B
Intersection: Wollombi Road / Green Street / Regiment Road (Roundabout)								
South - Wollombi Road	12	A	12	A	12	A	12	A
East – Green Street	9	A	10	A	12	A	14	A
North – Wollombi Road	11	A	11	A	11	A	12	A
West – Regiment Road	9	A	10	A	10	A	10	A
Intersection: Wollombi Road / Harlington Avenue / McGillivray Street (Roundabout)								
South – Harlington Avenue	9	A	9	A	10	A	10	A
East – Wollombi Road	9	A	9	A	9	A	9	A
North – McGillivray Street	10	A	10	A	10	A	10	A
West – Wollombi Road	9	A	9	A	10	A	10	A
Intersection: Wollombi Road / Site Access (CHR (S)) *								
South – Site Access	-	-	9	A	-	-	11	A
East – Wollombi Road	-	-	6	A	-	-	6	A
West – Wollombi Road	-	-	7	A	-	-	7	A

Note: The site access analysis is only applicable when considering the impacts of the proposed development (i.e. Scenario 2 and Scenario 4).

Table 5.5 and Table 5.6 show that all surveyed intersections currently operate satisfactorily at LoS A during both AM peak and PM peak hours. These intersections would continue to operate at LoS A with the addition of the development traffic, except for the Wollombi / New England Highway signalised intersection, which will be reduced to LoS B, however, the intersection would still be operating well.

In the future year 2033, considering the additional traffic from nearby developments, these intersections would still be operating at LoS A, except for the Wollombi Road / New England Highway signalised intersection, which would have LoS B. Therefore, the study intersections are expected to operate well for the future 10 year horizon. All intersections would continue to operate well with the addition of development traffic to the year 2033. Based on the above, no adverse traffic impacts are expected from the proposed development.

The proposed site access has been modelled based on the recommendations provided in Section 5.5 (i.e. T-intersection with CHR(S) treatment with Wollombi Road). The model shows that the site access intersection would operate satisfactorily at LoS A during both the AM peak and PM peak hours for the both the year 2023 and the year 2033, with consideration of development traffic.

5.5 Site Access Design

The access to the Estate is proposed off Wollombi Road, approximately 700m west of the existing Wollombi Road / McGillivray Road / Harlington Avenue roundabout. It is noted that the existing speed limit at the proposed access location is 80km/h and reduces to 60km/h near the roundabout vicinity to the east.

As discussed in Section 5.2, the traffic distribution to the site includes 80% to/ from the east and 20% to/ from the west along Wollombi Road. Based on the trip generation estimate of 96 vehicle trips per hour, and an inbound/outbound distribution of 20%/80% in the AM peak and 80%/20% in the PM peak, it is estimated that there would be a peak of 15 vehicles per hour turning right and 62 vehicles per hour turning left into the site, as summarised in Table 5.7.

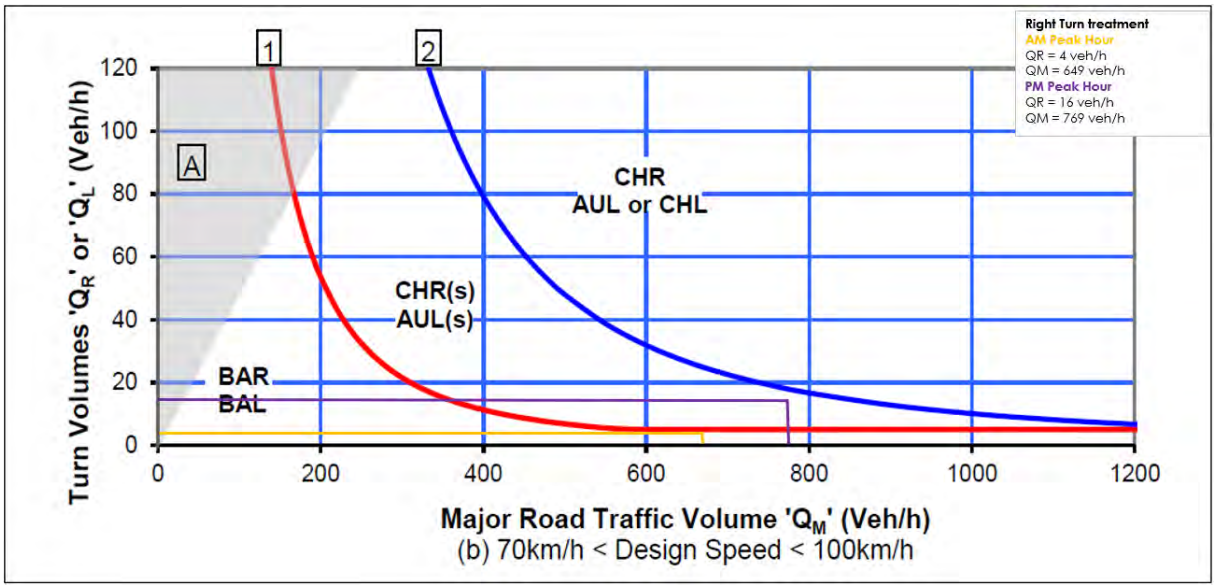
Table 5.7: Year 2033 Future Turning Volumes at Site Access

Road Type	Peak Period	Inbound Turning Volumes from Wollombi Road	Through Traffic on Wollombi Road (vehicles per hour)
Two-Lane Two-Way	AM	Right = 4	East Approach: 312 West Approach: 321
		Left = 15	
	PM	Right = 15	East Approach: 323 West Approach: 381
		Left = 62	

Based on the above, the site access to the Estate has been designed based on guidance from *Austroads Guide to Traffic Management Part 6*, which details warrants for turn treatments at an intersection along a major road, based on traffic volumes.

Figure 5.2 details the warrants for turn treatments on roads with design speed between 70 km/h and 100 km/h.

Figure 5.1: Turn Treatment Warrants

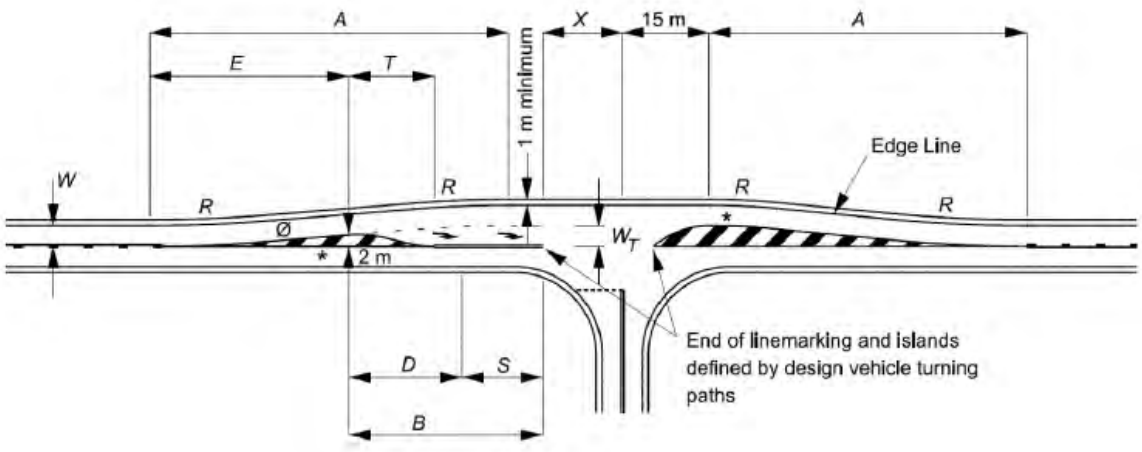


Source: Austroads, 2020, Guide to Traffic Management Part 6, Figure 3.25

Based on the turning volumes in Table 5.7, the Austroads Guide indicates that the right turn into the site should be provided as a Rural Channelised T Junction – Short Lane [CHR(S)] turn treatment.

Austroads Guide to Road Design Part 4A details the design requirements for a CHR(S) and AUL(S) treatment. The general layout of a CHR(S) is shown in Figure 5.2

Figure 5.2: Rural Channelised Right Turn treatment – Short Lane Type CHR (S)



Source: Austroads, 2016, Guide to Road Design Part 4A, Figure 7.2

A concept plan of the proposed access into the Estate, with a Rural Channelised T Junction – Short Lane Type CHR (S) treatment is attached in Appendix D.

5.6 Sight Distance Analysis

The sight distance requirements for the proposed access road are defined in the Austroads (2017) *Guide to Road Design Part 4A.*

Safe Intersection Sight Distance (SISD) is the minimum sight distance which should be provided from the minor road to approaching vehicles on the major road at any intersection. The SISD is required to enable a driver to observe and react to approaching vehicles. The SISD is measured along the major road.

The SISD can be calculated using Table 5.8. The major road, Wollombi Road, is an 80km/h. Typical practice is to adopt a design speed that is 10km/h over the posted speed limit. On this basis, for a design speed of 90km/h and a reaction time (R_T) of 2.0 seconds, a SISD of 214m is required.

Table 5.8: Safe Intersection Sight Distance (SISD)

Design speed (km/h)	Based on safe intersection sight distance for cars[1] h_1 = 1.1; h_2 = 1.25, d = 0.36[2]; Observation time = 3 sec					
	R_T = 1.5 sec[3]		R_T = 2.0 sec		R_T = 2.5 sec	
	SISD (m)	K	SISD (m)	K	SISD (m)	K
40	67	4.9	73	6	–	–
50	90	8.6	97	10	–	–
60	114	14	123	16	–	–
70	141	22	151	25	–	–
80	170	31	181	35	–	–
90	201	43	214	49	226	55
100	234	59	248	66	262	74
110	–	–	285	87	300	97
120	–	–	324	112	341	124
130	–	–	365	143	383	157

Source: Austroads, 2016, Guide to Road Design Part 4A, Table 3.2

The proposed site access has been designed to ensure that the minimum SISD has been provided. A review of the SISD at the proposed access off Wollombi Road is presented in Appendix D.

6 Conclusion

This traffic impact assessment report assesses the impact of the proposed lifestyle community in the form of manufactured home estate at 283 and 303 Wollombi Road, Farley on the surrounding road network. The key findings of the report can be summarised as follows:

- The proposal seek approval to develop a manufactured home estate for approximately 254 home sites (including 47 moveable dwellings on multi-dwelling housing sites), with a clubhouse and associated community facilities.
- All moveable dwellings will be designed as two-bedroom with either a single garage or double garage, depending on the type of units. Each moveable dwelling will also comprise a private access driveway, fronting the garage.
- The clubhouse and the community facilities will be used by the Estate residents only.
- Access to the site is proposed via a two-way driveway off Wollombi Road, connecting with the internal road, which provides access to the Estate dwellings, the Clubhouse and associated community facilities.
- The site access is proposed to have Rural Channelised T Junction – Short Lane Type CHR (S) type intersection treatment, in accordance with Austroads Guide to Road Design – Part 4A (2023).
- The sight distance analysis indicates that the proposed location of the driveway meets the Safe Intersection Sight Distance (SISD) requirements set out in the Austroads Guide to Road Design part 4A.
- On-site car parking, including accessible parking and visitor parking will be provided in accordance with the LGR and DCP requirements.
- The car parking layout would be designed in accordance with Council DCP, AS2890.1 for residents and visitor parking and AS2890.6 for accessible parking.
- The proposed development is expected to generate in the order of 102 vehicle trips during both AM peak and PM peak hours.
- The surrounding intersections currently operate satisfactorily well and would continue to operate well during the year 2033, with and without the proposed development. No adverse impacts on the surrounding road network are expected from the proposed development.
- The proposed site access with CHR(S) treatment would operate satisfactorily at LoS A during the year 2023 and 2033, taking into consideration also the proposed development traffic generation.

Overall, the traffic and parking implications of the proposed development are considered satisfactory.

Appendix A

Swept Path Analysis

VEHICLE ENTERING

VEHICLE EXITING

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

10m NSW Fire Truck	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT

303 WOLLOMBI ROAD, FARLEY

TITLE

SWEPT PATH ANALYSIS
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004
FIGURE 1

DATE STAMP 04 AUGUST 2023

PROJECT No. 22125

SCALE 1:400 @A3

REV. A

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg

Date: 4 August 2023

LEFT TURNING MOVEMENTS

10m NSW Fire Truck	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - MAIN GATE AND MAIN ROAD AREA
10m GENERAL FIRE APPLIANCE TRUCK

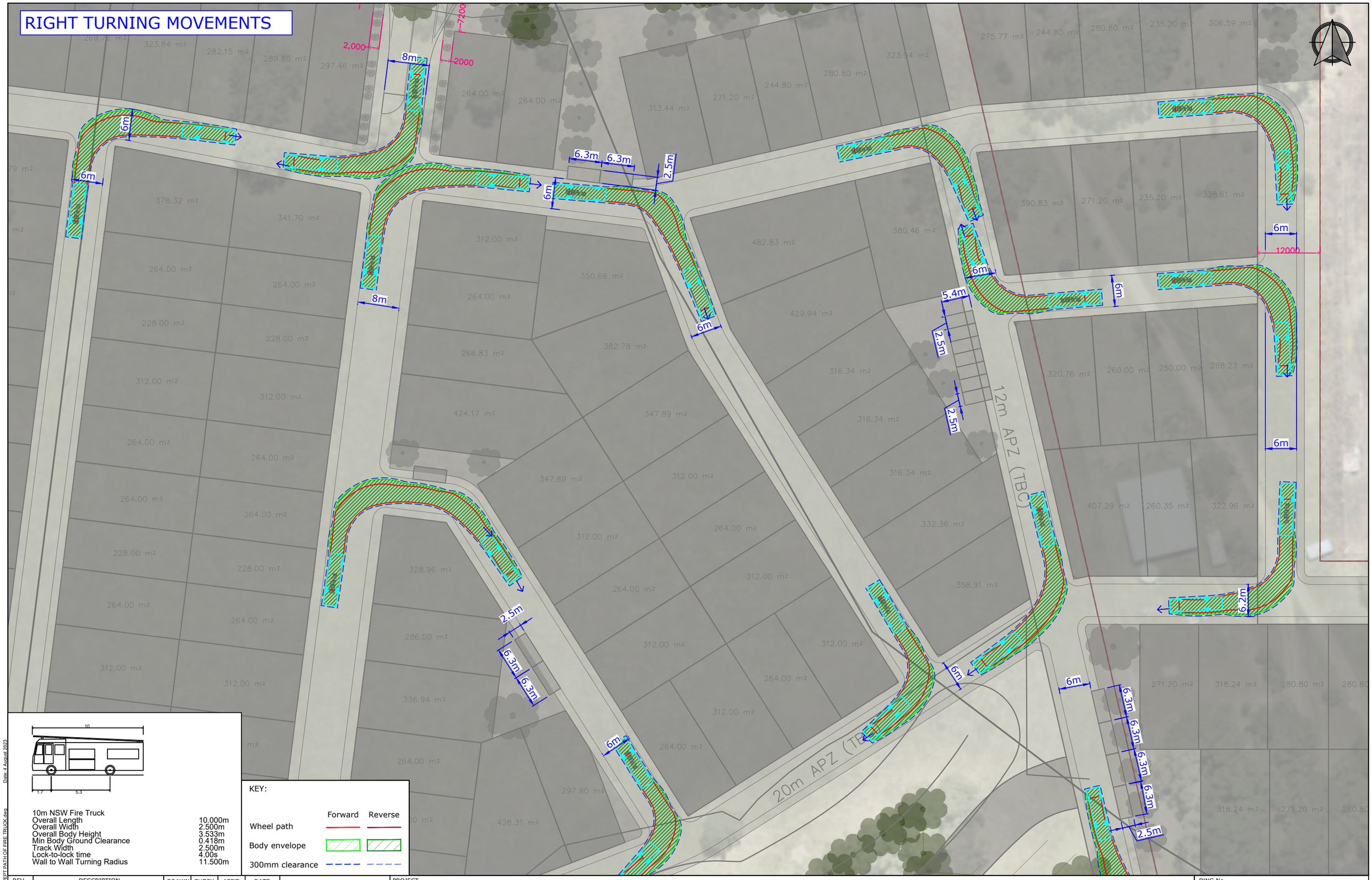
DWG No. 22125CAD004 FIGURE 2

DATE STAMP 04 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS



10m NSW Fire Truck

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - MAIN GATE AND NORTH EAST AREA
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004
FIGURE 3

DATE STAMP 04 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Date: 4 August 2023

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg

LEFT TURNING MOVEMENTS

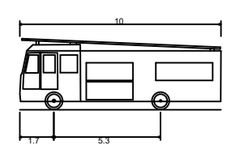
WOLLOMBI ROAD

4500

6m
6.3m
6.3m
2.5m
6.3m
6.3m
2.5m
6m
6m
6m
6m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



10m NSW Fire Truck

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - NORTH WEST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004
FIGURE 4

DATE STAMP 04 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:600 @A3	A

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS

WOLLOMBI ROAD

4500

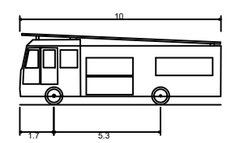
6m

6.3m

2.5m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



10m NSW Fire Truck	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT

303 WOLLOMBI ROAD, FARLEY

TITLE

SWEPT PATH ANALYSIS - NORTH WEST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

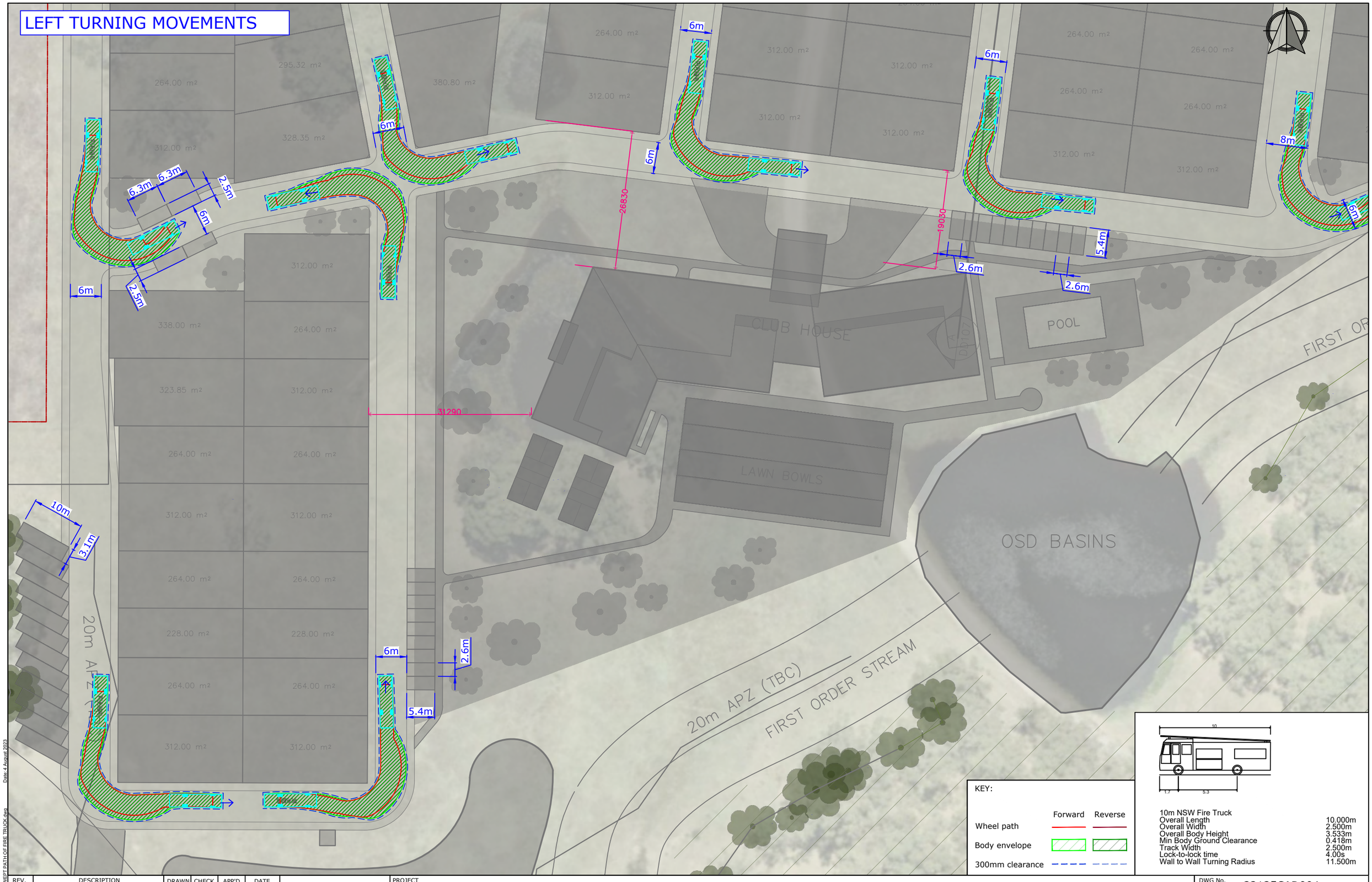
DWG No. 22125CAD004
FIGURE 5

DATE STAMP 04 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:600 @A3	A

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

10m NSW Fire Truck	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - SOUTH WEST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

