



2 and 2A Bullecourt Avenue, Milperra

Transport Impact Assessment

Prepared for:
Mirvac Residential (NSW) Pty Ltd

21 November 2025

The Transport Planning Partnership

2 and 2A Bullecourt Avenue, Milperra

Transport Impact Assessment

Client: Mirvac Residential (NSW) Pty Ltd

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APPENDICES

- A. SITE LAYOUT PLANS
- B. SIDRA MOVEMENT SUMMARY

1 Introduction

This Transport Impact Assessment (TIA) report is submitted to the Department of Planning, Housing and Infrastructure (the Department) on behalf of Mirvac Residential (NSW) Pty Ltd (the Applicant) in support of a State Significant Development Application (SSDA) for a staged residential development at 2 and 2A Bullecourt Avenue (the site).

This TIA report is prepared to address the Secretary's Environmental Assessment Requirements (SEARs) as summarised in Table 1.1.

Table 1.1: Response to SEARs

SEARs	Response
Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GITA) published by TfNSW.	As detailed in this report. A separate preliminary Green Travel Plan has been prepared and submitted with the SSDA.
If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts.	A separate preliminary CTMP report has been prepared and submitted with the SSDA.

This transport assessment has been undertaken in accordance with the Guide to Transport Impact Assessments (2024) and using the standard industry bespoke traffic modelling programme SIDRA.

1.1 References

In preparing this report, reference has been made to the following:

- Canterbury-Bankstown Development Control Plan 2023
- Canterbury-Bankstown Development Control Plan 2023 – Chapter 11.13 Former WSU Campus, Milperra site specific DCP (amended August 2024)
- TfNSW Guide to Transport Impact Assessment Version 1.1 2024
- Other documents referenced in this report.

1.2 Report Structure

The remainder of this report is structured 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.

- Chapter 4 assessed the future parking requirements of the site.
- Chapter 5 examines the traffic generation and its impacts.
- Chapter 6 presents the conclusions of this assessment.

2 Existing Conditions

2.1 Site Description

The site is currently owned by Western Sydney University and is located within the Canterbury Bankstown LGA at 2 and 2A Bullecourt Avenue, Milperra, being legally described as Lot 2 in DP1291984 and Lot 1 in DP101147 (refer to Figure 2.1).

The total site has an area of approximately 19.64ha and is the subject of numerous easements affecting the site, including two easements to drain water, easements for electricity and other purposes, and a right of carriageway.

Figure 2.1: Site Layout



 THE SITE

NOT TO SCALE 

Source: Beam Planning

Since the demolition of the previous buildings on the site, the site currently comprises:

- Existing at-grade car park (within Zone 4) repurposed as parking and hardstand area for the temporary sales office.
- Existing at-grade car park for the Childcare Centre (generally within the location of the future Road 2B).
- At-grade roads off Bullecourt Avenue.
- A large oval to the south.
- The Western Sydney University Early Learning Centre (Child-care centre).
- Vegetation of varying significance, including Cumberland Plain Woodland.

The site is bound by the M5 Motorway to the south, Ashford Avenue / existing residential dwellings to the west, Bullecourt Avenue / existing industrial development to the north, and Horsley Road / existing industrial development to the east. Adjoining the site along the southeastern boundary is Mount St Joseph Catholic College.

A substantial number of bus stops are located along Bullecourt Avenue and Horsley Road, servicing routes that connect passengers both within and beyond the LGA, including direct links to Bankstown Central (approximately 8.5km drive from the site), Westfield Burwood, and Westfield Miranda. While the nearest train line is the T8, accessible via East Hills, Panania, and Revesby stations, the T6 line at Bankstown Station can also be reached via bus services operating near the site.

2.2 Road Network

A brief description of the surrounding roads is provided below.

2.2.1 Bullecourt Avenue

Bullecourt Avenue functions as a two-way, two-lane primary collector road, generally aligned in an east-west direction between Horsley Road and Ashford Avenue. The road carriageway is approximately 12.5m wide (kerb to kerb), with unrestricted kerbside parking generally provided on both sides of the road. Bullecourt Avenue has a posted speed limit of 60 km/hr. This road provides good connectivity between Henry Lawson Drive and Horsley Drive to the west and east ends respectively.

An existing site access, a two-way separated driveway, is provided off Bullecourt Avenue.

2.2.2 Horsley Road

Horsley Road functions as a two-way, two-lane primary collector road and is generally aligned in a north-south direction between Ladbroke Street and Bransgrove Road. The road carriageway is approximately 12.0m wide (kerb to kerb), with unrestricted kerbside parking generally provided on both sides of the road. This road provides good connectivity to/from the wider arterial road network via Bullecourt Avenue, Beaconsfield Street and Bransgrove Road.

The posted speed limit is 60km/hr, with 40 km/hr school zone restrictions in operation during school hours to the south of the Horsley Road-Bullecourt Avenue intersection.

An existing site access is provided on Horsley Road between Bullecourt Avenue and Beaconsfield Street, which forms a roundabout intersection with Horsley Road.

2.2.3 Ashford Avenue

Ashford Avenue functions as a two-way, two-lane local collector road, generally aligned in a north-south direction between Milperra Road and Flanders Avenue to the north and south ends respectively. The road carriageway is approximately 12.0m wide (kerb to kerb), with unrestricted kerbside parking provided on the east side and restricted kerbside parking on the west side of the road. The posted speed limit is 50 km/hr within the vicinity of the site.

An existing site access is provided off Ashford Avenue between Zonnebeke Crescent and Sinai Avenue.

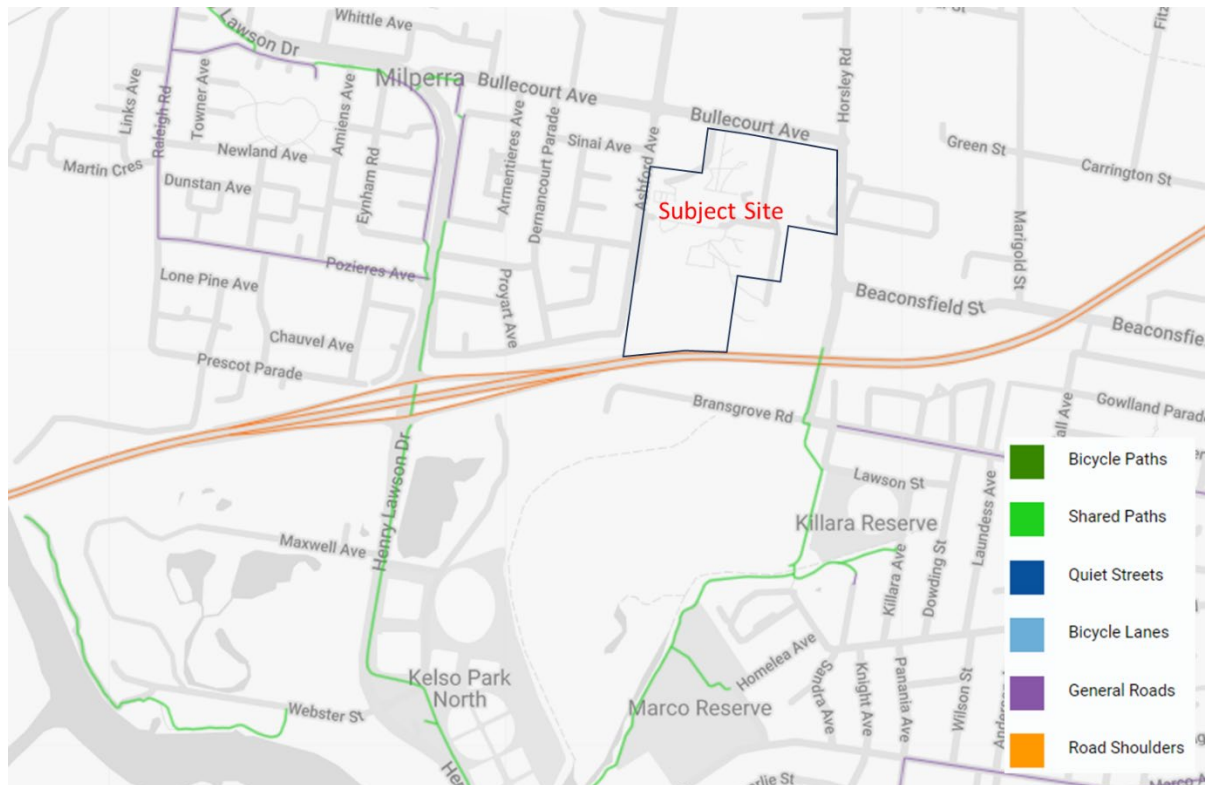
2.3 Pedestrian and Cyclist Infrastructure

Paved pedestrian footpaths are generally provided on both sides of Bullecourt Avenue and Horsley Road, which provides good access to the surrounding areas and public transport facilities. In addition to this, formal pedestrian footpaths are provided on some sections of Ashford Avenue, near the retail shop frontages at the corner of Ashford Avenue and Bullecourt Avenue. No formal pedestrian footpaths are provided along the site frontage on Ashford Avenue or along the frontage of the residential dwelling houses on the west side of Ashford Avenue between Sinai Avenue and Flanders Avenue.

There is a good provision of cycle infrastructure in the local area. To the west of the site, a shared path is provided along Henry Lawson Drive, providing connectivity in a generally north-south direction between Lansdowne and East Hills. In addition to this, there is a cycleway provided to the south of the site traversing the sports fields which provides good connectivity to/from Panania.

A map showing existing cycling facilities within the site vicinity is shown in Figure 2.2.

Figure 2.2: Cycleway Map



Source: Transport for NSW Cycleway Finder

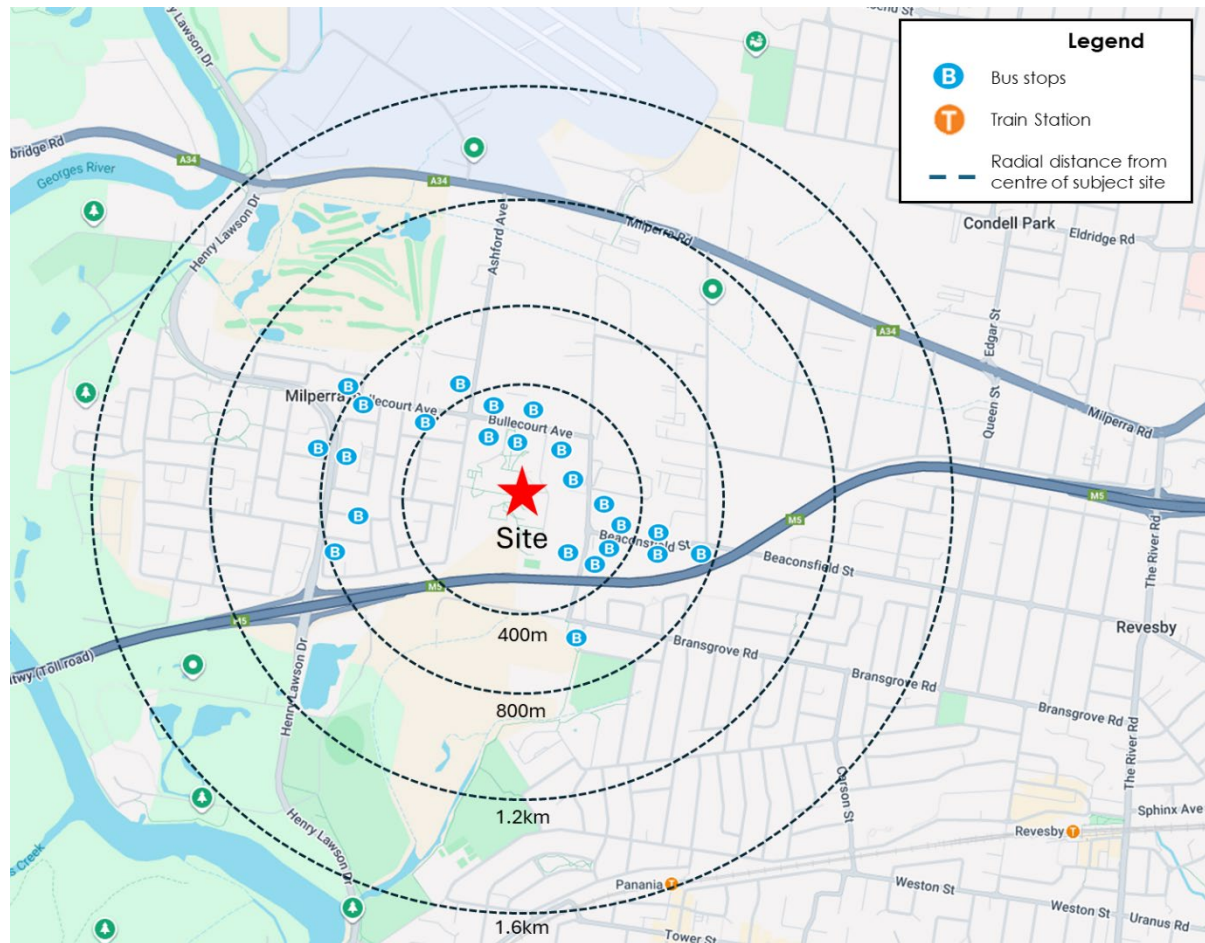
2.4 Public Transport Facilities

The site is accessible by public transport, with a number of bus services operating within a 400m catchment radius of the centre of the site.

The site's proximity to nearby public transport facilities is shown in Figure 2.3.

The nearest train line is the T8, accessible via East Hills, Panania and Revesby Stations, the T6 line at Bankstown Station can also be reached via bus services operating near the site (as shown in Figure 2.4.).

Figure 2.3: Site Proximity to Nearby Public Transport Facilities



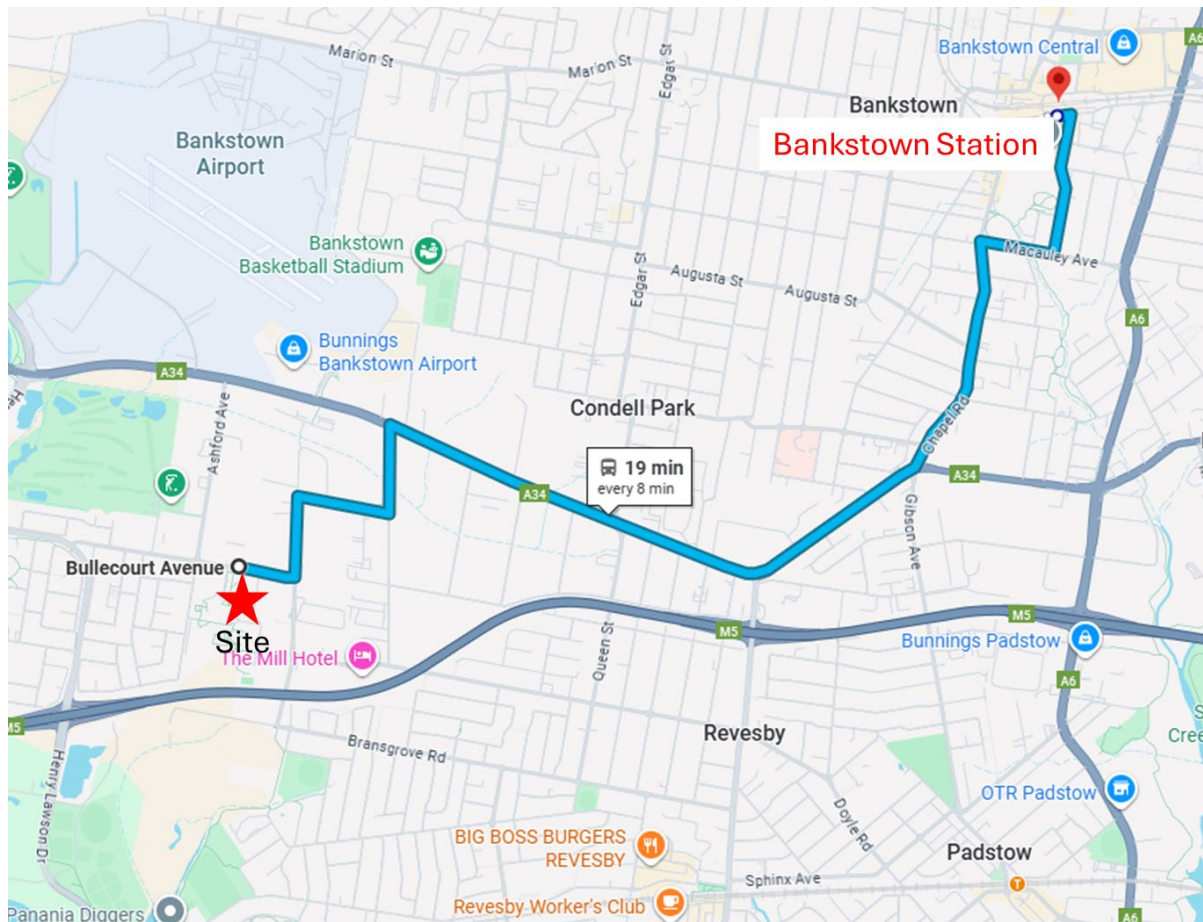
Base Map Source: Google Maps Australia

A summary of the existing bus services within a 400m radius catchment of the centre of the site, as well as their associated frequencies, is provided in Table 2.1.

Table 2.1: Bus Service Summary

Service No.	Route Description	Approximate Frequency (Each Direction)	
		Peak	Off-Peak
922	Between East Hills and Bankstown	Every 30 mins	
962	Between East Hills and Miranda	Every 15-20 mins	Every 30 mins
M90	Between Burwood and Liverpool	Every 10 mins	Every 15 mins
S5	Between Milperra and Padstow	Five services per day	

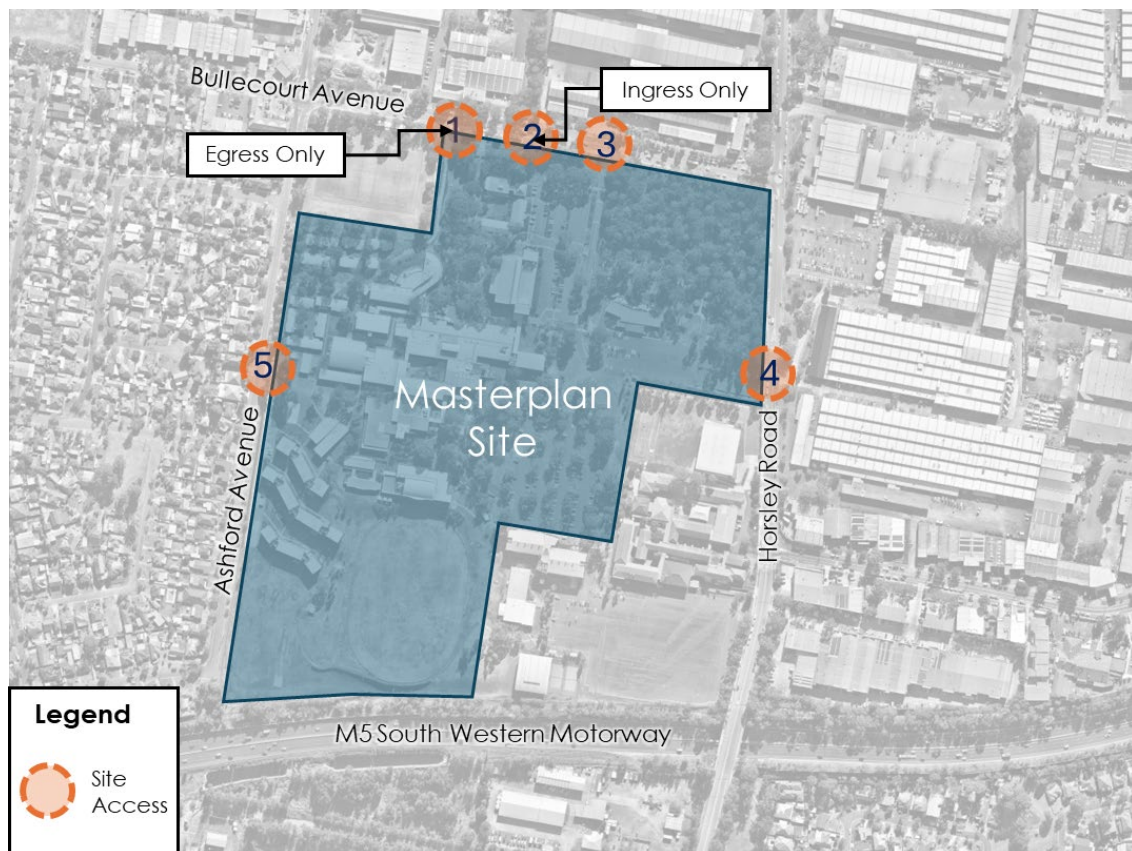
Figure 2.4: Site Proximity to Bankstown Train Station



2.5 Existing Vehicle Access

The site was formerly occupied by the WSU Milperra campus, which has been relocated to a new location in Bankstown. There are several vehicle access points provided along Ashford Avenue, Bullecourt Avenue and Horsley Road frontages as shown in Figure 2.5.

Figure 2.5: Existing Vehicle Access Locations



2.6 Existing Traffic Volumes

Traffic surveys were undertaken on 24 July 2025 between 6:00am and 10:00am and between 3:00pm and 7:00pm at the following intersections:

- Ashford Avenue / Existing Site Access
- Ashford Avenue / Bullecourt Avenue
- Bullecourt Avenue / Existing Site Access
- Bullecourt Avenue / Horsley Road
- Horsley Road / Existing Site Access (roundabout)
- Horsley Road / Beaconsfield Street

From the traffic surveys, the surrounding road network AM peak was identified as 7:45am – 8:45am and the road network PM peak was identified as 3:30pm – 4:30pm. Figure 2.6 and Figure 2.7 show the existing AM and PM traffic volumes respectively.

Figure 2.6: Existing 2025 AM Traffic Volumes – Survey Data

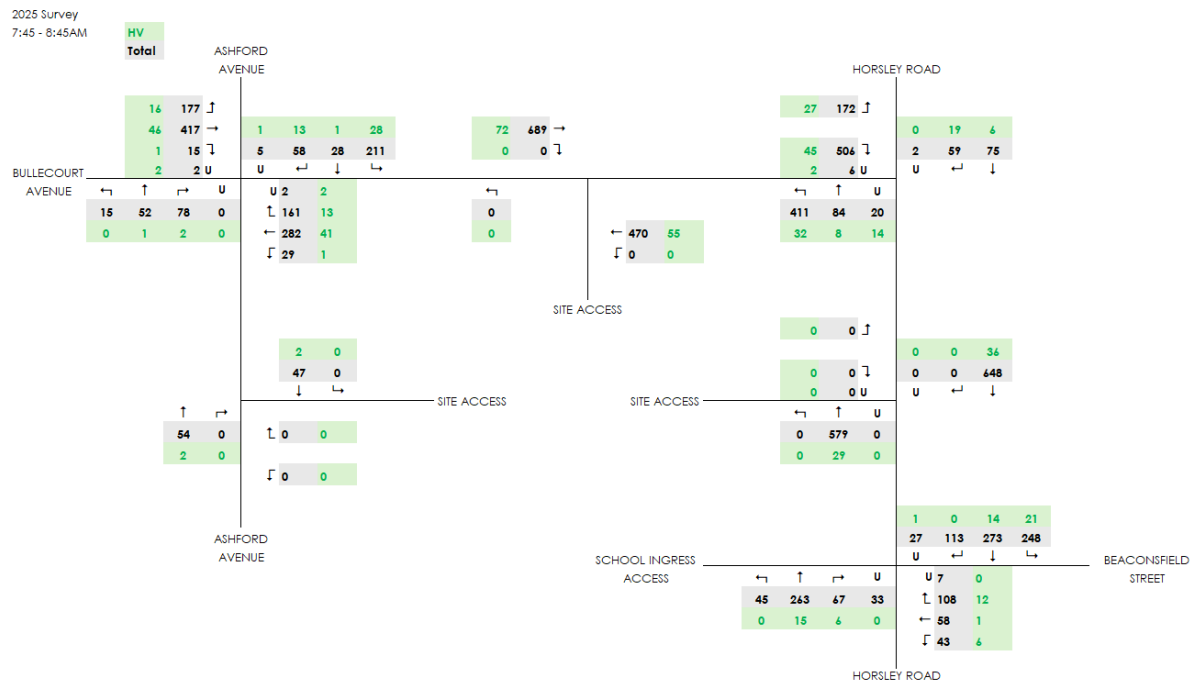
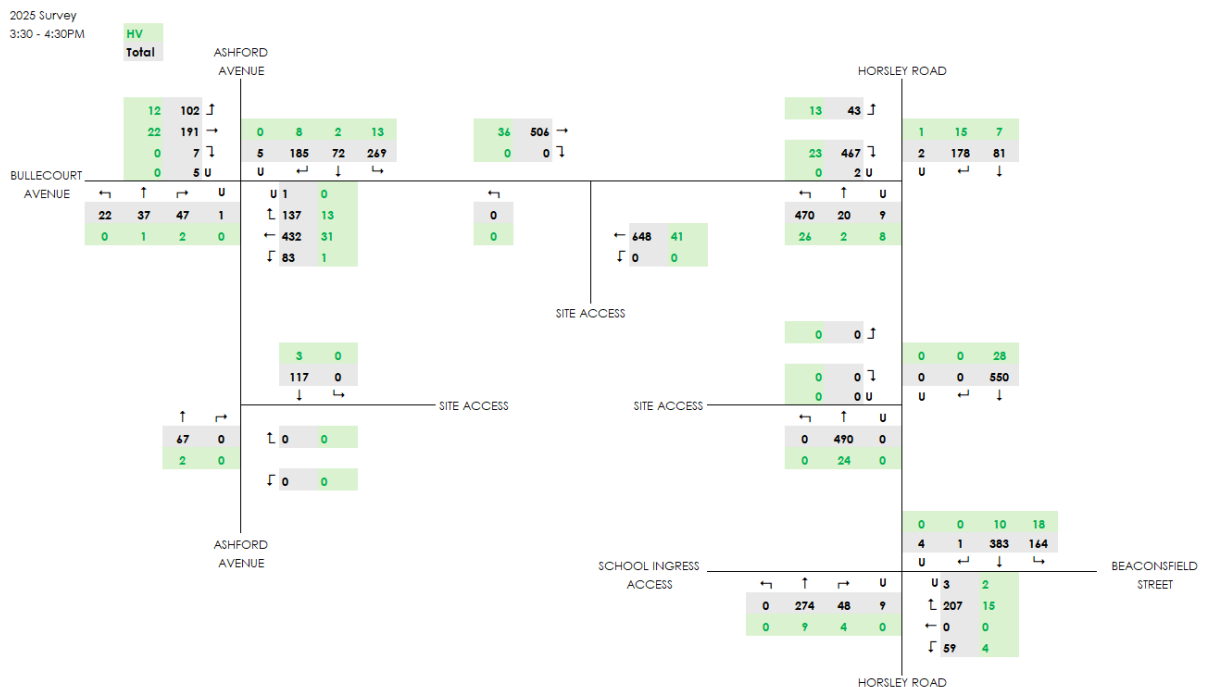


Figure 2.7: Existing 2025 PM Traffic Volumes – Survey Data



Notwithstanding that, it is noted that demolition works were being undertaken within the site and the existing childcare centre was temporarily closed at the time of the survey. Hence, no traffic was observed entering or exiting the site. For the purpose of understanding the existing traffic movements in the surrounding road network with the childcare centre being

operational, traffic generation of the existing childcare centre is estimated based on the TfNSW Guide to Transport Impact Assessment vehicular trip rates. The following traffic generation rates have been adopted for the childcare centre.

- 0.81 vehicle trips per child in the AM peak hour
- 0.80 vehicle trips per child in the PM peak hour

It is noted that the above trip rates are for the site peak hour period whereas the road network peak hour trip rates for a childcare centre are 0.64 and 0.39 trips per hour for the AM and PM peak respectively. It is further noted that the childcare site peaks do not generally coincide with the road network peaks. However, for a robust assessment the more conservative rates (i.e. site peak) have been used to estimate the traffic generation.

The existing childcare centre has a capacity of 67 children. Therefore, it is expected to generate 54 vehicular trips (two-way) in the AM and PM peaks respectively. It is assumed that the distribution of inbound and outbound childcare traffic is 50:50 in both AM and PM peaks and 50% of the traffic travels through the Horsley Road site access and 50% of traffic travels through the Bullecourt Avenue site access.

Based on the above, the existing traffic volumes in the surrounding road network with the childcare centre being operational are presented in Figure 2.8 and Figure 2.9.

Figure 2.8: Existing 2025 AM Traffic Volumes (with the Childcare Centre)

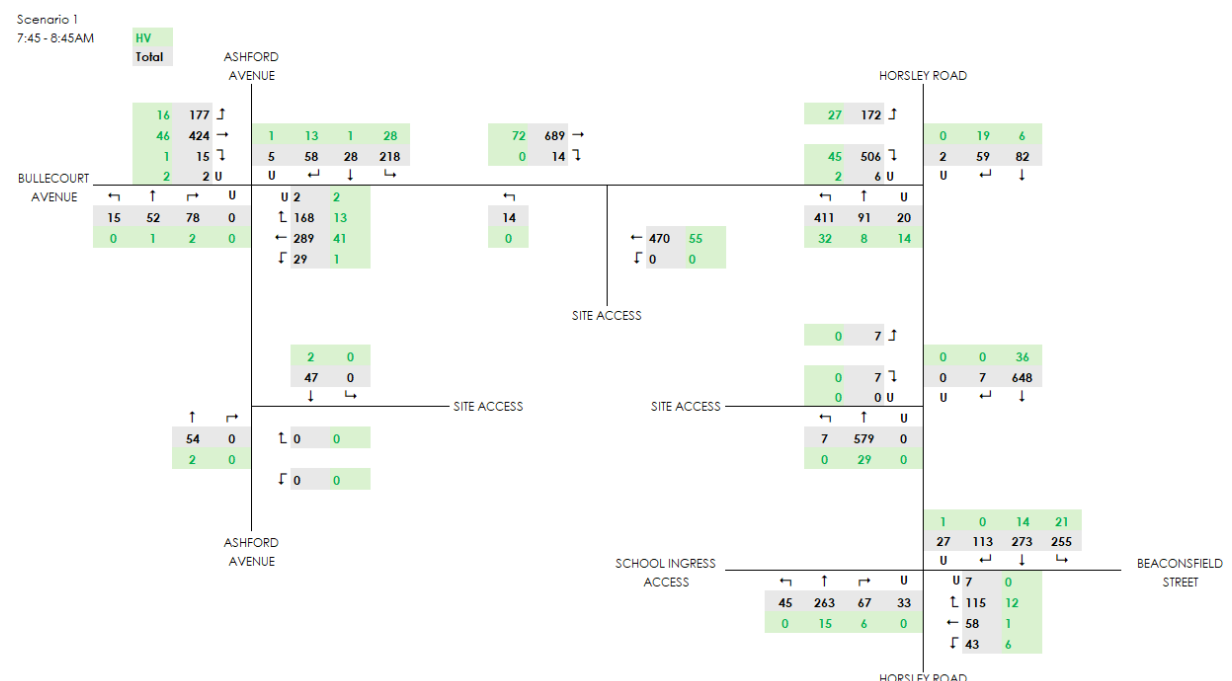
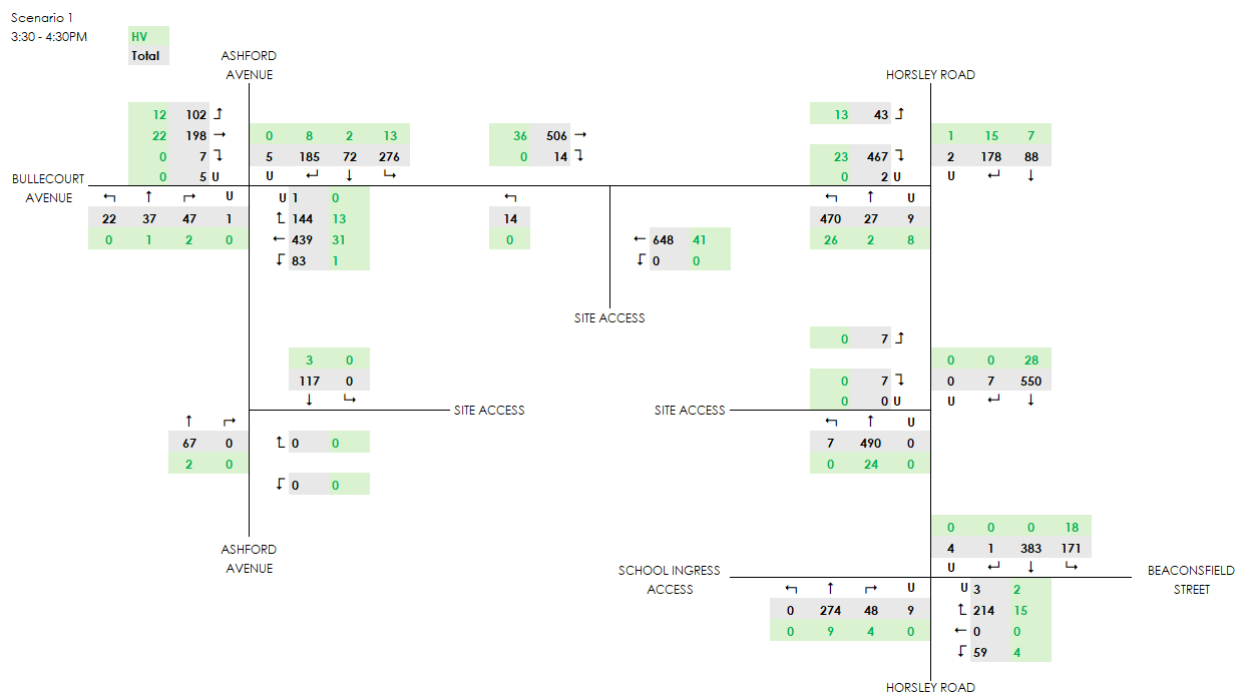


Figure 2.9: Existing 2025 PM Traffic Volumes (with the Childcare Centre)



3 Proposed Development

3.1 Project Background

As part of the previous Planning Proposal traffic assessment¹, the indicative masterplan assessed was as follows:

- 441 residential dwellings (197 free standing and 244 attached and semi-detached dwellings)
- A commercial zone comprising:
 - 136m² GFA of office space
 - 250m² GFA of restaurant/café use
 - 250m² GFA of convenience retail use
 - A childcare centre with a capacity for 40 children (existing childcare centre has a capacity for 67 children)

The Planning Proposal was approved for the development of a new residential precinct comprising 430 residential dwellings, a new commercial centre catering for small scale retail opportunities and businesses whilst supporting the precinct's existing childcare services.

The proposed subdivision layout of the site will generally be in accordance with the Concept Masterplan in the Site Specific DCP, as shown in Figure 3.1.

¹ TTPP Transport Assessment Version 05 dated 2 June 2020 (TTPP Ref: 19334-R01V05-200602-TIA)

Figure 3.1: Concept Master Plan



Source: Figure 2 of adopted WSU Milperra Site Specific Development Control Plan

3.2 Proposed Development

The project will be delivered in stages and across two separate SSDA Projects, and comprises of construction of up to 430 dwellings including houses, dual occupancies and attached dwellings, three (3) public parks, new roads and shared paths, civil infrastructure, a car park, and the management of conservation land.

Specifically, across the two SSDAs, consent is sought for:

- Tree removal
- Site remediation (excluding works carried out as category 2 remediation works)
- Construction of bulk earthworks, public roads and landscaping, and services
- Augmentation of existing services and road infrastructure
- Construction of three (3) public parks
- Construction of up to 430 dwellings including houses, dual occupancies and attached dwellings
- Construction of a carpark to service the existing childcare centre and E1 Local Centre zoned land

- Subdivision resulting in up to 430 residential lots, infrastructure lots, and the creation of a community title lot for land zoned C2 Environmental Conservation and E1 Local Centre
- Conservation works including the management of >2Ha Cumberland Plain Woodland Species.

This SSDA comprises of all Civil works across the entirety of the site as well as the construction of all 62 dwellings in Stages 1 and 2 only, which are as follows:

- Stage 1 – Commencement of site-wide tree removal and land remediation, creation of two (2) super lots and total of 22 residential lots, and construction of 22 dwelling houses fronting Ashford Avenue. This will be the first stage to be delivered and will connect into the existing infrastructure that located within Ashford Avenue.
- Stage 2 – Creation of four (4) super lots, a new lot (Lot 25) across the RE1 Public Recreation zoned land, and 40 residential lots. This stage also involves the construction of 40 dwellings within Stage 2, and the construction of new roads and the new public park referred to in the Civil Plans as the 'Central Park'.
- Stage 3a – Creation of a new super lot, and the construction of perimeter roads surrounding the existing childcare centre, construction of a new car park to service the childcare centre and C2 Environmental Conservation zoned land. It is proposed that all associated civil works required to enable the operation of the existing childcare centre will be delivered under this stage. The new traffic intersections at both Bullecourt Avenue and Horsley Road will be constructed.
- Stage 3b – Creation of three (3) lots to be delivered under a Community Title Scheme for the E1 Local Centre zoned land.
- Stage 4 – Creation of eight (8) super lots, a new lot (Lot 50) across the RE1 Public Recreation zoned land, and a new lot (Lot 49) across the SP2 Infrastructure zoned land. This stage also involves the construction of new roads, the stormwater infrastructure Basin 1 and Basin 2, and the new public park referred to in the Civil Plans as the 'Southern Park', all to be dedicated to Council.
- Stage 5 – Creation of six (6) super lots and construction of new roads and civil works.
- Stage 6 – Creation of nine (9) super lots and a new lot (70) across the RE1 Public Recreation zoned land. This stage also involves the construction of new roads and civil works, and the new public park referred to in the Civil Plans as the 'Northern Park', all to be dedicated to Council.
- Stage 7 – Creation of six (6) super lots and construction of road and civil works.

The second SSDA will seek consent for all outstanding works in stages 3 to 7, which are as follows:

- Stage 3 – Construction of the Childcare Alterations and Additions and Construction of a permanent structure for Commercial use.
- Stage 4, 5, 6 & 7 – Creation of the subsequent subdivision into residential lots and construction of dwellings.

3.3 Proposed Access Arrangements

3.3.1 Bullecourt Avenue

The site access to Bullecourt Avenue will be modified as part of the proposed development as shown in Figure 3.2, however the vehicle movement arrangements will remain as per the existing arrangement, i.e. left out only, and the existing right turn lane and painted median on Bullecourt Avenue will remain unchanged. The proposed site access on Bullecourt Avenue is in accordance with the Concept Masterplan in the adopted Site Specific DCP.

The existing separated driveway off Bullecourt Avenue will be modified to a two-way access road (Road 9) with kerb return on either side to align with the kerb line on Bullecourt Avenue. The proposed access road will form a T-intersection with Bullecourt Avenue. It is noted that a driveway of 319 Horsley Road is located on Bullecourt Avenue opposite to the access of the subject site. The proposed site access road (Road 9) will result in the driveway of 319 Horsley Road being located within the prohibited locations of access driveways (located at the T-intersection with the street opposite) as per Australian Standard AS2890.1:2004 – Figure 3.1.

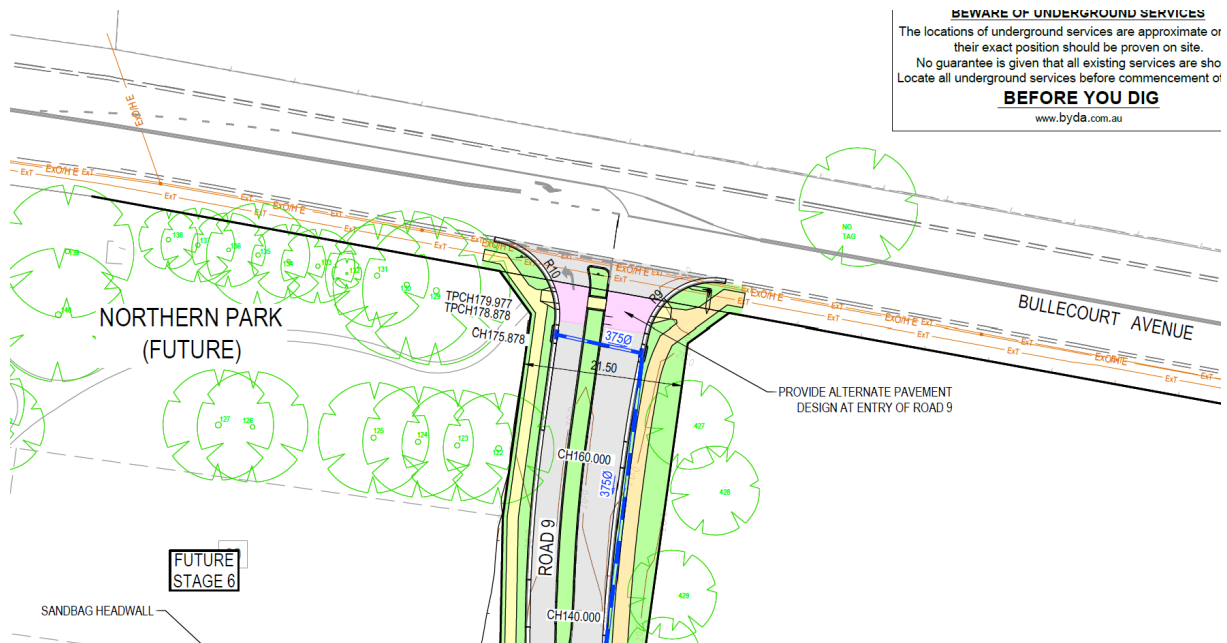
However, traffic exiting onto Bullecourt Avenue will be prevented from turning right onto Bullecourt Avenue. This is in line with the existing traffic movements when the WSU campus was operational, and minimises the safety hazard of outbound development traffic having to coordinate with vehicles exiting the driveway of 219 Horsley Road. It is expected that there will be a low demand for development traffic to turn right onto Bullecourt Avenue as it will be more convenient for those vehicles to use the Horsley Road access via the internal road network. Additionally, traffic volumes recorded at the site access on Bullecourt Avenue show that traffic movements via the driveway of 319 Horsley Road are minimal, with up to 2 vehicles per hour turning right into 319 Horsley Road from Bullecourt Avenue, and up to 3 vehicles per hour turning right onto Bullecourt Avenue during the peak hours.

Based on the above, potential conflict between the development traffic via the proposed Road 9 and the traffic via the opposite driveway is considered negligible, and the proposed site access on Bullecourt Avenue is considered acceptable noting the existing arrangement.

Further design iterations were considered which relocate the access point to ensure compliance with AS2890.1:2004. However, relocation of the access point would require the removal of existing trees on either the proposed Northern Park or the C2 Conservation area,

which would have a significant impact to the ecological. Therefore, the proposed design has minimal impacts to the surrounding environment as it generally follows the existing entry point and layout. Due to site-specific constraints, the proposed design is considered acceptable.

Figure 3.2: Proposed Site Access - Bullecourt Avenue



Source: Beveridge Williams, Layout Plan Stage 3A Sheet 2 of 2, Drawing No. 055, Rev.C

3.3.2 Ashford Avenue

As part of the proposed development, a new access road (Road 1) will be constructed at the existing site access on Ashford Avenue, as shown in Figure 3.3. The proposed site access on Ashford Avenue is in accordance with the Concept Masterplan in the adopted Site Specific DCP.

Kerb extensions are proposed on both sides of Ashford Avenue located immediately south of Road 1. It is noted that Council's DCP 2023, Chapter 11.13 – Key Development Sites Former WSU Campus, Milperra, Section 3.1, Development Controls C14 requires a pedestrian crossing point with a pedestrian island to be provided near the existing vehicle entry point along Ashford Avenue, as shown below.

- C14** A pedestrian crossing point with a pedestrian island is to be located near the existing vehicle entry point along Ashford Avenue. *Note:* Due to the high level of traffic generation and peak nature of traffic volumes accessing these forms of land uses, assessment of traffic impacts and pedestrian requirements is required by Council and Council may reasonably enforce the provision of mitigation measures that need to be incorporated into the design. Such measures may include, but are not limited to:
- (a) raised pedestrian thresholds (wombat crossings);
 - (b) speed control devices;
 - (c) pedestrian refuges on streets, especially along streets which the development fronts; and
 - (d) provision of bus and drop off bays.

However, a review of the existing pedestrian infrastructure and road geometric conditions in Ashford Avenue near the site access indicates that:

- No pedestrian footpath is provided along the residential dwelling houses on the western side of Ashford Avenue or on Zonnebeke Crescent
- Ashford Avenue is a two-way road with a 3m wide traffic lane in each direction, and line marked kerbside parking is provided on both sides of the road.

Due to the existing constraints of the road geometry and nearby residential property driveways, a new pedestrian refuge island will remove a substantial number of on-street parking spaces and affect residents accessing their properties along the crossing facility. Furthermore, based on the traffic survey undertaken at the intersection of Ashford Avenue / existing site access on 24 July (Thursday) 2025, it was observed that there were only a few pedestrians walking along the verge on the western side of Ashford Avenue, and the maximum number of pedestrians crossing Ashford Avenue near the site access was only three pedestrians between 7:30am – 8:30am and 3:45pm -4:45pm, excluding construction workers crossing the road between vehicles parked on the east side of Ashford Avenue and the construction site at 152A Ashford Avenue. It is expected that the number of pedestrians crossing Ashford Avenue near the site access post development would be low (<20 pedestrians per hour), as most of the pedestrians from the south of Zonnebeke Crescent are expected to continue walking along the western side of Ashford Avenue to the retail shops on the western side of Ashford Avenue and bus stops on Bullecourt Avenue. Therefore, a new refuge island on Ashford Avenue is considered unnecessary.

Alternatively, kerb extensions are proposed on both sides of Ashford Avenue located immediately south of Access Road No. 1 to facilitate pedestrian crossing movements across Ashfield Avenue. The proposed kerb extensions provide a shorter crossing distance for pedestrians whilst also acting as a traffic calming device to reduce the travel speed of motorists. Lastly, the proposed pedestrian crossing treatment minimises the impact to on-street parking and driveway access to /from nearby neighbouring residential properties, and will not affect existing services and road alignment. This proposed pedestrian crossing design received positive feedback from Council in the meeting held on 24 April 2025 between the project design team and Council.

Notwithstanding the above, it is noted that in the pre-SSDA meeting with Council on 31 October 2025, Council traffic engineers requested a raised marked pedestrian crossing facility to be provided on Ashford Avenue.

However, TTPP's review of the existing and future forecasted traffic and pedestrian volumes on Ashford Avenue shows that a raised zebra crossing is not the most appropriate pedestrian crossing treatment given the anticipated low number of pedestrian and vehicle volumes.

Councils have historically relied on TfNSW warrants detailed in the TfNSW supplement to the Australian Standard AS1742 when assessing the provision of marked pedestrian crossings. Under the normal TfNSW warrant, a location is deemed to meet the numerical warrant for a marked pedestrian crossing if the following pedestrian and traffic volumes measured during three separate one-hour periods in any typical day:

- (a) Pedestrian flow per hour (P) crossing the road is equal to or greater than 30
AND
- (b) Vehicular flow per hour (V) through the site is equal to or greater than 500
AND
- (c) The product PV is equal to or greater than 60,000

However, this requirement has since been removed and TfNSW allows Councils to develop their own policy and warrants for marked pedestrian crossings, if it chooses to do so.

Canterbury Bankstown Council has not yet developed their pedestrian crossing warrant policy.

It is noted that the Hills Shire Council, Inner West Council, Parramatta City Council and Randwick City Council have developed their own guideline with reduced warrants.

The Hills Council reduces the warrant to the following pedestrian and traffic volumes measured during two separate one-hour periods in any typical day:

- (a) Pedestrian flow per hour (P) crossing the road is equal to or greater than 30
AND
- (b) Vehicular flow per hour (V) through the site is equal to or greater than 200

Inner West Council, Parramatta City Council and Randwick Council adopt the pedestrian demand to be equal to or greater than 20 pedestrians per hour crossing the road.

As shown in Section 5.3, traffic movements (two-way) on Ashford Avenue to the south of the site access post development are expected to be 111 vehicles per hour in the AM peak and 195 vehicles per hour in the PM peak, which does not meet the vehicular flow demand during two separate one-hour periods in the reduced warrants.

Additionally, the proposed development is not a significant pedestrian attractor (i.e. schools, shops and bus stops) near Ashford Avenue, thus no pedestrian desire line on Ashford Avenue

near the site access is expected with the proposed development, noting existing pedestrian crossing demand is negligible.

It should be noted that TfNSW Pedestrian Crossing Guideline TS 00043:1.0 (dated 13 September 2022) Clause 6.6 states that:

'Overuse of pedestrian crossings may lead to diminished safety because drivers ignore or no longer see them. Alternate treatments should be first investigated. Pedestrian crossings can be provided by exception to address safety risks at intersections where safe driving compliance to the road rules is inconsistent.'

It further states in Clause 7.3 that:

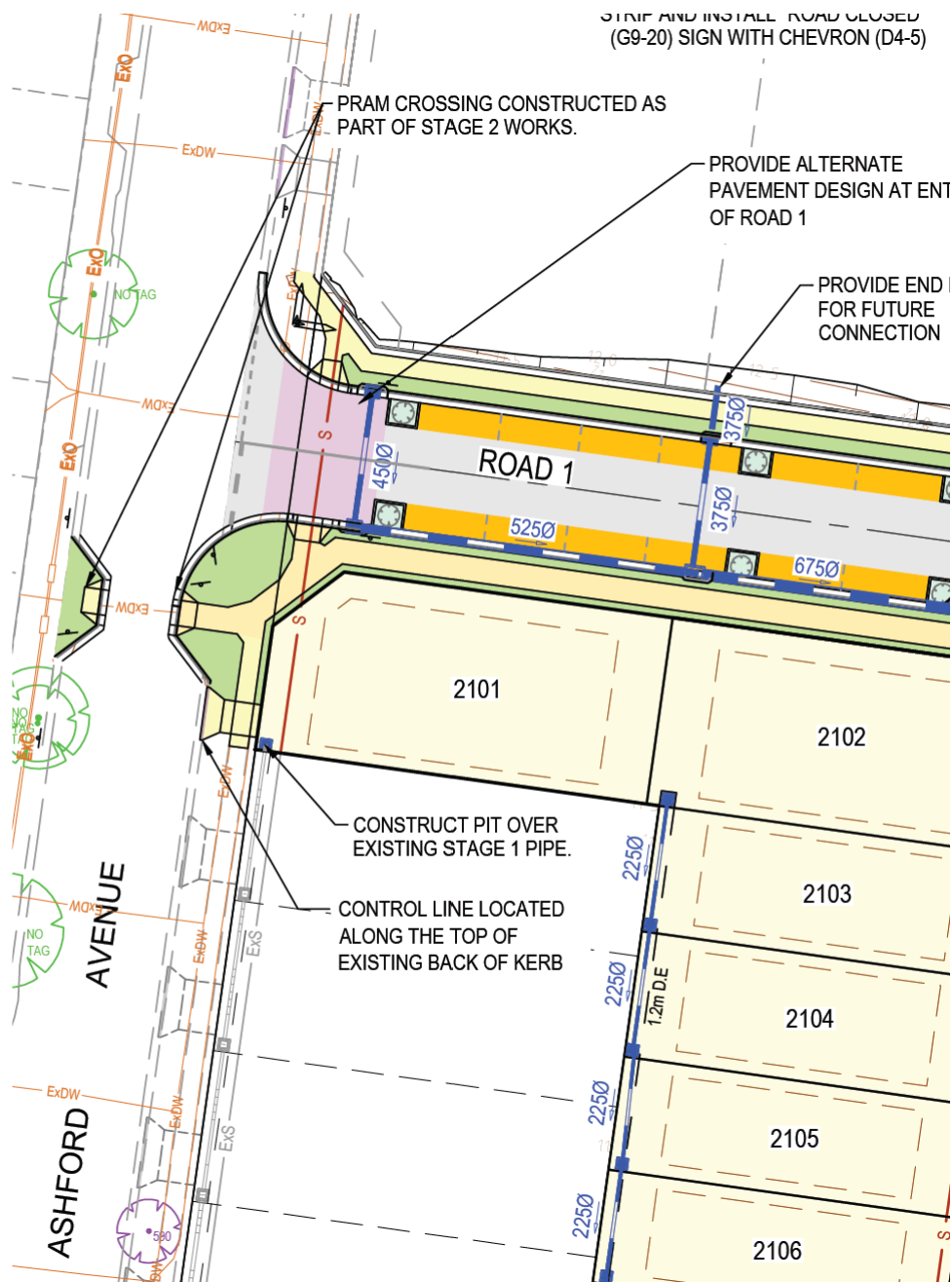
'Pedestrian crossings should be used sparingly, generally only on key walking routes or close to significant attractors...'

It is well known that motorists who regularly pass a pedestrian crossing with no pedestrians present begin to change their travel behaviour over time and are likely to ignore the marked crossing, whilst some pedestrians may expect motorists to stop for them and may not look first, thus increasing the risk of injury to pedestrians.

Based on the above, a raised marked pedestrian crossing at the site access intersection across Ashford Avenue is not considered an appropriate treatment given the pedestrian volume is forecast to be less than 20 persons per hour for two hours and the traffic volume is forecast to be less than 200 vehicles per hour for two hours.

Alternatively, kerb extensions are proposed in lieu of a marked raised pedestrian crossing, and is considered as the most appropriate crossing treatment for the location. The proposed kerb extensions crossing treatment is also in accordance with the intention of Development Control C14 of the site-specific DCP.

Figure 3.3: Proposed Site Access - Ashford Avenue



Source: Beveridge Williams, Layout Plan Stage 2 Sheet 1 of 2, Drawing No. 052, Rev.B

3.3.3 Horsley Road

The proposed site access off Horsley Road is shown in Figure 3.4. It is proposed to maintain the existing roundabout on Horsley Road, but replace the existing two-way driveway on the western side of the roundabout with a new access road (Road 2).

A new entry access lane will be provided off Horsley Road to the south of the existing roundabout. The entry access will be restricted to left-in movements only, with

implementation of a raised central median island on Horsley Road adjacent to the entry access to prevent traffic from turning right into the site. "NO RIGHT TURN" signage will be implemented on Horsley Road facing the southbound traffic on approach to the entry access. Furthermore, it is proposed to modify the western leg of the existing roundabout to accommodate exit movements only. It is proposed to provide kerb extensions on both sides of Horsley Road to the south of the entry access lane to facilitate pedestrian crossing movements. The proposed kerb extensions provide a shorter crossing distance for pedestrians whilst also acting as a traffic calming device to reduce the travel speed of motorists.

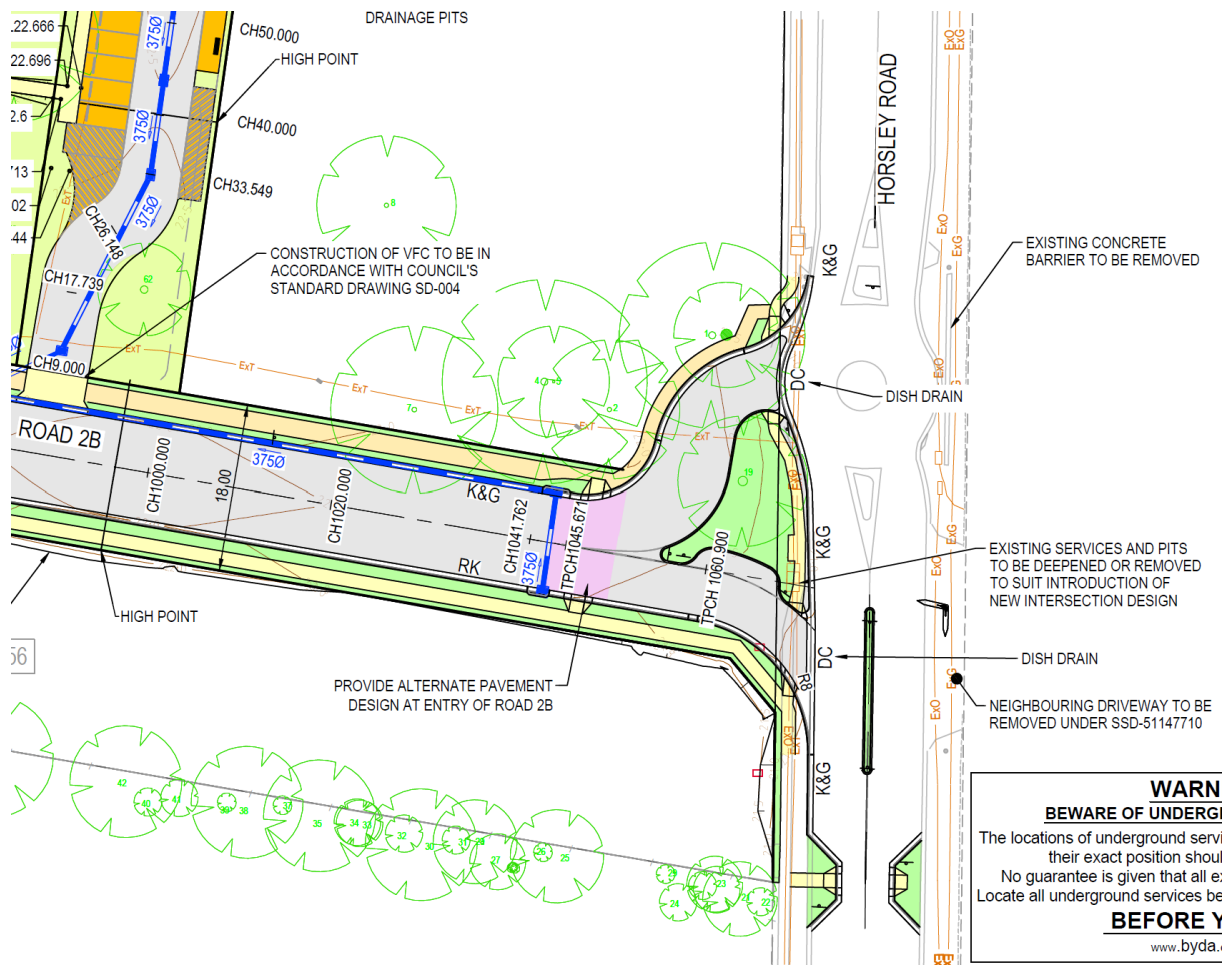
It is noted that the proposed Horsley Road site access intersection retains all existing significant trees (especially Tree 19) and maximises vegetation in the C2 conservation zoned land.

It is noted that Council previously raised a Request for Information (RFI) for a development application (DA1534/2024) of the existing childcare centre, which requested retention of the roundabout on Horsley Road as it serves as a traffic-calming measure and provides a safe pedestrian crossing for those accessing the bus stops on either side of Horsley Road.

The existing roundabout has been maintained to continue operating as a traffic calming measure for traffic travelling along Horsley Road, as requested by Council.

Pedestrians will be able to use the existing pedestrian refuge facility on the north approach of the roundabout to cross Horsley Road, as requested by Council. An existing roundabout (Horsley Road / Beaconsfield Street) is located approximately 200m south of the site access, which allows motorists travelling from the north to undertake a U-turn to access the site from Horsley Road.

Figure 3.4: Proposed Site Access - Horsley Road



3.4 Internal Road Network

The proposed internal road network has been designed in accordance with the Concept Masterplan, as shown in Figure 3.5. During the delivery of the staged development, some internal roads will be constructed partially, and temporary cul-de-sac or T-head turning facilities will be provided in the interim to facilitate vehicles and waste truck turning movements.