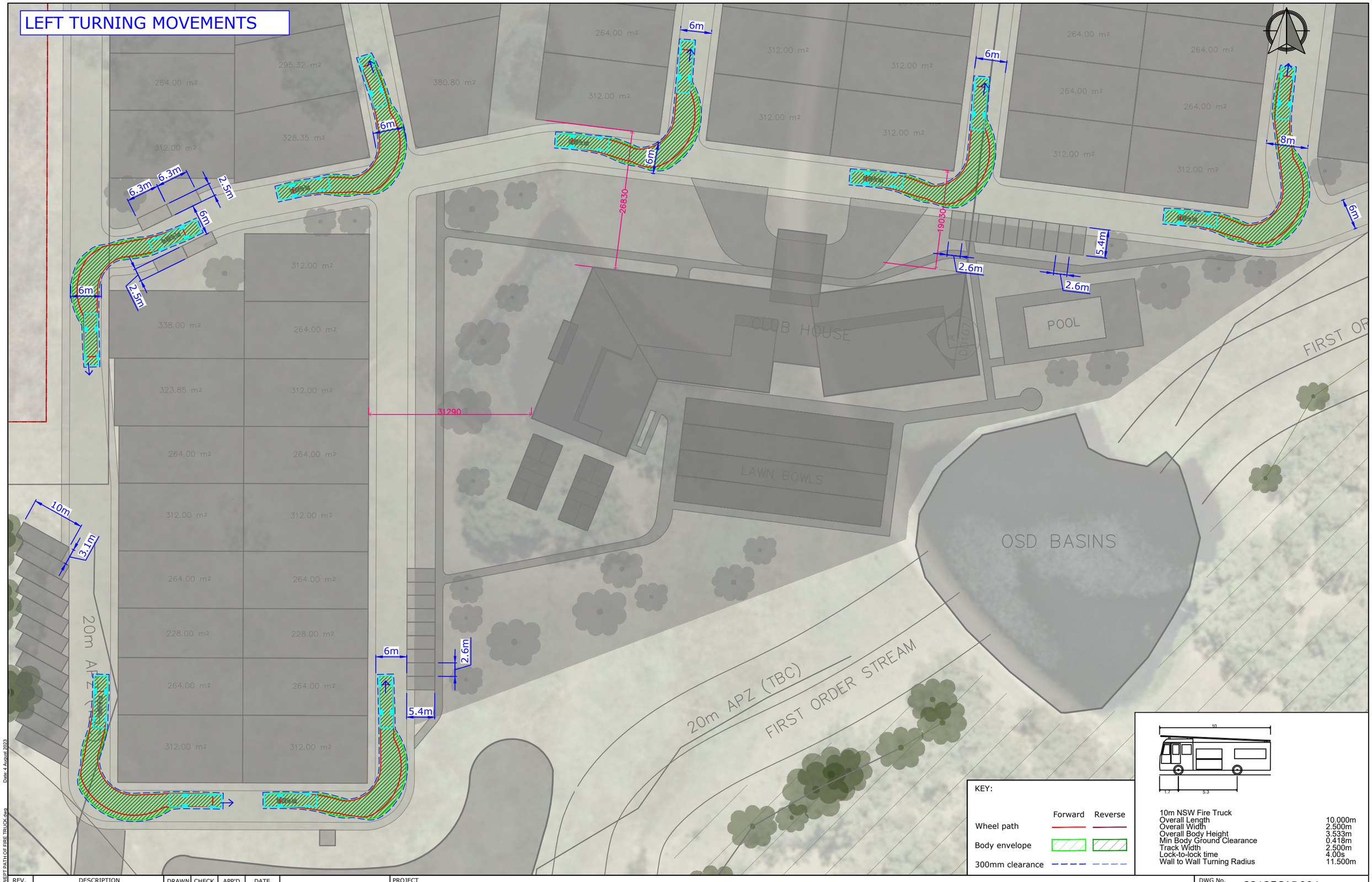
DWG No. 22125CAD004
FIGURE 6

DATE STAMP 04 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD004-230804 SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

10m NSW Fire Truck

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - SOUTH WEST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

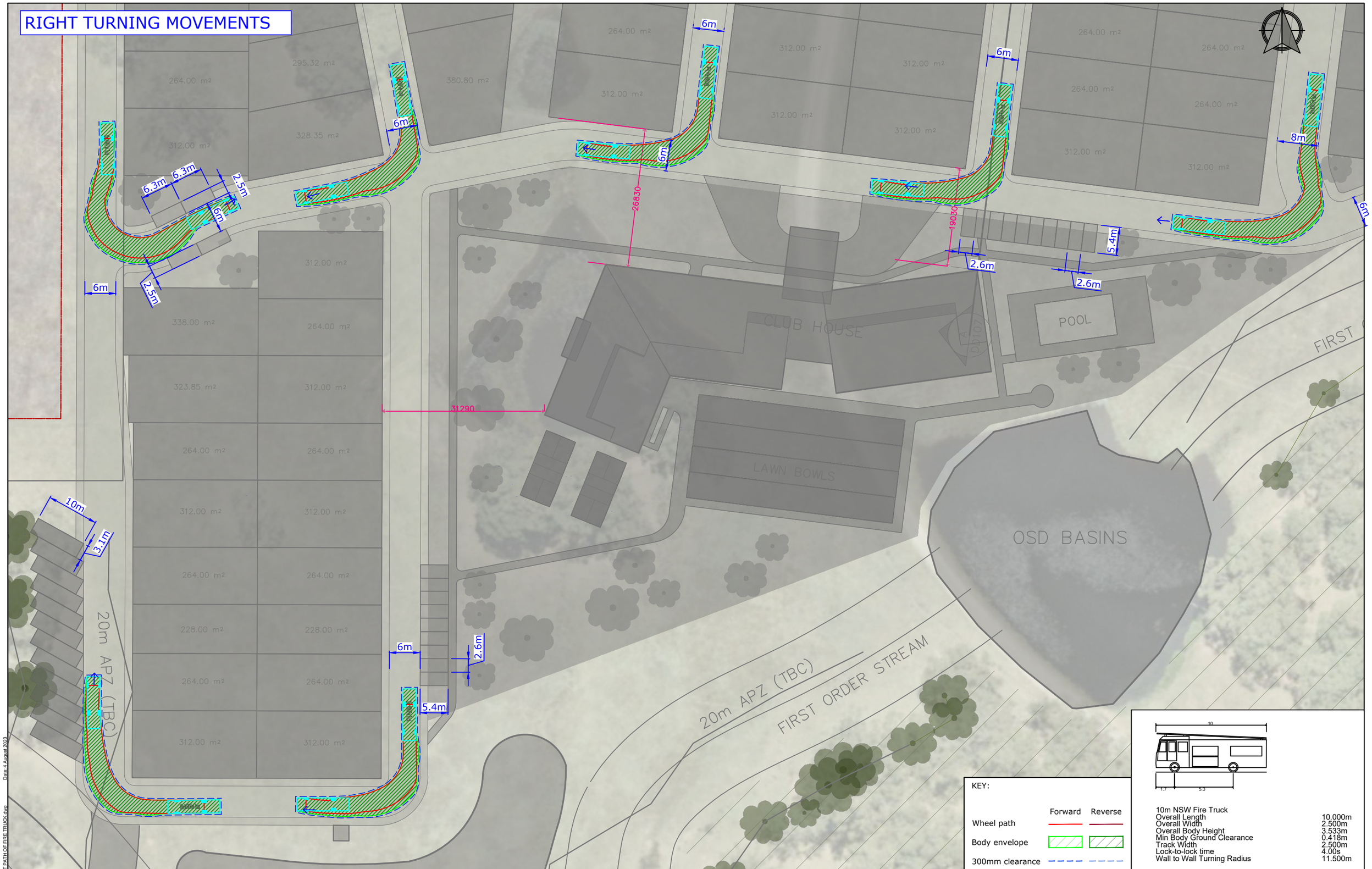
DWG No. 22125CAD004 FIGURE 7

DATE STAMP 04 AUGUST 2023

PROJECT No. 22125 | SCALE 1:650 @A3 | REV. A

Filename: 22125CAD004-230804 SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

10m NSW Fire Truck

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

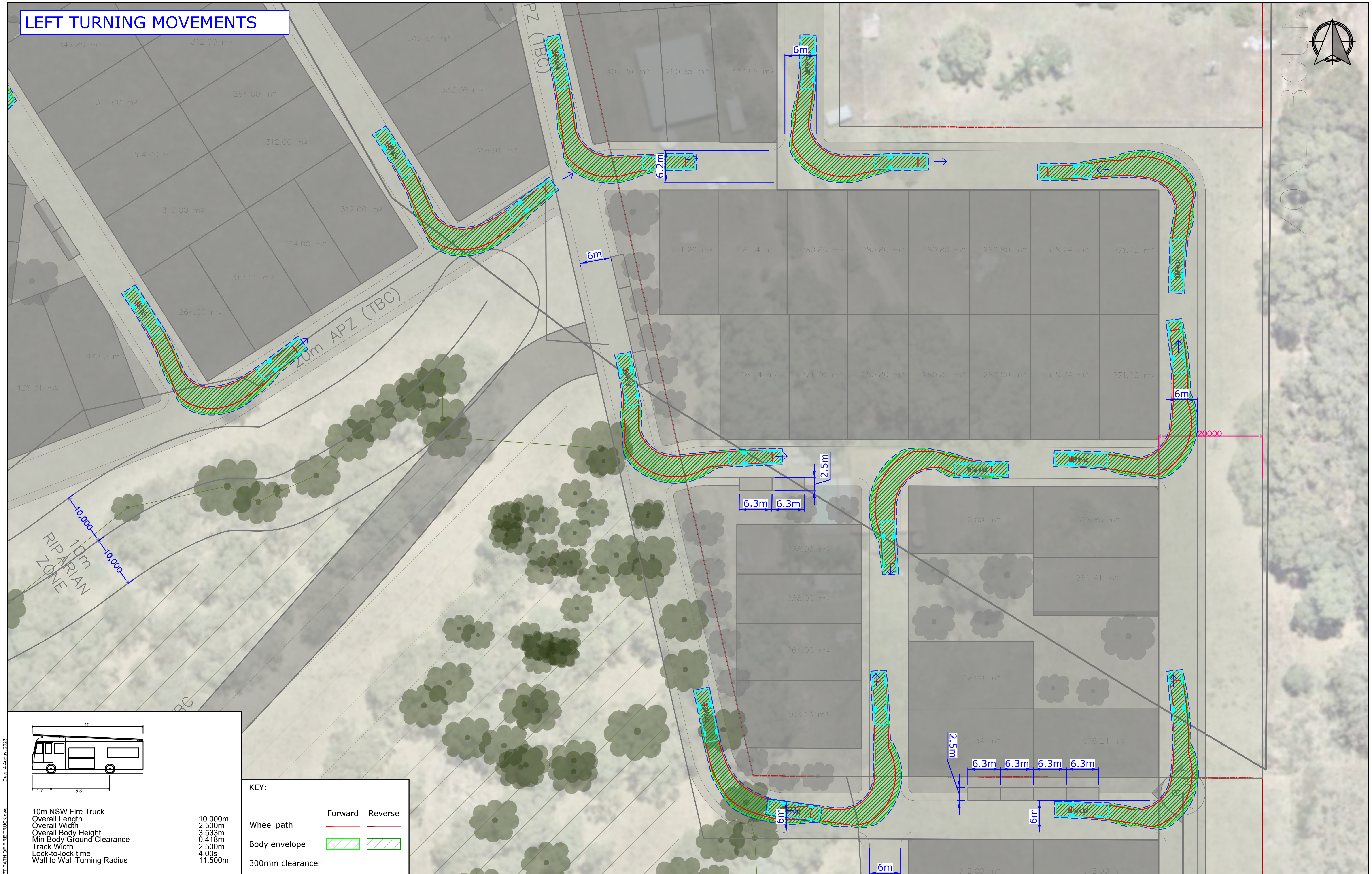
TITLE: SWEPT PATH ANALYSIS - NORTH WEST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004 FIGURE 8

DATE STAMP 04 AUGUST 2023

PROJECT No. 22125 | SCALE 1:650 @A3 | REV. A

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg Date 4 August 2023



Date: 4 August 2023

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT
303 WOLLOMBI ROAD, FARLEY

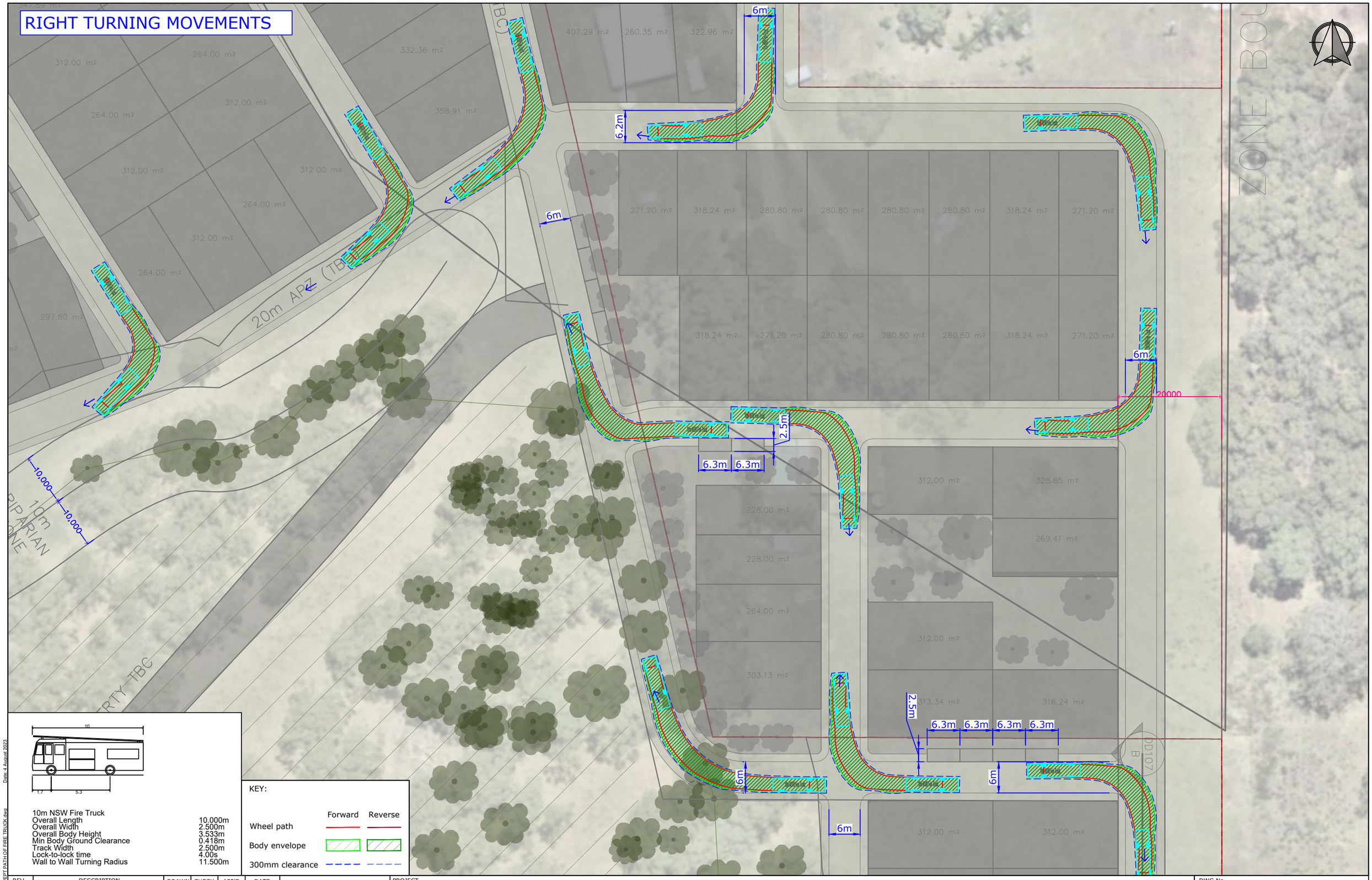
TITLE
SWEPT PATH ANALYSIS - EAST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004
FIGURE 9

DATE STAMP 04 AUGUST 2023

PROJECT No. 22125 | SCALE 1:650 @A3 | REV. A

RIGHT TURNING MOVEMENTS



10m NSW Fire Truck	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

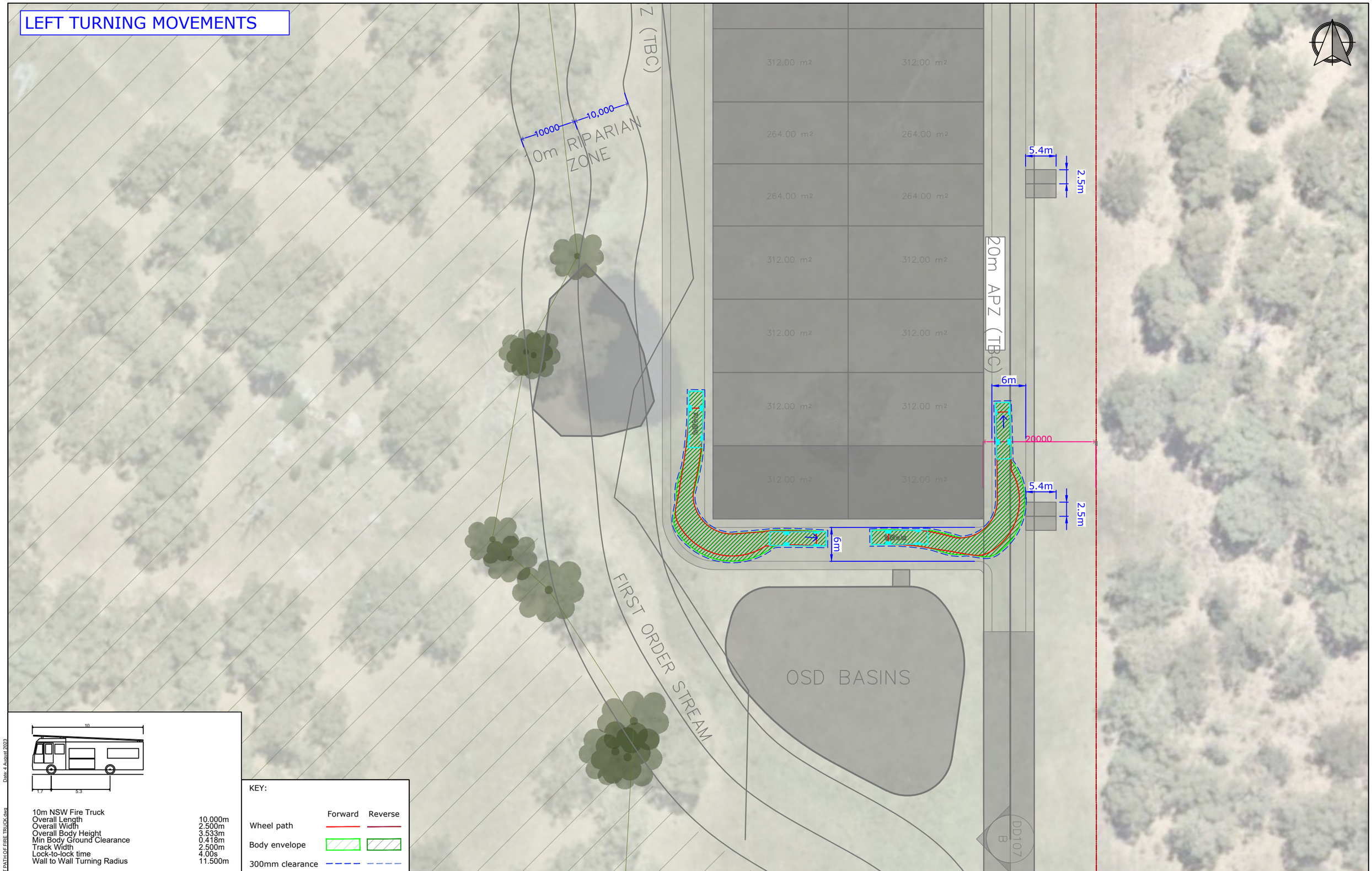
PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - EAST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

DWG No.	22125CAD004 FIGURE 10
DATE STAMP	04 AUGUST 2023
PROJECT No.	22125
SCALE	1:650 @A3
REV.	A

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS



10m NSW Fire Truck

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - SOUTH EAST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004
FIGURE 11