The internal roads are to be designed as per the minimum requirements of the site specific DCP. The detailed design of the internal roads will be developed and submitted to Council for approval prior to the construction certification stage.

Figure 3.5: Proposed Internal Road Network

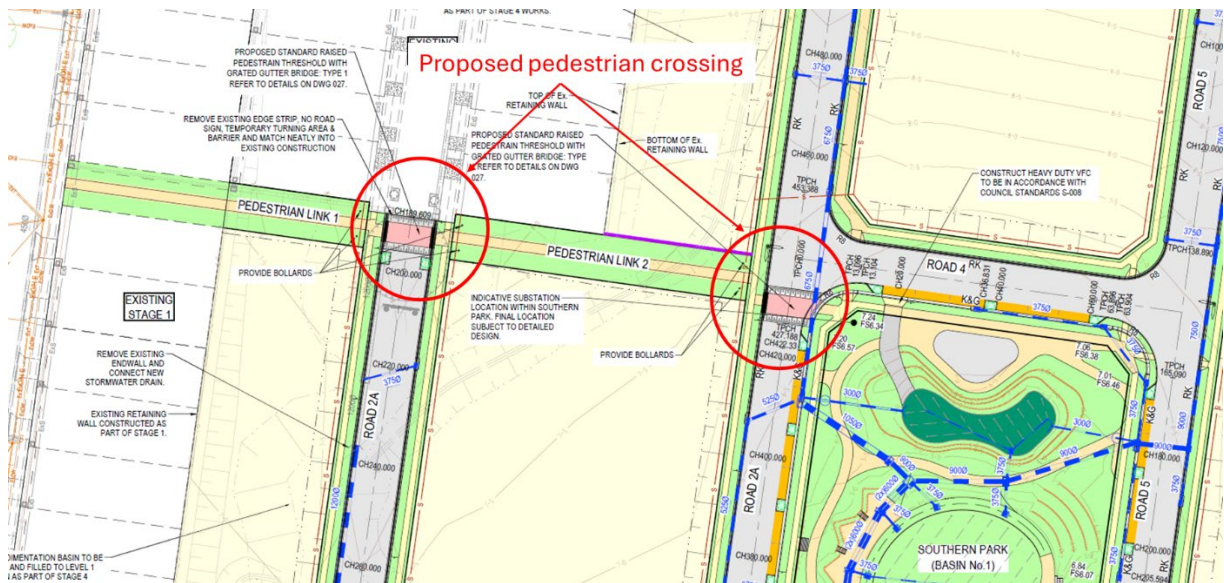


Source: Beveridge Williams, General Arrangement & Staging Plan, Drawing No. 002, Rev.B

3.4.1 Proposed Pedestrian Crossings within Internal Roads

Two pedestrian crossing facilities are proposed on Road 2A between Pedestrian Links 1 and 2 and between Pedestrian Link 2 and the southern park, as shown in Figure 3.6. These two pedestrian crossing facilities aim to improve the pedestrian connectivity between residential dwellings and the parkland within the site. A shared environment treatment is proposed for both crossings. "Give-Way" (R1-2) sign and "Give Way To Pedestrians" (R2-10) sign are to be installed on each approach to the pedestrian crossings, to provide pedestrians the right of way at the crossing points.

Figure 3.6: Proposed Pedestrian Crossings within Internal Roads



It is noted that the pedestrian crossing between Pedestrian Link 2 and the Southern Park is located on Road 2A (the major road) immediately to the south of the intersection with Road 4. We understand that Canterbury-Bankstown Council requires that raised pedestrian crossings should be located a minimum 5m clear of an intersection to allow for the storage of at least one car length before the crossing, ensuring safe vehicle approach and improved pedestrian visibility. The 5m setback from an intersection typically applies to pedestrian crossings on a minor road whilst giving way to traffic on the major road, which provides a storage area for a vehicle to stop before entering a major road without blocking the pedestrian crossing. Therefore, the 5m setback requirement does not apply to the pedestrian crossing on Road 2A which is a major road at the intersection with Road 4. The proposed pedestrian crossing location is considered acceptable, and is consistent with the recommended pedestrian crossing designs at an intersection in the Cycleway Design Toolbox (Version 0.1, dated December 2020).

4 Parking Assessment

4.1 Car Parking Assessment

4.1.1 Residential Subdivision

The Canterbury-Bankstown DCP 2023 stipulates a car parking rate of two car spaces per dwelling house for residential dwellings. The development is proposed to comply with this requirement and provide each dwelling with two car parking spaces.

Vehicle access to the dwellings fronting Ashford Avenue would be provided directly off Ashford Avenue, and vehicle access to other dwellings would be provided via the new internal local roads.

The car park and associated elements would also be proposed to be designed in accordance with Australian Standard AS2890.1:2004.

4.1.2 Childcare Centre

The development proposes to retain the existing childcare centre and the approved capacity of 67 children. However, a new car park will be constructed adjacent to the east of the existing childcare centre to service the childcare centre.

Council's DCP stipulates a minimum rate of 1 space per 4 children parking rate for staff and visitor parking. Hence, a minimum of 17 parking spaces are required for the childcare centre. The development proposes to provide 17 car parking spaces within the new car park for the childcare centre, thus complying with Council's minimum requirement stipulated in the DCP.

4.2 Accessible Parking Requirement

Council DCP Chapter 3.2 Clause 2.7 stipulates accessible parking requirements for publicly accessible buildings (BCA Class 9). According to the DCP, publicly accessible buildings with more than 10 car spaces are required to provide one accessible space for every 25 car spaces.

The provision of 17 car spaces within the childcare centre car park would require one accessible space. The proposed development will provide one accessible space within the car park, thus complying with the DCP requirement.

Accessible parking spaces are not required for the residential subdivision.

4.3 Bicycle Parking Requirement

4.3.1 Residential Subdivision

Council's DCP does not stipulate bicycle parking requirements for residential dwelling houses. Residential bicycles can be stored within the dwelling house or the garage.

4.3.2 Childcare Centre

Council's DCP stipulates that bicycle parking is to be provided at a rate of 1 space per 4 staff. Under the conservative assumption that all children at the childcare centre are under 24 months of age, the childcare centre would require a ratio of 1 staff per 4 children and an ultimate requirement of 17 staff. Therefore, the proposed childcare centre is required to provide 4 bicycle parking spaces. The bicycle parking spaces will be provided within the car park or in front of the childcare centre to satisfy Council's DCP requirements.

4.4 Waste Collection / Service Vehicle Arrangements

4.4.1 Childcare Centre

It is proposed that waste collection for the childcare centre will occur within a designated small-rigid-vehicle service bay located within the car park.

It is proposed that waste will be collected by a private waste collection service provider using a Small Rigid Vehicle (SRV) outside the operation hours of the childcare centre to minimise impact to pedestrians and other users of the car park.

Deliveries to the site will be undertaken by a van (typically a B99 vehicle) or similar vehicle within the service bay or a visitor space. It is anticipated that deliveries will occur between 10am and 2pm on weekdays, outside of the peak drop-off/pick-up periods. The low frequency of deliveries will not have a noticeable impact on the operation of the site.

The car park design and service arrangements satisfy the requirements of Childcare Planning Guideline (CPG) Section 3.8 C35 and C37.

4.4.2 Residential Subdivision

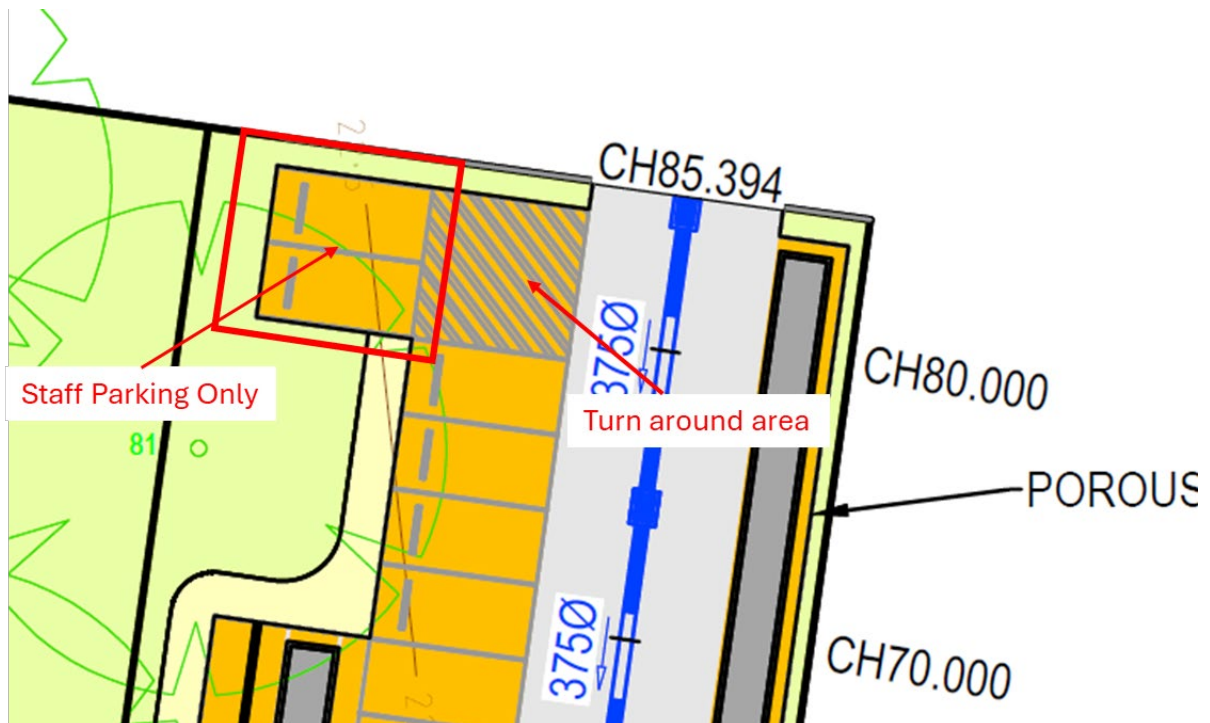
Residential waste is proposed to be collected kerbside on Ashford Avenue and along new internal roads. This is consistent with the existing waste collection arrangement of residential dwellings located in the surrounding area. Within the cul-de-sac of the internal roads prior to full construction of the internal road network, a turning bay will be provided to assist waste truck turning movements

4.5 Car Park Layout Review

The proposed childcare car park layout in general complies with Australian Standards AS2890.1:2004 and AS2890.6:2022. Childcare visitor parking spaces are designed in accordance with the Class 3 parking requirements of AS2890.1:2004.

It is noted that two car parking spaces at the end of the aisle are provided in an “indented” location as shown in Figure 4.1, to allow for a turning area for visitors to turnaround when it is required. These two car parking spaces will be allocated to childcare employees only and “Staff Only” signage and pavement decal will be implemented for those car spaces.

Figure 4.1: Proposed Turnaround Area and Staff Parking at the end of the Childcare Carpark



5 Traffic Assessment

5.1 Adjacent Development Traffic Generation

A traffic impact assessment report has been prepared by Genesis Traffic in February 2024 for a proposed industrial development at 270 Horsley Road located east of the development site. The proposal involves a multi-storey industrial complex comprising 12 warehouse units with a total GFA of 77,130m². The industrial development will remove the existing vehicle access on Horsley Road adjacent to the roundabout of the subject site's access, and construct two new access driveways on Horsley Road as shown in Figure 5.1.

Figure 5.1: Proposed New Site Accesses of 270 Horsley Road Development



Basemap Source: Nearmap aerial image dated 1 June 2025.

Based on Genesis's traffic report, the proposed industrial development would generate 185 and 139 vehicles per hour during the AM and PM peak periods as shown in Figure 5.2.

Figure 5.2: Adjacent Development Traffic Generation

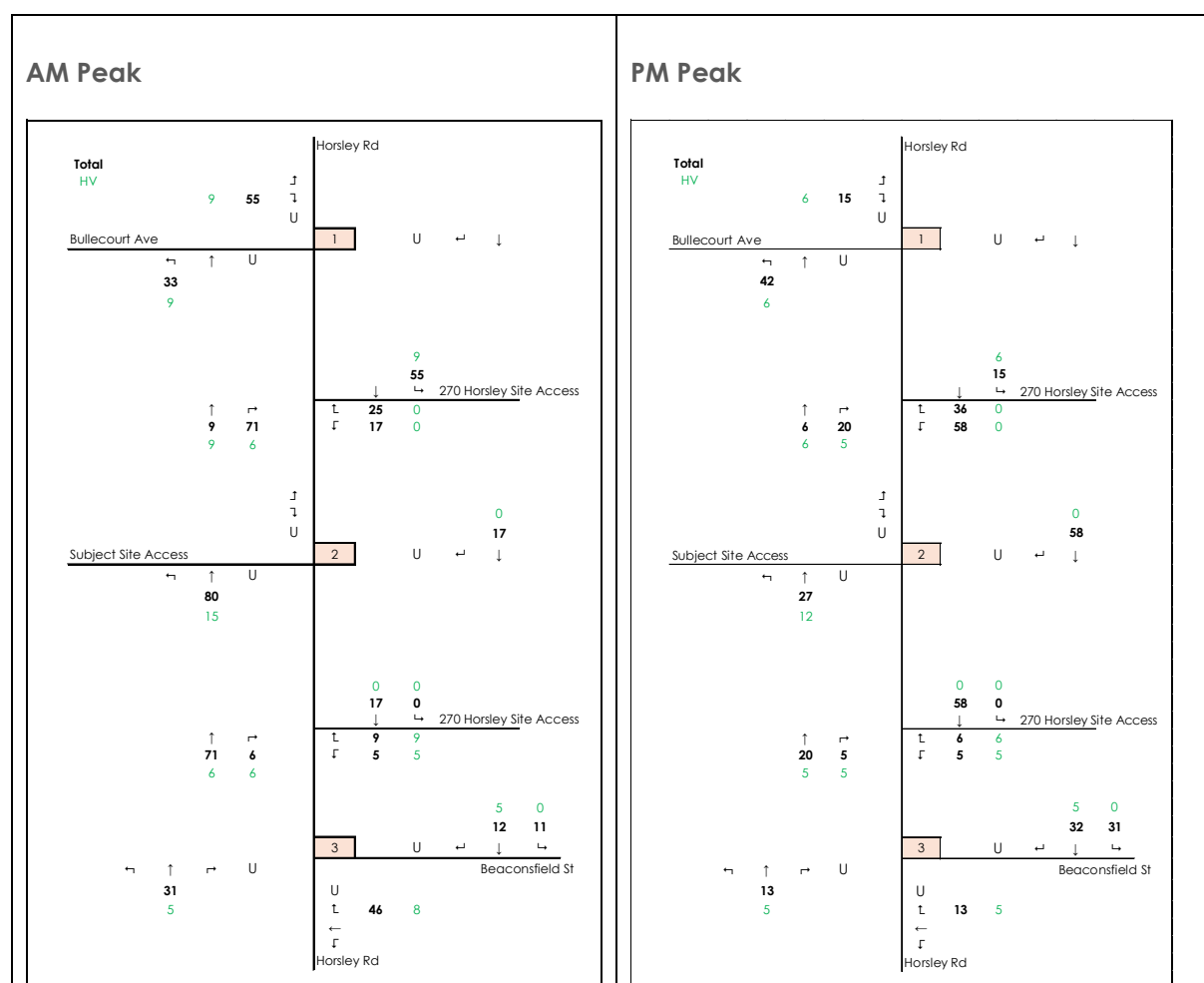
Period	AM peak (0.24 vtpm per 100m ²)	PM peak (0.18 vtpm per 100m ²)	Daily (2.64 vehicle trips per 100m ²)
Proposal (77,130m² GFA)	+ 185 vtpm	+ 139 vtpm	+ 2,036 vehicle trips
Less Existing Traffic	-13 vph	- 10 vph	- 563 vehicle trips
Net Addition	+ 172 vtpm	+ 129 vtpm	+ 1,895 vehicle trips

Source: Genesis Traffic

It is acknowledged that the existing site had been demolished and is currently under construction at the time of the traffic survey on 24 July 2025, thus there was no operational traffic generated from the industrial site. However, construction traffic (i.e. delivery trucks and construction workforce traffic) from 270 Horsley Road in the surrounding road network was captured by the survey. It is noted that the construction traffic will not be part of the background traffic once the industrial development is completed.

Notwithstanding that, the construction traffic captured in the survey is retained and the potential operational traffic from the adjacent development has been added to the future traffic model scenarios for a conservative assessment. Based on this, the adjacent development traffic distribution (185 trips in AM peak and 139 trips PM peak) to be included in the future cumulative traffic assessment is illustrated in Figure 5.3.

Figure 5.3: Adjacent Development Traffic Distribution



5.2 Proposed Development Traffic Generation

Traffic modelling and anticipated impacts of the proposed development with a total dwelling yield of 430 dwellings have been assessed and represented in the Planning Proposal

modelling referenced in this report. Further traffic modelling has been carried out based on the latest Master Staging Plan, Revision O, prepared by Beveridge Williams, which identifies a total provision of approximately 385 dwellings. This indicative layout plan is based on the Structure Plan (Figure 2: Concept Plan) of the Canterbury-Bankstown Development Control Plan 2023, Chapter 11.13.

As detailed design for the internal dwellings are still underway, the exact dwelling yield for SSDA 2 is not yet confirmed. The proponent is refining the design in the lead up to SSDA lodgement 2 to deliver a mix of typologies and a dwelling count consistent with the Housing Delivery Authority Expression of Interest. Notwithstanding, updated traffic modelling will be completed at SSDA lodgement 2 using the final dwelling yield.

To assess the impacts of the ultimate development of the site, the potential traffic generation of the residential component (385 residential dwellings) has been completed as part of this traffic assessment.

The traffic assessment for this proposed development adopts traffic generation rates from the TfNSW Guide to Transport Impact Assessment 2024 (the Guide).

For the purposes of traffic generation and traffic modelling a robust approach has been undertaken to conservatively adopt the higher trip rates (i.e. low-density rates) for the entire residential subdivision (385 dwellings).

Based on the Guide, the traffic generation rates for low density residential dwellings are as follows:

Low Density Residential

- 0.68 vehicle trips per dwelling in the AM peak hour
- 0.77 vehicle trips per dwelling in the PM peak hour.

Table 5.1 provides a summary of the potential traffic generation of the proposed development with consideration of the full residential subdivision. Table 5.2 provides a comparison of the proposed development traffic generation with the residential traffic of the approved planning proposal and the former university traffic recorded in September 2019. The values in the brackets present the net traffic generation of this proposed development.

The following inbound and outbound traffic directional splits, which are considered to be conservative, have been assumed:

- Residential traffic: 20 per cent inbound traffic and 80 per cent outbound traffic in the AM peak. The reverse would apply in the PM peak.

Table 5.1: Traffic Generation Summary

Land Use	Yield	TfNSW Traffic Generation Rate		Traffic Generation			
		AM Peak	PM Peak	AM Peak		PM Peak	
				Inbound	Outbound	Inbound	Outbound
Low Density ^[1]	385 dwellings	0.68 trips per dwelling	0.77 trips per dwelling	52	210	237	59
Total				262		296	

[1] conservatively assumed low density trip rates for all residential dwellings. In reality there would be some proportion of medium density dwellings which stipulate lower trip generation rates.

Table 5.2: Comparison of Traffic Generation

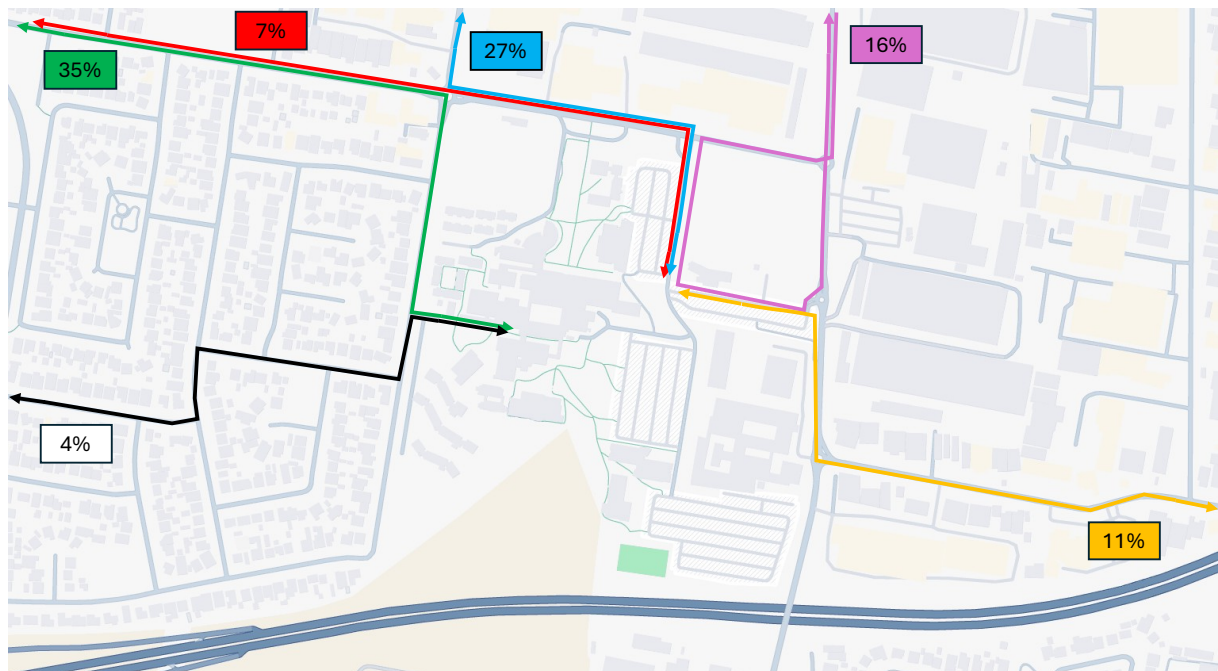
	Traffic Generation Estimate	
	AM Peak	PM Peak
Proposed Development Traffic (This SSDA)	262	296
Approved Planning Proposal (430 residential dwellings adopting the low-density traffic generation rates from the Guide 2024, and excluding the commercial centre developments)	292 (-30)	331 (-35)
Former WSU Campus (based on traffic counts in September 2019)	282 (-20)	195 (+101)

Based on the above, the full development of the site would generate 262 vehicle trips (inbound and outbound) in the AM peak hour and 296 vehicle trips (inbound and outbound) in the PM peak hour. This level of traffic generation is approximately 30 fewer trips in the AM peak and 35 fewer in the PM peak compared to the residential traffic allowance in the approved planning proposal. When compared to the former university use, it represents 20 fewer vehicle trips in the AM peak but an increase of 101 vehicle trips in the PM peak.

5.3 Development Traffic Distribution

It is assumed that residential traffic generated by the proposed development will be distributed throughout the three site access points on Ashford Avenue, Bullecourt Avenue and Horsley Road, as presented in Figure 5.4.

Figure 5.4: Residential Traffic Distribution



The adopted traffic distribution is in general consistent with the traffic distribution assumption agreed by Council in the planning proposal which was based on the 2016 Journey to Work Census data.

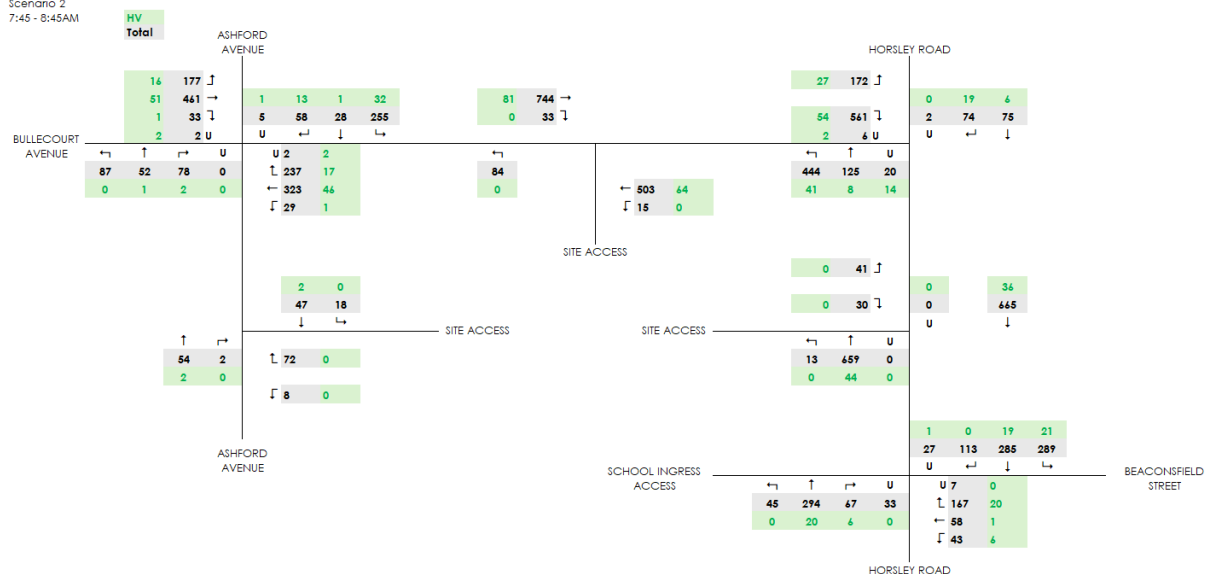
It is assumed that 4% of the development traffic will travel to/from Henry Lawson Drive via Hermies Avenue and Zonnebeke Crescent south of the Ashford Avenue site access, which is consistent with the traffic distribution assumption agreed by Council in the planning proposal. On this basis, it is expected that the development will generate an additional 10 to 11 traffic movements on the two local residential streets during peak hours.

Based on the above traffic distribution assumption, Figure 5.5 illustrates the AM and PM traffic movements at the surrounding key intersections including the residential and childcare centre traffic from and to the site and potential operational traffic from 270 Horsley Road.

Figure 5.5: Anticipated Surrounding Traffic Movements Post Development of the Site (including Development Traffic of 270 Horsley Road)

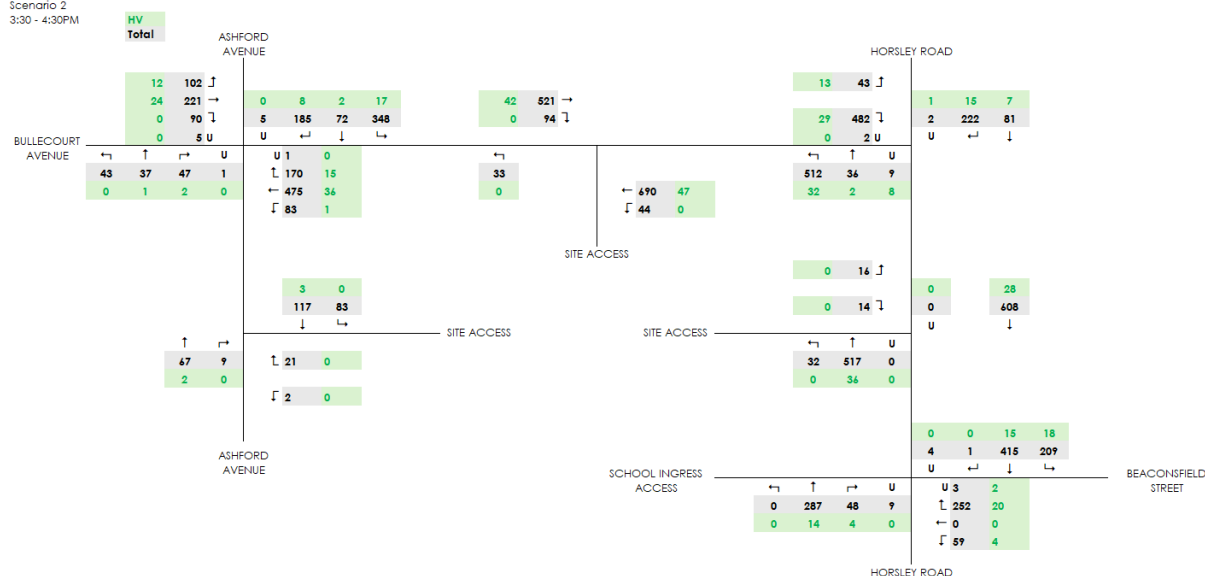
AM Peak (7:45am – 8:45am)

Scenario 2
7:45 - 8:45AM



PM Peak (3:30pm – 4:30pm)

Scenario 2
3:30 - 4:30PM



5.4 Traffic Modelling

Performance criteria for intersections are based on the TfNSW Guide to Transport Impact Assessment. A qualitative rating and its corresponding Level of Service (LoS) are applied to the average delay per vehicle as shown in Table 5.3.

Table 5.3: RMS 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 will 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

At signalised intersections, the average delay is the volume weighted average of all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the worst movement.

5.4.1 Assessed Scenarios

Intersection traffic modelling was undertaken using SIDRA software version 10 to assess the performance of the following key intersections:

- Ashford Avenue – Site Access (Road no.1)
- Ashford Avenue – Bullecourt Avenue
- Bullecourt Avenue – Site Access (Road no.9)
- Horsley Road – Bullecourt Avenue
- Horsley Road – Site Access (Road no.2)
- Horsley Road – Beaconsfield Street

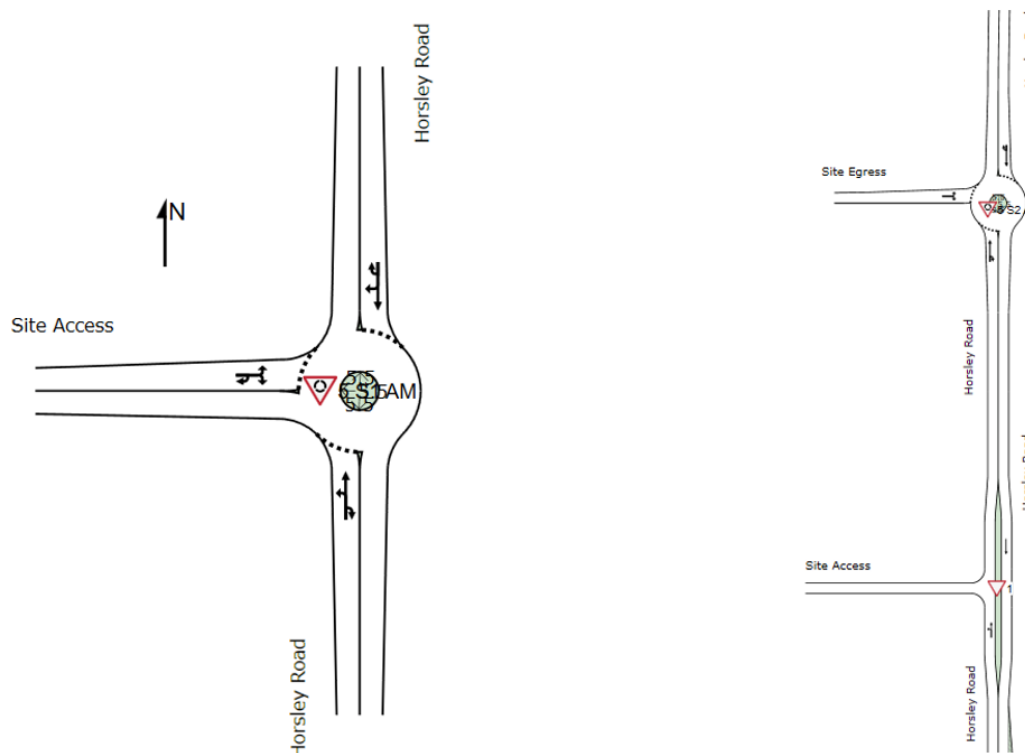
The following scenarios were assessed:

- **Scenario 1:** 2025 Existing + childcare (with existing Horsley Road roundabout site access)
- **Scenario 2:** 2025 Existing + childcare + residential subdivision traffic + 270 Horsley Road development traffic (with updated Horsley Road site access and left-in only)
- **Scenario 3:** Scenario 2 + 2035 future background traffic growth (10-year traffic growth projections based on TfNSW STFM)

5.4.2 Site Access Road Intersection Layout

The existing and proposed site access layouts on Horsley Road are shown in Figure 5.6. The proposed site access layout applies to Scenarios 2 and 3.

Figure 5.6: Existing (left) and Proposed (right) Horsley Road Site Access Layout



5.4.3 Modelling Results

A summary of the SIDRA modelling results is shown in Table 5.4 (AM) and Table 5.5 (PM). For priority-controlled and roundabout intersections, the worst movement in each intersection is reported in the tables. At the roundabout intersection of Ashford Avenue / Bullecourt Avenue, the worst movement is the west approach U-turn, which was reported to be LoS C in the 2025 post development scenario (Scenario 2) and LoS D in the 2035 scenario (Scenario 3) in the AM peak. However, it should be noted that the traffic demand on this movement is only two heavy vehicles. When the two heavy vehicles are replaced by light vehicles in the SIDRA model, the modelling results show that the performance of this movement becomes LoS B (average delay of 25 seconds) in Scenario 2 and LoS C (average delay of 38 seconds) in Scenario 3. This suggests that SIDRA tends to overestimate the delay of heavy vehicles for a U-turn movement. The two U-turn heavy vehicles will not have a noticeable impact on the overall performance of the intersection.

Based on the above, only the worst movements with over **10** vehicles per hour are reported in Table 5.4 and Table 5.5.

Table 5.4: AM Peak SIDRA Results

Intersection	Control	Scenario 1 2025 Existing Conditions		Scenario 2 2025 + Proposal + Adjacent Development		Scenario 3 2035	
		Avg Delay (s)	LoS	Avg Delay (s)	LoS	Avg Delay (s)	LoS
Ashford Avenue / Site Access	Priority	0	A	8	A	8	A
Ashford Avenue / Bullecourt Avenue	Roundabout	15	B	24	B	37	C
Site Access / Bullecourt Avenue	Priority	11	A	12	A	12	A
Horsley Road / Bullecourt Avenue	Roundabout	13	A	14	A	14	A
Horsley Road / Site Access	Roundabout	5	A	5	A	5	A
Horsley Road / Beaconsfield Street / School Access	Roundabout	12	A	12	A	12	A

Table 5.5: PM Peak SIDRA Results

Intersection	Control	Scenario 1 Yr 2025 Existing Conditions		Scenario 2 Yr 2025 + Proposal + Adjacent Development		Scenario 3 Yr 2035	
		Avg Delay (s)	LoS	Avg Delay (s)	LoS	Avg Delay (s)	LoS
Ashford Avenue / Site Access	Priority	0	A	8	A	8	A
Ashford Avenue / Bullecourt Avenue	Roundabout	14	B	23	B	35	C
Site Access / Bullecourt Avenue	Priority	12	A	14	A	14	A
Horsley Road / Bullecourt Avenue	Roundabout	12	A	13	A	13	A
Horsley Road / Site Access	Roundabout	5	A	5	A	5	A
Horsley Road / Beaconsfield Street / School Access	Roundabout	9	A	13	A	11	A

The intersections under existing conditions operate satisfactorily at LoS A or B in both peak periods. With the modified site access intersection, development traffic generation and anticipated traffic generated from the adjacent development, the overall performance of the surrounding key intersections is expected to be satisfactory at LoS B or better. With the 10-year future background traffic growth, the overall performance of the intersections will continue to operate satisfactorily at LoS C.

Overall, the traffic generation of the proposed development is not expected to compromise the intersection performance of the surrounding road network, and will have no material impact on the surrounding road network.

6 Conclusion

This report examines the traffic and parking impacts of the proposed staged residential development at 2 and 2A Bullecourt Avenue, Milperra.

The key findings are summarised below:

- The proposed development (this SSDA) involves the construction of 62 dwelling houses, three public parks, new roads and shared paths, civil infrastructure, a car park for the existing childcare centre, and the management of conservation land. The proposed development also involves the subdivision of lots for land to be dedicated to the Council including parks and infrastructure, and remaining residential super lots across the site for future development (SSDA 2), which is expected to accommodate a total of 385 residential dwelling houses across the whole masterplan site.
- The proposed development will also involve the construction of new access roads from Ashford Avenue, Bullecourt Avenue and Horsley Road. The existing roundabout access on Horsley Road will be modified to connect with the new access road. The proposed site access designs are in accordance with Council's requirements/comments from previous RFIs and consultation meetings, and are considered acceptable for the proposed development.
- The proposed development will provide sufficient off-street parking spaces, with two car parking spaces provided for each dwelling as per Council DCP requirements and a minimum of 17 car parking spaces for the existing childcare centre.
- The layout of the new car park adjacent to the childcare centre is designed in accordance with AS2890.1:2004 and AS2890.6:2022.
- Waste collection of the residential dwellings will be undertaken from the kerb side on Ashford Avenue and the new internal roads. Waste collection of the childcare centre will be undertaken by a private waste collection contractor within the car park and will only occur outside of the business operating hours of the childcare centre to minimise the impact on other users of the car park.
- The proposed residential subdivision (ultimate development of the site – 385 residential lots) is expected to generate up to 262 trips in the AM peak and 296 trips in the PM peak, considerably less than the residential traffic generation of the approved Planning Proposal.
 - In total, traffic generation between the Planning Proposal residential component and the proposed traffic generation has reduced by 30 vehicle trips and 35 vehicle trips during the AM and PM peak hour respectively.
- SIDRA modelling has been undertaken to assess the traffic impacts of the proposed development (including modification of the existing site access) and the cumulative impacts with the adjacent industrial development (270 Horsley Road) under the current 2025 traffic conditions and the forecasted 2035 background traffic conditions.

- The modelling results indicate that the overall performance of the surrounding key intersections is anticipated to operate satisfactorily at LoS B or better in the Year 2025 scenario and LoS C or better in the Year 2035 scenario. Therefore, the proposed development is not expected to cause material impact on the surrounding road network.

Overall, the traffic and parking aspects of the proposed development are considered to be satisfactory.

Appendix A

Site Layout Plans



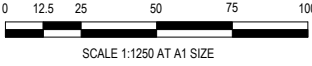
LEGEND - FUNCTIONAL LAYOUT PLAN

- PROPOSED SUPER LOTS
- PROPOSED HOUSING LOTS
- DENOTES COMMUNITY TITLE SCHEME LOTS
- ROADS DEDICATED TO COUNCIL
- DENOTES PUBLIC OPEN SPACE OR DRAINAGE RESERVE TO BE CONSTRUCTED AND DEDICATED TO COUNCIL UNDER THIS STAGE

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Checked	S. FERGUSON
Date	06.11.25
Approved	S. FERGUSON
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Date	06.11.25
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Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	GENERAL ARRANGEMENT & STAGING PLAN

Sheet 2 of 145

Scale
1:1250 @ A1

Project Ref	Stage No	Drawing No	Rev
2301879	321	002	B





LEGEND

- ELECTRICITY (UNDERGROUND)
- OPTIC FIBRE
- TELECOMMUNICATION
- GAS
- WATER
- RECYCLED WATER
- STORMWATER DRAIN, PIT & PROPERTY INLET
- MELBOURNE WATER DRAIN & PIT
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- TACTILE PAVERS (INDICATIVE ONLY)
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING GAS
- EXISTING TELECOMMUNICATION
- EXISTING WATER
- EXISTING RECYCLED WATER
- EXISTING STORMWATER DRAIN
- EXISTING SEWER
- EXISTING HOUSE DRAIN
- EXISTING SWALE DRAIN
- CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- LIMIT OF WORKS
- EXISTING TREE TO BE REMOVED
- RIDGE LINE
- RETAINING WALL
- INDICATIVE RESIDENTIAL LOT BOUNDARY, SUBJECT TO FURTHER DA APPROVAL



SITE PLAN
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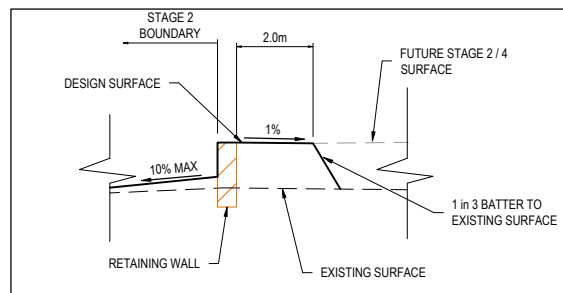
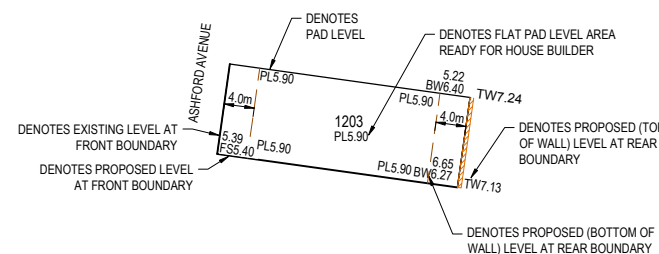
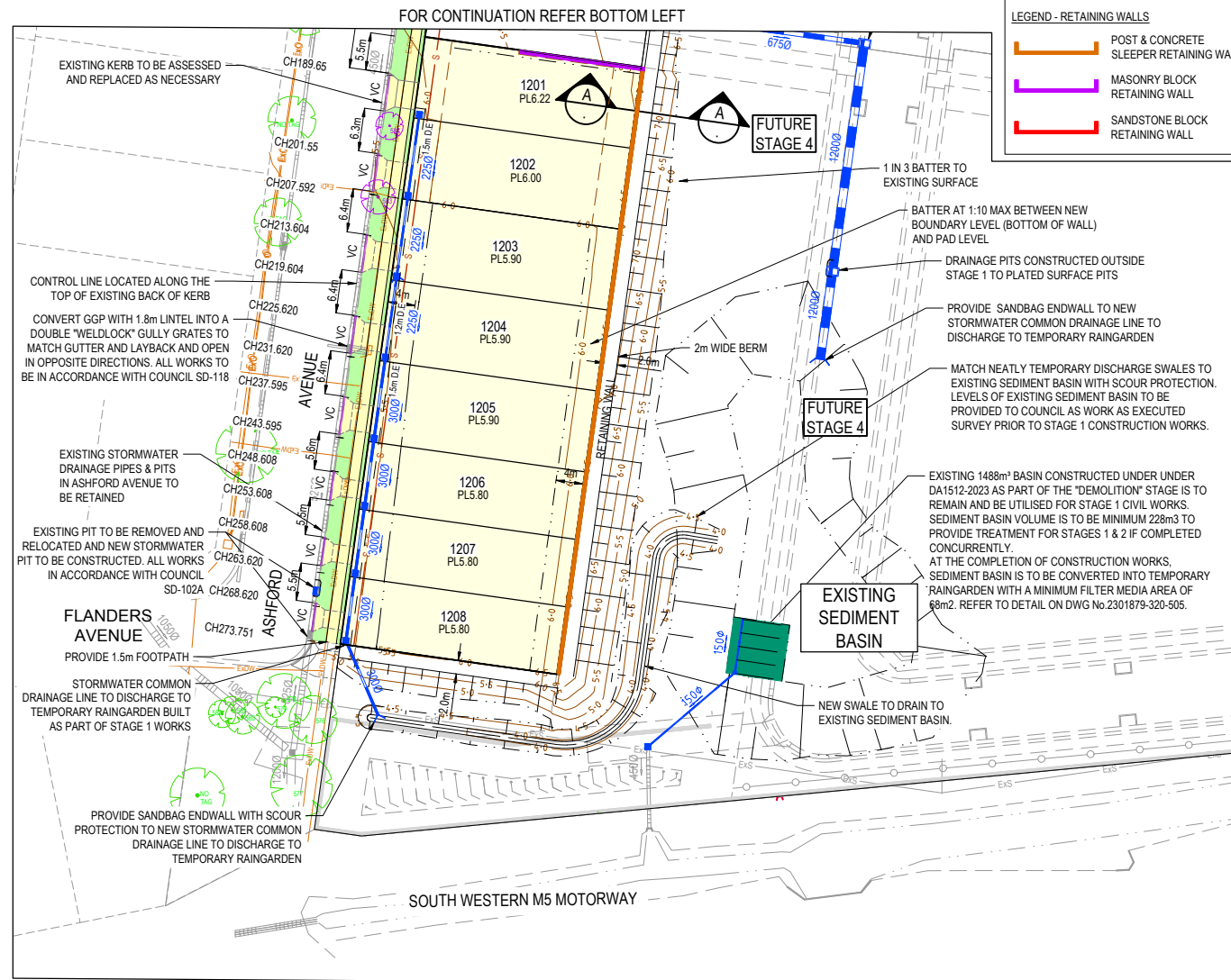
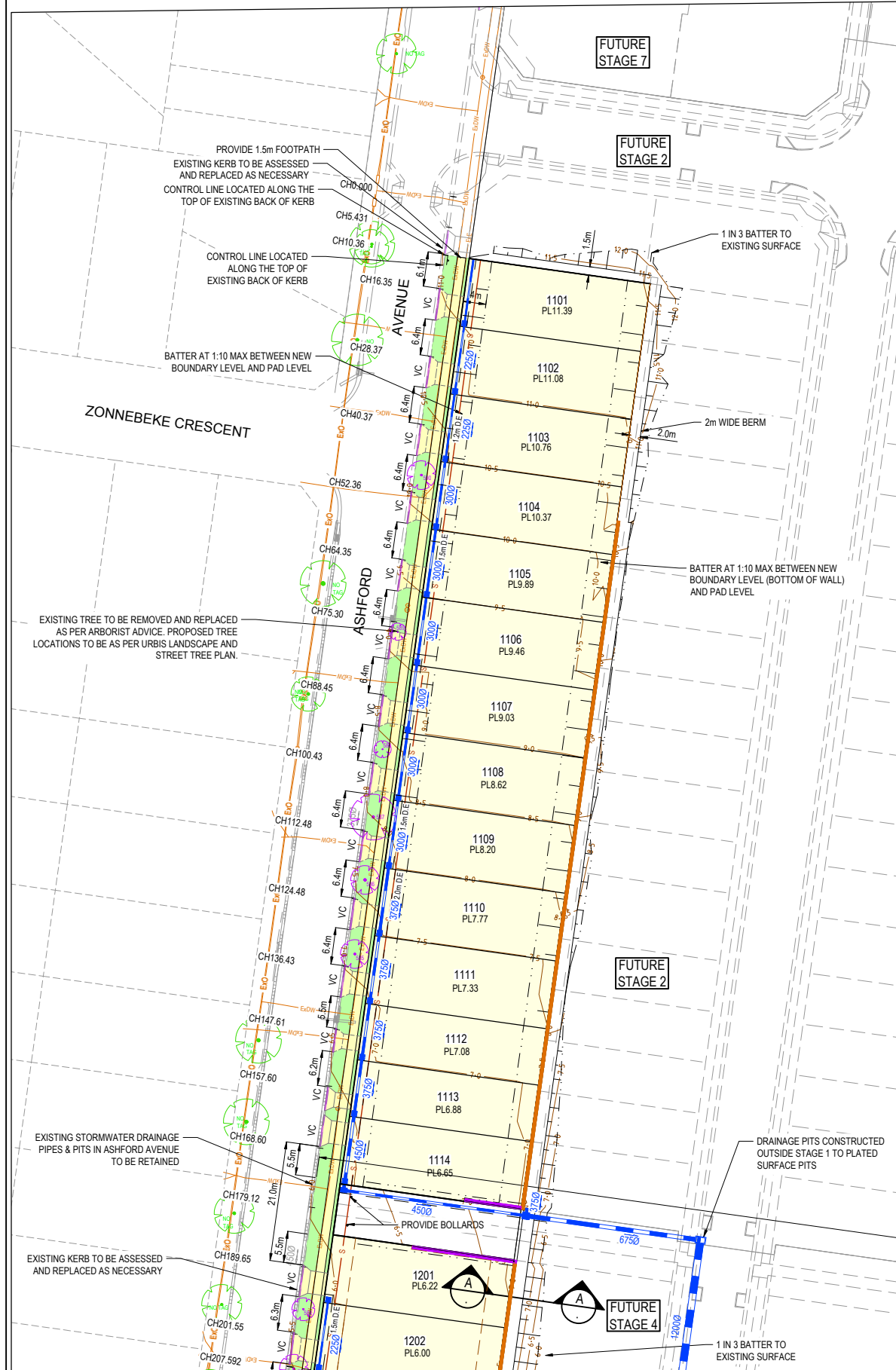
Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	OVERALL LAYOUT PLAN

Sheet 18 of 145

Scale
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Project Ref	Stage No	Drawing No	Rev
2301879	321	050	B





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Designed	R. GOVENDER
Date	23.06.2025
Drawn	G.N.
Checked	S. FERGUSON
Date	06.11.25
Approved	S. FERGUSON
Reg. No.	PE0006347
Date	06.11.25
DA Number	

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Project Details

WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing Title

LAYOUT PLAN
STAGE 1

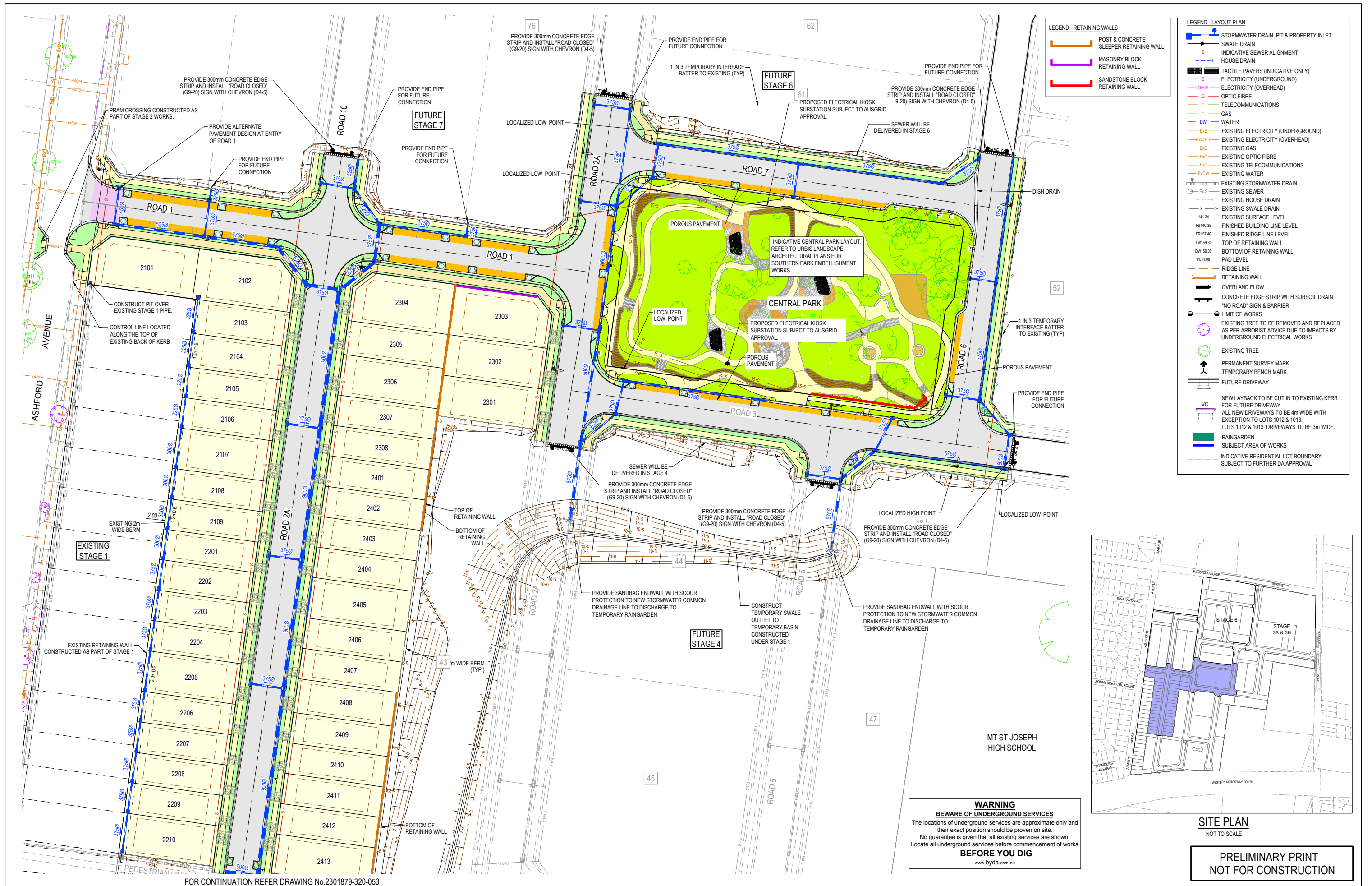
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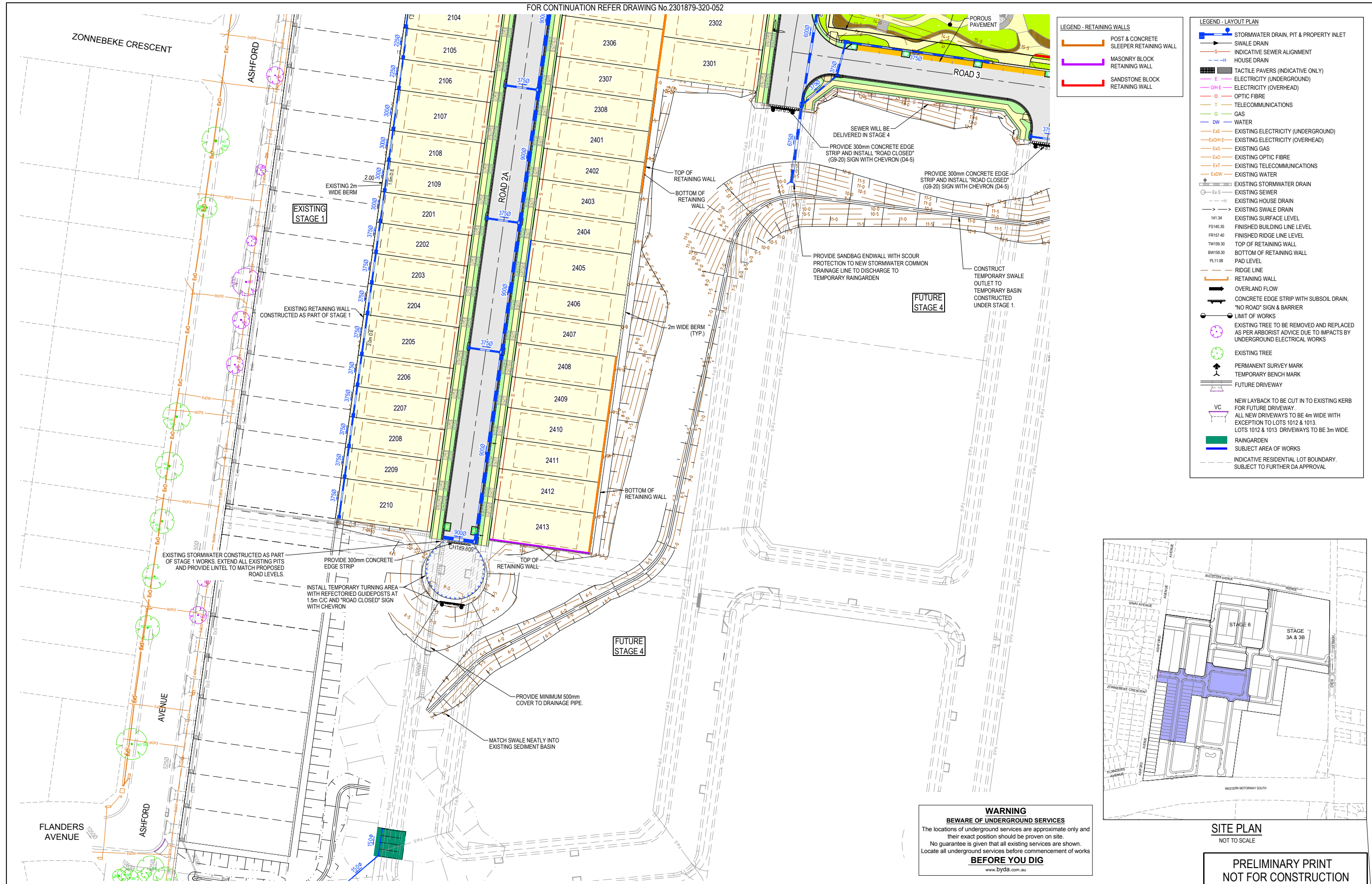
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Project Ref 2301879 Stage No 321 Drawing No 051 Rev B

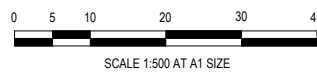






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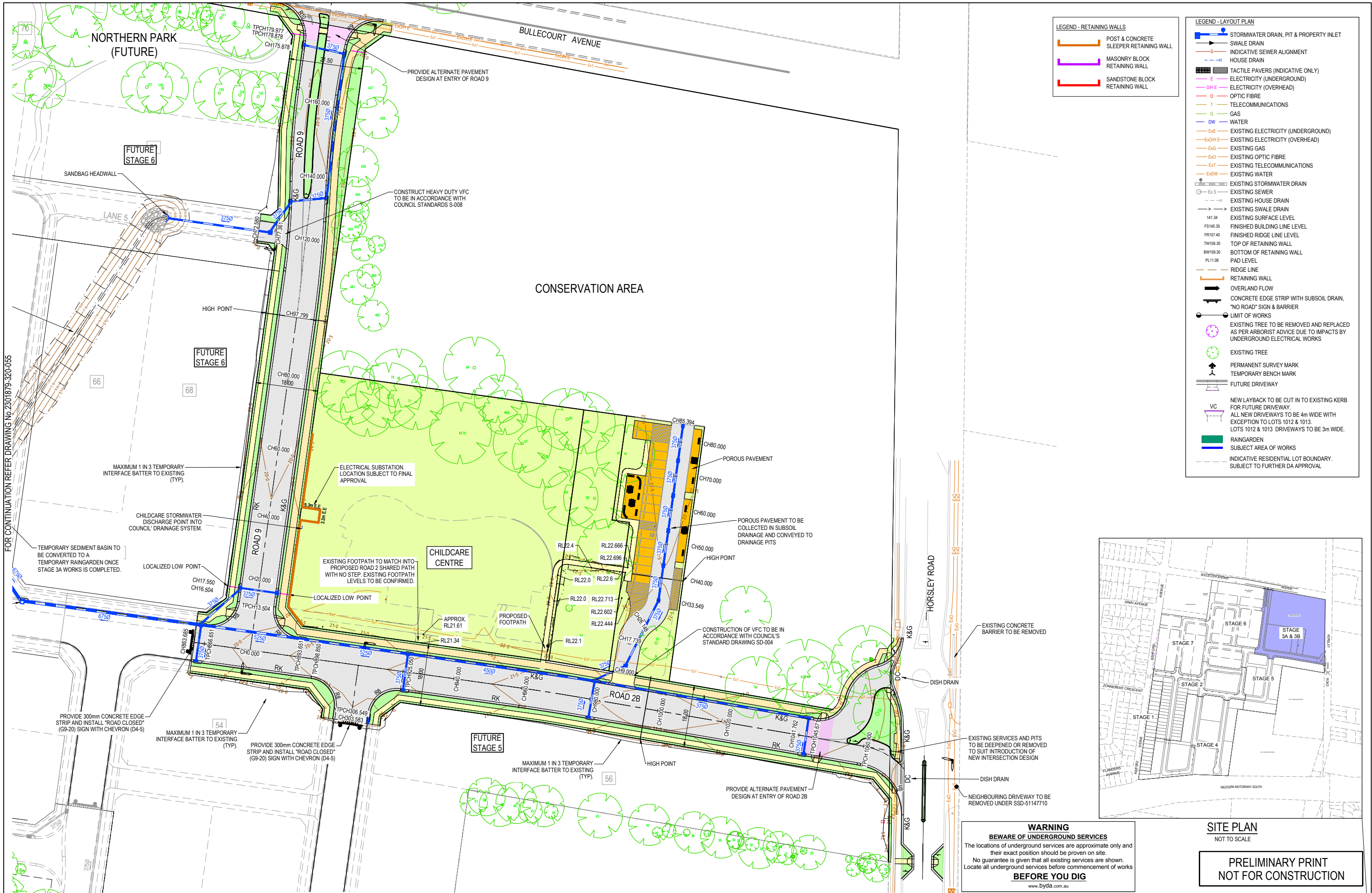
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WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
LAYOUT PLAN
STAGE 2
SHEET 2 OF 2