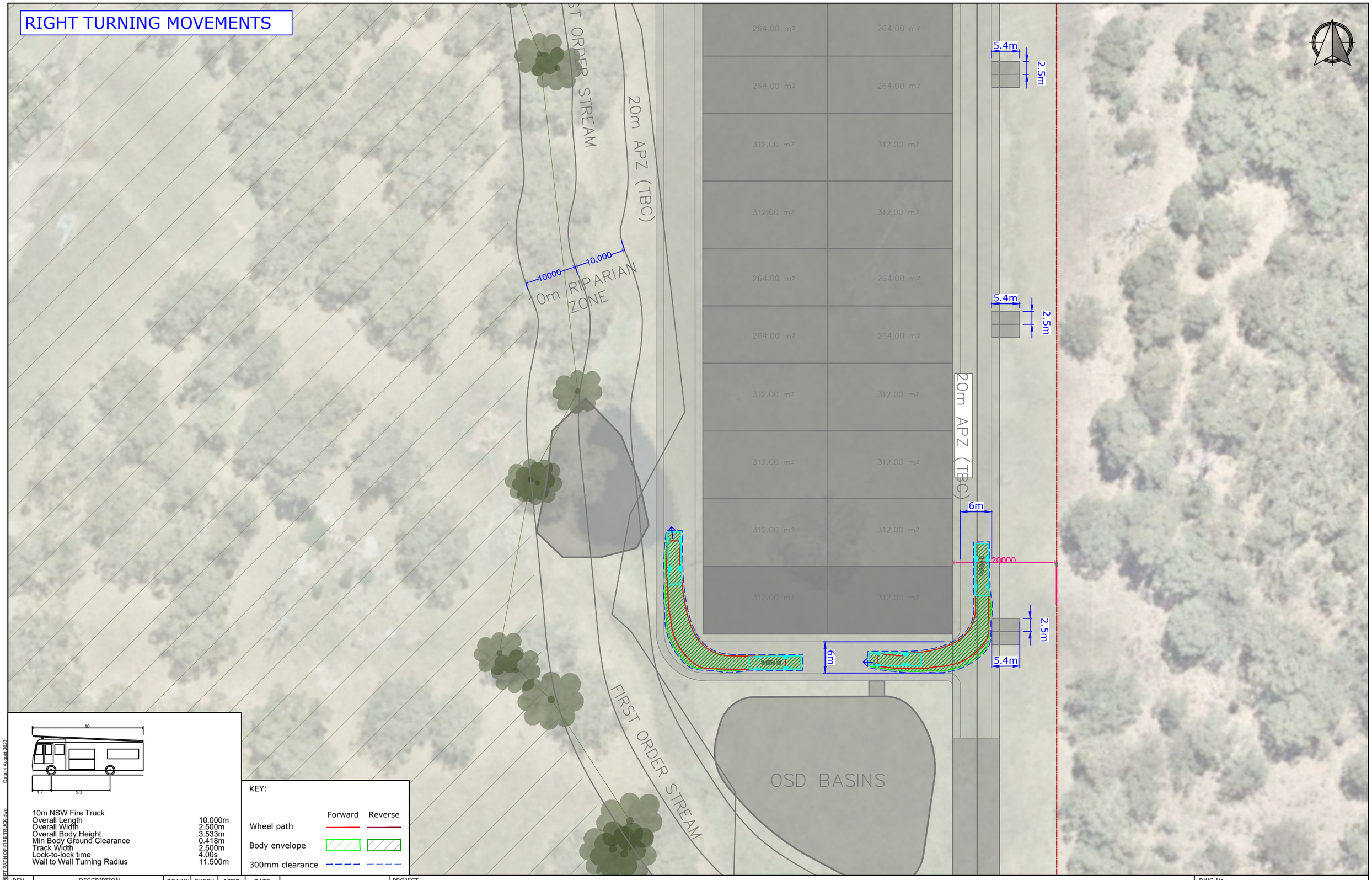
DATE STAMP 04 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:600 @A3	A

Date: 4 August 2023

Filename: 22125CAD004-230804-SWEPT PATH OF FIRE TRUCK.dwg

RIGHT TURNING MOVEMENTS



10m NSW Fire Truck	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.533m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	04/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - EAST OF THE SITE
10m GENERAL FIRE APPLIANCE TRUCK

DWG No. 22125CAD004 FIGURE 12

DATE STAMP 04 AUGUST 2023

PROJECT No. 22125 | SCALE 1:650 @A3 | REV. A

Filename: 22125CAD004-20804-SWEPT PATH OF FIRE TRUCK.dwg Date: 4 August 2023

VEHICLE ENTERING

VEHICLE EXITING

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

8.5m Maitland Council Waste Truck	
Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS
8.5m MAITLAND COUNCIL WASTE TRUCK

DWG No. 22125CAD003
FIGURE 1

DATE STAMP: 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:400 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS

8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - MAIN GATE AND MAIN ROAD AREA
8.5m MAITLAND COUNCIL WASTE TRUCK

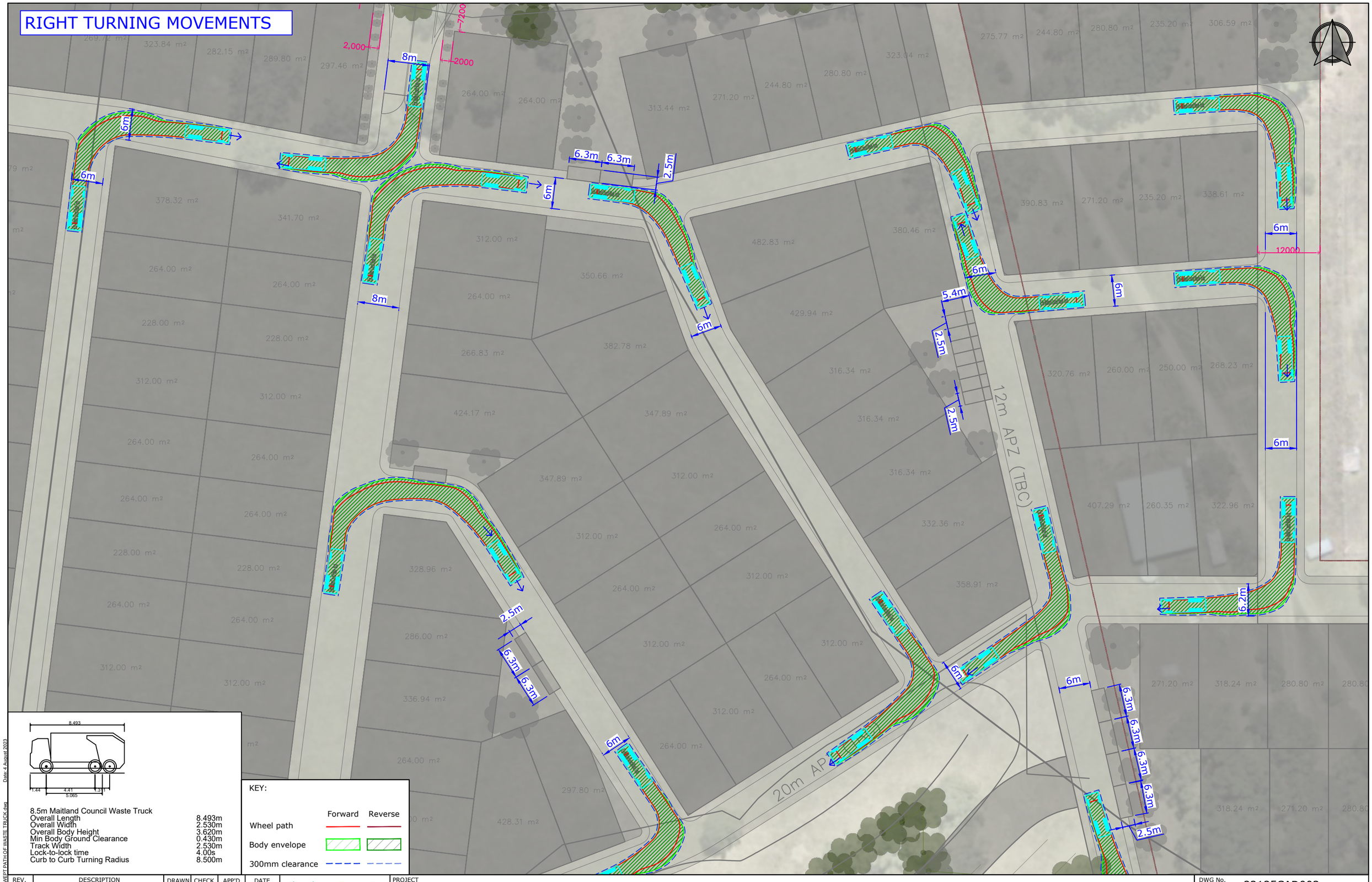
DWG No. 22125CAD003 FIGURE 2

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS



8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - MAIN GATE AND NORTH EAST AREA
8.5m MAITLAND COUNCIL WASTE TRUCK

DWG No. 22125CAD003
FIGURE 3

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS

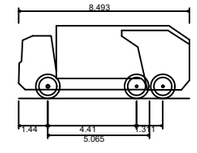
WOLLOMBI ROAD

4500

6m
6.3m
6.3m
2.5m
2.5m
6.3m
6.3m
6m
6m
6m
6m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

Date: 4 August 2023

Filename: 22125CAD003-220803-SWEPT PATH OF WASTE TRUCK.dwg

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT

303 WOLLOMBI ROAD, FARLEY

TITLE

SWEPT PATH ANALYSIS - NORTH WEST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

DWG No. 22125CAD003
FIGURE 4

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:600 @A3	A

RIGHT TURNING MOVEMENTS

WOLLOMBI ROAD

4500

6m

6.3m

6.3m

2.5m

2.5m

6.3m

6.3m

6m

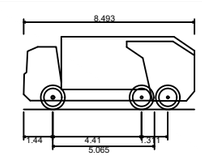
6m

6m

6m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - NORTH WEST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

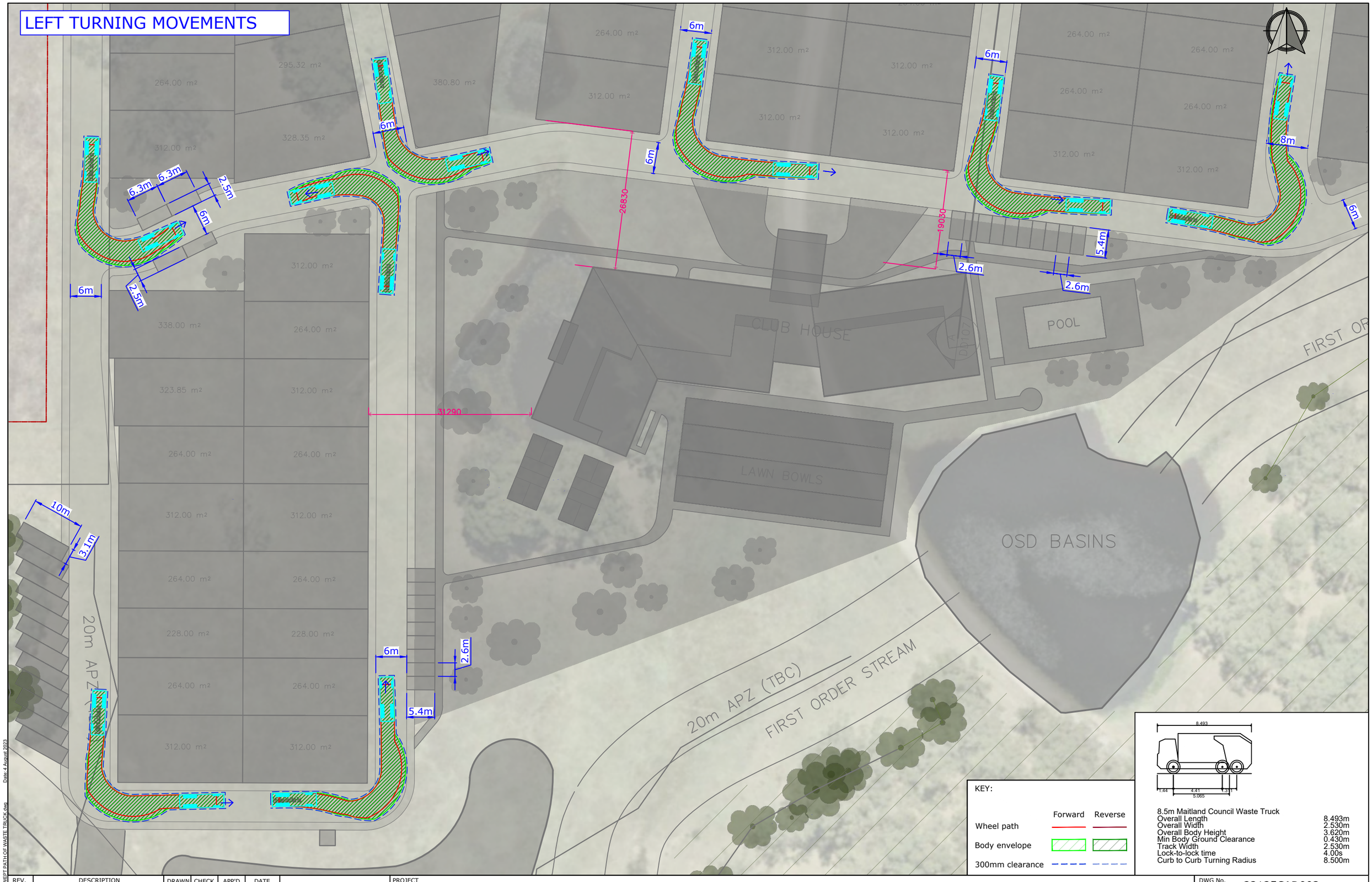
DWG No. 22125CAD003 FIGURE 5

DATE STAMP 03 AUGUST 2023

PROJECT No. 22125 | SCALE 1:600 @A3 | REV. A

Filename: 22125CAD003-220803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - SOUTH WEST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

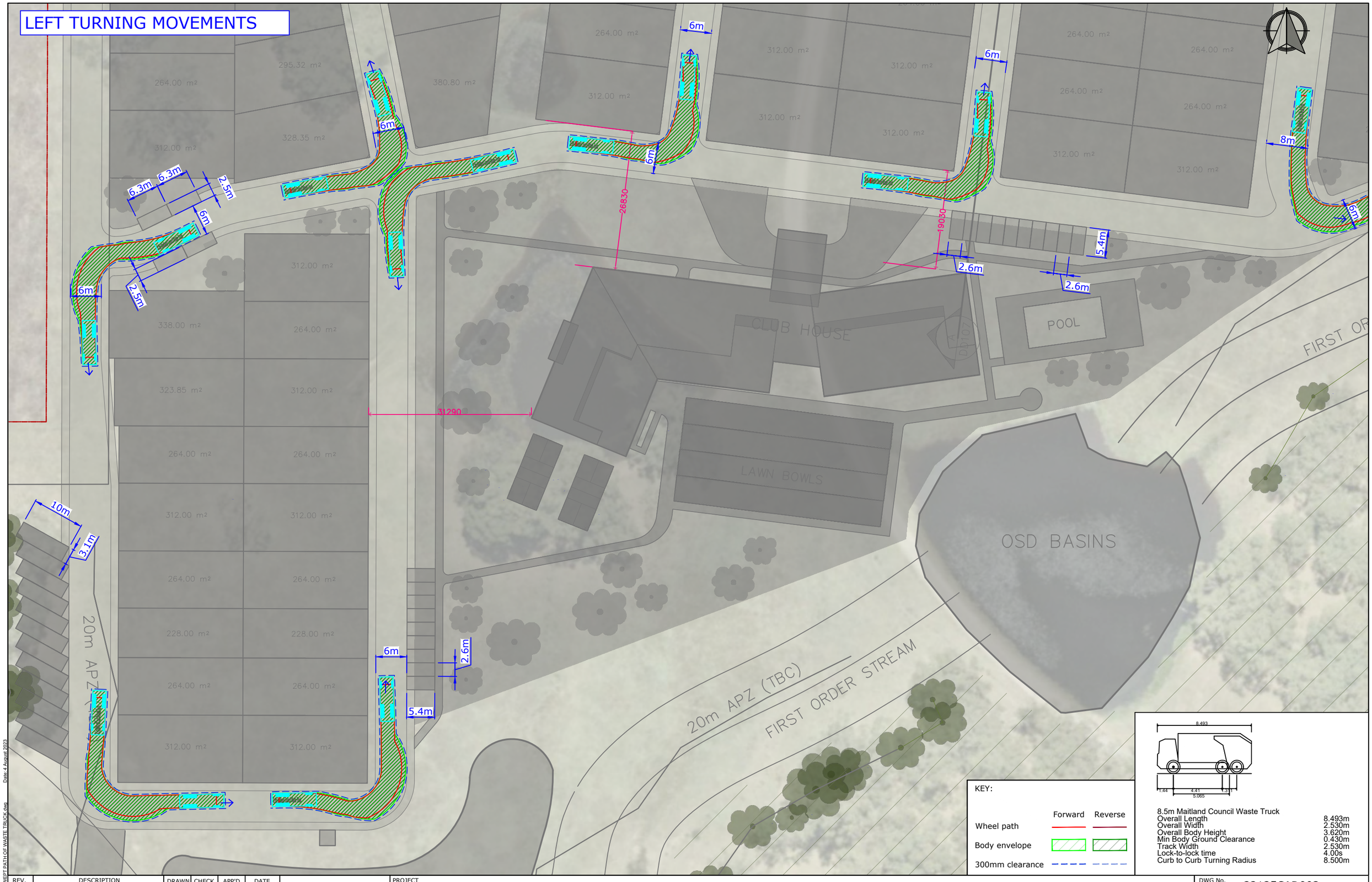
DWG No. 22125CAD003
FIGURE 6

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

LEFT TURNING MOVEMENTS



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - SOUTH WEST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

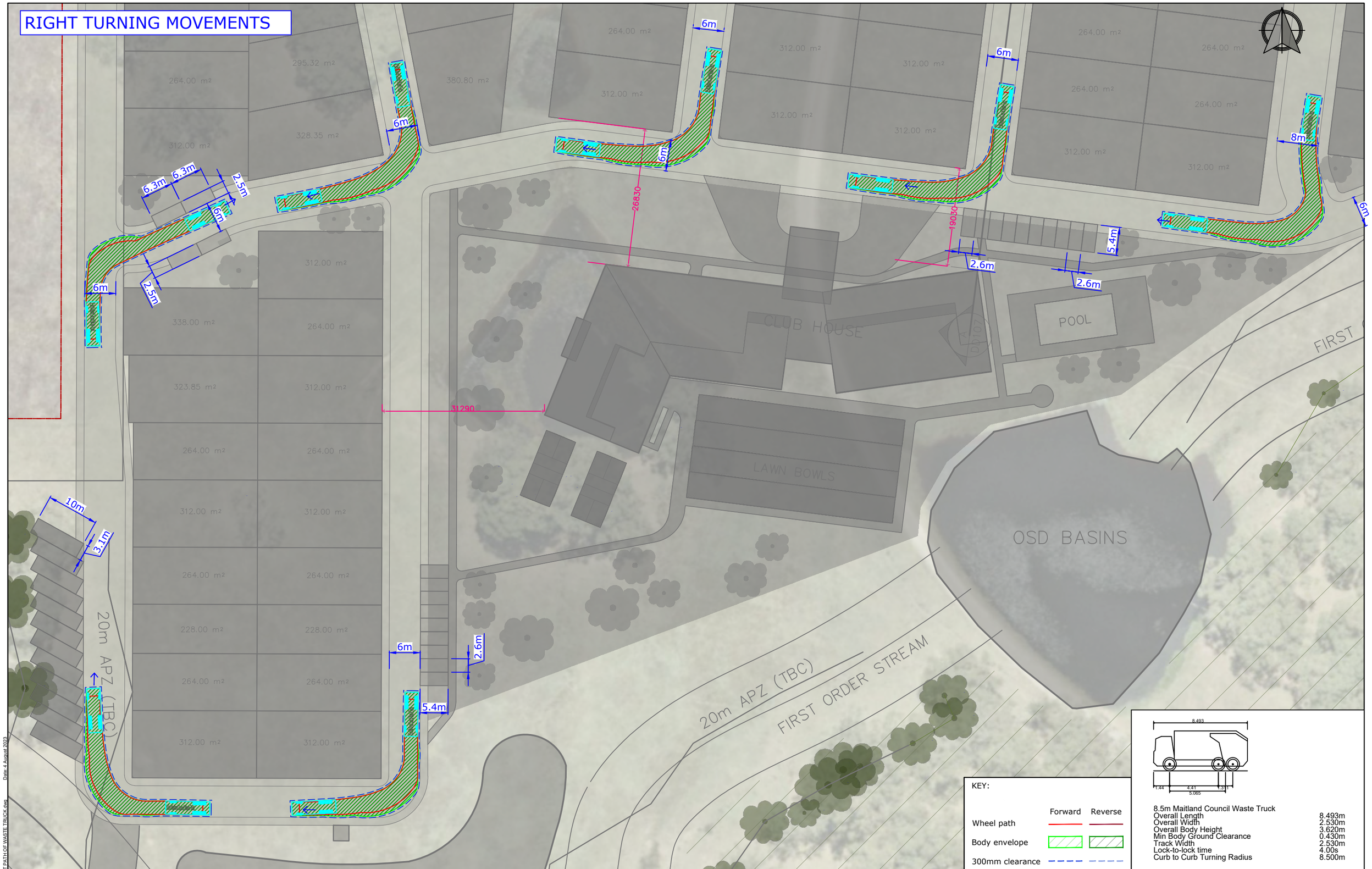
DWG No. 22125CAD003
FIGURE 7

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - NORTH WEST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