Sheet 21 of 145

Scale
1:500 @ A1

Project Ref	Stage No	Drawing No	Rev
2301879	321	053	B



- LEGEND - RETAINING WALLS
- POST & CONCRETE SLEEPER RETAINING WALL
 - MASONRY BLOCK RETAINING WALL
 - SANDSTONE BLOCK RETAINING WALL

- LEGEND - LAYOUT PLAN
- STORMWATER DRAIN, PIT & PROPERTY INLET
 - SWALE DRAIN
 - INDICATIVE SEWER ALIGNMENT
 - HOUSE DRAIN
 - TACTILE PAVERS (INDICATIVE ONLY)
 - ELECTRICITY (UNDERGROUND)
 - ELECTRICITY (OVERHEAD)
 - OPTIC FIBRE
 - TELECOMMUNICATIONS
 - GAS
 - WATER
 - EXISTING ELECTRICITY (UNDERGROUND)
 - EXISTING ELECTRICITY (OVERHEAD)
 - EXISTING GAS
 - EXISTING OPTIC FIBRE
 - EXISTING TELECOMMUNICATIONS
 - EXISTING WATER
 - EXISTING STORMWATER DRAIN
 - EXISTING SEWER
 - EXISTING HOUSE DRAIN
 - EXISTING SWALE DRAIN
 - EXISTING SURFACE LEVEL
 - FINISHED BUILDING LINE LEVEL
 - FINISHED RIDGE LINE LEVEL
 - TOP OF RETAINING WALL
 - BOTTOM OF RETAINING WALL
 - PAD LEVEL
 - RIDGE LINE
 - RETAINING WALL
 - OVERLAND FLOW
 - CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
 - LIMIT OF WORKS
 - EXISTING TREE TO BE REMOVED AND REPLACED AS PER ARBORIST ADVICE DUE TO IMPACTS BY UNDERGROUND ELECTRICAL WORKS
 - EXISTING TREE
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 - RAINGARDEN
 - SUBJECT AREA OF WORKS
 - INDICATIVE RESIDENTIAL LOT BOUNDARY. SUBJECT TO FURTHER DA APPROVAL

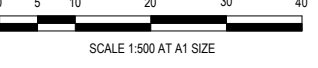


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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing Title
LAYOUT PLAN
STAGE 3A
SHEET 1 OF 2

Sheet 22 of 145

Scale
1:500 @ A1

Project Ref 2301879
Stage No 321
Drawing No 054
Rev C

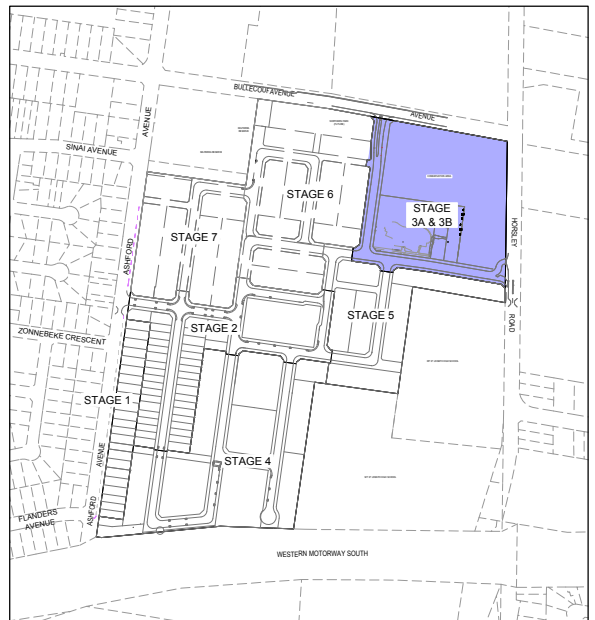


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- LEGEND - RETAINING WALLS**
- POST & CONCRETE SLEEPER RETAINING WALL
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 - SANDSTONE BLOCK RETAINING WALL

- LEGEND - LAYOUT PLAN**
- STORMWATER DRAIN, PIT & PROPERTY INLET
 - SWALE DRAIN
 - INDICATIVE SEWER ALIGNMENT
 - HOUSE DRAIN
 - TACTILE PAVERS (INDICATIVE ONLY)
 - ELECTRICITY (UNDERGROUND)
 - ELECTRICITY (OVERHEAD)
 - OPTIC FIBRE
 - TELECOMMUNICATIONS
 - GAS
 - WATER
 - EXISTING ELECTRICITY (UNDERGROUND)
 - EXISTING ELECTRICITY (OVERHEAD)
 - EXISTING GAS
 - EXISTING OPTIC FIBRE
 - EXISTING TELECOMMUNICATIONS
 - EXISTING WATER
 - EXISTING STORMWATER DRAIN
 - EXISTING SEWER
 - EXISTING HOUSE DRAIN
 - EXISTING SWALE DRAIN
 - EXISTING SURFACE LEVEL
 - FINISHED BUILDING LINE LEVEL
 - FINISHED RIDGE LINE LEVEL
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 - LOTS 1012 & 1013 DRIVEWAYS TO BE 3m WIDE.
 - RAINGARDEN
 - SUBJECT AREA OF WORKS
 - INDICATIVE RESIDENTIAL LOT BOUNDARY. SUBJECT TO FURTHER DA APPROVAL

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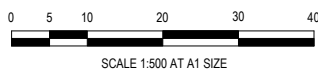


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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
LAYOUT PLAN
STAGE 3A
SHEET 2 OF 2

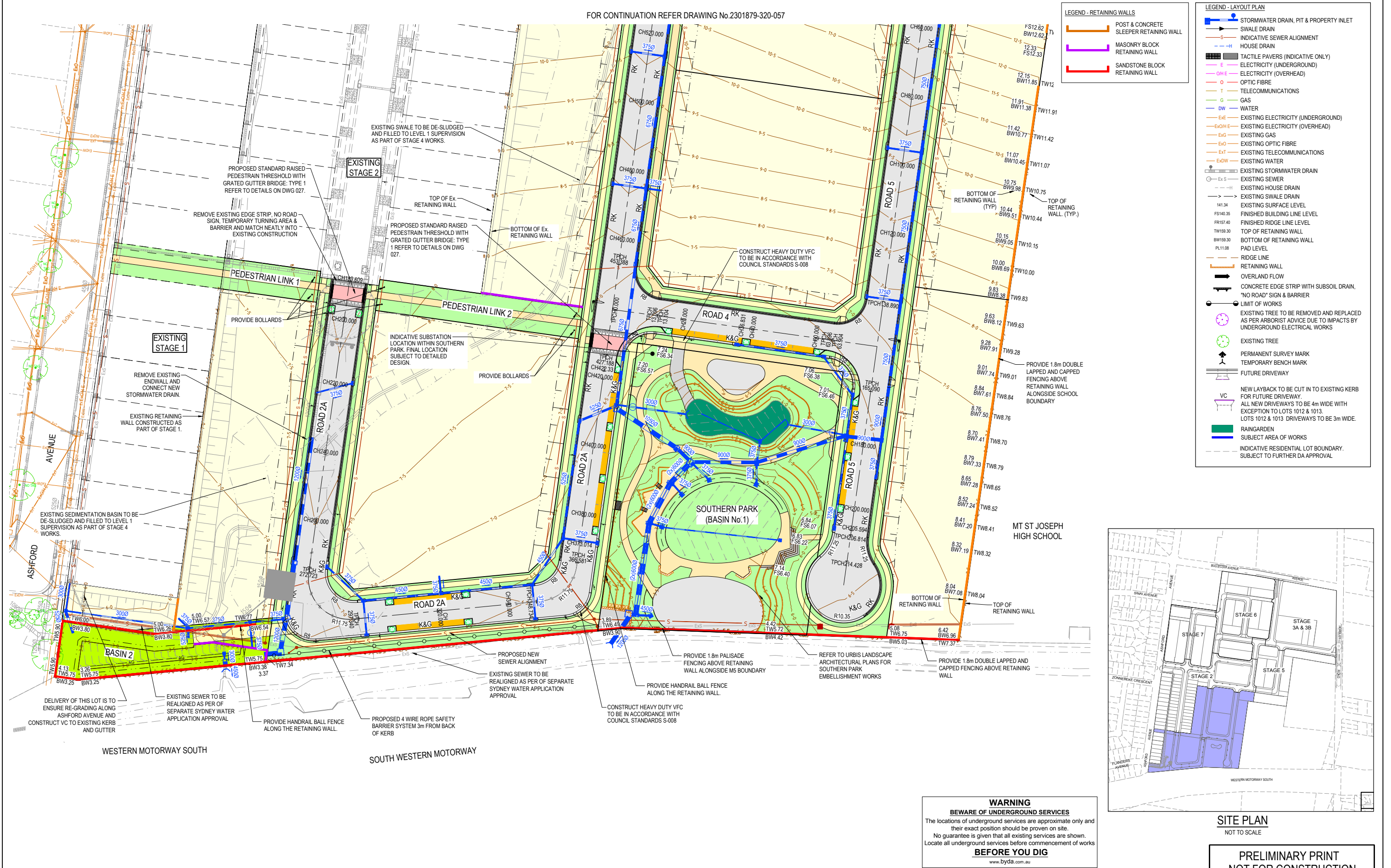
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Project Ref 2301879
Stage No 321
Drawing No 055
Rev C

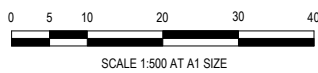


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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
LAYOUT PLAN
STAGE 4
SHEET 1 OF 2

Sheet 24 of 145

Scale
1:500 @ A1

Project Ref 2301879
Stage No 321
Drawing No 056
Rev B



LEGEND - RETAINING WALLS

- POST & CONCRETE SLEEPER RETAINING WALL
- MASONRY BLOCK RETAINING WALL
- SANDSTONE BLOCK RETAINING WALL

LEGEND - LAYOUT PLAN

- STORMWATER DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- INDICATIVE SEWER ALIGNMENT
- HOUSE DRAIN
- TACTILE PAVERS (INDICATIVE ONLY)
- ELECTRICITY (UNDERGROUND)
- ELECTRICITY (OVERHEAD)
- OPTIC FIBRE
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- GAS
- WATER
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING GAS
- EXISTING OPTIC FIBRE
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER
- EXISTING STORMWATER DRAIN
- EXISTING SEWER
- EXISTING HOUSE DRAIN
- EXISTING SWALE DRAIN
- EXISTING SURFACE LEVEL
- FINISHED BUILDING LINE LEVEL
- FINISHED RIDGE LINE LEVEL
- TOP OF RETAINING WALL
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- PAD LEVEL
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- RETAINING WALL
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- RAINGARDEN
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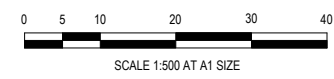


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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing Title
LAYOUT PLAN
STAGE 4
SHEET 2 OF 2

Sheet 25 of 145

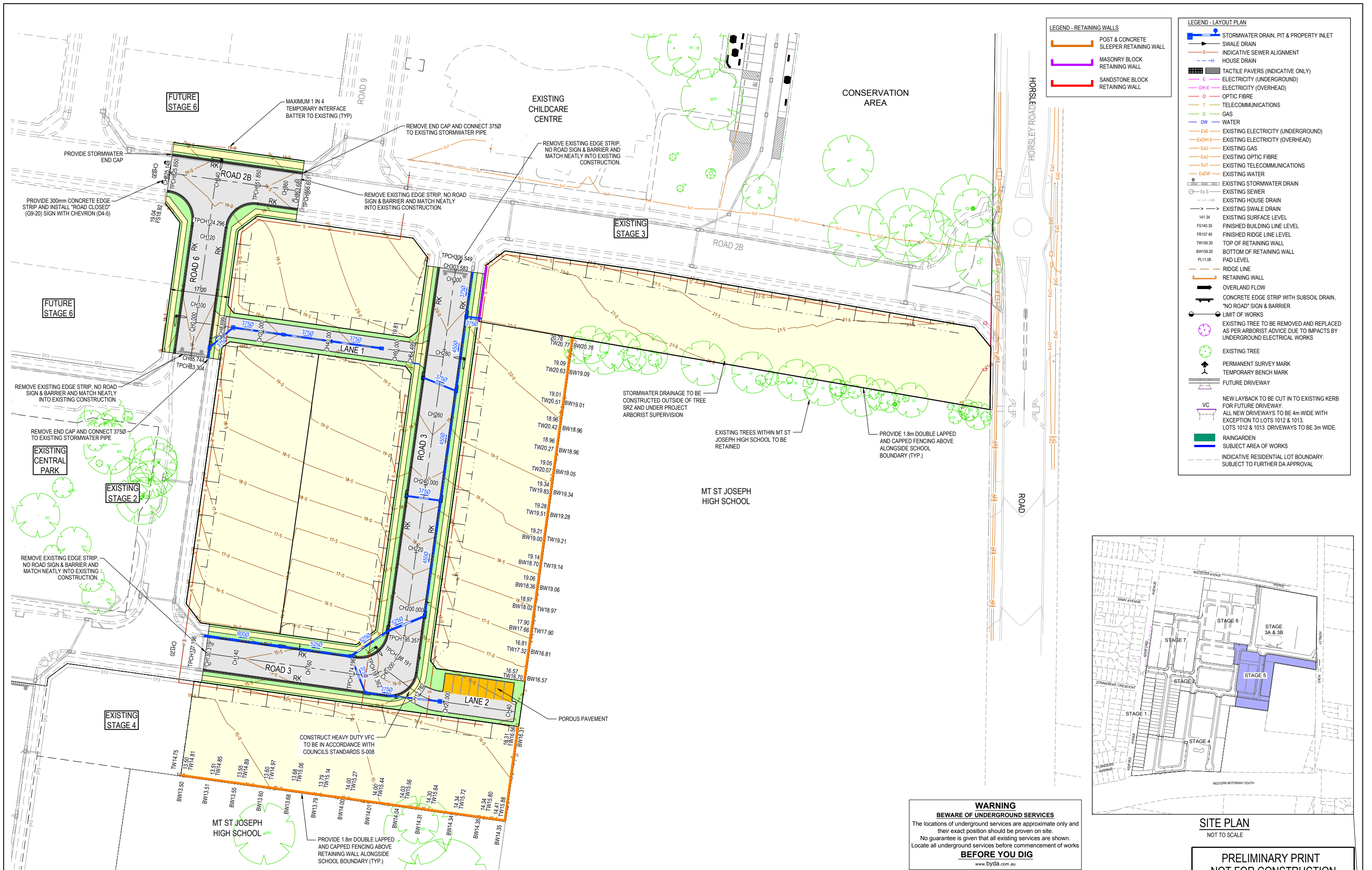
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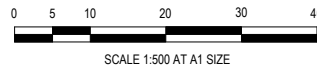
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321

Drawing No
057

Rev
B



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	DESCRIPTION	DATE	DRN	APP.	



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Drawing Title	LAYOUT PLAN STAGE 5

SITE PLAN
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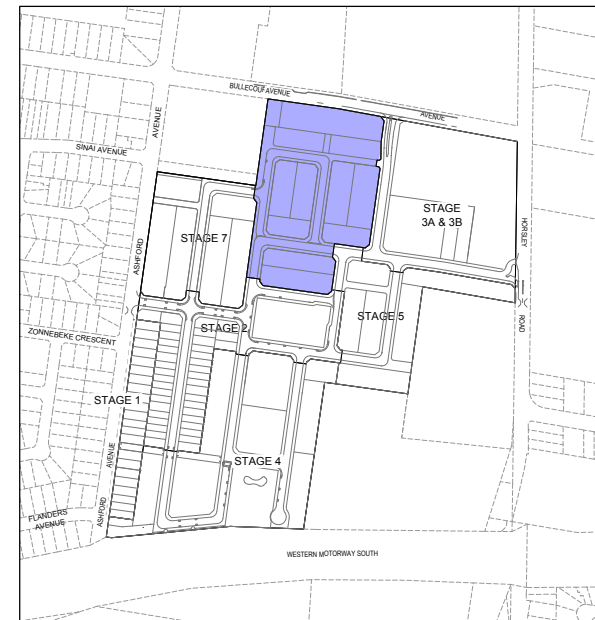
Project Ref	Stage No	Drawing No	Rev
2301879	321	058	B





LEGEND - RETAINING WALLS	
	POST & CONCRETE SLEEPER RETAINING WALL
	MASONRY BLOCK RETAINING WALL
	SANDSTONE BLOCK RETAINING WALL

LEGEND - LAYOUT PLAN	
	STORMWATER DRAIN, PIT & PROPERTY INLET
	SWALE DRAIN
	INDICATIVE SEWER ALIGNMENT
	HOUSE DRAIN
	TACTILE PAVERS (INDICATIVE ONLY)
	ELECTRICITY (UNDERGROUND)
	ELECTRICITY (OVERHEAD)
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	TELECOMMUNICATIONS
	GAS
	WATER
	EXISTING ELECTRICITY (UNDERGROUND)
	EXISTING ELECTRICITY (OVERHEAD)
	EXISTING GAS
	EXISTING OPTIC FIBRE
	EXISTING TELECOMMUNICATIONS
	EXISTING WATER
	EXISTING STORMWATER DRAIN
	EXISTING SEWER
	EXISTING HOUSE DRAIN
	EXISTING SWALE DRAIN
	EXISTING SURFACE LEVEL
	FINISHED BUILDING LINE LEVEL
	FINISHED RIDGE LINE LEVEL
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	BOTTOM OF RETAINING WALL
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	RIDGE LINE
	RETAINING WALL
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	EXISTING TREE TO BE REMOVED AND REPLACED AS PER ARBORIST ADVICE DUE TO IMPACTS BY UNDERGROUND ELECTRICAL WORKS
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	RAINGARDEN
	SUBJECT AREA OF WORKS
	INDICATIVE RESIDENTIAL LOT BOUNDARY. SUBJECT TO FURTHER DA APPROVAL

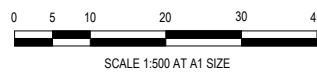


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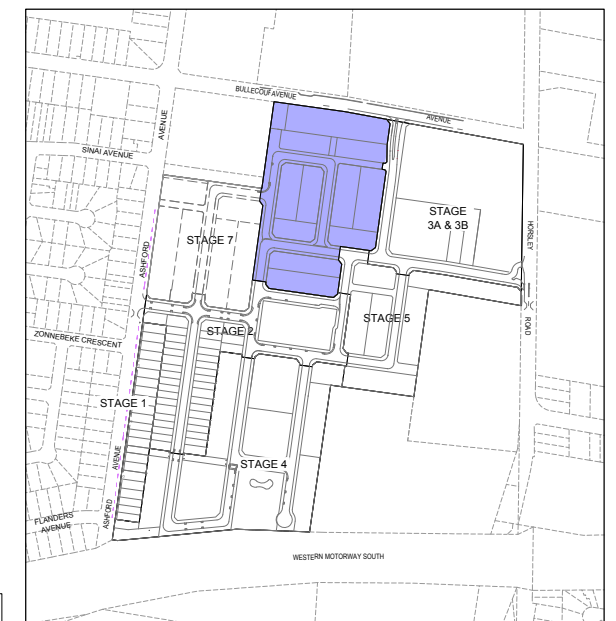
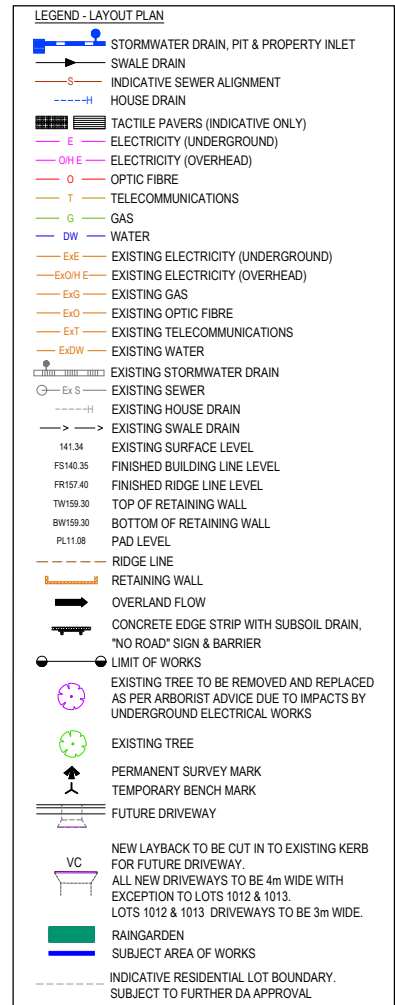
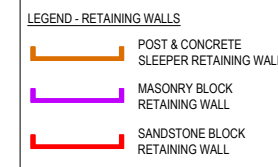
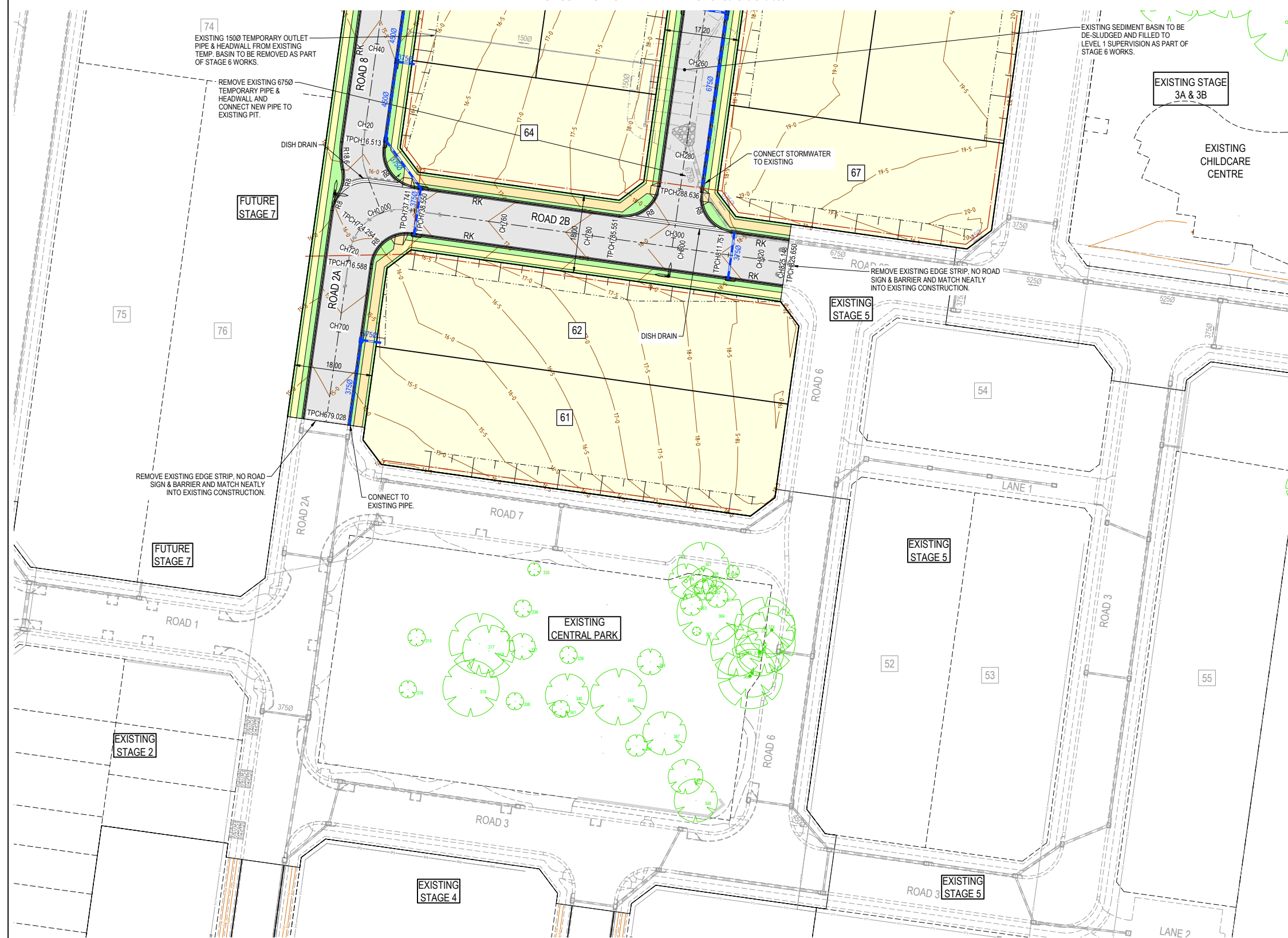
Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	LAYOUT PLAN STAGE 6 SHEET 1 OF 2

Sheet 27 of 145

Scale
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Project Ref	Stage No	Drawing No	Rev
2301879	321	059	B





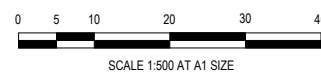
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Date 06.11.25
Approved S. FERGUSON
Reg. No. PE0008647
Date 06.11.25
DA Number

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Oran Park NSW 2570
ph: 02 46255055
www.beveridgewilliams.com.au

Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
LAYOUT PLAN
STAGE 6
SHEET 2 OF 2

Sheet 28 of 145

Scale
1:500 @ A1

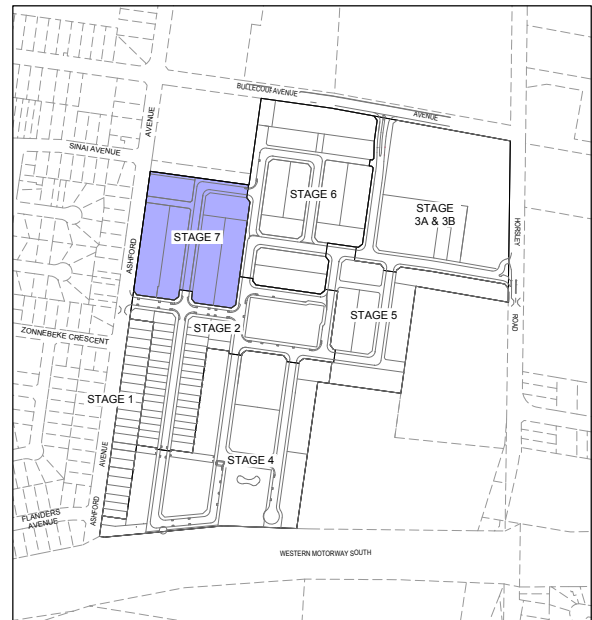
Project Ref 2301879
Stage No 321
Drawing No 060
Rev B





- LEGEND - RETAINING WALLS
- POST & CONCRETE SLEEPER RETAINING WALL
 - MASONRY BLOCK RETAINING WALL
 - SANDSTONE BLOCK RETAINING WALL

- LEGEND - LAYOUT PLAN
- STORMWATER DRAIN, PIT & PROPERTY INLET
 - SWALE DRAIN
 - INDICATIVE SEWER ALIGNMENT
 - HOUSE DRAIN
 - TACTILE PAVERS (INDICATIVE ONLY)
 - ELECTRICITY (UNDERGROUND)
 - ELECTRICITY (OVERHEAD)
 - OPTIC FIBRE
 - TELECOMMUNICATIONS
 - GAS
 - WATER
 - EXISTING ELECTRICITY (UNDERGROUND)
 - EXISTING ELECTRICITY (OVERHEAD)
 - EXISTING GAS
 - EXISTING OPTIC FIBRE
 - EXISTING TELECOMMUNICATIONS
 - EXISTING WATER
 - EXISTING STORMWATER DRAIN
 - EXISTING SEWER
 - EXISTING HOUSE DRAIN
 - EXISTING SWALE DRAIN
 - EXISTING SURFACE LEVEL
 - FINISHED BUILDING LINE LEVEL
 - FINISHED RIDGE LINE LEVEL
 - TOP OF RETAINING WALL
 - BOTTOM OF RETAINING WALL
 - PAD LEVEL
 - RIDGE LINE
 - RETAINING WALL
 - OVERLAND FLOW
 - CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
 - LIMIT OF WORKS
 - EXISTING TREE TO BE REMOVED AND REPLACED AS PER ARBORIST ADVICE DUE TO IMPACTS BY UNDERGROUND ELECTRICAL WORKS
 - EXISTING TREE
 - PERMANENT SURVEY MARK
 - TEMPORARY BENCH MARK
 - FUTURE DRIVEWAY
 - NEW LAYBACK TO BE CUT IN TO EXISTING KERB FOR FUTURE DRIVEWAY. ALL NEW DRIVEWAYS TO BE 4m WIDE WITH EXCEPTION TO LOTS 1012 & 1013. LOTS 1012 & 1013 DRIVEWAYS TO BE 3m WIDE.
 - RAINGARDEN
 - SUBJECT AREA OF WORKS
 - INDICATIVE RESIDENTIAL LOT BOUNDARY. SUBJECT TO FURTHER DA APPROVAL



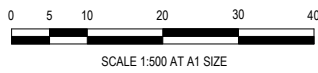
SITE PLAN
NOT TO SCALE

WARNING
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The locations of underground services are approximate only and their exact position should be proven on site.
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B	FINAL ISSUE FOR SSDA	06.11.25	GN	SG					
A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



Designed R. GOVENDER
Date 23.06.2025
Drawn G.N.
Checked S. FERGUSON
Date 06.11.25
Approved S. FERGUSON
Reg. No. PE0006347
Date 06.11.25
DA Number

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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
LAYOUT PLAN
STAGE 7

Sheet 29 of 145

Scale
1:500 @ A1

Project Ref 2301879
Stage No 321
Drawing No 061
Rev B



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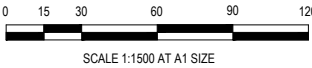


LEGEND:
- - - - - INDICATIVE RESIDENTIAL LOT BOUNDARY.
SUBJECT TO FURTHER DA APPROVAL

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REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP



Designed	R. GOVENDER
Date	23.06.2025
Drawn	L.S.
Checked	S. FERGUSON
Date	06.11.25
Approved	S. FERGUSON
Reg. No.	PE0006347
Date	06.11.25
DA Number	

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Oran Park NSW 2570 www.beveridgewilliams.com.au

Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	OVERALL SIGNAGE & LINE MARKING PLAN

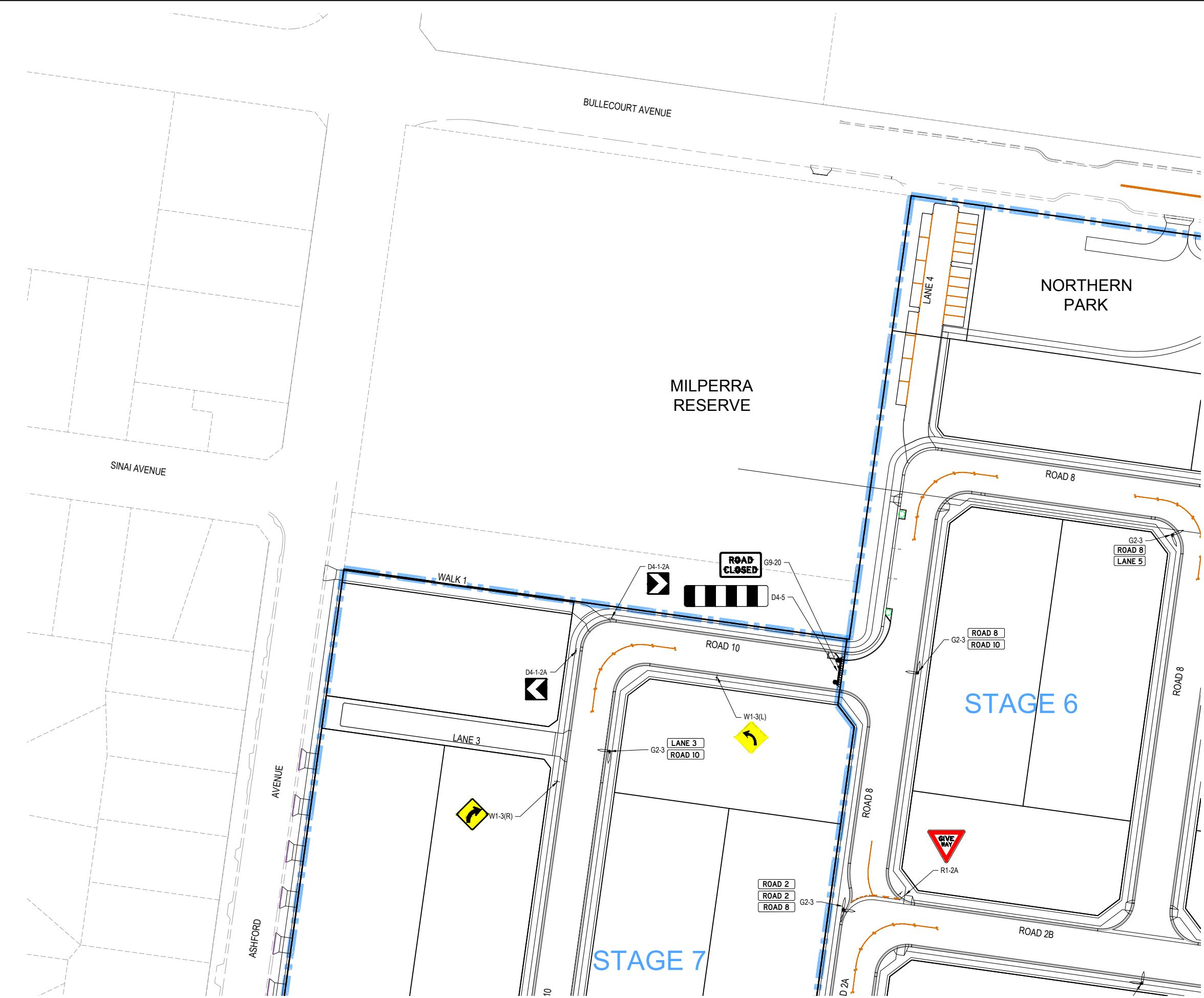
Sheet 85 of 145

Scale
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Project Ref	Stage No	Drawing No	Rev
2301879	321	250	B



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- NOTES
1. LINEMARKING TO BE EXTENDED AT LEAST 6m FROM THE TANGENT POINT
 2. LINEMARKING IN ACCORDANCE WITH AS1742.
 3. ALL STREET NAME SIGNS AT INTERSECTIONS TO INCLUDE RELEVANT STREET NUMBERING.
 4. ALL LINE MARKING PAINT SHALL BE LONG LIFE TYPE. LATERAL WORKS AND ARROWS BEING COLD APPLIED PLASTIC TROWELLED INTO PLACE (MATERIAL DEGADUR PLASTELINE) AND LONGITUDINAL LINES BEING EXTRUDED THERMOPLASTIC MATERIAL.
 5. ROAD CLOSED SIGNS ARE TEMPORARY AND TO BE REMOVED AS NEW STAGES ARE CONSTRUCTED

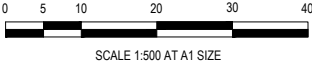
LEGEND:

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REV	DESCRIPTION	DATE	DRN	APP.	REV	DESCRIPTION	DATE	DRN	APP.



Designed R. GOVENDER
Date 23.06.2025
Drawn D. RAFTER
Checked S. FERGUSON
Date 06.11.25
Approved S. FERGUSON
Reg. No. PE00096347
Date 06.11.25
DA Number

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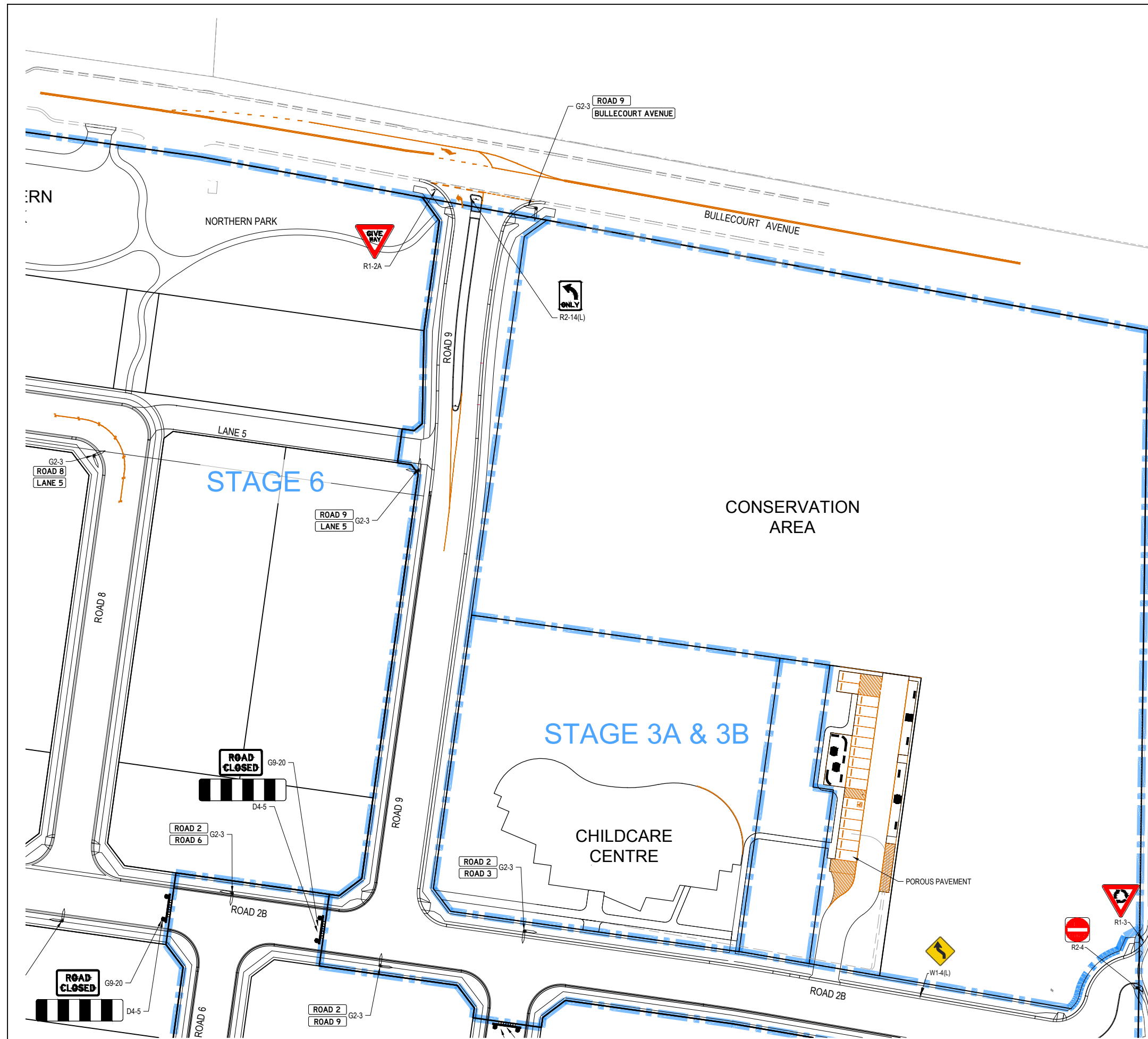
Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
SIGNAGE & LINE MARKING PLANS
SHEET 1 OF 5

Sheet 86 of 145

Scale
1:500 @ A1

Project Ref	Stage No	Drawing No	Rev
2301879	321	251	B





- NOTES
1. LINEMARKING TO BE EXTENDED AT LEAST 6m FROM THE TANGENT POINT
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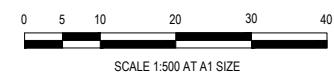
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Designed R. GOVENDER 23.06.2025
Date
Drawn D. RAFTER
Checked S. FERGUSON 06.11.25
Date
Approved S. FERGUSON 06.11.25
Reg. No. PE00096347
Date
DA Number

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Development & Infrastructure Consultants
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Oran Park NSW 2570 www.beveridgewilliams.com.au

Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

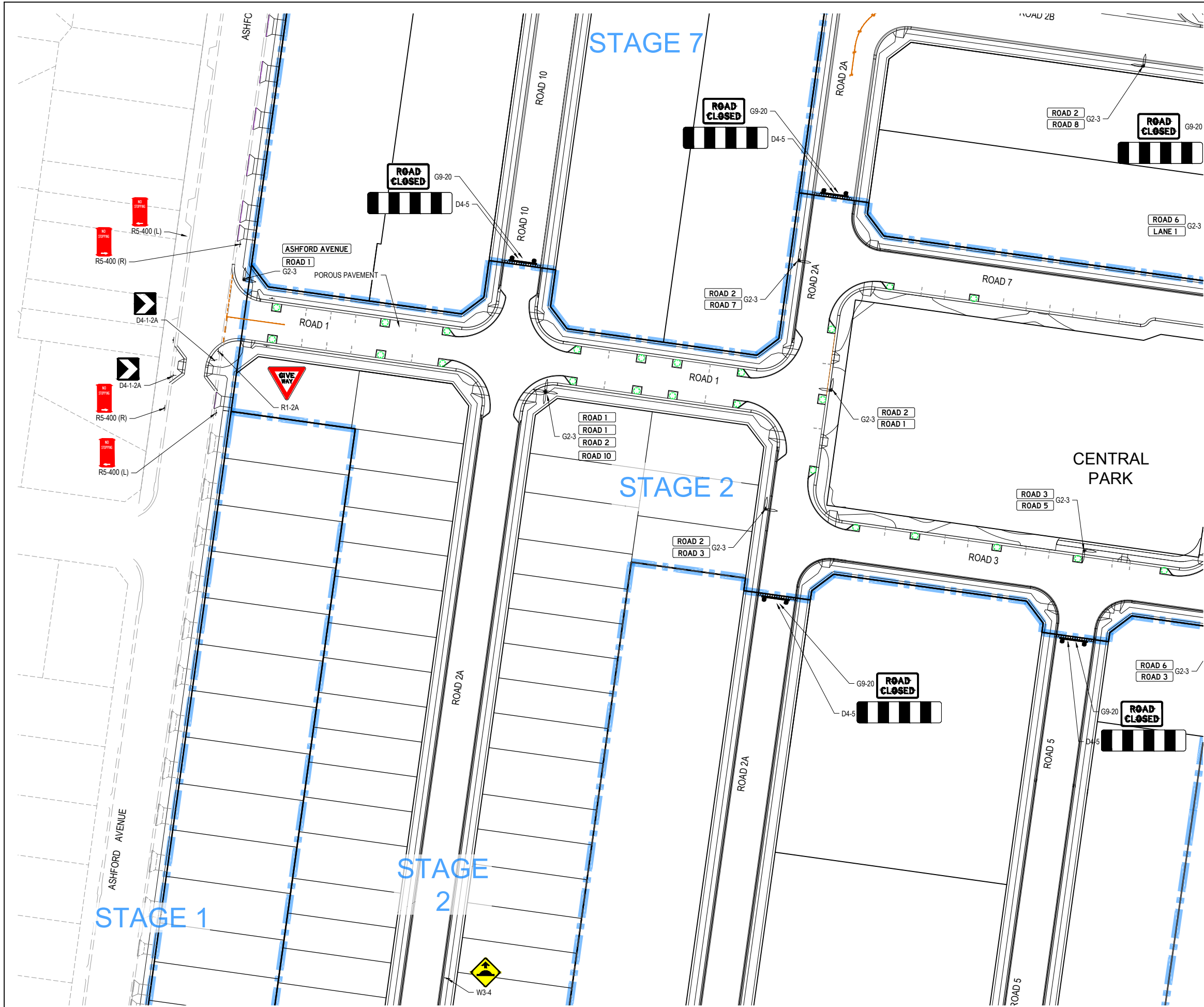
Drawing Title
SIGNAGE & LINE MARKING PLANS
SHEET 2 OF 5

Sheet 87 of 145

Scale
1:500 @ A1

Project Ref	Stage No	Drawing No	Rev
2301879	321	252	B

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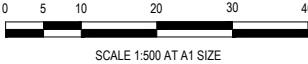
LEGEND:

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Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Checked	S. FERGUSON
Date	06.11.25
Approved	S. FERGUSON
Reg. No.	PE0006347
Date	06.11.25
DA Number	

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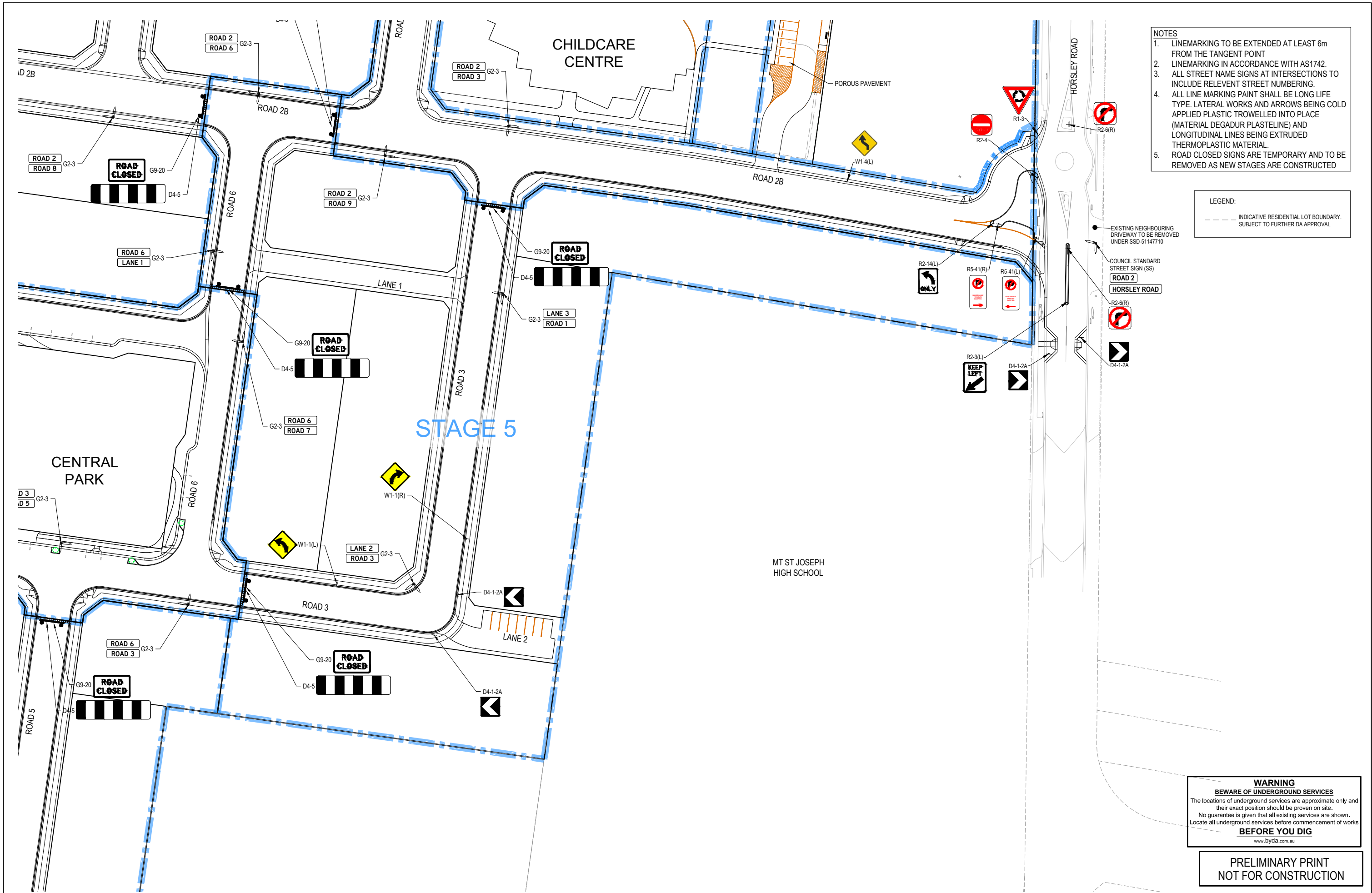
Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
SIGNAGE & LINE MARKING PLANS
SHEET 3 OF 5

Sheet 88 of 145

Scale
1:500 @ A1

Project Ref	Stage No	Drawing No	Rev
2301879	321	253	B

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- NOTES
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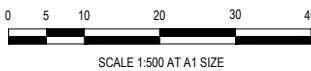
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Date	23.06.2025
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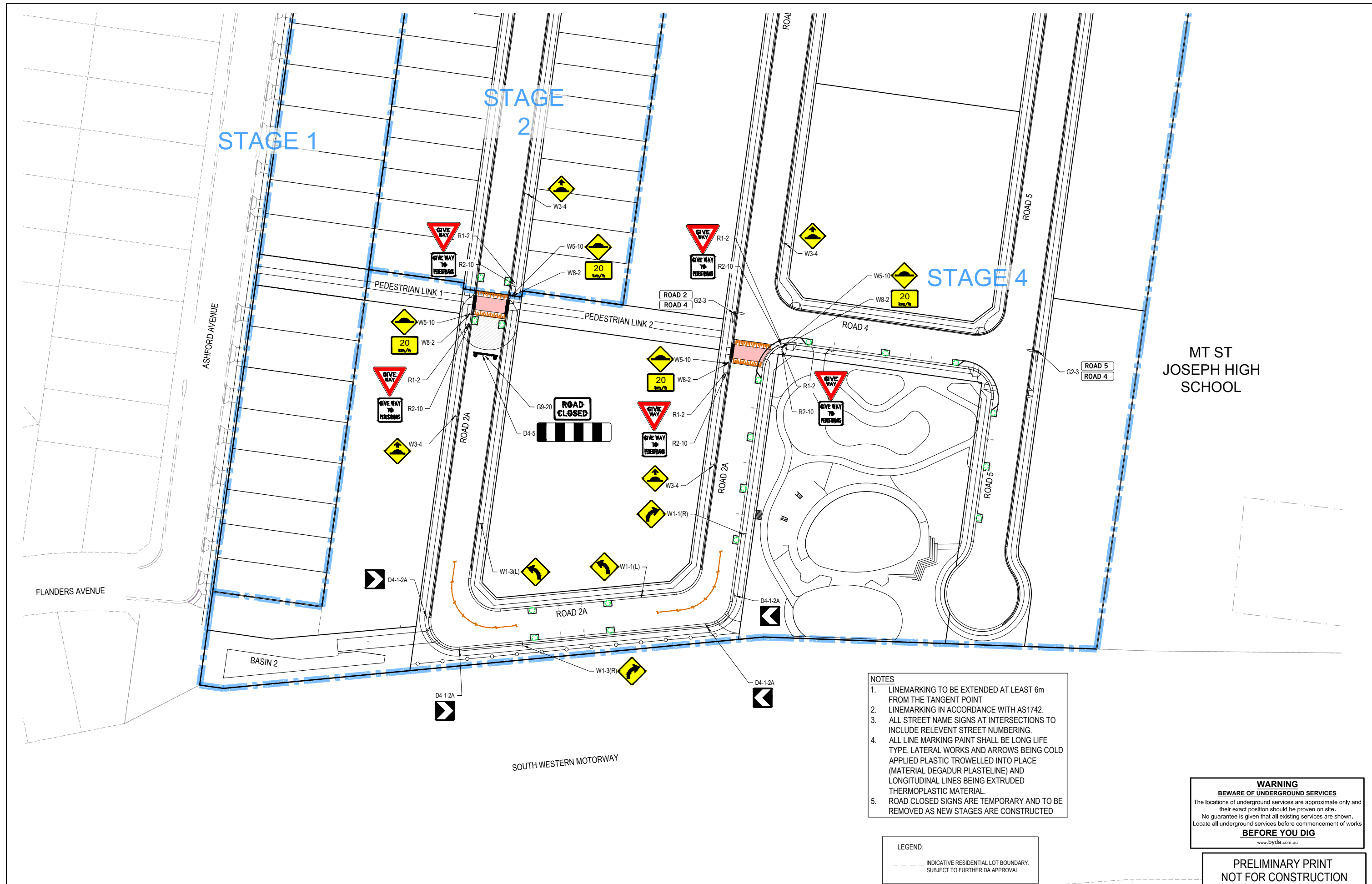
Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
SIGNAGE & LINE MARKING PLANS
SHEET 4 OF 5

Sheet 89 of 145

Scale
1:500 @ A1

Project Ref	Stage No	Drawing No	Rev
2301879	321	254	B

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- NOTES
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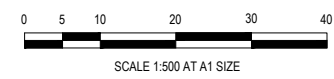
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C	FINAL ISSUE FOR SSDA	06.11.25	GN	SG					
B	SIGNAGE ADDED	23.10.25	GN	SG					
A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



Designed R. GOVENDER 23.06.2025
Drawn D. RAFTER
Checked S. FERGUSON 06.11.25
Approved S. FERGUSON PE0006347 06.11.25
DA Number

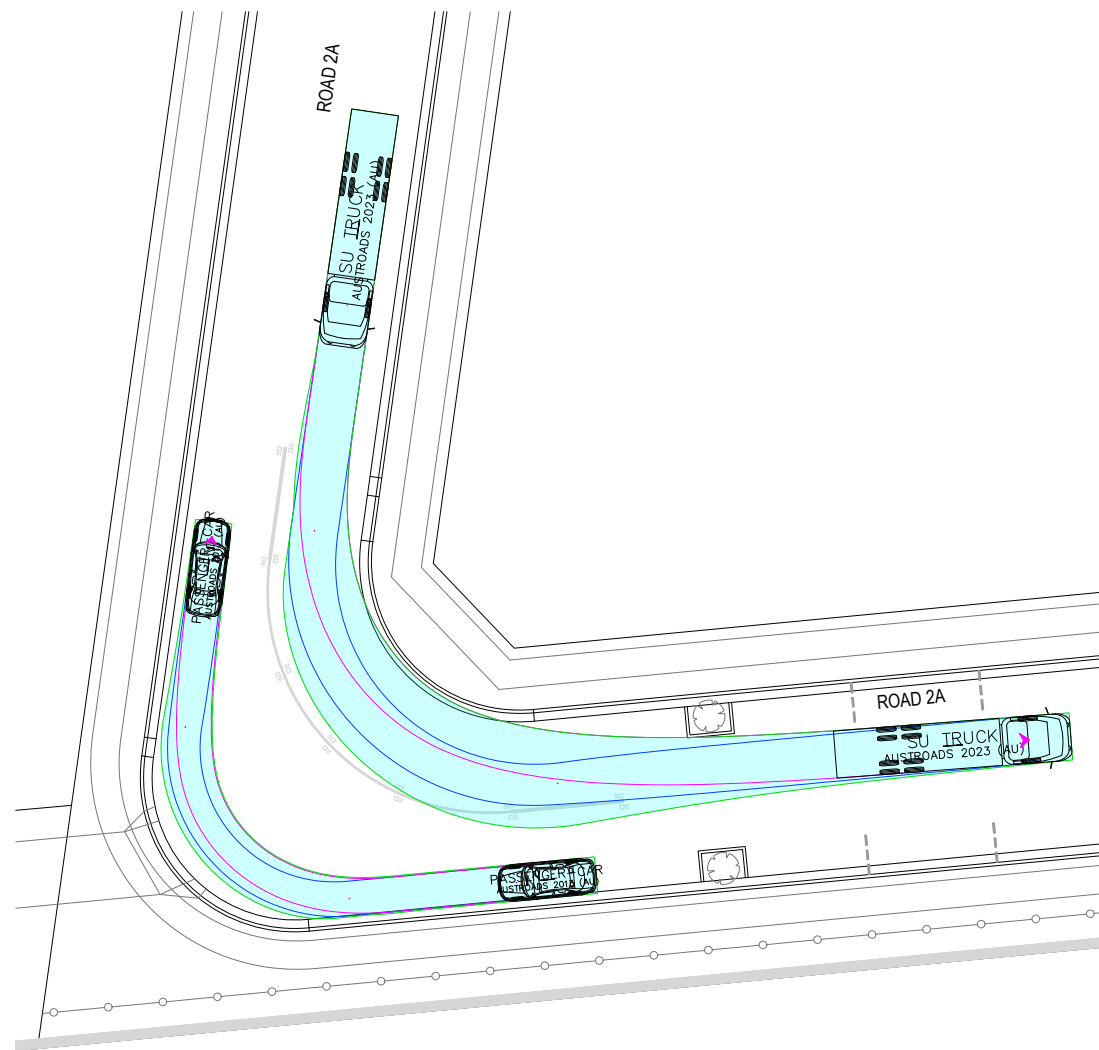
BW **Beveridge Williams**
Development & Infrastructure Consultants
Level 4, LPC House, Suite 4.05, 3 Fordham way ph: 02 46255055
Oran Park NSW 2570 www.beveridgewilliams.com.au

Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

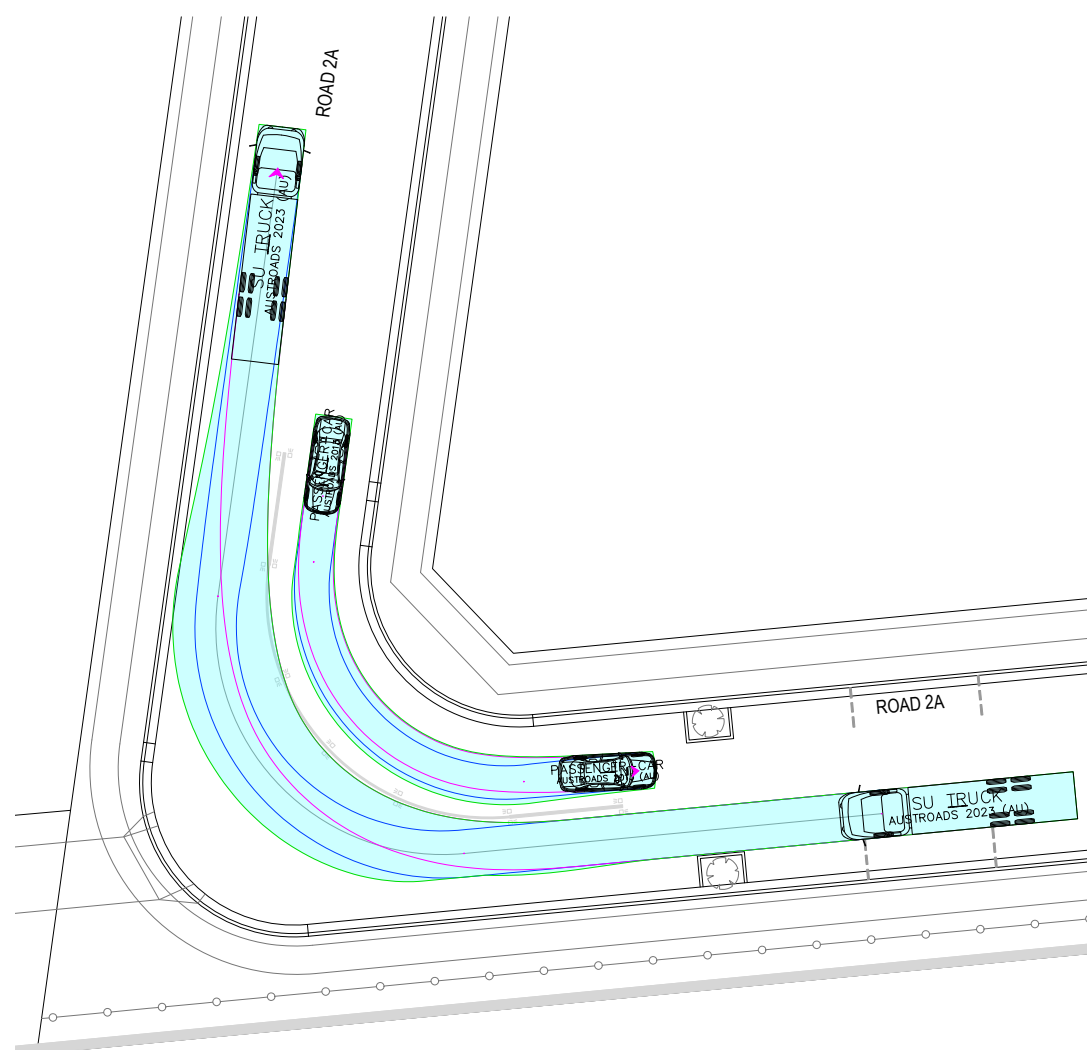
Drawing Title
SIGNAGE & LINE MARKING PLANS
SHEET 5 OF 5