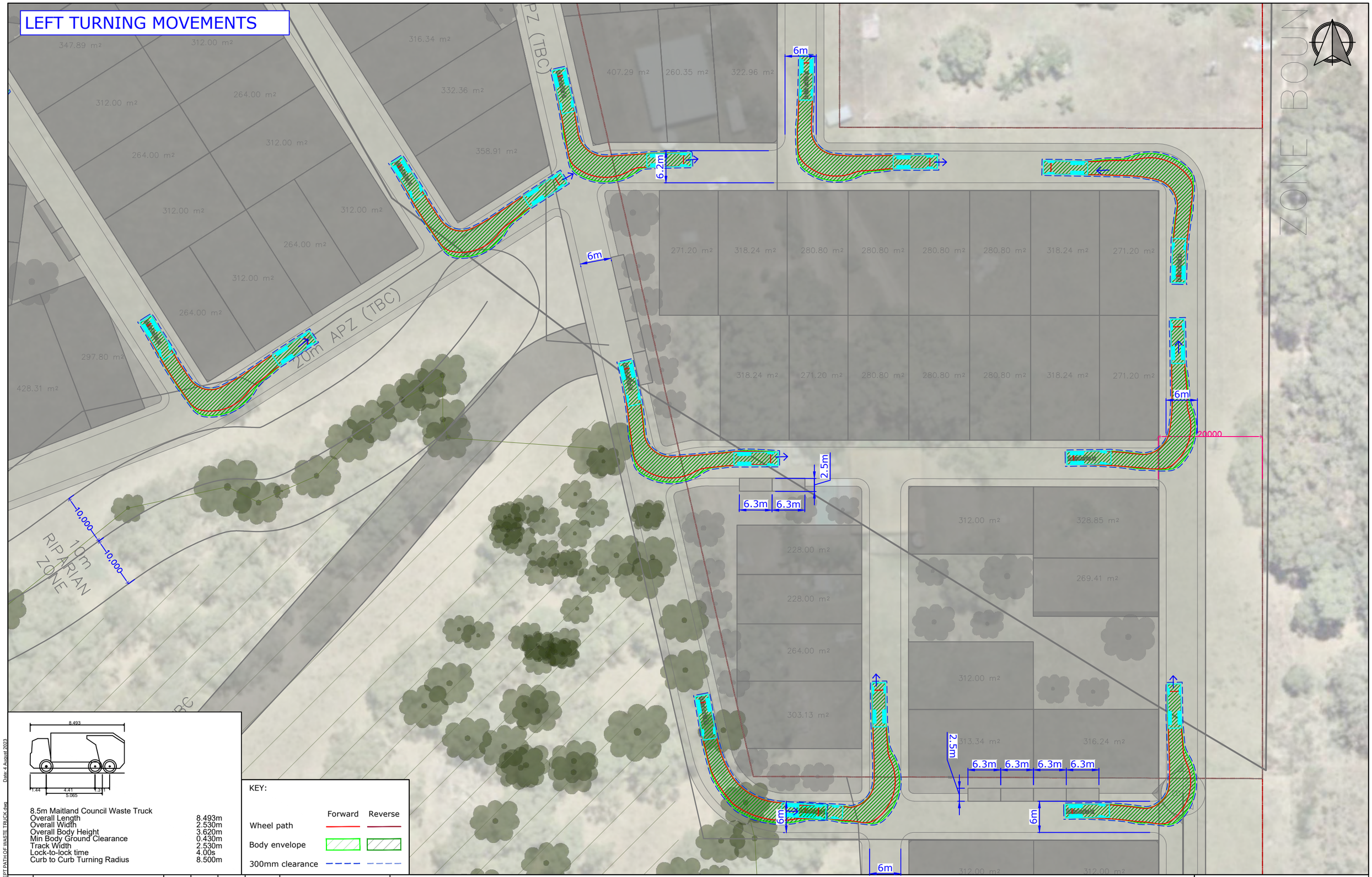
DWG No. 22125CAD003
FIGURE 8

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:650 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date 4 August 2023

LEFT TURNING MOVEMENTS



8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

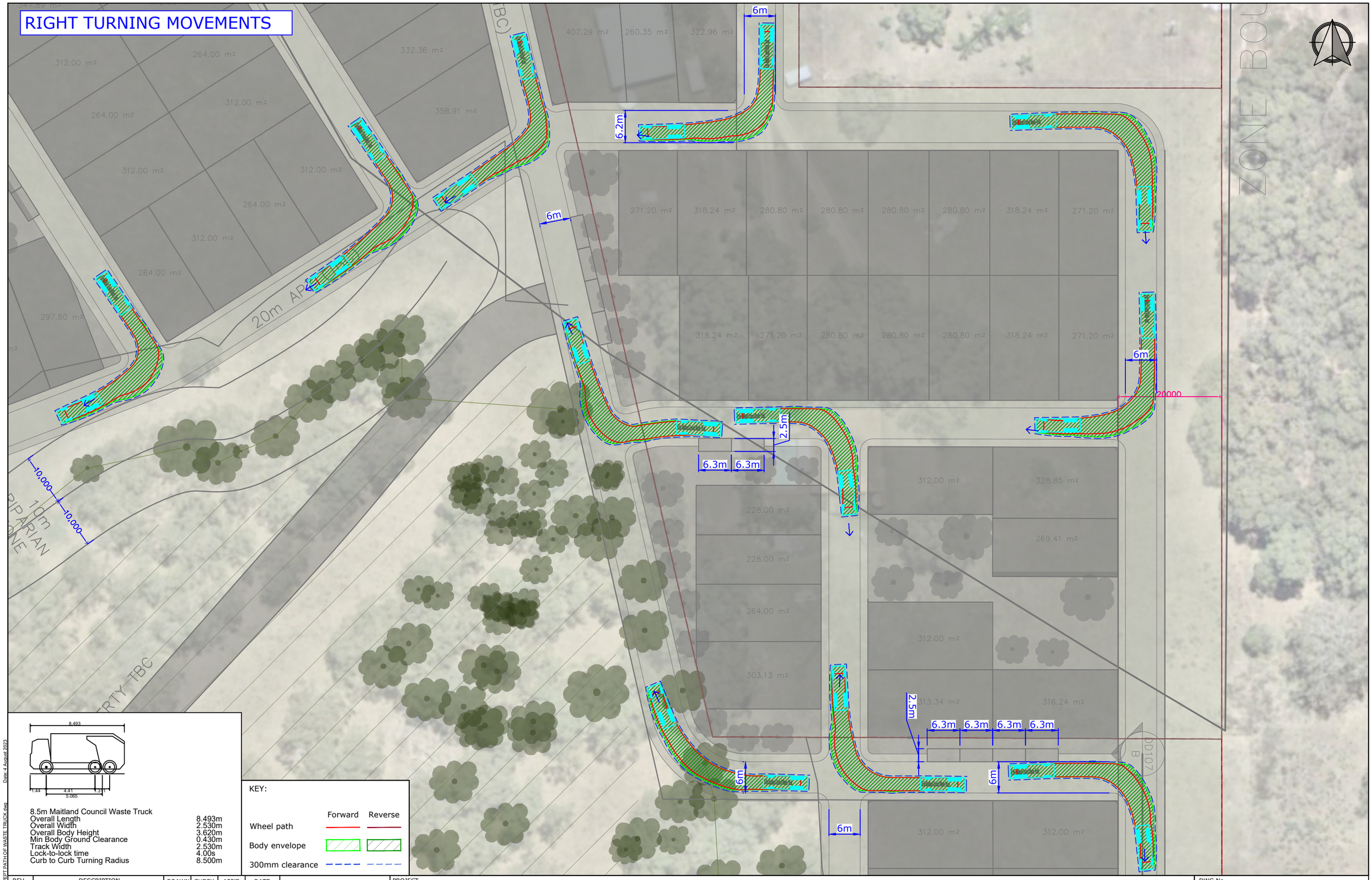
PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - EAST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

DWG No.	22125CAD003 FIGURE 9
DATE STAMP	03 AUGUST 2023
PROJECT No.	22125
SCALE	1:650 @A3
REV.	A

Filename: 22125CAD003-220803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS



8.5m Maitland Council Waste Truck	
Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

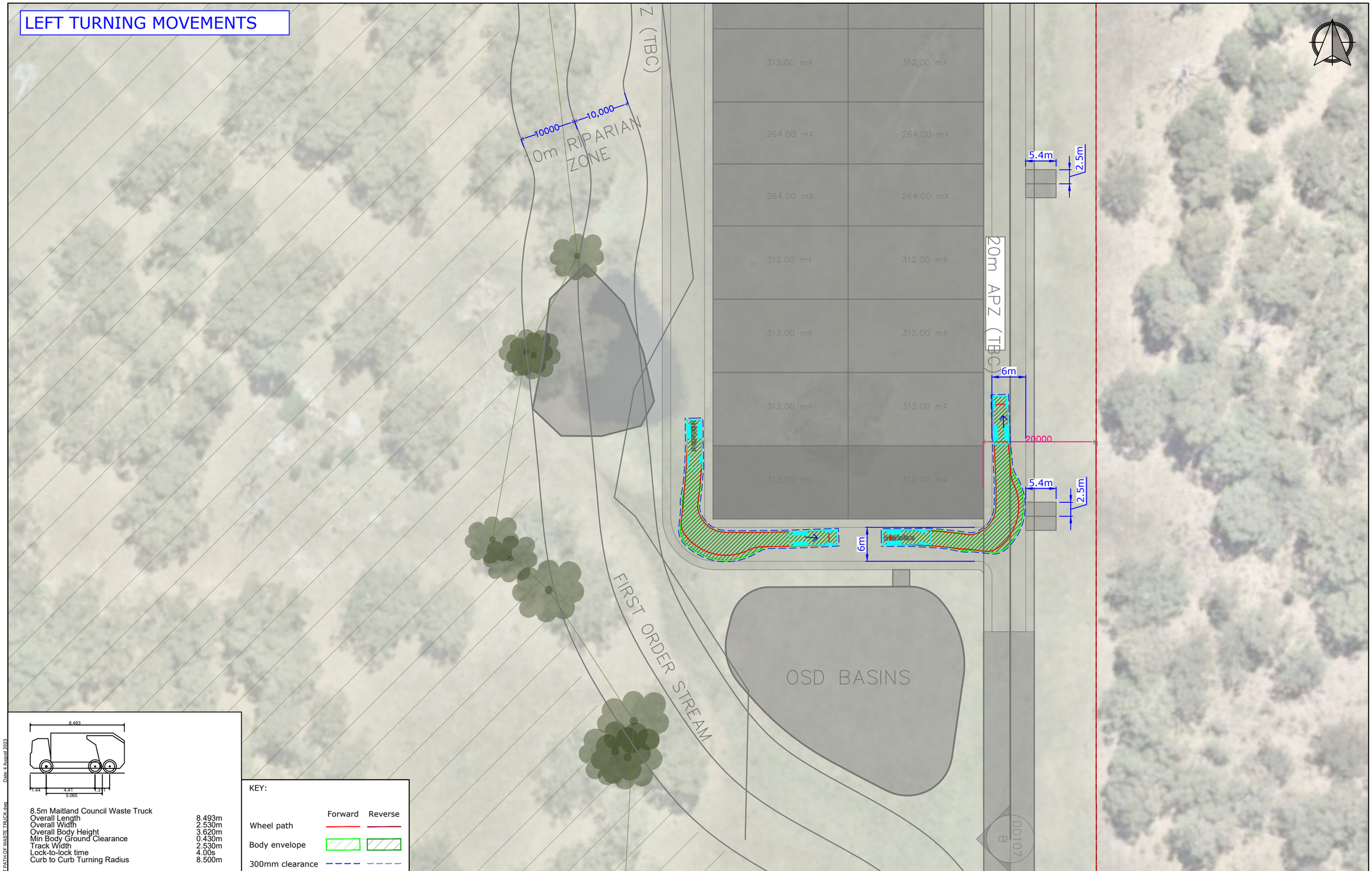
PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - EAST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

DWG No.	22125CAD003 FIGURE 10
DATE STAMP	03 AUGUST 2023
PROJECT No.	22125
SCALE	1:650 @A3
REV.	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg
Date: 4 August 2023

LEFT TURNING MOVEMENTS



8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - SOUTH EAST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

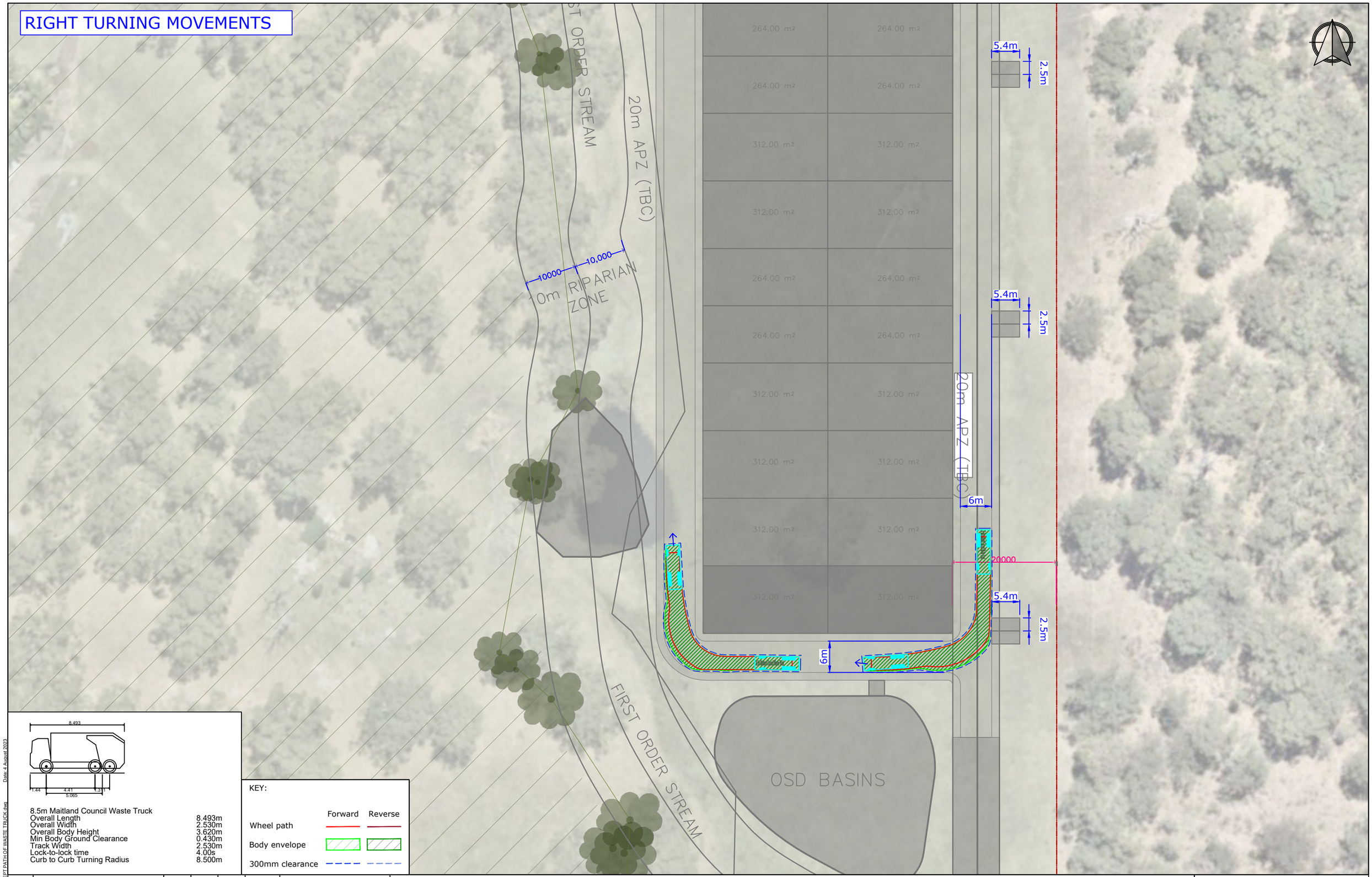
DWG No. 22125CAD003
FIGURE 11

DATE STAMP 03 AUGUST 2023

PROJECT No.	SCALE	REV.
22125	1:600 @A3	A

Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

RIGHT TURNING MOVEMENTS



8.5m Maitland Council Waste Truck

Overall Length	8.493m
Overall Width	2.530m
Overall Body Height	3.620m
Min Body Ground Clearance	0.430m
Track Width	2.530m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.500m

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	KH	KH	03/08/23

ttpp transport planning

PROJECT: 303 WOLLOMBI ROAD, FARLEY

TITLE: SWEPT PATH ANALYSIS - EAST OF THE SITE
8.5m MAITLAND COUNCIL WASTE TRUCK

DWG No. 22125CAD003
FIGURE 12

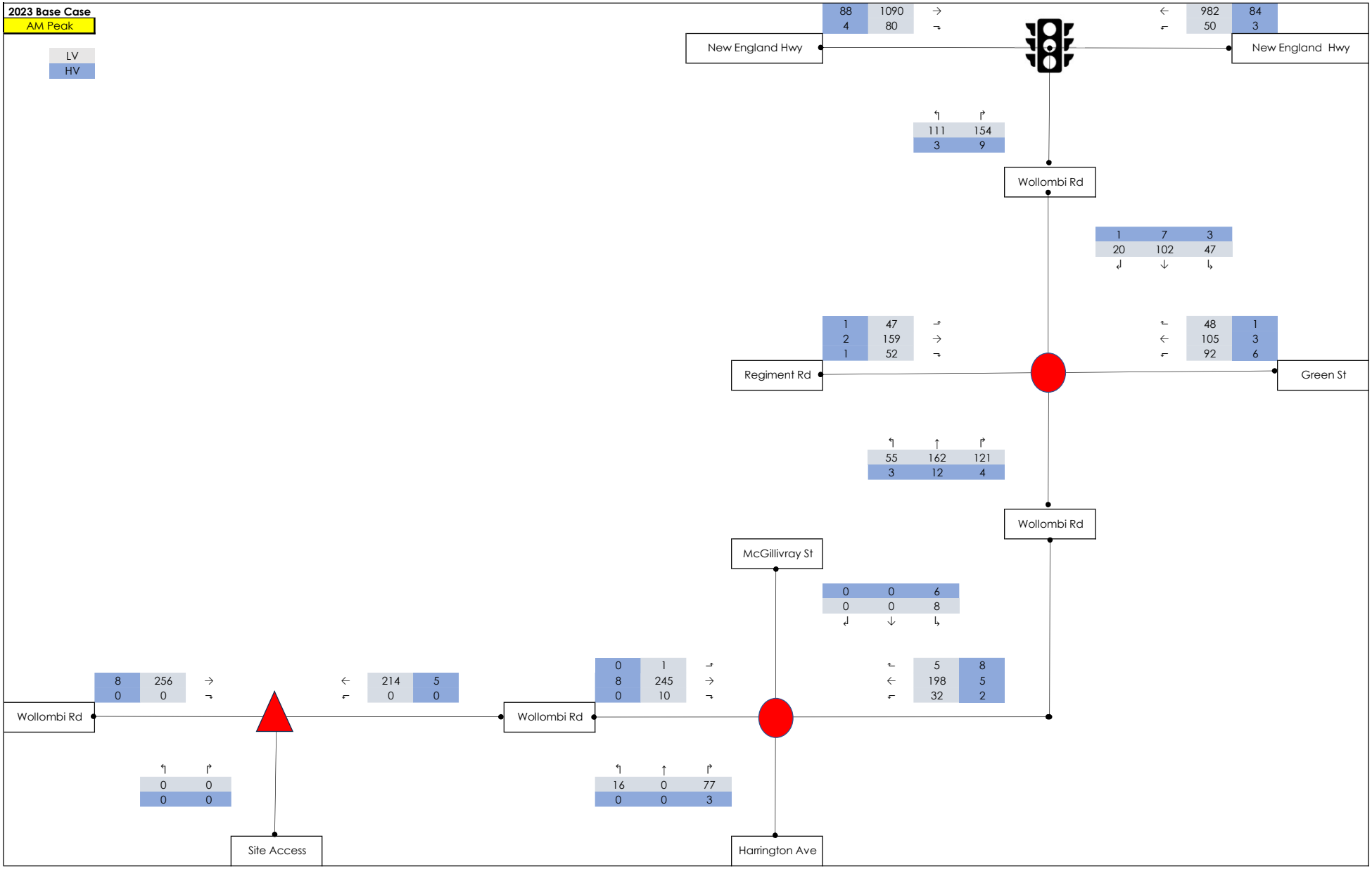
DATE STAMP 03 AUGUST 2023

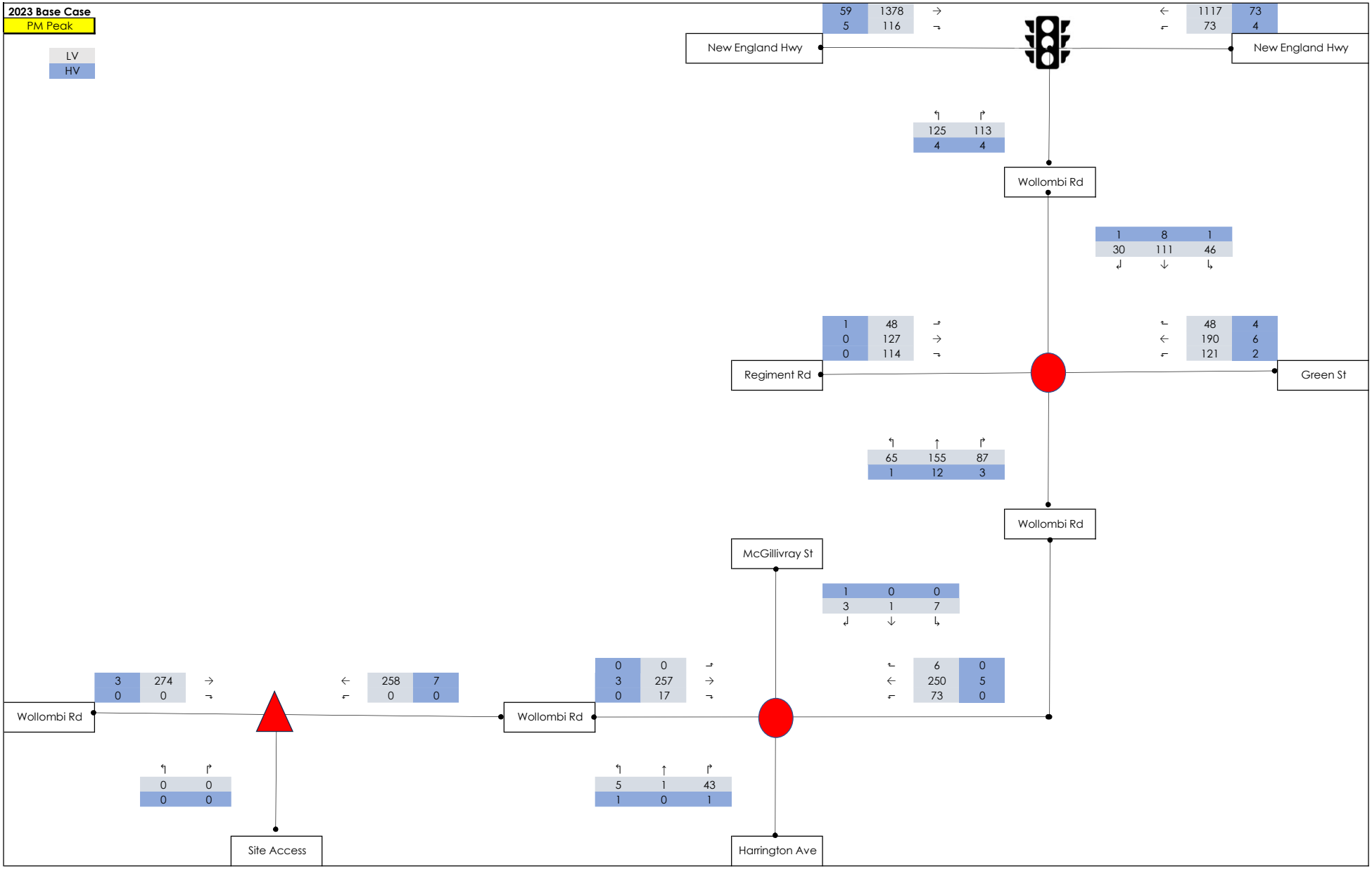
PROJECT No. 22125 | SCALE 1:650 @A3 | REV. A

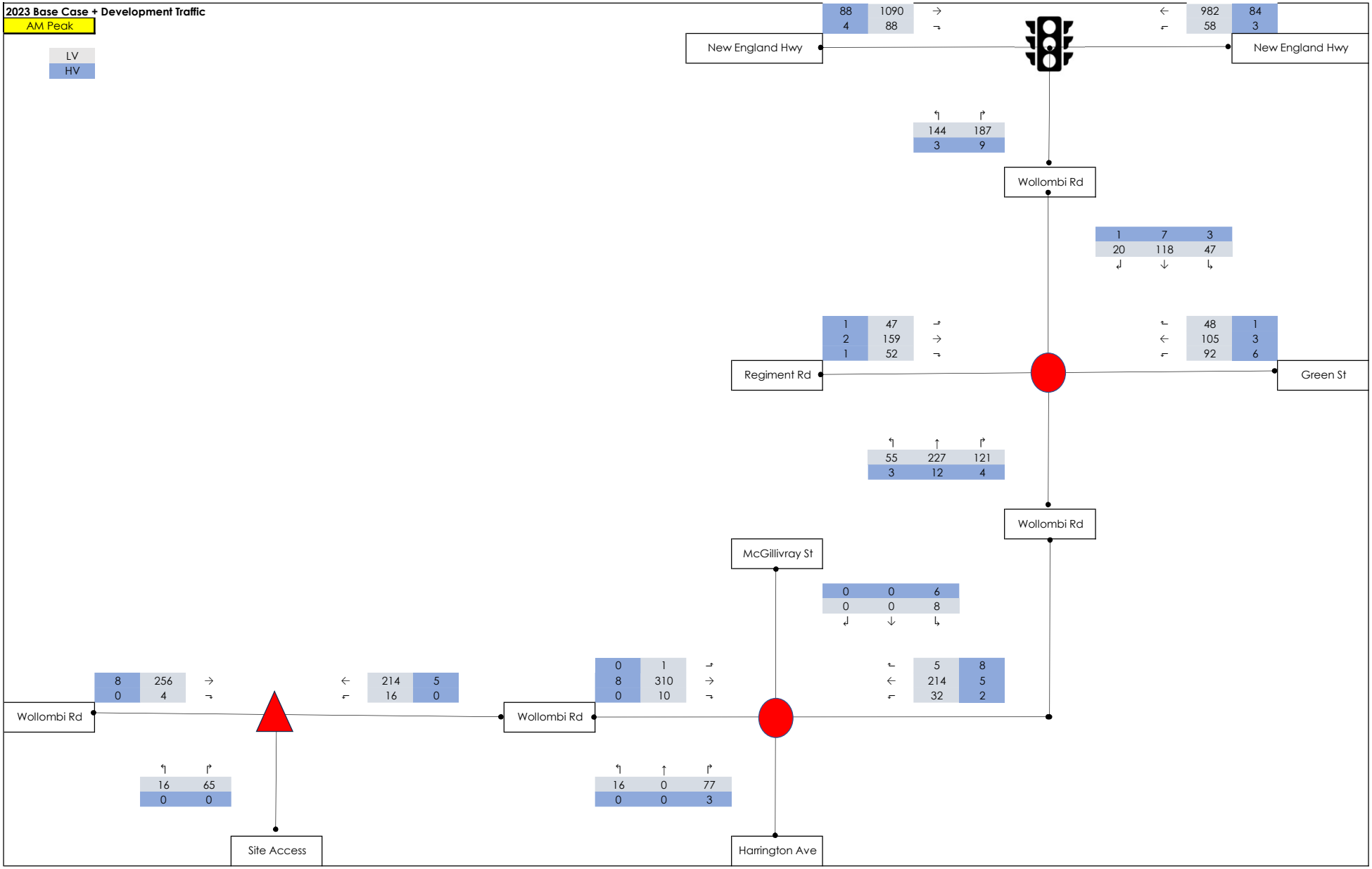
Filename: 22125CAD003-230803-SWEPT PATH OF WASTE TRUCK.dwg Date: 4 August 2023

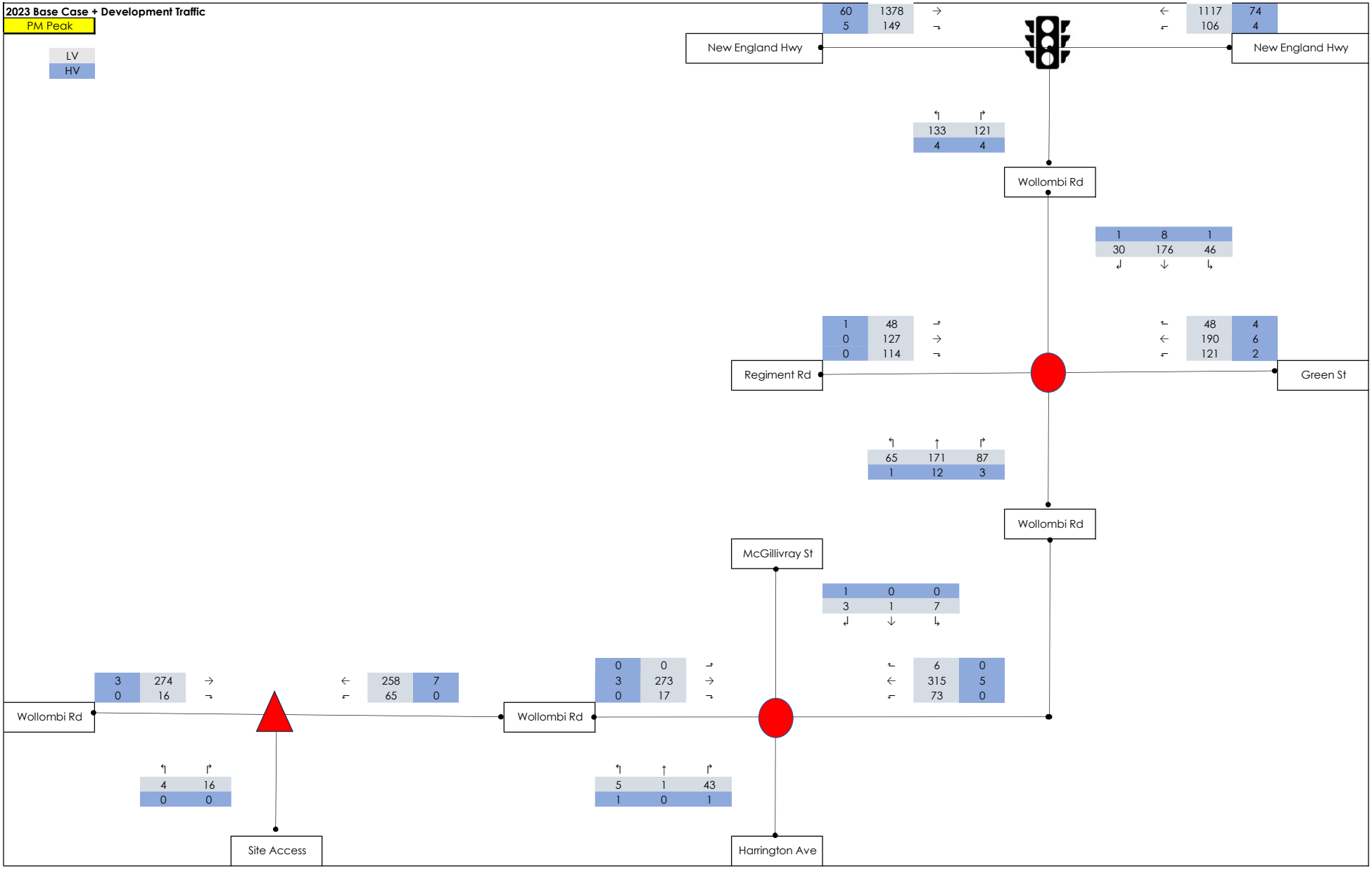
Appendix B

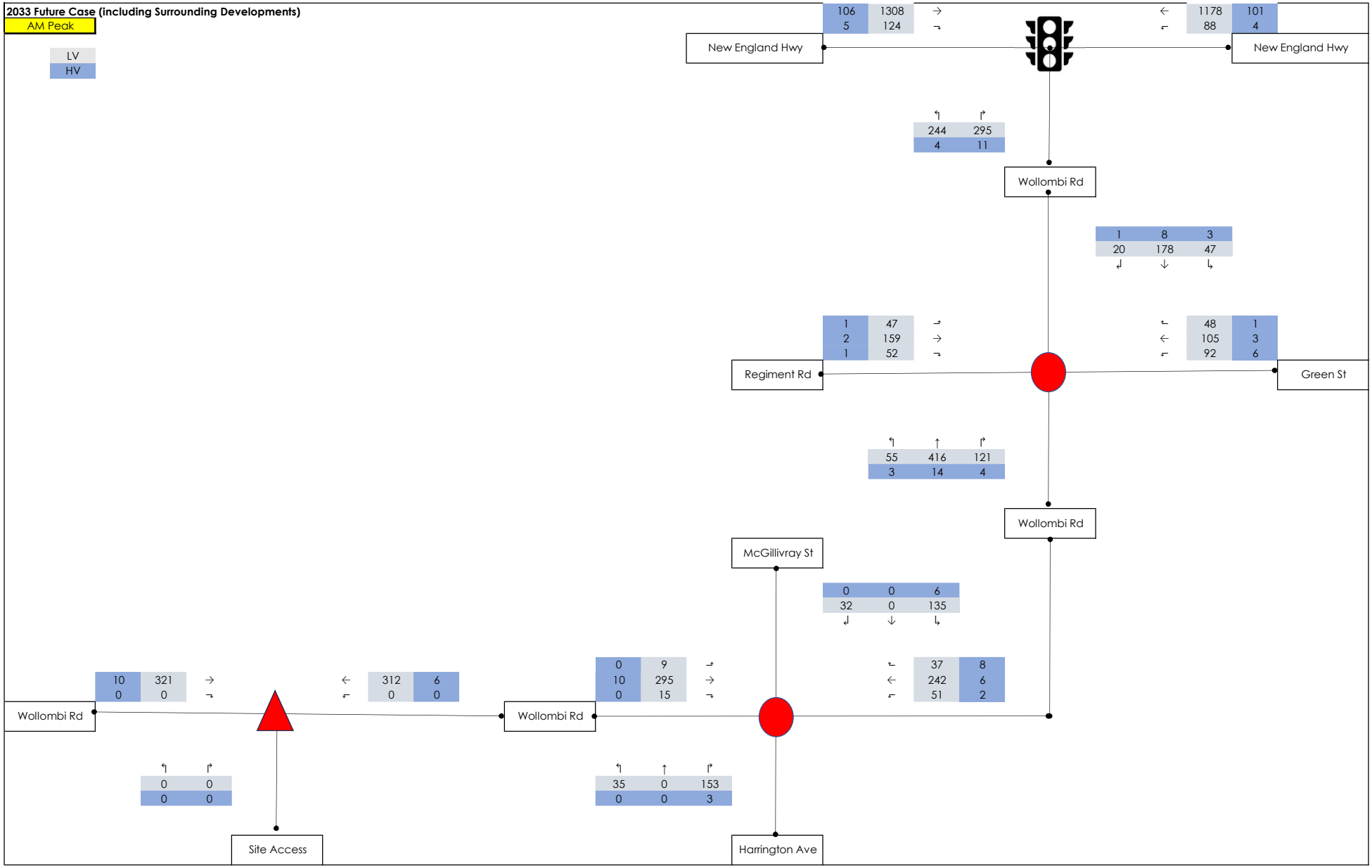
Intersection Turning Movement Volumes

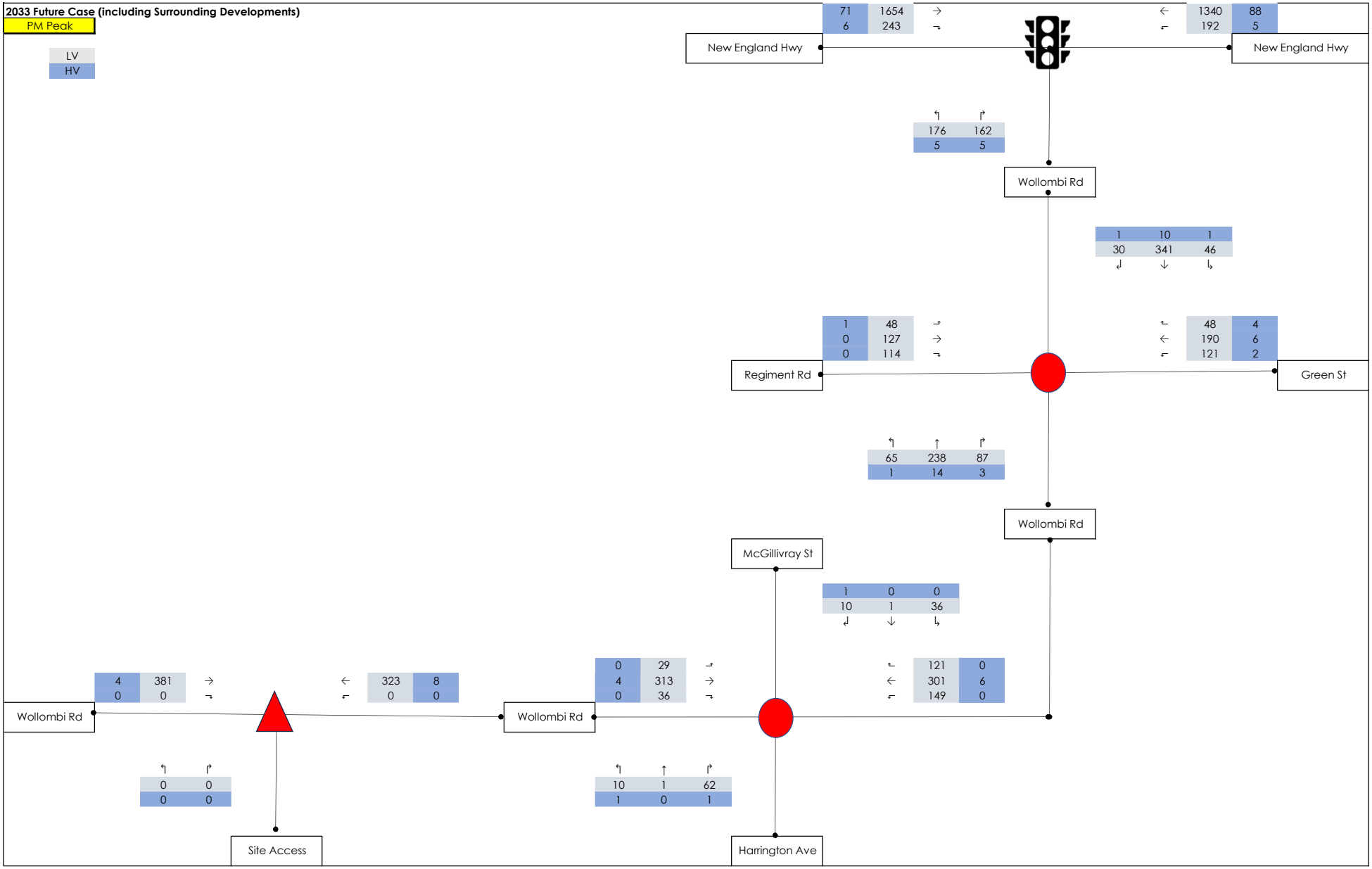

2023 Base Case
AM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave
88 1090
4 80
982 84
50 3
111 154
3 9
1 7 3
20 102 47
1 47
2 159
1 52
48 1
105 3
92 6
55 162 121
3 12 4
0 0 6
0 0 8
8 256
0 0
214 5
0 0
0 1
8 245
0 10
5 8
198 5
32 2
0 0
0 0
16 0 77
0 0 3

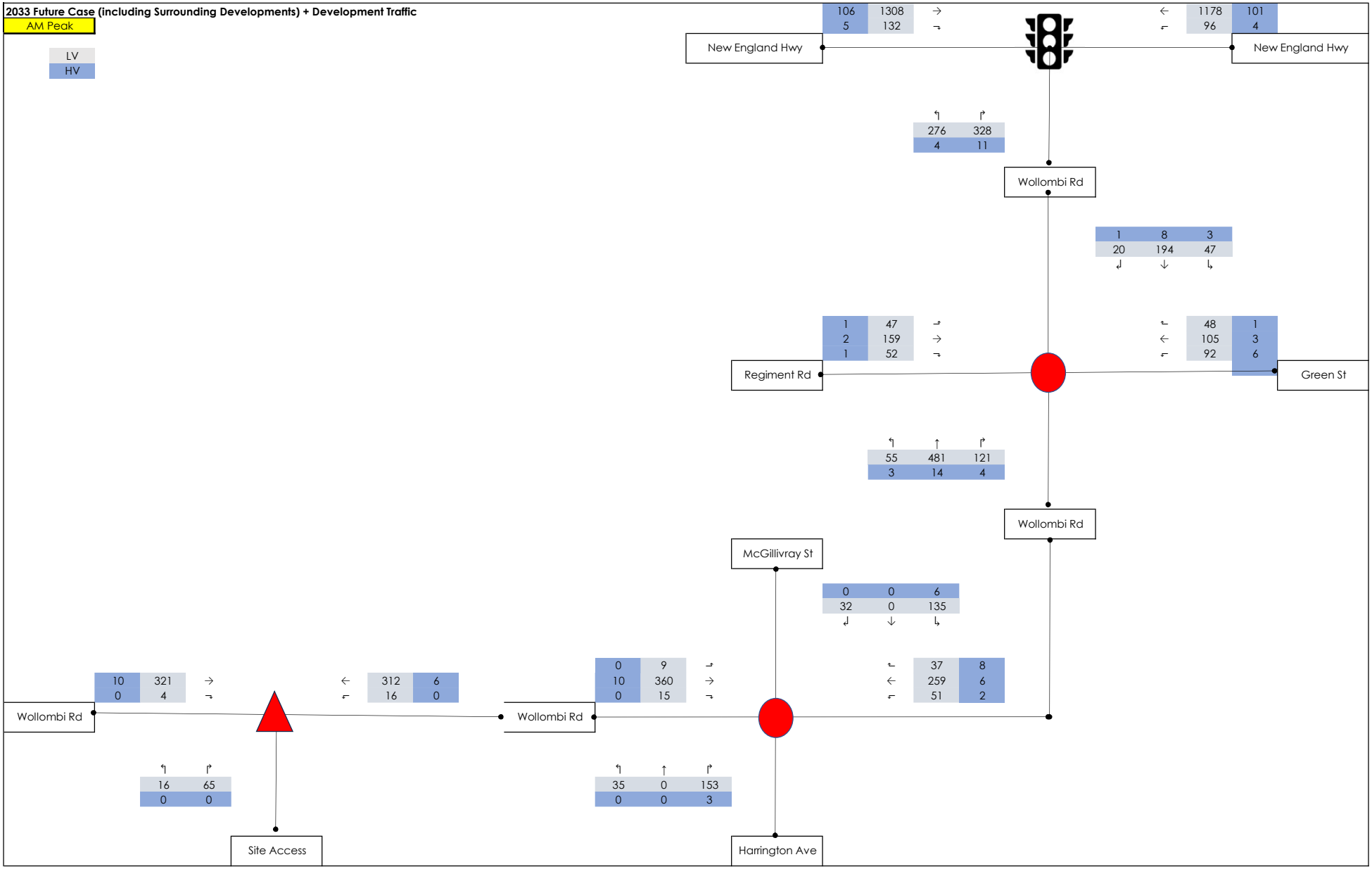

2023 Base Case
PM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave

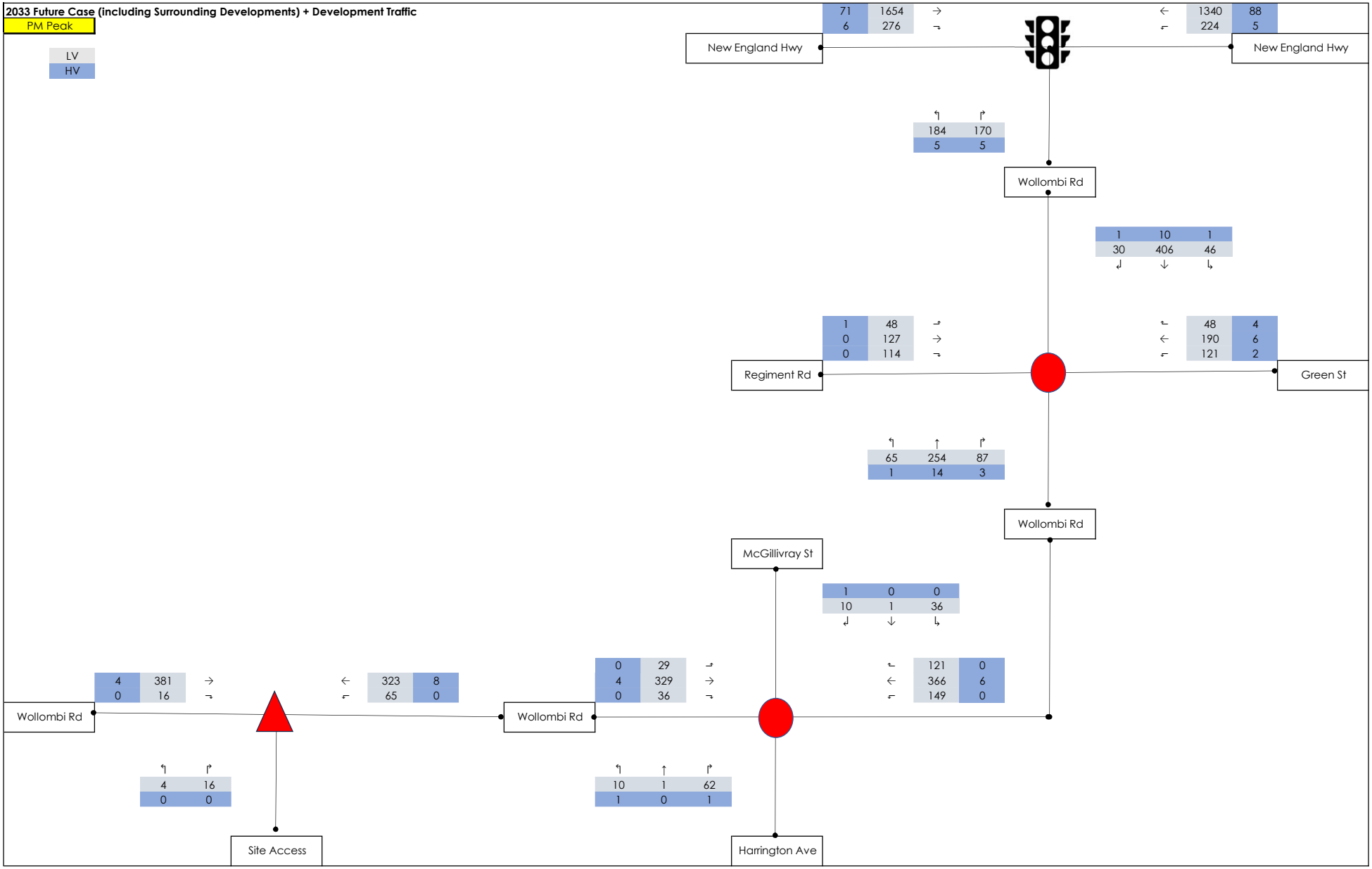

2023 Base Case + Development Traffic
AM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave
88 1090
4 88
982 84
58 3
144 187
3 9
1 7 3
20 118 47
1 47
2 159
1 52
48 1
105 3
92 6
55 227 121
3 12 4
0 0 6
0 0 8
8 256
0 4
214 5
16 0
0 1
8 310
0 10
5 8
214 5
32 2
16 65
0 0
16 0 77
0 0 3