Sheet 90 of 145		Scale 1:500 @ A1	
Project Ref 2301879	Stage No 321	Drawing No 255	Rev C

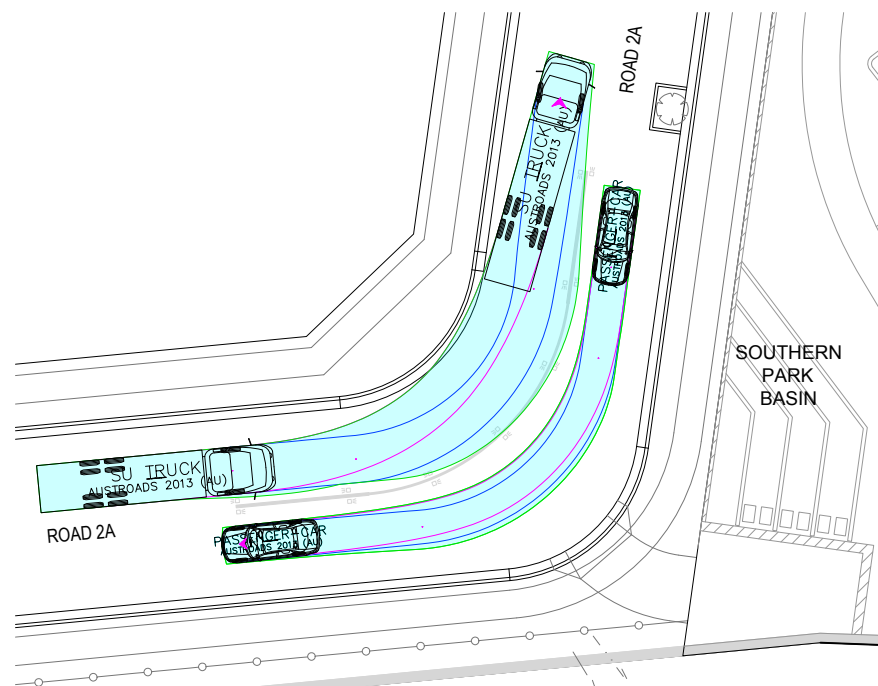
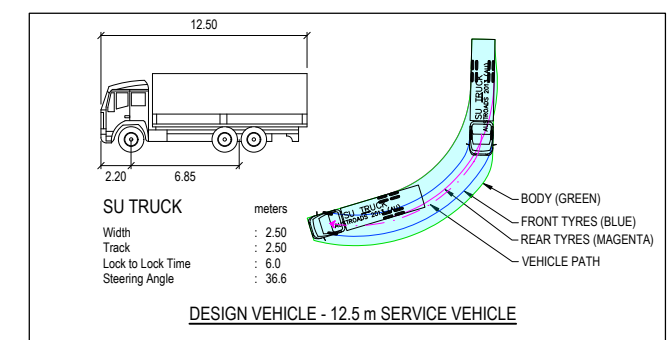
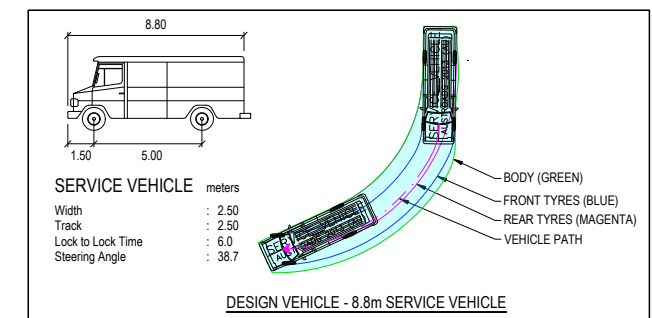
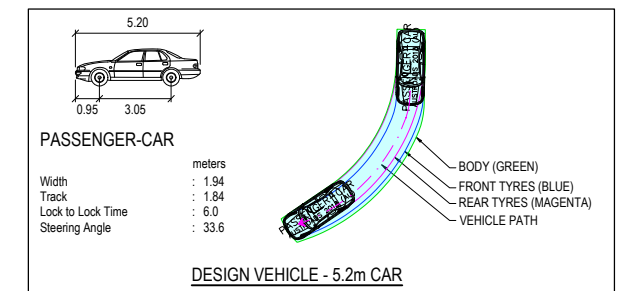
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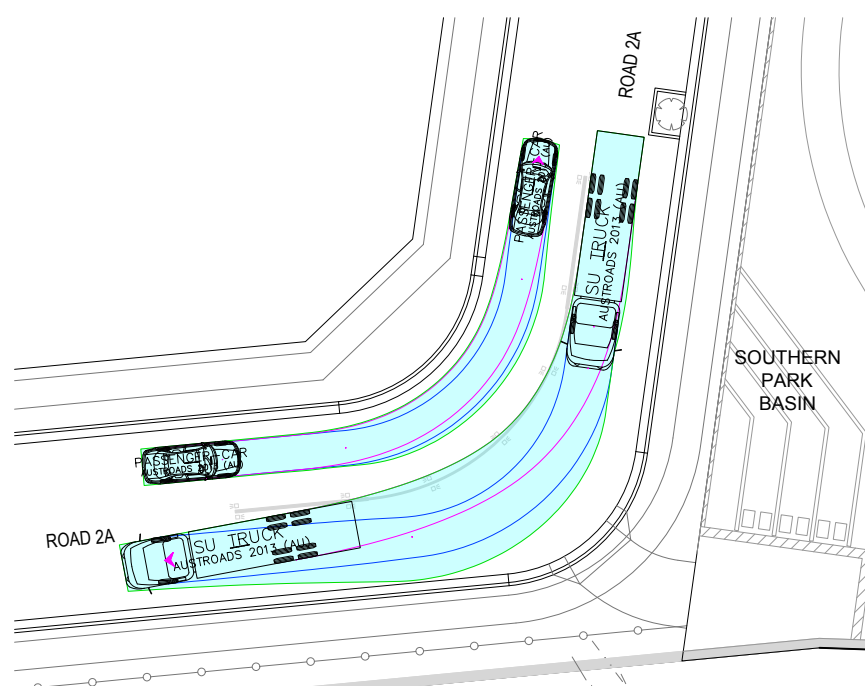
CAR OUTSIDE / SU TRUCK INSIDE



CAR INSIDE / SU TRUCK OUTSIDE



CAR OUTSIDE / SU TRUCK INSIDE



CAR INSIDE / SU TRUCK OUTSIDE



SERVICE VEHICLE INTO SOUTHERN BASIN

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B	FINAL ISSUE FOR SSDA	06.11.25	GN	SG					
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Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	S. FERGUSON
Date	06.11.25
DA Number	-

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Oran Park NSW 2570
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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
TURNING MOVEMENTS
SHEET 1 OF 18

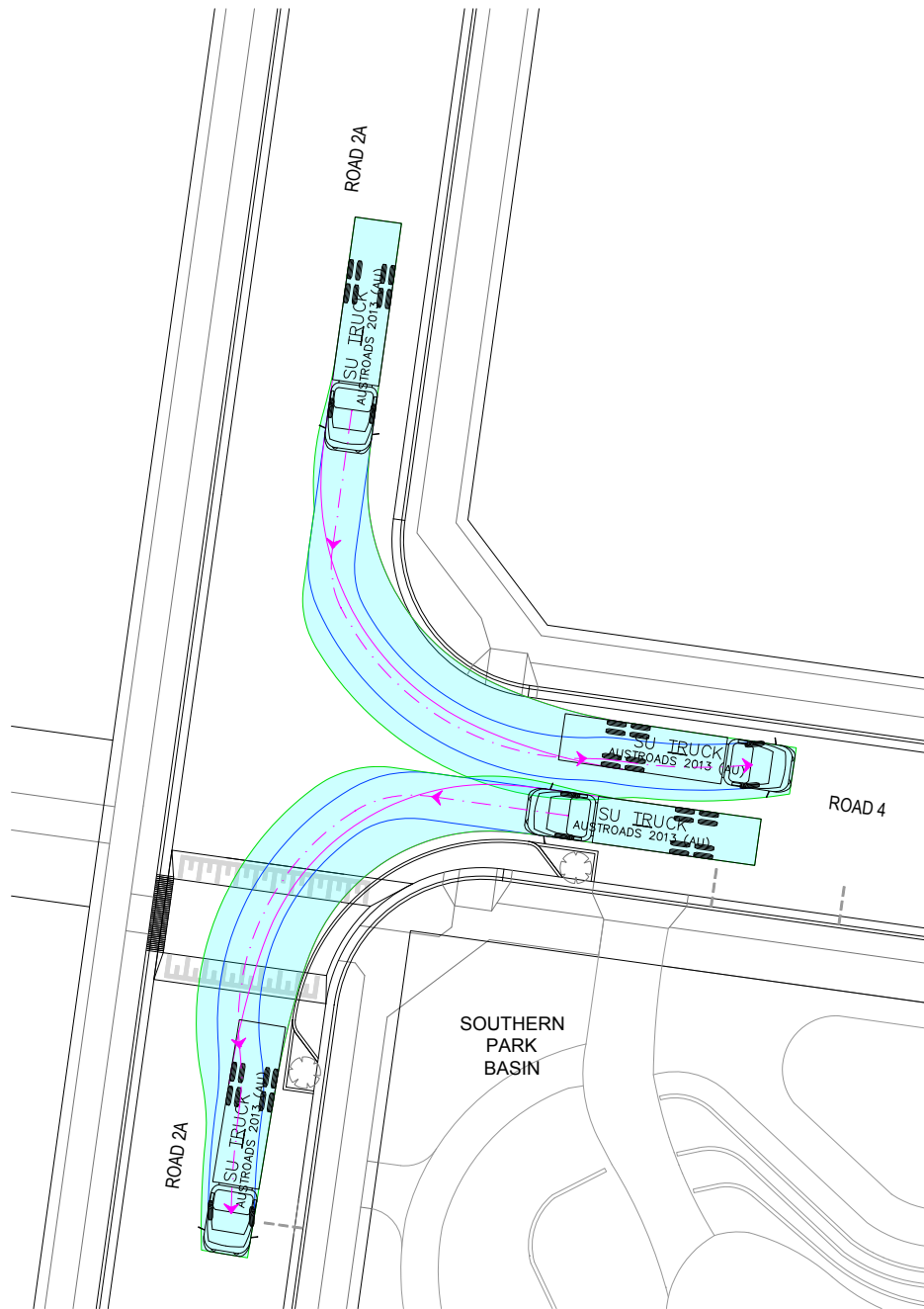
Sheet 116 of 145

Scale
1:200 @ A1

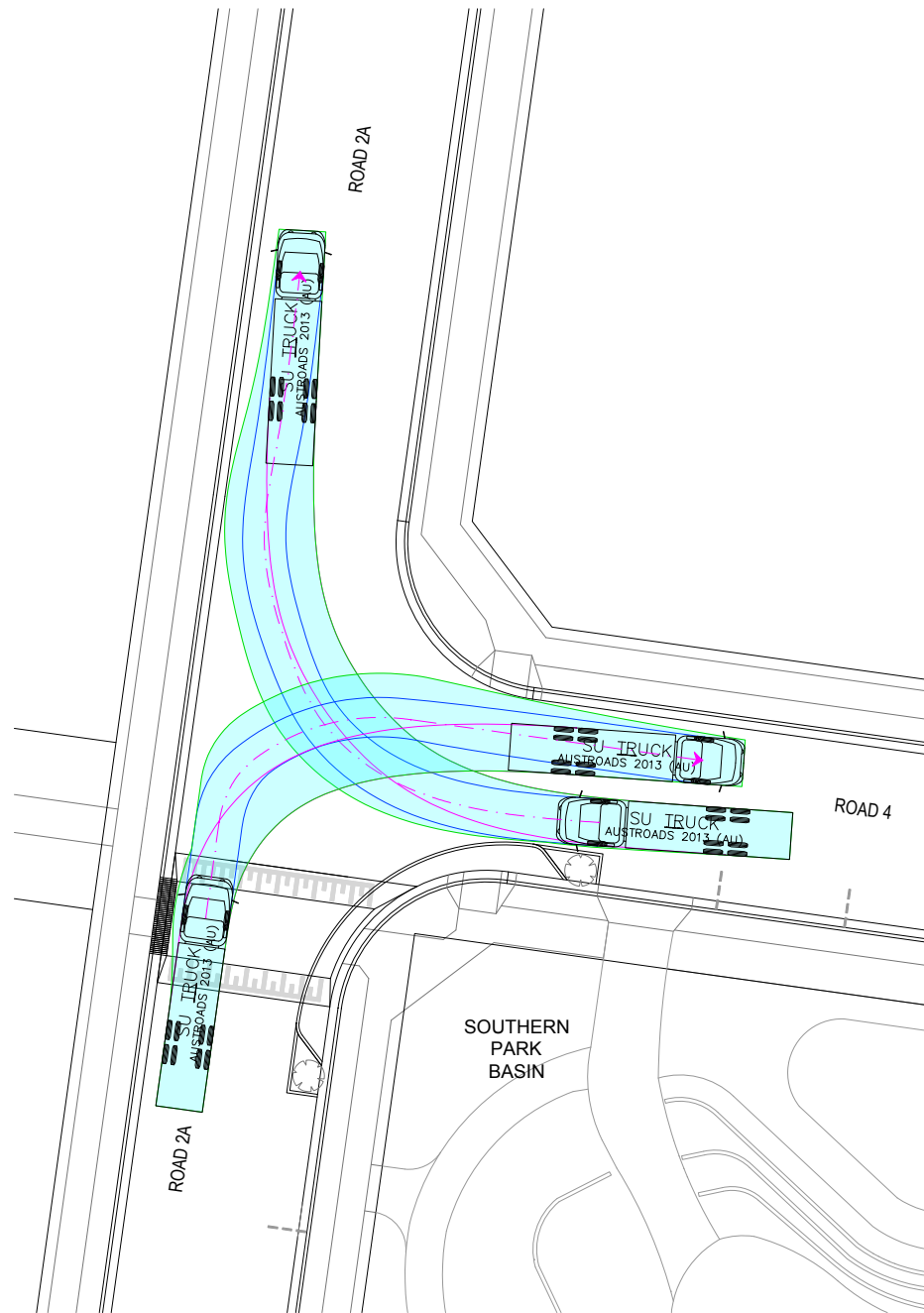
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2301879	321	700	B



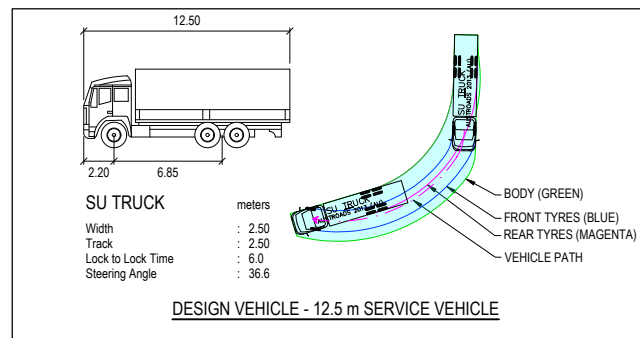
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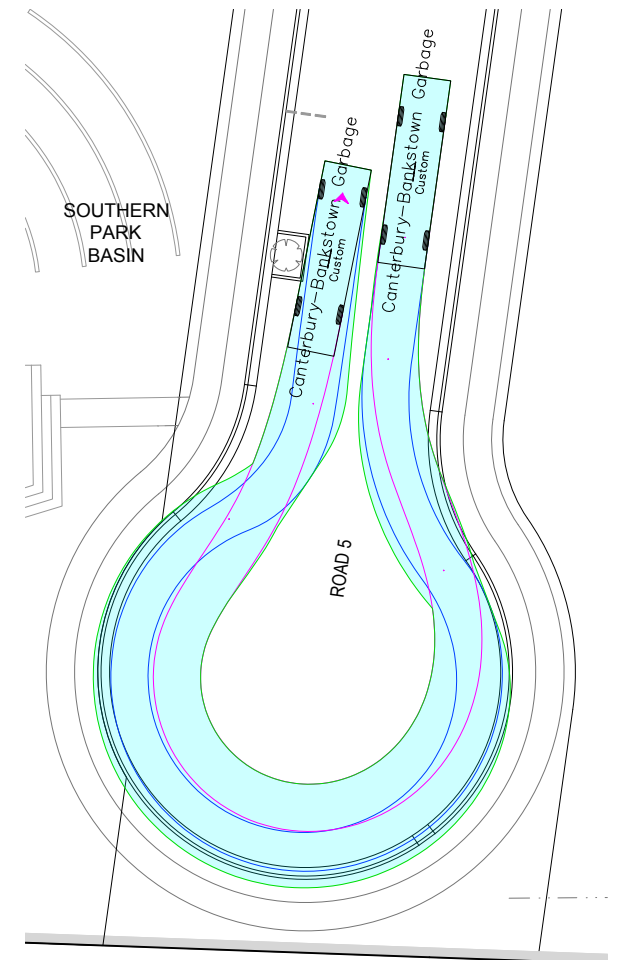
SU TRUCK - LEFT IN / LEFT OUT



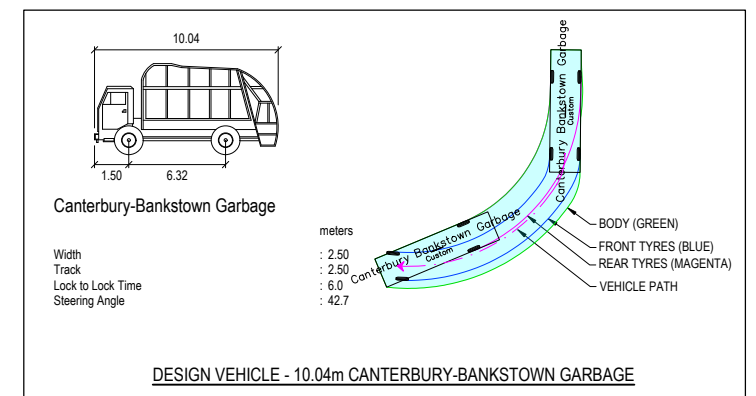
SU TRUCK - RIGHT IN / RIGHT OUT



DESIGN VEHICLE - 12.5 m SERVICE VEHICLE



TURN AROUND AREA
(CANTERBURY-BANKSTOWN GARBAGE)

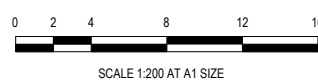


DESIGN VEHICLE - 10.04m CANTERBURY-BANKSTOWN GARBAGE

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B	FINAL ISSUE FOR SSDA	06.11.25	GN	SG					
A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	S. FERGUSON
Date	06.11.25
DA Number	-

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Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	TURNING MOVEMENTS SHEET 2 OF 18

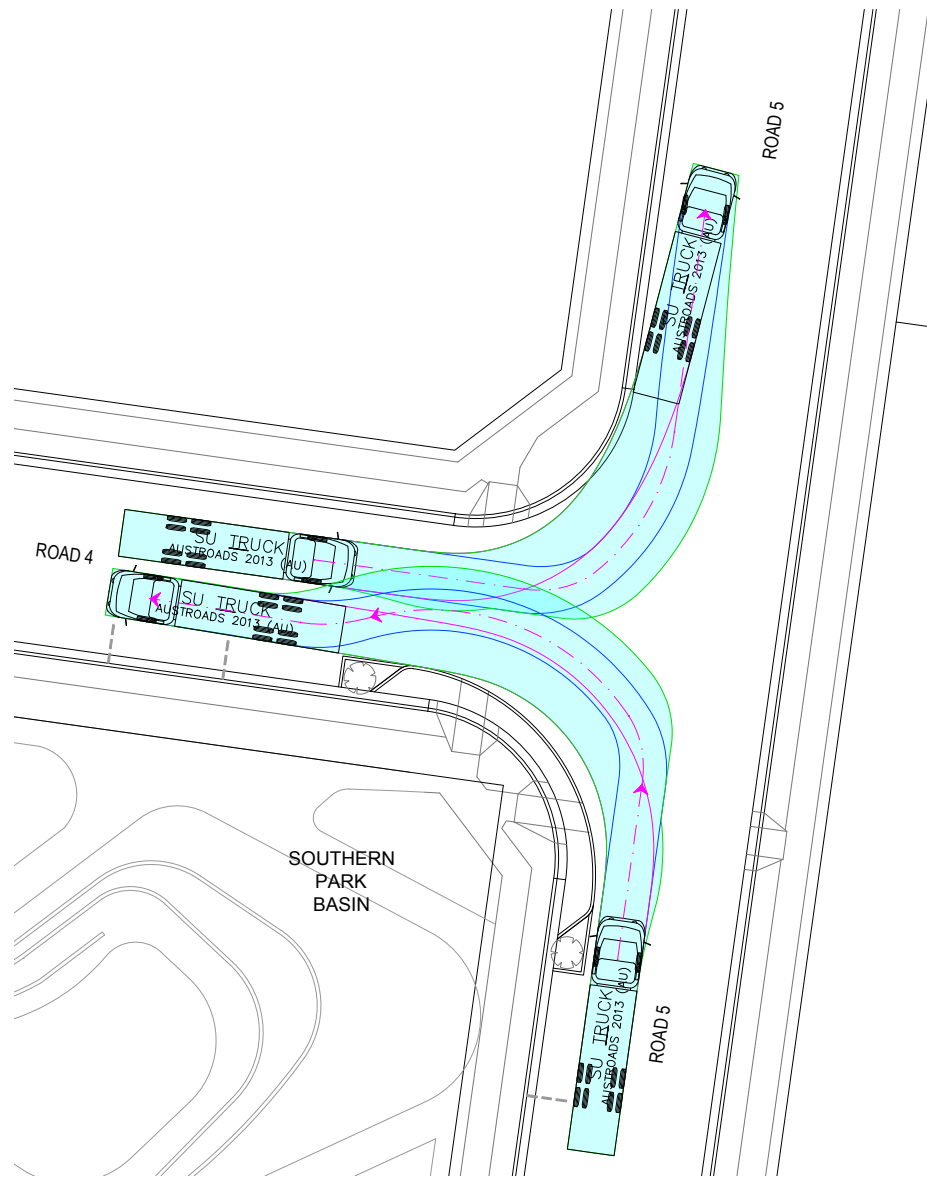
Sheet 117 of 145

Scale
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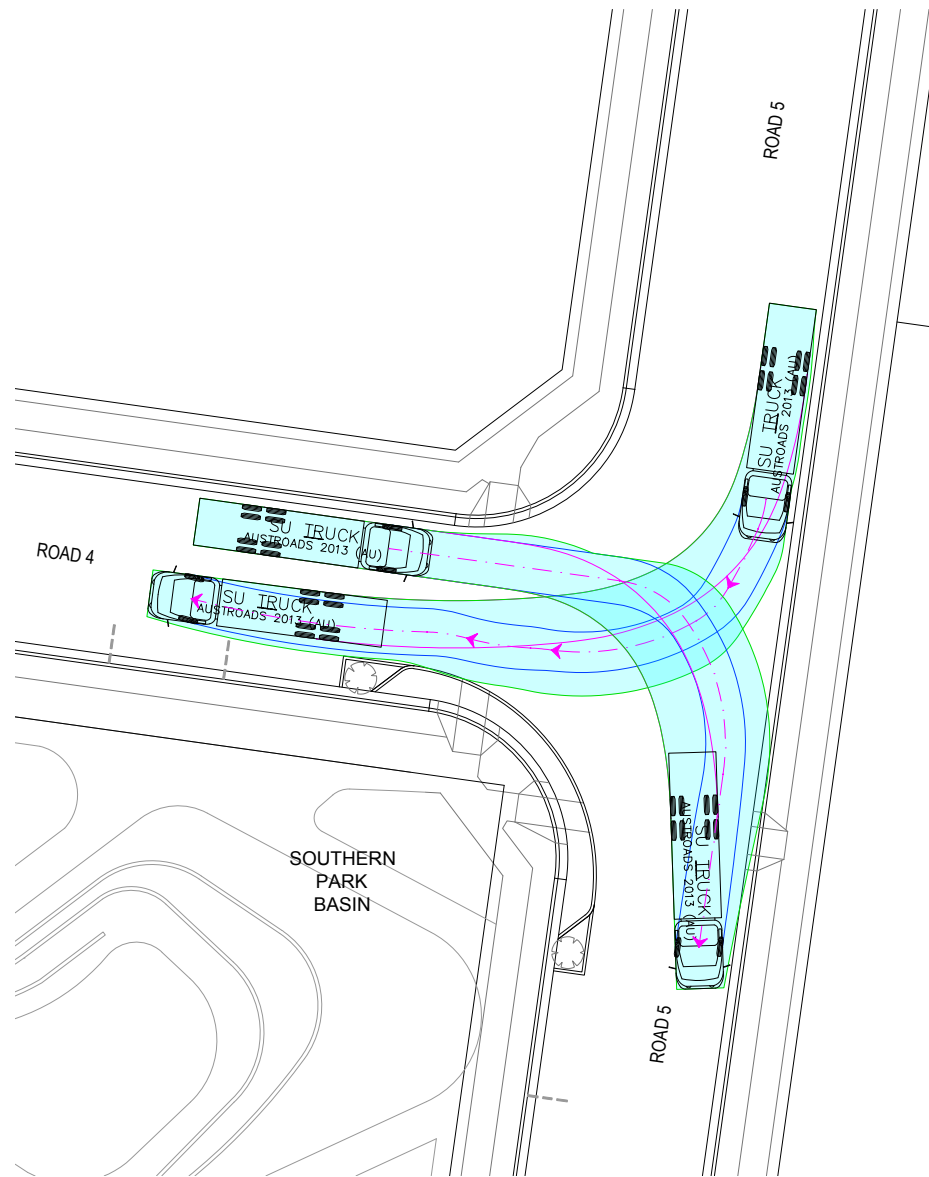
Project Number	Reference	Drawing No	Revision
2301879	321	701	B