2023 Base Case + Development Traffic
PM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave


2033 Future Case (including Surrounding Developments)
AM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave


2033 Future Case (including Surrounding Developments)
PM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave
71 1654
6 243
1340 88
192 5
176 162
5 5
1 10 1
30 341 46
1 48
0 127
0 114
48 4
190 6
121 2
65 238 87
1 14 3
1 0 0
10 1 36
0 29
4 313
0 36
121 0
301 6
149 0
4 381
0 0
323 8
0 0
0 0
0 0
10 1 62
1 0 1


2033 Future Case (including Surrounding Developments) + Development Traffic
AM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave


2033 Future Case (including Surrounding Developments) + Development Traffic
PM Peak
LV
HV
New England Hwy
New England Hwy
Wollombi Rd
Wollombi Rd
Regiment Rd
Green St
Wollombi Rd
McGillivray St
Wollombi Rd
Wollombi Rd
Site Access
Harrington Ave

Appendix C

SIDRA Modelling Results

MOVEMENT SUMMARY

Site: 101 [Wollombi / Harlington / McGillivray 2023 AM (Site Folder: Base 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Harlington Ave															
1	L2	All MCs	16	0.0	16	0.0	0.090	4.2	LOS A	0.5	3.4	0.41	0.59	0.41	46.8
2	T1	All MCs	1	0.0	1	0.0	0.090	4.2	LOS A	0.5	3.4	0.41	0.59	0.41	38.8
3	R2	All MCs	80	3.8	80	3.8	0.090	8.6	LOS A	0.5	3.4	0.41	0.59	0.41	46.1
Approach			97	3.1	97	3.1	0.090	7.8	LOS A	0.5	3.4	0.41	0.59	0.41	46.2
East: Wollombi Road															
4	L2	All MCs	34	5.9	34	5.9	0.163	4.0	LOS A	1.0	7.4	0.09	0.42	0.09	50.4
5	T1	All MCs	203	2.5	203	2.5	0.163	4.2	LOS A	1.0	7.4	0.09	0.42	0.09	54.6
6	R2	All MCs	13	61.5	13	61.5	0.163	9.3	LOS A	1.0	7.4	0.09	0.42	0.09	45.4
Approach			250	6.0	250	6.0	0.163	4.5	LOS A	1.0	7.4	0.09	0.42	0.09	53.7
North: McGillivray St															
7	L2	All MCs	14	42.9	14	42.9	0.021	5.9	LOS A	0.1	1.0	0.52	0.53	0.52	46.4
8	T1	All MCs	1	0.0	1	0.0	0.021	4.8	LOS A	0.1	1.0	0.52	0.53	0.52	40.6
9	R2	All MCs	1	0.0	1	0.0	0.021	9.0	LOS A	0.1	1.0	0.52	0.53	0.52	47.5
Approach			16	37.5	16	37.5	0.021	6.1	LOS A	0.1	1.0	0.52	0.53	0.52	46.2
West: Wollombi Road															
10	L2	All MCs	1	0.0	1	0.0	0.209	4.5	LOS A	1.3	9.5	0.32	0.44	0.32	49.1
11	T1	All MCs	253	3.2	253	3.2	0.209	4.8	LOS A	1.3	9.5	0.32	0.44	0.32	53.4
12	R2	All MCs	10	0.0	10	0.0	0.209	9.2	LOS A	1.3	9.5	0.32	0.44	0.32	48.7
Approach			264	3.0	264	3.0	0.209	5.0	LOS A	1.3	9.5	0.32	0.44	0.32	53.3
All Vehicles			627	5.1	627	5.1	0.209	5.2	LOS A	1.3	9.5	0.24	0.46	0.24	52.3

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101 [Wollombi / Regiment / Green 2023 AM (Site Folder: Base 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	58	5.2	58	5.2	0.329	7.4	LOS A	2.3	16.8	0.49	0.60	0.49	52.1
2	T1	All MCs	174	6.9	174	6.9	0.329	8.1	LOS A	2.3	16.8	0.49	0.60	0.49	56.5
3	R2	All MCs	125	3.2	125	3.2	0.329	11.1	LOS A	2.3	16.8	0.49	0.60	0.49	51.8
Approach			357	5.3	357	5.3	0.329	9.0	LOS A	2.3	16.8	0.49	0.60	0.49	54.0
East: Green Street															
4	L2	All MCs	98	6.1	98	6.1	0.241	4.9	LOS A	1.5	11.2	0.46	0.52	0.46	51.3
5	T1	All MCs	108	2.8	108	2.8	0.241	4.9	LOS A	1.5	11.2	0.46	0.52	0.46	45.5
6	R2	All MCs	49	2.0	49	2.0	0.241	8.3	LOS A	1.5	11.2	0.46	0.52	0.46	48.0
Approach			255	3.9	255	3.9	0.241	5.5	LOS A	1.5	11.2	0.46	0.52	0.46	48.1
North: Wollombi Road															
7	L2	All MCs	50	6.0	50	6.0	0.202	7.0	LOS A	1.2	9.0	0.58	0.61	0.58	47.9
8	T1	All MCs	109	6.4	109	6.4	0.202	7.2	LOS A	1.2	9.0	0.58	0.61	0.58	55.2
9	R2	All MCs	21	4.8	21	4.8	0.202	10.6	LOS A	1.2	9.0	0.58	0.61	0.58	47.6
Approach			180	6.1	180	6.1	0.202	7.6	LOS A	1.2	9.0	0.58	0.61	0.58	52.0
West: Regiment Road															
10	L2	All MCs	48	2.1	48	2.1	0.289	6.2	LOS A	1.9	13.4	0.62	0.60	0.62	47.7
11	T1	All MCs	161	1.2	161	1.2	0.289	6.2	LOS A	1.9	13.4	0.62	0.60	0.62	44.9
12	R2	All MCs	53	1.9	53	1.9	0.289	9.6	LOS A	1.9	13.4	0.62	0.60	0.62	51.2
Approach			262	1.5	262	1.5	0.289	6.9	LOS A	1.9	13.4	0.62	0.60	0.62	46.6
All Vehicles			1054	4.2	1054	4.2	0.329	7.4	LOS A	2.3	16.8	0.53	0.58	0.53	50.2

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101v [Wollombi / New England 2023 AM (Site Folder: Base 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	114	2.6	114	2.6	0.159	7.5	LOS A	1.0	7.1	0.27	0.62	0.27	49.2
3	R2	All MCs	163	5.5	163	5.5	* 0.433	50.8	LOS D	3.7	27.3	0.98	0.77	0.98	28.2
Approach			277	4.3	277	4.3	0.433	32.9	LOS C	3.7	27.3	0.69	0.71	0.69	34.0
East: New England Highway															
4	L2	All MCs	53	5.7	53	5.7	0.034	6.4	LOS A	0.2	1.8	0.14	0.57	0.14	50.7
5	T1	All MCs	1066	7.9	1066	7.9	* 0.433	8.0	LOS A	11.5	86.1	0.51	0.46	0.51	48.0
Approach			1119	7.8	1119	7.8	0.433	8.0	LOS A	11.5	86.1	0.49	0.46	0.49	48.2
West: New England Highway															
11	T1	All MCs	1178	7.5	1178	7.5	0.396	2.9	LOS A	7.8	58.4	0.32	0.29	0.32	55.0
12	R2	All MCs	84	4.8	84	4.8	* 0.487	54.0	LOS D	3.1	22.4	0.99	0.74	0.99	26.8
Approach			1262	7.3	1262	7.3	0.487	6.3	LOS A	7.8	58.4	0.36	0.32	0.36	50.1
All Vehicles			2658	7.2	2658	7.2	0.487	9.8	LOS A	11.5	86.1	0.45	0.42	0.45	46.3

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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 Green.
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.

* 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	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wollombi Road												
P1	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
West: New England Highway												
P4	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
All Pedestrians		0	100	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02

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 [Wollombi / Harlington / McGillivray 2023 PM (Site Folder: Base 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak 4:00pm - 5:00pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Harlington Ave															
1	L2	All MCs	6	16.7	6	16.7	0.049	4.8	LOS A	0.3	1.9	0.44	0.60	0.44	46.0
2	T1	All MCs	1	0.0	1	0.0	0.049	4.4	LOS A	0.3	1.9	0.44	0.60	0.44	38.5
3	R2	All MCs	44	2.3	44	2.3	0.049	8.7	LOS A	0.3	1.9	0.44	0.60	0.44	45.9
Approach			51	3.9	51	3.9	0.049	8.2	LOS A	0.3	1.9	0.44	0.60	0.44	45.8
East: Wollombi Road															
4	L2	All MCs	73	0.0	73	0.0	0.220	4.0	LOS A	1.4	9.8	0.13	0.42	0.13	50.3
5	T1	All MCs	255	2.0	255	2.0	0.220	4.3	LOS A	1.4	9.8	0.13	0.42	0.13	54.4
6	R2	All MCs	6	0.0	6	0.0	0.220	8.7	LOS A	1.4	9.8	0.13	0.42	0.13	49.7
Approach			334	1.5	334	1.5	0.220	4.3	LOS A	1.4	9.8	0.13	0.42	0.13	53.6
North: McGillivray St															
7	L2	All MCs	7	0.0	7	0.0	0.013	4.6	LOS A	0.1	0.5	0.48	0.52	0.48	48.1
8	T1	All MCs	1	0.0	1	0.0	0.013	4.6	LOS A	0.1	0.5	0.48	0.52	0.48	40.7
9	R2	All MCs	4	25.0	4	25.0	0.013	9.6	LOS A	0.1	0.5	0.48	0.52	0.48	46.2
Approach			12	8.3	12	8.3	0.013	6.2	LOS A	0.1	0.5	0.48	0.52	0.48	47.0
West: Wollombi Road															
10	L2	All MCs	1	0.0	1	0.0	0.199	4.2	LOS A	1.3	9.2	0.22	0.42	0.22	49.6
11	T1	All MCs	260	1.2	260	1.2	0.199	4.5	LOS A	1.3	9.2	0.22	0.42	0.22	53.8
12	R2	All MCs	17	0.0	17	0.0	0.199	8.9	LOS A	1.3	9.2	0.22	0.42	0.22	49.1
Approach			278	1.1	278	1.1	0.199	4.8	LOS A	1.3	9.2	0.22	0.42	0.22	53.6
All Vehicles			675	1.6	675	1.6	0.220	4.8	LOS A	1.4	9.8	0.19	0.44	0.19	53.0

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101 [Wollombi / Regiment / Green 2023 PM (Site Folder: Base 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak 3:15pm - 4:15pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	66	1.5	66	1.5	0.344	8.2	LOS A	2.4	17.4	0.61	0.64	0.61	51.8
2	T1	All MCs	167	7.2	167	7.2	0.344	9.1	LOS A	2.4	17.4	0.61	0.64	0.61	56.1
3	R2	All MCs	90	3.3	90	3.3	0.344	12.1	LOS A	2.4	17.4	0.61	0.64	0.61	51.4
Approach			323	5.0	323	5.0	0.344	9.7	LOS A	2.4	17.4	0.61	0.64	0.61	53.8
East: Green Street															
4	L2	All MCs	123	1.6	123	1.6	0.376	5.7	LOS A	2.6	18.9	0.59	0.57	0.59	51.8
5	T1	All MCs	196	3.1	196	3.1	0.376	5.8	LOS A	2.6	18.9	0.59	0.57	0.59	45.2
6	R2	All MCs	52	7.7	52	7.7	0.376	9.4	LOS A	2.6	18.9	0.59	0.57	0.59	47.5
Approach			371	3.2	371	3.2	0.376	6.3	LOS A	2.6	18.9	0.59	0.57	0.59	47.6
North: Wollombi Road															
7	L2	All MCs	47	2.1	47	2.1	0.220	6.8	LOS A	1.4	10.0	0.58	0.61	0.58	47.9
8	T1	All MCs	119	6.7	119	6.7	0.220	7.2	LOS A	1.4	10.0	0.58	0.61	0.58	55.0
9	R2	All MCs	32	6.3	32	6.3	0.220	10.6	LOS A	1.4	10.0	0.58	0.61	0.58	47.5
Approach			198	5.6	198	5.6	0.220	7.7	LOS A	1.4	10.0	0.58	0.61	0.58	51.9
West: Regiment Road															
10	L2	All MCs	49	2.0	49	2.0	0.308	5.9	LOS A	2.1	14.6	0.61	0.61	0.61	47.4
11	T1	All MCs	127	0.0	127	0.0	0.308	5.9	LOS A	2.1	14.6	0.61	0.61	0.61	44.7
12	R2	All MCs	114	0.0	114	0.0	0.308	9.3	LOS A	2.1	14.6	0.61	0.61	0.61	51.3
Approach			290	0.3	290	0.3	0.308	7.3	LOS A	2.1	14.6	0.61	0.61	0.61	47.6
All Vehicles			1182	3.4	1182	3.4	0.376	7.7	LOS A	2.6	18.9	0.60	0.61	0.60	49.8

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101v [Wollombi / New England 2023 PM (Site Folder: Base 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak: 3:30pm - 4:30pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	129	3.1	129	3.1	0.204	7.7	LOS A	1.4	9.7	0.27	0.63	0.27	48.9
3	R2	All MCs	117	3.4	117	3.4	* 0.355	58.5	LOS E	3.1	22.2	0.98	0.75	0.98	26.2
Approach			246	3.3	246	3.3	0.355	31.9	LOS C	3.1	22.2	0.60	0.69	0.60	34.5
East: New England Highway															
4	L2	All MCs	77	5.2	77	5.2	0.049	6.6	LOS A	0.4	3.2	0.14	0.58	0.14	50.6
5	T1	All MCs	1190	6.1	1190	6.1	* 0.447	7.2	LOS A	13.4	98.4	0.46	0.42	0.46	49.0
Approach			1267	6.1	1267	6.1	0.447	7.2	LOS A	13.4	98.4	0.44	0.43	0.44	49.2
West: New England Highway															
11	T1	All MCs	1437	4.1	1437	4.1	0.457	2.8	LOS A	10.5	75.9	0.30	0.28	0.30	55.2
12	R2	All MCs	121	4.1	121	4.1	* 0.808	66.5	LOS E	5.5	39.9	1.00	0.88	1.25	23.9
Approach			1558	4.1	1558	4.1	0.808	7.7	LOS A	10.5	75.9	0.36	0.32	0.38	48.4
All Vehicles			3071	4.9	3071	4.9	0.808	9.4	LOS A	13.4	98.4	0.41	0.39	0.42	46.6

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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 Green.
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.

* 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	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wollombi Road												
P1	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
West: New England Highway												
P4	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		0	100	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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 [Wollombi / Harlington / McGillivray 2023 + Dev AM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Harlington Ave															
1	L2	All MCs	16	0.0	16	0.0	0.091	4.3	LOS A	0.5	3.5	0.43	0.59	0.43	46.7
2	T1	All MCs	1	0.0	1	0.0	0.091	4.3	LOS A	0.5	3.5	0.43	0.59	0.43	38.8
3	R2	All MCs	80	3.8	80	3.8	0.091	8.7	LOS A	0.5	3.5	0.43	0.59	0.43	46.1
Approach			97	3.1	97	3.1	0.091	7.9	LOS A	0.5	3.5	0.43	0.59	0.43	46.1
East: Wollombi Road															
4	L2	All MCs	34	5.9	34	5.9	0.173	4.0	LOS A	1.1	7.9	0.09	0.42	0.09	50.4
5	T1	All MCs	219	2.3	219	2.3	0.173	4.2	LOS A	1.1	7.9	0.09	0.42	0.09	54.6
6	R2	All MCs	13	61.5	13	61.5	0.173	9.3	LOS A	1.1	7.9	0.09	0.42	0.09	45.4
Approach			266	5.6	266	5.6	0.173	4.5	LOS A	1.1	7.9	0.09	0.42	0.09	53.7
North: McGillivray St															
7	L2	All MCs	14	42.9	14	42.9	0.022	6.5	LOS A	0.1	1.0	0.57	0.56	0.57	46.0
8	T1	All MCs	1	0.0	1	0.0	0.022	5.1	LOS A	0.1	1.0	0.57	0.56	0.57	40.0
9	R2	All MCs	1	0.0	1	0.0	0.022	9.4	LOS A	0.1	1.0	0.57	0.56	0.57	47.0
Approach			16	37.5	16	37.5	0.022	6.6	LOS A	0.1	1.0	0.57	0.56	0.57	45.8
West: Wollombi Road															
10	L2	All MCs	1	0.0	1	0.0	0.257	4.6	LOS A	1.7	12.3	0.33	0.43	0.33	49.1
11	T1	All MCs	318	2.5	318	2.5	0.257	4.8	LOS A	1.7	12.3	0.33	0.43	0.33	53.4
12	R2	All MCs	10	0.0	10	0.0	0.257	9.2	LOS A	1.7	12.3	0.33	0.43	0.33	48.7
Approach			329	2.4	329	2.4	0.257	5.0	LOS A	1.7	12.3	0.33	0.43	0.33	53.3
All Vehicles			708	4.5	708	4.5	0.257	5.2	LOS A	1.7	12.3	0.26	0.45	0.26	52.4

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101 [Wollombi / Regiment / Green 2023 + Dev AM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	58	5.2	58	5.2	0.383	7.5	LOS A	2.8	20.7	0.51	0.59	0.51	52.1
2	T1	All MCs	239	5.0	239	5.0	0.383	8.1	LOS A	2.8	20.7	0.51	0.59	0.51	56.6
3	R2	All MCs	125	3.2	125	3.2	0.383	11.2	LOS A	2.8	20.7	0.51	0.59	0.51	51.7
Approach			422	4.5	422	4.5	0.383	8.9	LOS A	2.8	20.7	0.51	0.59	0.51	54.4
East: Green Street															
4	L2	All MCs	98	6.1	98	6.1	0.246	5.0	LOS A	1.6	11.5	0.48	0.53	0.48	51.2
5	T1	All MCs	108	2.8	108	2.8	0.246	5.0	LOS A	1.6	11.5	0.48	0.53	0.48	45.5
6	R2	All MCs	49	2.0	49	2.0	0.246	8.4	LOS A	1.6	11.5	0.48	0.53	0.48	48.0
Approach			255	3.9	255	3.9	0.246	5.7	LOS A	1.6	11.5	0.48	0.53	0.48	48.0
North: Wollombi Road															
7	L2	All MCs	50	6.0	50	6.0	0.220	7.0	LOS A	1.4	10.0	0.59	0.61	0.59	47.9
8	T1	All MCs	125	5.6	125	5.6	0.220	7.3	LOS A	1.4	10.0	0.59	0.61	0.59	55.4
9	R2	All MCs	21	4.8	21	4.8	0.220	10.7	LOS A	1.4	10.0	0.59	0.61	0.59	47.6
Approach			196	5.6	196	5.6	0.220	7.6	LOS A	1.4	10.0	0.59	0.61	0.59	52.4
West: Regiment Road															
10	L2	All MCs	48	2.1	48	2.1	0.308	6.7	LOS A	2.0	14.5	0.68	0.64	0.68	47.4
11	T1	All MCs	161	1.2	161	1.2	0.308	6.8	LOS A	2.0	14.5	0.68	0.64	0.68	44.7
12	R2	All MCs	53	1.9	53	1.9	0.308	10.2	LOS A	2.0	14.5	0.68	0.64	0.68	50.9
Approach			262	1.5	262	1.5	0.308	7.5	LOS A	2.0	14.5	0.68	0.64	0.68	46.3
All Vehicles			1135	3.9	1135	3.9	0.383	7.6	LOS A	2.8	20.7	0.56	0.59	0.56	50.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101v [Wollombi / New England 2023 + Dev AM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	147	2.0	147	2.0	0.189	9.6	LOS A	2.0	14.4	0.38	0.66	0.38	47.4
3	R2	All MCs	196	4.6	196	4.6	* 0.272	40.9	LOS C	3.9	28.5	0.89	0.76	0.89	31.2
Approach			343	3.5	343	3.5	0.272	27.5	LOS B	3.9	28.5	0.67	0.72	0.67	36.4
East: New England Highway															
4	L2	All MCs	61	4.9	61	4.9	0.041	6.6	LOS A	0.3	2.0	0.17	0.59	0.17	50.6
5	T1	All MCs	1066	7.9	1066	7.9	* 0.535	15.3	LOS B	15.9	119.2	0.70	0.62	0.70	40.7
Approach			1127	7.7	1127	7.7	0.535	14.8	LOS B	15.9	119.2	0.67	0.62	0.67	41.3
West: New England Highway															
11	T1	All MCs	1178	7.5	1178	7.5	0.470	7.9	LOS A	12.9	95.8	0.52	0.46	0.52	48.2
12	R2	All MCs	92	4.3	92	4.3	* 0.532	54.2	LOS D	3.4	24.6	0.99	0.75	1.00	26.8
Approach			1270	7.2	1270	7.2	0.532	11.2	LOS A	12.9	95.8	0.55	0.49	0.55	44.6
All Vehicles			2740	7.0	2740	7.0	0.535	14.7	LOS B	15.9	119.2	0.61	0.57	0.61	41.7

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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 Green.
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.

* 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	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wollombi Road												
P1	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
West: New England Highway												
P4	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
All Pedestrians		0	100	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02

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 [Wollombi / Site Access 2023 + Dev AM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

AM Peak 8:00am - 9:00am
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	16	0.0	16	0.0	0.111	5.3	LOS A	0.4	3.0	0.50	0.68	0.50	46.2
3	R2	All MCs	65	0.0	65	0.0	0.111	8.2	LOS A	0.4	3.0	0.50	0.68	0.50	46.1
Approach			81	0.0	81	0.0	0.111	7.6	LOS A	0.4	3.0	0.50	0.68	0.50	46.1
East: Wollombi Road															
4	L2	All MCs	16	0.0	16	0.0	0.121	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	56.0
5	T1	All MCs	219	2.3	219	2.3	0.121	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.6
Approach			235	2.1	235	2.1	0.121	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.4
West: Wollombi Road															
11	T1	All MCs	264	3.0	264	3.0	0.137	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	4	0.0	4	0.0	0.003	6.1	LOS A	0.0	0.1	0.32	0.54	0.32	47.5
Approach			268	3.0	268	3.0	0.137	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
All Vehicles			584	2.2	584	2.2	0.137	1.3	NA	0.4	3.0	0.07	0.11	0.07	57.8

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: 101 [Wollombi / Harlington / McGillivray 2023 + Dev PM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak 4:00pm - 5:00pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Harlington Ave															
1	L2	All MCs	6	16.7	6	16.7	0.052	5.2	LOS A	0.3	2.0	0.49	0.62	0.49	45.8
2	T1	All MCs	1	0.0	1	0.0	0.052	4.7	LOS A	0.3	2.0	0.49	0.62	0.49	38.3
3	R2	All MCs	44	2.3	44	2.3	0.052	9.1	LOS A	0.3	2.0	0.49	0.62	0.49	45.8
Approach			51	3.9	51	3.9	0.052	8.6	LOS A	0.3	2.0	0.49	0.62	0.49	45.7
East: Wollombi Road															
4	L2	All MCs	73	0.0	73	0.0	0.260	4.1	LOS A	1.7	12.1	0.13	0.41	0.13	50.3
5	T1	All MCs	320	1.6	320	1.6	0.260	4.3	LOS A	1.7	12.1	0.13	0.41	0.13	54.4
6	R2	All MCs	6	0.0	6	0.0	0.260	8.7	LOS A	1.7	12.1	0.13	0.41	0.13	49.7
Approach			399	1.3	399	1.3	0.260	4.3	LOS A	1.7	12.1	0.13	0.41	0.13	53.7
North: McGillivray St															
7	L2	All MCs	7	0.0	7	0.0	0.013	4.7	LOS A	0.1	0.5	0.49	0.53	0.49	48.1
8	T1	All MCs	1	0.0	1	0.0	0.013	4.7	LOS A	0.1	0.5	0.49	0.53	0.49	40.6
9	R2	All MCs	4	25.0	4	25.0	0.013	9.7	LOS A	0.1	0.5	0.49	0.53	0.49	46.2
Approach			12	8.3	12	8.3	0.013	6.3	LOS A	0.1	0.5	0.49	0.53	0.49	46.9
West: Wollombi Road															
10	L2	All MCs	1	0.0	1	0.0	0.210	4.2	LOS A	1.4	9.9	0.22	0.42	0.22	49.6
11	T1	All MCs	276	1.1	276	1.1	0.210	4.5	LOS A	1.4	9.9	0.22	0.42	0.22	53.8
12	R2	All MCs	17	0.0	17	0.0	0.210	8.9	LOS A	1.4	9.9	0.22	0.42	0.22	49.1
Approach			294	1.0	294	1.0	0.210	4.7	LOS A	1.4	9.9	0.22	0.42	0.22	53.6
All Vehicles			756	1.5	756	1.5	0.260	4.8	LOS A	1.7	12.1	0.20	0.43	0.20	53.1

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101 [Wollombi / Regiment / Green 2023 + Dev PM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak 3:15pm - 4:15pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	66	1.5	66	1.5	0.360	8.2	LOS A	2.6	18.7	0.62	0.64	0.62	51.8
2	T1	All MCs	183	6.6	183	6.6	0.360	9.1	LOS A	2.6	18.7	0.62	0.64	0.62	56.1
3	R2	All MCs	90	3.3	90	3.3	0.360	12.1	LOS A	2.6	18.7	0.62	0.64	0.62	51.4
Approach			339	4.7	339	4.7	0.360	9.7	LOS A	2.6	18.7	0.62	0.64	0.62	53.9
East: Green Street															
4	L2	All MCs	123	1.6	123	1.6	0.405	6.3	LOS A	2.9	20.7	0.66	0.61	0.66	51.5
5	T1	All MCs	196	3.1	196	3.1	0.405	6.4	LOS A	2.9	20.7	0.66	0.61	0.66	44.9
6	R2	All MCs	52	7.7	52	7.7	0.405	10.0	LOS A	2.9	20.7	0.66	0.61	0.66	47.2
Approach			371	3.2	371	3.2	0.405	6.9	LOS A	2.9	20.7	0.66	0.61	0.66	47.3
North: Wollombi Road															
7	L2	All MCs	47	2.1	47	2.1	0.288	6.9	LOS A	1.9	13.6	0.61	0.61	0.61	47.8
8	T1	All MCs	184	4.3	184	4.3	0.288	7.3	LOS A	1.9	13.6	0.61	0.61	0.61	55.5
9	R2	All MCs	31	3.2	31	3.2	0.288	10.7	LOS A	1.9	13.6	0.61	0.61	0.61	47.5
Approach			262	3.8	262	3.8	0.288	7.6	LOS A	1.9	13.6	0.61	0.61	0.61	52.9
West: Regiment Road															
10	L2	All MCs	49	2.0	49	2.0	0.313	6.1	LOS A	2.1	14.9	0.63	0.62	0.63	47.4
11	T1	All MCs	127	0.0	127	0.0	0.313	6.1	LOS A	2.1	14.9	0.63	0.62	0.63	44.7
12	R2	All MCs	114	0.0	114	0.0	0.313	9.5	LOS A	2.1	14.9	0.63	0.62	0.63	51.2
Approach			290	0.3	290	0.3	0.313	7.4	LOS A	2.1	14.9	0.63	0.62	0.63	47.5
All Vehicles			1262	3.1	1262	3.1	0.405	7.9	LOS A	2.9	20.7	0.63	0.62	0.63	50.1

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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: 101v [Wollombi / New England 2023 + Dev PM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak: 3:30pm - 4:30pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wollombi Road															
1	L2	All MCs	137	2.9	137	2.9	0.186	10.9	LOS A	2.3	16.8	0.40	0.66	0.40	46.3
3	R2	All MCs	125	3.2	125	3.2	* 0.189	47.2	LOS D	2.9	20.7	0.89	0.75	0.89	29.3
Approach			262	3.1	262	3.1	0.189	28.2	LOS B	2.9	20.7	0.63	0.70	0.63	36.1
East: New England Highway															
4	L2	All MCs	110	3.6	110	3.6	0.075	12.7	LOS A	0.7	5.0	0.18	0.60	0.18	50.4
5	T1	All MCs	1190	6.1	1190	6.1	* 0.592	19.3	LOS B	21.5	158.8	0.72	0.65	0.72	38.6
Approach			1300	5.9	1300	5.9	0.592	18.7	LOS B	21.5	158.8	0.68	0.65	0.68	39.7
West: New England Highway															
11	T1	All MCs	1437	4.1	1437	4.1	0.533	7.9	LOS A	17.7	128.4	0.51	0.46	0.51	48.2
12	R2	All MCs	154	3.2	154	3.2	* 0.596	57.5	LOS E	6.3	45.5	0.99	0.78	1.00	25.9
Approach			1591	4.0	1591	4.0	0.596	12.7	LOS A	17.7	128.4	0.55	0.49	0.55	43.3
All Vehicles			3153	4.7	3153	4.7	0.596	16.5	LOS B	21.5	158.8	0.61	0.57	0.61	40.9

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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 Green.
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.

* 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	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wollombi Road												
P1	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
West: New England Highway												
P4	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		0	100	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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 [Wollombi / Site Access 2023 + Dev PM (Site Folder: 2023 + Dev)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

PM Peak 4:00pm - 5:00pm
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	4	0.0	4	0.0	0.031	5.4	LOS A	0.1	0.8	0.52	0.66	0.52	45.8
3	R2	All MCs	16	0.0	16	0.0	0.031	8.8	LOS A	0.1	0.8	0.52	0.66	0.52	45.7
Approach			20	0.0	20	0.0	0.031	8.1	LOS A	0.1	0.8	0.52	0.66	0.52	45.7
East: Wollombi Road															
4	L2	All MCs	65	0.0	65	0.0	0.171	5.6	LOS A	0.0	0.0	0.00	0.12	0.00	55.1
5	T1	All MCs	265	2.6	265	2.6	0.171	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	58.8
Approach			330	2.1	330	2.1	0.171	1.1	NA	0.0	0.0	0.00	0.12	0.00	58.3
West: Wollombi Road															
11	T1	All MCs	277	1.1	277	1.1	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	16	0.0	16	0.0	0.012	6.5	LOS A	0.1	0.4	0.40	0.58	0.40	47.3
Approach			293	1.0	293	1.0	0.142	0.4	NA	0.1	0.4	0.02	0.03	0.02	59.3
All Vehicles			643	1.6	643	1.6	0.171	1.0	NA	0.1	0.8	0.03	0.10	0.03	58.4

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: 101 [Wollombi / Harlington / McGillivray 2033 Future Base AM (Site Folder: 2033 Future Base (2%pa + Approved Nearby Developments))]

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harlington Ave														
1	L2	35	0	35	0.0	0.194	5.0	LOS A	1.1	8.1	0.54	0.63	0.54	46.4
2	T1	1	0	1	0.0	0.194	5.0	LOS A	1.1	8.1	0.54	0.63	0.54	38.4
3	R2	156	3	156	1.9	0.194	9.4	LOS A	1.1	8.1	0.54	0.63	0.54	45.9
Approach		192	3	192	1.6	0.194	8.6	LOS A	1.1	8.1	0.54	0.63	0.54	45.9
East: Wollombi Road														
4	L2	53	2	53	3.8	0.247	4.3	LOS A	1.7	12.5	0.22	0.44	0.22	49.5
5	T1	247	5	247	2.0	0.247	4.5	LOS A	1.7	12.5	0.22	0.44	0.22	53.7
6	R2	45	8	45	17.8	0.247	9.1	LOS A	1.7	12.5	0.22	0.44	0.22	47.5
Approach		345	15	345	4.3	0.247	5.1	LOS A	1.7	12.5	0.22	0.44	0.22	52.5
North: McGillivray St														
7	L2	141	6	141	4.3	0.206	6.3	LOS A	1.3	9.1	0.65	0.63	0.65	47.0
8	T1	1	0	1	0.0	0.206	6.1	LOS A	1.3	9.1	0.65	0.63	0.65	39.5
9	R2	32	0	32	0.0	0.206	10.4	LOS A	1.3	9.1	0.65	0.63	0.65	46.5
Approach		174	6	174	3.4	0.206	7.0	LOS A	1.3	9.1	0.65	0.63	0.65	46.9
West: Wollombi Road														
10	L2	9	0	9	0.0	0.300	5.4	LOS A	2.0	14.6	0.50	0.51	0.50	48.1
11	T1	305	10	305	3.3	0.300	5.7	LOS A	2.0	14.6	0.50	0.51	0.50	52.7
12	R2	15	0	15	0.0	0.300	10.0	LOS A	2.0	14.6	0.50	0.51	0.50	47.9
Approach		329	10	329	3.0	0.300	5.9	LOS A	2.0	14.6	0.50	0.51	0.50	52.4
All Vehicles		1040	34	1040	3.3	0.300	6.3	LOS A	2.0	14.6	0.44	0.53	0.44	50.5

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.
Roundabout Capacity Model: SIDRA Standard.
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 [Wollombi / Regiment / Green 2033 Future Base AM (Site Folder: 2033 Future Base (2%pa + Approved Nearby Developments))]

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	58	3	58	5.2	0.543	7.8	LOS A	4.9	35.3	0.61	0.59	0.61	51.8
2	T1	430	14	430	3.3	0.543	8.3	LOS A	4.9	35.3	0.61	0.59	0.61	56.3
3	R2	125	4	125	3.2	0.543	11.5	LOS A	4.9	35.3	0.61	0.59	0.61	51.5
Approach		613	21	613	3.4	0.543	8.9	LOS A	4.9	35.3	0.61	0.59	0.61	54.8
East: Green Street														
4	L2	98	6	98	6.1	0.265	5.6	LOS A	1.7	12.5	0.55	0.57	0.55	51.0
5	T1	108	3	108	2.8	0.265	5.5	LOS A	1.7	12.5	0.55	0.57	0.55	45.3
6	R2	49	1	49	2.0	0.265	8.9	LOS A	1.7	12.5	0.55	0.57	0.55	47.7
Approach		255	10	255	3.9	0.265	6.2	LOS A	1.7	12.5	0.55	0.57	0.55	47.8
North: Wollombi Road														
7	L2	50	3	50	6.0	0.289	7.2	LOS A	1.9	13.8	0.63	0.61	0.63	47.8
8	T1	186	8	186	4.3	0.289	7.4	LOS A	1.9	13.8	0.63	0.61	0.63	55.5
9	R2	21	1	21	4.8	0.289	10.8	LOS A	1.9	13.8	0.63	0.61	0.63	47.5
Approach		257	12	257	4.7	0.289	7.6	LOS A	1.9	13.8	0.63	0.61	0.63	53.1
West: Regiment Road														
10	L2	48	1	48	2.1	0.379	8.6	LOS A	2.7	18.9	0.82	0.72	0.82	46.4
11	T1	161	2	161	1.2	0.379	8.7	LOS A	2.7	18.9	0.82	0.72	0.82	43.8
12	R2	53	1	53	1.9	0.379	12.1	LOS A	2.7	18.9	0.82	0.72	0.82	49.7
Approach		262	4	262	1.5	0.379	9.4	LOS A	2.7	18.9	0.82	0.72	0.82	45.3
All Vehicles		1387	47	1387	3.4	0.543	8.3	LOS A	4.9	35.3	0.64	0.61	0.64	51.1

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.
Roundabout Capacity Model: SIDRA Standard.
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: 101v [Wollombi / New England 2033 Future Base AM (Site Folder: 2033 Future Base (2%pa + Approved Nearby Developments))]

AM Peak 8:00am - 9:00am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	248	4	248	1.6	0.342	13.2	LOS A	5.2	36.7	0.54	0.72	0.54	44.7
3	R2	306	11	306	3.6	* 0.422	42.2	LOS C	6.3	45.7	0.92	0.79	0.92	30.9
Approach		554	15	554	2.7	0.422	29.2	LOS C	6.3	45.7	0.75	0.76	0.75	35.7
East: New England Highway														
4	L2	92	4	92	4.3	0.063	13.2	LOS A	0.5	3.8	0.20	0.60	0.20	50.4
5	T1	1279	101	1279	7.9	* 0.665	19.1	LOS B	21.8	162.9	0.79	0.71	0.79	38.8
Approach		1371	105	1371	7.7	0.665	18.7	LOS B	21.8	162.9	0.75	0.70	0.75	39.7
West: New England Highway														
11	T1	1414	106	1414	7.5	0.564	8.7	LOS A	17.0	127.0	0.57	0.52	0.57	47.3
12	R2	129	5	129	3.9	* 0.650	54.1	LOS D	4.8	34.7	0.99	0.80	1.07	26.8
Approach		1543	111	1543	7.2	0.650	12.5	LOS A	17.0	127.0	0.60	0.54	0.61	43.5
All Vehicles		3468	231	3468	6.7	0.665	17.6	LOS B	21.8	162.9	0.68	0.64	0.69	40.2

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: Wollombi Road												
P1	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
West: New England Highway												
P4	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
All Pedestrians		0	100	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02

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 [Wollombi / Harlington / McGillivray 2033 Future Base PM (Site Folder: 2033 Future Base (2%pa + Approved Nearby Developments))]

PM Peak 4:00pm - 5:00pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harlington Ave														
1	L2	11	1	11	9.1	0.084	5.8	LOS A	0.5	3.4	0.58	0.66	0.58	45.7
2	T1	1	0	1	0.0	0.084	5.5	LOS A	0.5	3.4	0.58	0.66	0.58	37.8
3	R2	63	1	63	1.6	0.084	9.9	LOS A	0.5	3.4	0.58	0.66	0.58	45.4
Approach		75	2	75	2.7	0.084	9.2	LOS A	0.5	3.4	0.58	0.66	0.58	45.3
East: Wollombi Road														
4	L2	149	0	149	0.0	0.395	4.3	LOS A	3.2	22.5	0.25	0.47	0.25	49.1
5	T1	307	6	307	2.0	0.395	4.5	LOS A	3.2	22.5	0.25	0.47	0.25	53.4
6	R2	121	0	121	0.0	0.395	8.9	LOS A	3.2	22.5	0.25	0.47	0.25	48.4
Approach		577	6	577	1.0	0.395	5.4	LOS A	3.2	22.5	0.25	0.47	0.25	51.5
North: McGillivray St														
7	L2	36	0	36	0.0	0.053	5.3	LOS A	0.3	2.1	0.57	0.59	0.57	47.9
8	T1	1	0	1	0.0	0.053	5.3	LOS A	0.3	2.1	0.57	0.59	0.57	40.4
9	R2	11	1	11	9.1	0.053	9.9	LOS A	0.3	2.1	0.57	0.59	0.57	46.8
Approach		48	1	48	2.1	0.053	6.3	LOS A	0.3	2.1	0.57	0.59	0.57	47.5
West: Wollombi Road														
10	L2	29	0	29	0.0	0.328	5.2	LOS A	2.2	15.6	0.46	0.50	0.46	48.2
11	T1	317	4	317	1.3	0.328	5.5	LOS A	2.2	15.6	0.46	0.50	0.46	52.8
12	R2	36	0	36	0.0	0.328	9.9	LOS A	2.2	15.6	0.46	0.50	0.46	48.0
Approach		382	4	382	1.0	0.328	5.9	LOS A	2.2	15.6	0.46	0.50	0.46	52.1
All Vehicles		1082	13	1082	1.2	0.395	5.9	LOS A	3.2	22.5	0.36	0.50	0.36	51.2

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.
Roundabout Capacity Model: SIDRA Standard.
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 [Wollombi / Regiment / Green 2033 Future Base PM (Site Folder: 2033 Future Base (2%pa + Approved Nearby Developments))]

PM Peak 3:15pm - 4:15pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	66	1	66	1.5	0.433	8.3	LOS A	3.4	24.4	0.67	0.64	0.67	51.6
2	T1	252	14	252	5.6	0.433	9.2	LOS A	3.4	24.4	0.67	0.64	0.67	56.0
3	R2	90	3	90	3.3	0.433	12.2	LOS A	3.4	24.4	0.67	0.64	0.67	51.2
Approach		408	18	408	4.4	0.433	9.7	LOS A	3.4	24.4	0.67	0.64	0.67	54.1
East: Green Street														
4	L2	123	2	123	1.6	0.484	8.6	LOS A	3.9	27.9	0.81	0.73	0.88	50.1
5	T1	196	6	196	3.1	0.484	8.7	LOS A	3.9	27.9	0.81	0.73	0.88	43.9
6	R2	52	4	52	7.7	0.484	12.4	LOS A	3.9	27.9	0.81	0.73	0.88	46.0
Approach		371	12	371	3.2	0.484	9.2	LOS A	3.9	27.9	0.81	0.73	0.88	46.0
North: Wollombi Road														
7	L2	47	1	47	2.1	0.468	7.4	LOS A	3.6	25.5	0.71	0.63	0.71	47.6
8	T1	351	10	351	2.8	0.468	7.7	LOS A	3.6	25.5	0.71	0.63	0.71	55.5
9	R2	31	1	31	3.2	0.468	11.2	LOS A	3.6	25.5	0.71	0.63	0.71	47.3
Approach		429	12	429	2.8	0.468	7.9	LOS A	3.6	25.5	0.71	0.63	0.71	53.8
West: Regiment Road														
10	L2	49	1	49	2.0	0.338	6.7	LOS A	2.3	16.4	0.69	0.65	0.69	47.1
11	T1	127	0	127	0.0	0.338	6.7	LOS A	2.3	16.4	0.69	0.65	0.69	44.4
12	R2	114	0	114	0.0	0.338	10.0	LOS A	2.3	16.4	0.69	0.65	0.69	50.9
Approach		290	1	290	0.3	0.338	8.0	LOS A	2.3	16.4	0.69	0.65	0.69	47.2
All Vehicles		1498	43	1498	2.9	0.484	8.7	LOS A	3.9	27.9	0.72	0.66	0.74	50.4

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.
Roundabout Capacity Model: SIDRA Standard.
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: 101v [Wollombi / New England 2033 Future Base PM (Site Folder: 2033 Future Base (2%pa + Approved Nearby Developments))]

PM Peak: 3:30pm - 4:30pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	181	5	181	2.8	0.259	16.2	LOS B	4.5	32.4	0.55	0.71	0.55	42.5
3	R2	167	5	167	3.0	* 0.253	47.8	LOS D	3.9	28.0	0.90	0.76	0.90	29.1
Approach		348	10	348	2.9	0.259	31.4	LOS C	4.5	32.4	0.72	0.74	0.72	34.7
East: New England Highway														
4	L2	197	5	197	2.5	0.140	23.8	LOS B	1.9	13.5	0.25	0.62	0.25	49.7
5	T1	1428	88	1428	6.2	* 0.776	26.7	LOS B	32.4	238.4	0.87	0.79	0.87	35.0
Approach		1625	93	1625	5.7	0.776	26.3	LOS B	32.4	238.4	0.80	0.77	0.80	36.9
West: New England Highway														
11	T1	1725	71	1725	4.1	0.640	9.0	LOS A	24.2	175.7	0.58	0.53	0.58	46.9
12	R2	249	6	249	2.4	* 0.767	57.9	LOS E	10.7	76.1	0.98	0.86	1.10	25.9
Approach		1974	77	1974	3.9	0.767	15.2	LOS B	24.2	175.7	0.63	0.57	0.64	41.2
All Vehicles		3947	180	3947	4.6	0.776	21.2	LOS B	32.4	238.4	0.71	0.67	0.71	38.5

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: Wollombi Road												
P1	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
West: New England Highway												
P4	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		0	100	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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 [Wollombi / Harlington / McGillivray 2033 Future +Dev AM (Site Folder: 2033 Future + Dev)]

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harlington Ave														
1	L2	35	0	35	0.0	0.197	5.1	LOS A	1.2	8.3	0.55	0.63	0.55	46.4
2	T1	1	0	1	0.0	0.197	5.1	LOS A	1.2	8.3	0.55	0.63	0.55	38.3
3	R2	156	3	156	1.9	0.197	9.5	LOS A	1.2	8.3	0.55	0.63	0.55	45.8
Approach		192	3	192	1.6	0.197	8.7	LOS A	1.2	8.3	0.55	0.63	0.55	45.9
East: Wollombi Road														
4	L2	53	2	53	3.8	0.260	4.3	LOS A	1.8	13.4	0.23	0.44	0.23	49.5
5	T1	265	6	265	2.3	0.260	4.5	LOS A	1.8	13.4	0.23	0.44	0.23	53.7
6	R2	45	8	45	17.8	0.260	9.1	LOS A	1.8	13.4	0.23	0.44	0.23	47.5
Approach		363	16	363	4.4	0.260	5.0	LOS A	1.8	13.4	0.23	0.44	0.23	52.6
North: McGillivray St														
7	L2	141	6	141	4.3	0.219	6.8	LOS A	1.4	9.9	0.70	0.66	0.70	46.5
8	T1	1	0	1	0.0	0.219	6.6	LOS A	1.4	9.9	0.70	0.66	0.70	38.9
9	R2	32	0	32	0.0	0.219	10.9	LOS A	1.4	9.9	0.70	0.66	0.70	46.0
Approach		174	6	174	3.4	0.219	7.6	LOS A	1.4	9.9	0.70	0.66	0.70	46.3
West: Wollombi Road														
10	L2	9	0	9	0.0	0.354	5.4	LOS A	2.5	18.1	0.52	0.51	0.52	48.0
11	T1	370	10	370	2.7	0.354	5.8	LOS A	2.5	18.1	0.52	0.51	0.52	52.6
12	R2	15	0	15	0.0	0.354	10.1	LOS A	2.5	18.1	0.52	0.51	0.52	47.8
Approach		394	10	394	2.5	0.354	5.9	LOS A	2.5	18.1	0.52	0.51	0.52	52.4
All Vehicles		1123	35	1123	3.1	0.354	6.4	LOS A	2.5	18.1	0.46	0.53	0.46	50.6

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.
Roundabout Capacity Model: SIDRA Standard.
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 [Wollombi / Regiment / Green 2033 Future +Dev AM (Site Folder: 2033 Future + Dev)]

AM Peak 8:00am - 9:00am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	58	3	58	5.2	0.596	7.9	LOS A	5.8	41.6	0.65	0.59	0.65	51.7
2	T1	495	14	495	2.8	0.596	8.5	LOS A	5.8	41.6	0.65	0.59	0.65	56.2
3	R2	125	4	125	3.2	0.596	11.6	LOS A	5.8	41.6	0.65	0.59	0.65	51.4
Approach		678	21	678	3.1	0.596	9.0	LOS A	5.8	41.6	0.65	0.59	0.65	54.8
East: Green Street														
4	L2	98	6	98	6.1	0.269	5.7	LOS A	1.8	12.7	0.57	0.57	0.57	50.9
5	T1	108	3	108	2.8	0.269	5.6	LOS A	1.8	12.7	0.57	0.57	0.57	45.2
6	R2	49	1	49	2.0	0.269	9.0	LOS A	1.8	12.7	0.57	0.57	0.57	47.7
Approach		255	10	255	3.9	0.269	6.3	LOS A	1.8	12.7	0.57	0.57	0.57	47.7
North: Wollombi Road														
7	L2	50	3	50	6.0	0.308	7.2	LOS A	2.1	15.0	0.64	0.61	0.64	47.8
8	T1	202	8	202	4.0	0.308	7.4	LOS A	2.1	15.0	0.64	0.61	0.64	55.6
9	R2	21	1	21	4.8	0.308	10.9	LOS A	2.1	15.0	0.64	0.61	0.64	47.5
Approach		273	12	273	4.4	0.308	7.6	LOS A	2.1	15.0	0.64	0.61	0.64	53.3
West: Regiment Road														
10	L2	48	1	48	2.1	0.413	9.8	LOS A	3.1	21.7	0.87	0.77	0.90	45.7
11	T1	161	2	161	1.2	0.413	9.8	LOS A	3.1	21.7	0.87	0.77	0.90	43.2
12	R2	53	1	53	1.9	0.413	13.2	LOS A	3.1	21.7	0.87	0.77	0.90	48.9
Approach		262	4	262	1.5	0.413	10.5	LOS A	3.1	21.7	0.87	0.77	0.90	44.7
All Vehicles		1468	47	1468	3.2	0.596	8.5	LOS A	5.8	41.6	0.67	0.62	0.68	51.2

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.
Roundabout Capacity Model: SIDRA Standard.
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: 101v [Wollombi / New England 2033 Future +Dev AM (Site Folder: 2033 Future + Dev)]

AM Peak 8:00am - 9:00am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	280	4	280	1.4	0.382	13.5	LOS A	6.1	43.0	0.56	0.73	0.56	44.5
3	R2	339	11	339	3.2	* 0.467	42.6	LOS D	7.1	51.1	0.93	0.80	0.93	30.7
Approach		619	15	619	2.4	0.467	29.4	LOS C	7.1	51.1	0.77	0.77	0.77	35.6
East: New England Highway														
4	L2	100	4	100	4.0	0.069	14.0	LOS A	0.6	4.2	0.20	0.60	0.20	50.4
5	T1	1279	101	1279	7.9	* 0.680	20.1	LOS B	22.4	167.3	0.80	0.72	0.80	38.2
Approach		1379	105	1379	7.6	0.680	19.7	LOS B	22.4	167.3	0.76	0.72	0.76	39.2
West: New England Highway														
11	T1	1414	106	1414	7.5	0.564	8.7	LOS A	17.0	127.0	0.57	0.52	0.57	47.3
12	R2	137	5	137	3.6	* 0.613	52.5	LOS D	5.0	36.1	0.99	0.79	1.03	27.2
Approach		1551	111	1551	7.2	0.613	12.6	LOS A	17.0	127.0	0.61	0.54	0.61	43.4
All Vehicles		3549	231	3549	6.5	0.680	18.3	LOS B	22.4	167.3	0.69	0.65	0.70	39.8

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: Wollombi Road												
P1	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
West: New England Highway												
P4	Full	50	50	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02
All Pedestrians		0	100	41.8	LOS E	0.1	0.1	0.94	0.94	195.6	200.0	1.02

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.

12:12:41 PM
Project: \\TTPP-FS01\Projects\22125 303 Wollombi Rd, Farley\07 Modelling Files\Model\22125-SID002-230810.sip9

MOVEMENT SUMMARY

Site: 101 [Wollombi / Site Access 2033 Future +Dev AM (Site Folder: 2033 Future + Dev)]

AM Peak 8:00am - 9:00am
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Site Access														
1	L2	16	0	16	0.0	0.138	5.7	LOS A	0.5	3.6	0.58	0.77	0.58	44.9
3	R2	65	0	65	0.0	0.138	10.1	LOS A	0.5	3.6	0.58	0.77	0.58	44.8
Approach		81	0	81	0.0	0.138	9.2	LOS A	0.5	3.6	0.58	0.77	0.58	44.8
East: Wollombi Road														
4	L2	16	0	16	0.0	0.172	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	56.1
5	T1	318	6	318	1.9	0.172	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		334	6	334	1.8	0.172	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
West: Wollombi Road														
11	T1	331	10	331	3.0	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	4	0	4	0.0	0.003	6.5	LOS A	0.0	0.1	0.40	0.55	0.40	47.3
Approach		335	10	335	3.0	0.171	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
All Vehicles		750	16	750	2.1	0.172	1.2	NA	0.5	3.6	0.06	0.10	0.06	58.1

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.
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 [Wollombi / Harlington / McGillivray 2033 Future +Dev PM (Site Folder: 2033 Future + Dev)]

PM Peak 4:00pm - 5:00pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harlington Ave														
1	L2	11	1	11	9.1	0.089	6.3	LOS A	0.5	3.6	0.62	0.67	0.62	45.3
2	T1	1	0	1	0.0	0.089	6.0	LOS A	0.5	3.6	0.62	0.67	0.62	37.3
3	R2	63	1	63	1.6	0.089	10.3	LOS A	0.5	3.6	0.62	0.67	0.62	45.0
Approach		75	2	75	2.7	0.089	9.7	LOS A	0.5	3.6	0.62	0.67	0.62	45.0
East: Wollombi Road														
4	L2	149	0	149	0.0	0.436	4.3	LOS A	3.7	26.3	0.27	0.46	0.27	49.1
5	T1	372	6	372	1.6	0.436	4.6	LOS A	3.7	26.3	0.27	0.46	0.27	53.4
6	R2	121	0	121	0.0	0.436	8.9	LOS A	3.7	26.3	0.27	0.46	0.27	48.4
Approach		642	6	642	0.9	0.436	5.3	LOS A	3.7	26.3	0.27	0.46	0.27	51.7
North: McGillivray St														
7	L2	36	0	36	0.0	0.054	5.4	LOS A	0.3	2.2	0.58	0.60	0.58	47.8
8	T1	1	0	1	0.0	0.054	5.4	LOS A	0.3	2.2	0.58	0.60	0.58	40.2
9	R2	11	1	11	9.1	0.054	10.0	LOS A	0.3	2.2	0.58	0.60	0.58	46.7
Approach		48	1	48	2.1	0.054	6.4	LOS A	0.3	2.2	0.58	0.60	0.58	47.4
West: Wollombi Road														
10	L2	29	0	29	0.0	0.341	5.3	LOS A	2.3	16.5	0.47	0.50	0.47	48.2
11	T1	333	4	333	1.2	0.341	5.5	LOS A	2.3	16.5	0.47	0.50	0.47	52.8
12	R2	36	0	36	0.0	0.341	9.9	LOS A	2.3	16.5	0.47	0.50	0.47	47.9
Approach		398	4	398	1.0	0.341	5.9	LOS A	2.3	16.5	0.47	0.50	0.47	52.1
All Vehicles		1163	13	1163	1.1	0.436	5.8	LOS A	3.7	26.3	0.37	0.49	0.37	51.3

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.
Roundabout Capacity Model: SIDRA Standard.
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 [Wollombi / Regiment / Green 2033 Future +Dev PM (Site Folder: 2033 Future + Dev)]

PM Peak 3:15pm - 4:15pm
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	66	1	66	1.5	0.450	8.4	LOS A	3.6	25.9	0.69	0.64	0.69	51.6
2	T1	268	14	268	5.2	0.450	9.2	LOS A	3.6	25.9	0.69	0.64	0.69	55.9
3	R2	90	3	90	3.3	0.450	12.3	LOS A	3.6	25.9	0.69	0.64	0.69	51.2
Approach		424	18	424	4.2	0.450	9.7	LOS A	3.6	25.9	0.69	0.64	0.69	54.2
East: Green Street														
4	L2	123	2	123	1.6	0.522	10.1	LOS A	4.5	32.6	0.87	0.80	1.00	49.0
5	T1	196	6	196	3.1	0.522	10.3	LOS A	4.5	32.6	0.87	0.80	1.00	43.1
6	R2	52	4	52	7.7	0.522	14.0	LOS A	4.5	32.6	0.87	0.80	1.00	45.1
Approach		371	12	371	3.2	0.522	10.7	LOS A	4.5	32.6	0.87	0.80	1.00	45.2
North: Wollombi Road														
7	L2	47	1	47	2.1	0.534	7.9	LOS A	4.5	32.2	0.75	0.65	0.77	47.5
8	T1	416	10	416	2.4	0.534	8.1	LOS A	4.5	32.2	0.75	0.65	0.77	55.4
9	R2	31	1	31	3.2	0.534	11.6	LOS A	4.5	32.2	0.75	0.65	0.77	47.1
Approach		494	12	494	2.4	0.534	8.3	LOS A	4.5	32.2	0.75	0.65	0.77	53.9
West: Regiment Road														
10	L2	49	1	49	2.0	0.344	6.8	LOS A	2.4	16.8	0.71	0.66	0.71	47.0
11	T1	127	0	127	0.0	0.344	6.8	LOS A	2.4	16.8	0.71	0.66	0.71	44.4
12	R2	114	0	114	0.0	0.344	10.2	LOS A	2.4	16.8	0.71	0.66	0.71	50.8
Approach		290	1	290	0.3	0.344	8.1	LOS A	2.4	16.8	0.71	0.66	0.71	47.2
All Vehicles		1579	43	1579	2.7	0.534	9.2	LOS A	4.5	32.6	0.75	0.68	0.79	50.4

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.
Roundabout Capacity Model: SIDRA Standard.
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: 101v [Wollombi / New England 2033 Future +Dev PM (Site Folder: 2033 Future + Dev)]

PM Peak: 3:30pm - 4:30pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Wollombi Road														
1	L2	189	5	189	2.6	0.268	16.7	LOS B	4.8	34.6	0.56	0.72	0.56	42.2
3	R2	175	5	175	2.9	* 0.264	47.9	LOS D	4.1	29.4	0.90	0.76	0.90	29.1
Approach		364	10	364	2.7	0.268	31.7	LOS C	4.8	34.6	0.72	0.74	0.72	34.6
East: New England Highway														
4	L2	229	5	229	2.2	0.165	24.9	LOS B	2.4	17.0	0.27	0.63	0.27	49.5
5	T1	1428	88	1428	6.2	* 0.798	28.9	LOS C	34.0	250.4	0.89	0.83	0.91	33.8
Approach		1657	93	1657	5.6	0.798	28.3	LOS B	34.0	250.4	0.81	0.80	0.82	36.0
West: New England Highway														
11	T1	1725	71	1725	4.1	0.640	9.0	LOS A	24.2	175.7	0.58	0.53	0.58	46.9
12	R2	282	6	282	2.1	* 0.813	58.8	LOS E	12.4	88.2	0.98	0.89	1.14	25.7
Approach		2007	77	2007	3.8	0.813	16.0	LOS B	24.2	175.7	0.64	0.58	0.66	40.6
All Vehicles		4028	180	4028	4.5	0.813	22.5	LOS B	34.0	250.4	0.71	0.69	0.73	37.8

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: Wollombi Road												
P1	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
West: New England Highway												
P4	Full	50	50	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		0	100	49.3	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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 [Wollombi / Site Access 2033 Future +Dev PM (Site Folder: 2033 Future + Dev)]

PM Peak 4:00pm - 5:00pm
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Site Access														
1	L2	4	0	4	0.0	0.039	5.6	LOS A	0.1	1.0	0.59	0.73	0.59	44.4
3	R2	16	0	16	0.0	0.039	10.9	LOS A	0.1	1.0	0.59	0.73	0.59	44.3
Approach		20	0	20	0.0	0.039	9.9	LOS A	0.1	1.0	0.59	0.73	0.59	44.3
East: Wollombi Road														
4	L2	65	0	65	0.0	0.205	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	55.3
5	T1	331	8	331	2.4	0.205	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	59.0
Approach		396	8	396	2.0	0.205	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.5
West: Wollombi Road														
11	T1	385	4	385	1.0	0.197	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	16	0	16	0.0	0.013	6.8	LOS A	0.1	0.4	0.44	0.60	0.44	47.2
Approach		401	4	401	1.0	0.197	0.3	NA	0.1	0.4	0.02	0.02	0.02	59.4
All Vehicles		817	12	817	1.5	0.205	0.9	NA	0.1	1.0	0.02	0.08	0.02	58.6

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.
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 D

Site Access Concept Design and Sight Distance Analysis

POTENTIAL ACCESS POINT FOR FUTURE DEVELOPMENT SITE

EXISTING NEIGHBOURING DRIVEWAY

PROPOSED CHR DESIGN GENERALLY IN ACCORDANCE WITH AUSTROADS GUIDE TO ROAD DESIGN PART 4, TABLE A4 AND FIGURE A7 BASED ON DESIGN SPEED OF 90km/h

EDGE OF THE LINE MARKING TO BE ADJUSTED BASED ON FINAL DESIGN VEHICLE SWEPT PATH

WOLLOMBI ROAD

25m TAPER

55m STORAGE/DECELERATION

18.8m

3.5m

62m LENGTH OF LATERAL SHIFT

75m LENGTH OF LATERAL SHIFT

LATERAL SHIFT REDUCED TO ENSURE PAINTED MEDIAN ENDS BEFORE NEIGHBOURING DRIVEWAY

6m

+56.00

+57.12

+58.00

+59.00

+60.00

+60.71

+61.79

+52.38

GRADIENT 1:14

GRADIENT 1:12

12m APZ (TBC)

Date: 16 August 2023

Filename: 22125CAD007-CHR 230816.dwg

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	JG	OF	KH	16/08/23

ttpp transport planning

PROJECT: 292 WOLLOMBI ROAD, FARLEY

TITLE: PROPOSED CHANNELISED RIGHT-TURN TREATMENT
REDUCED PAINTED MEDIAN

DWG No. 22125CAD007
FIGURE 2

DATE STAMP 16 AUGUST 2023

PROJECT No. 22125

SCALE 1:800 @A3

REV. A

SAFE INTERSECTION SIGHT DISTANCE
FOR A DESIGN SPEED OF 90KM/H

214m

214m

WOLLOMBI ROAD

5m

ENSURE HATCHED AREA HAS NO OBSTRUCTIONS
TO PROVIDE APPROPRIATE SIGHT DISTANCE

LINE OF SIGHT

GRAIDIENT 1:12

GRAIDIENT 1:10

12m APZ (IBC)

1
DP81089

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	JG	OF	KH	10/08/23

ttpp transport planning

PROJECT
292 WOLLOMBI ROAD, FARLEY

TITLE
SAFE INTERSECTION SIGHT DISTANCE ASSESSMENT

DWG No. 22125CAD006 FIGURE 1

DATE STAMP 10 AUGUST 2023

PROJECT No. 22125 | SCALE 1:1100 @A3 | REV. A

Filename: 22125CAD006-230810-SIGHT DISTANCE.dwg Date: 10 August 2023

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