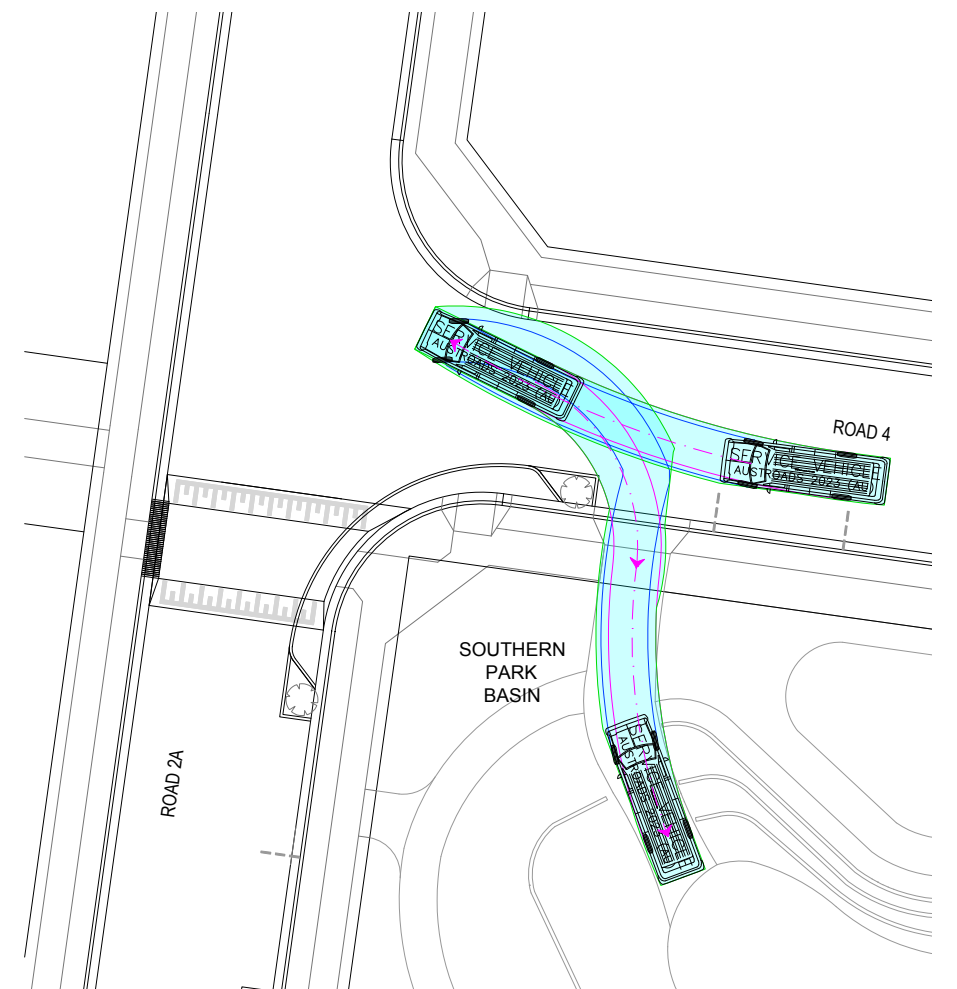
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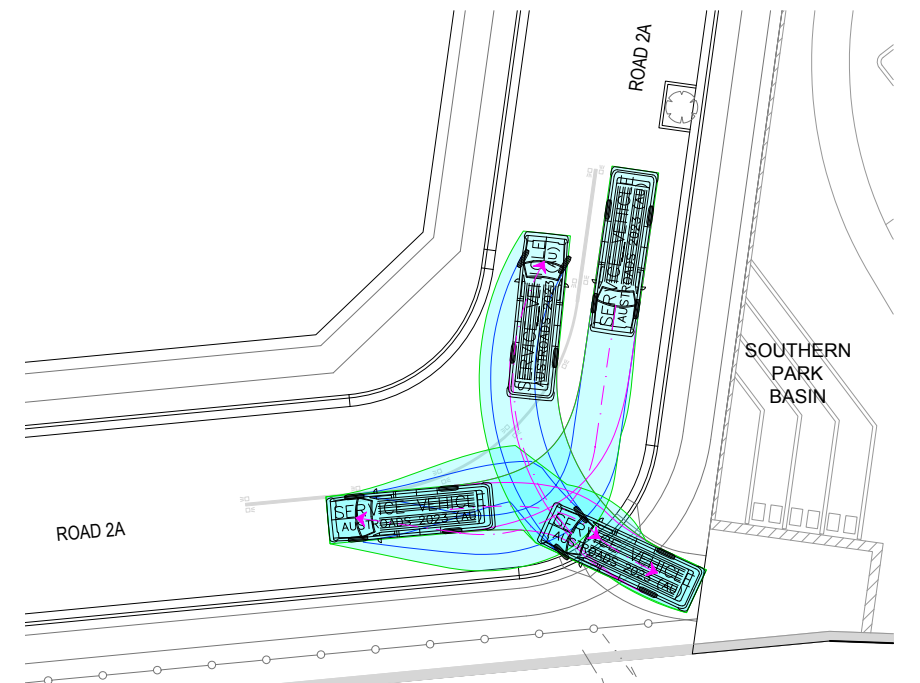
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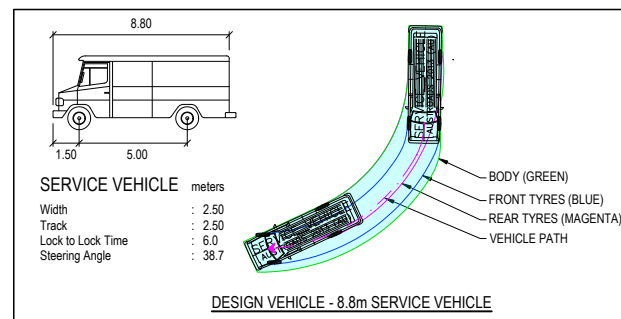
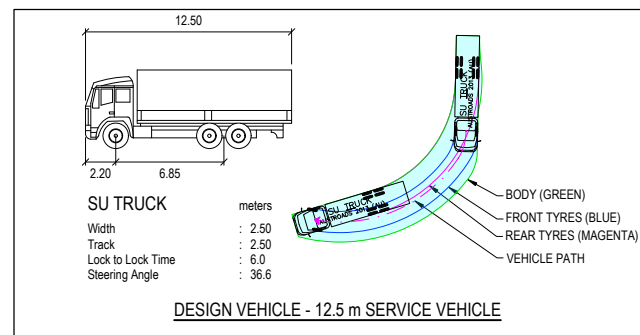
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SERVICE VEHICLE INTO SOUTHERN BASIN

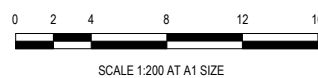


SERVICE VEHICLE INTO SOUTHERN BASIN



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A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	S. FERGUSON
Date	06.11.25
DA Number	-

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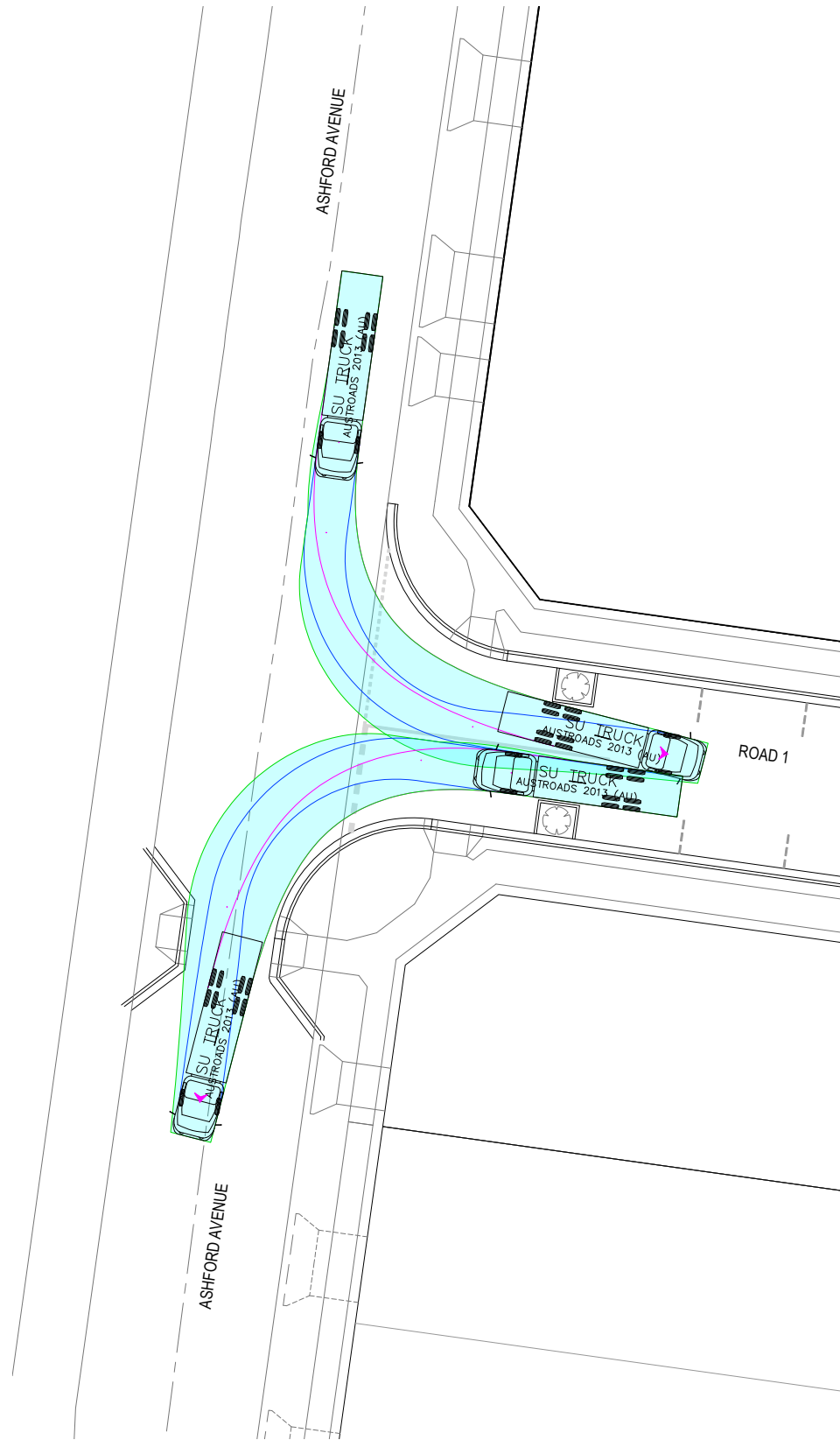
Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
TURNING MOVEMENTS
SHEET 3 OF 18

Sheet 118 of 145

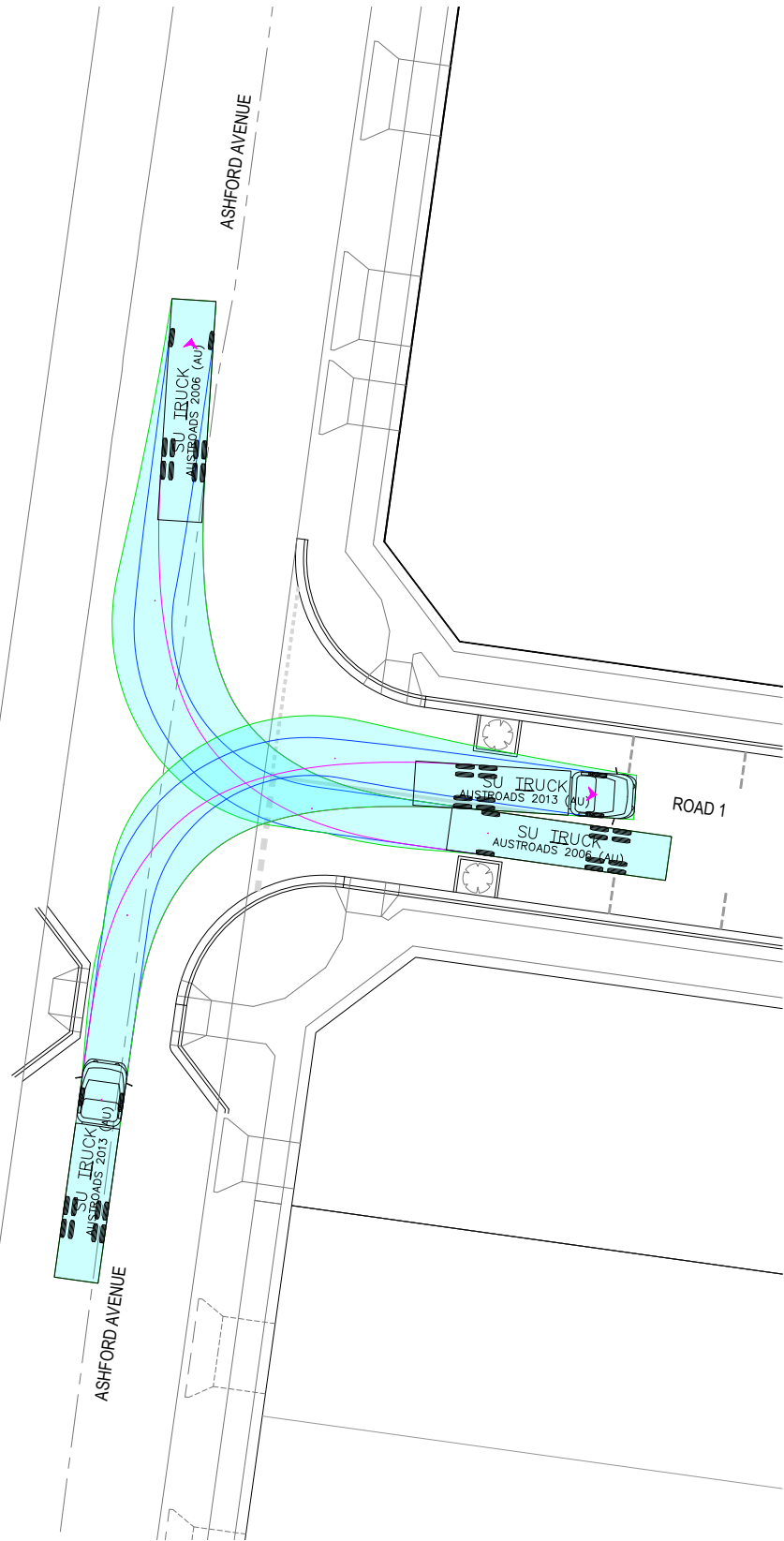
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Project Number	Reference	Drawing No	Revision
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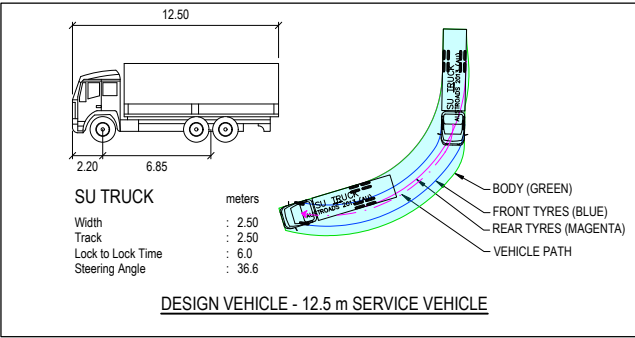




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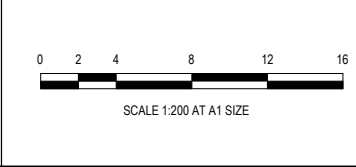


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REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP



Designed
Date
Drawn
Approved
Date
DA Number

R. GOVENDER
23.06.2025
D. RAFTER
S. FERGUSON
06.11.25
-

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Project
Details

WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing
Title

TURNING MOVEMENTS
SHEET 4 OF 18

Sheet 119 of 145

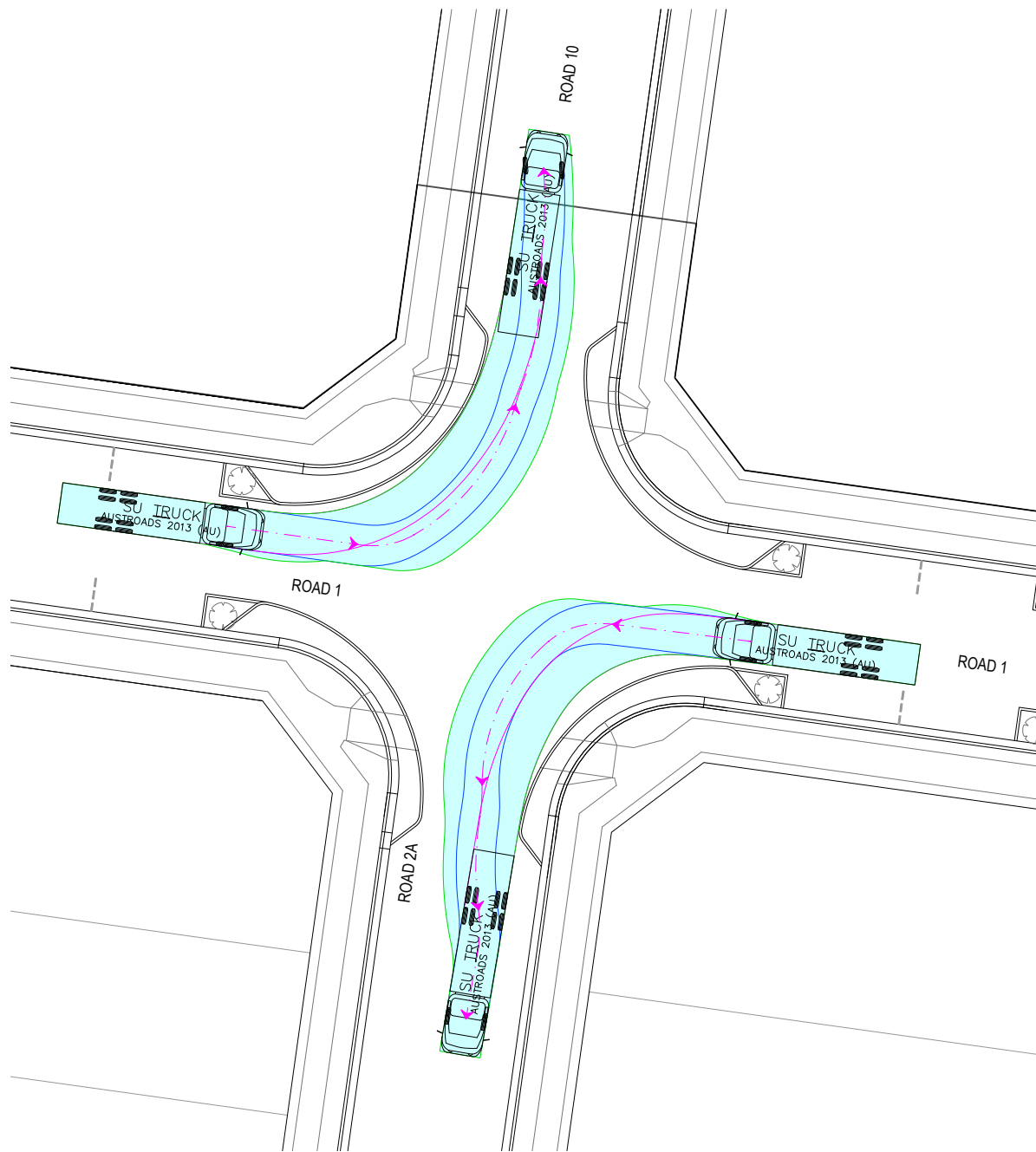
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Project Number
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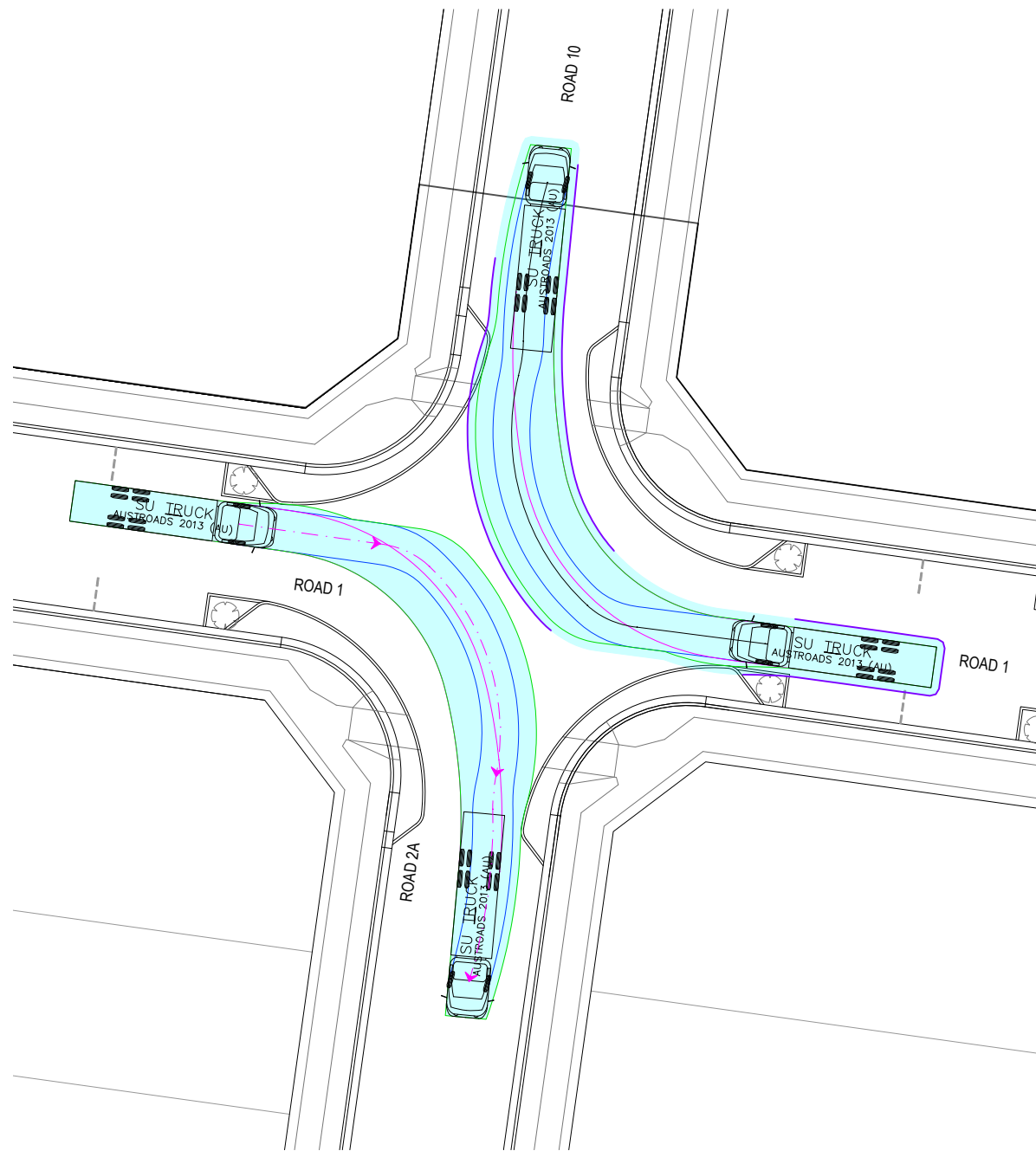
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Drawing No
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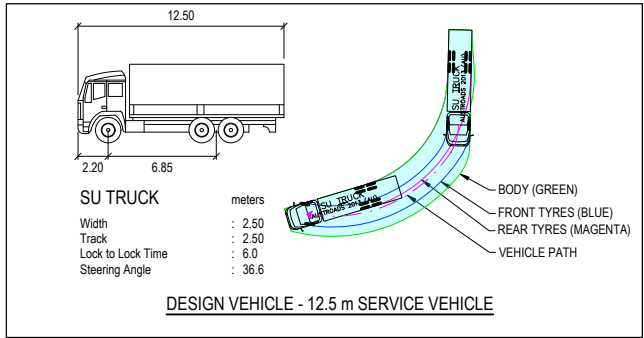
Revision
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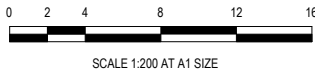
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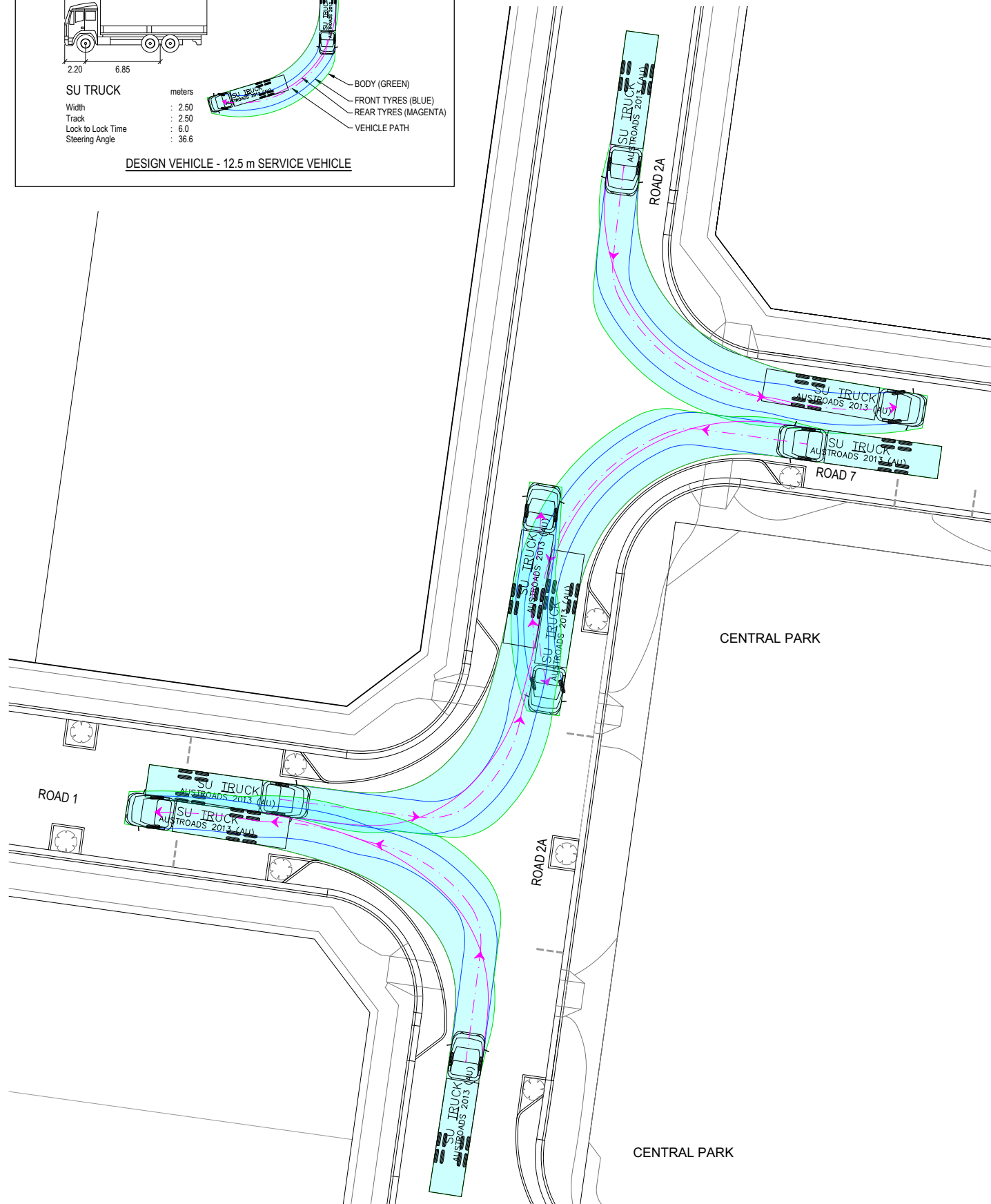
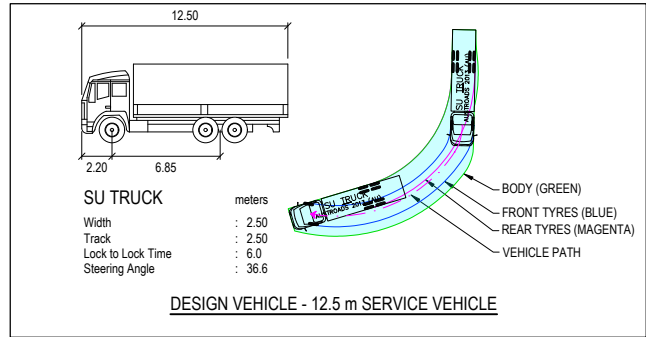
Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
TURNING MOVEMENTS
SHEET 5 OF 18

Sheet 120 of 145

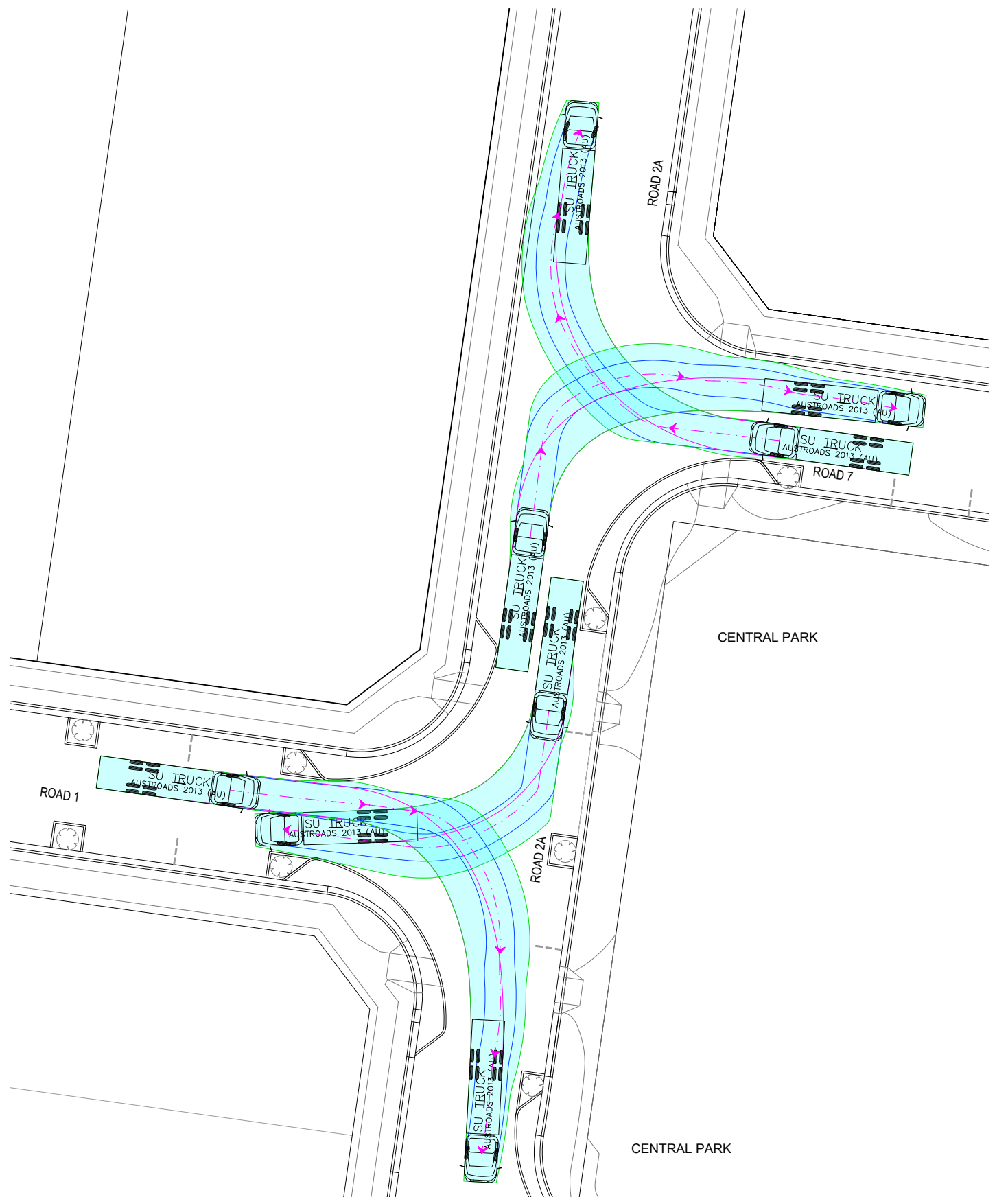
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Project Number	Reference	Drawing No	Revision
2301879	321	704	B





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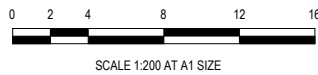


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A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	S. FERGUSON
Date	06.11.25
DA Number	-

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Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

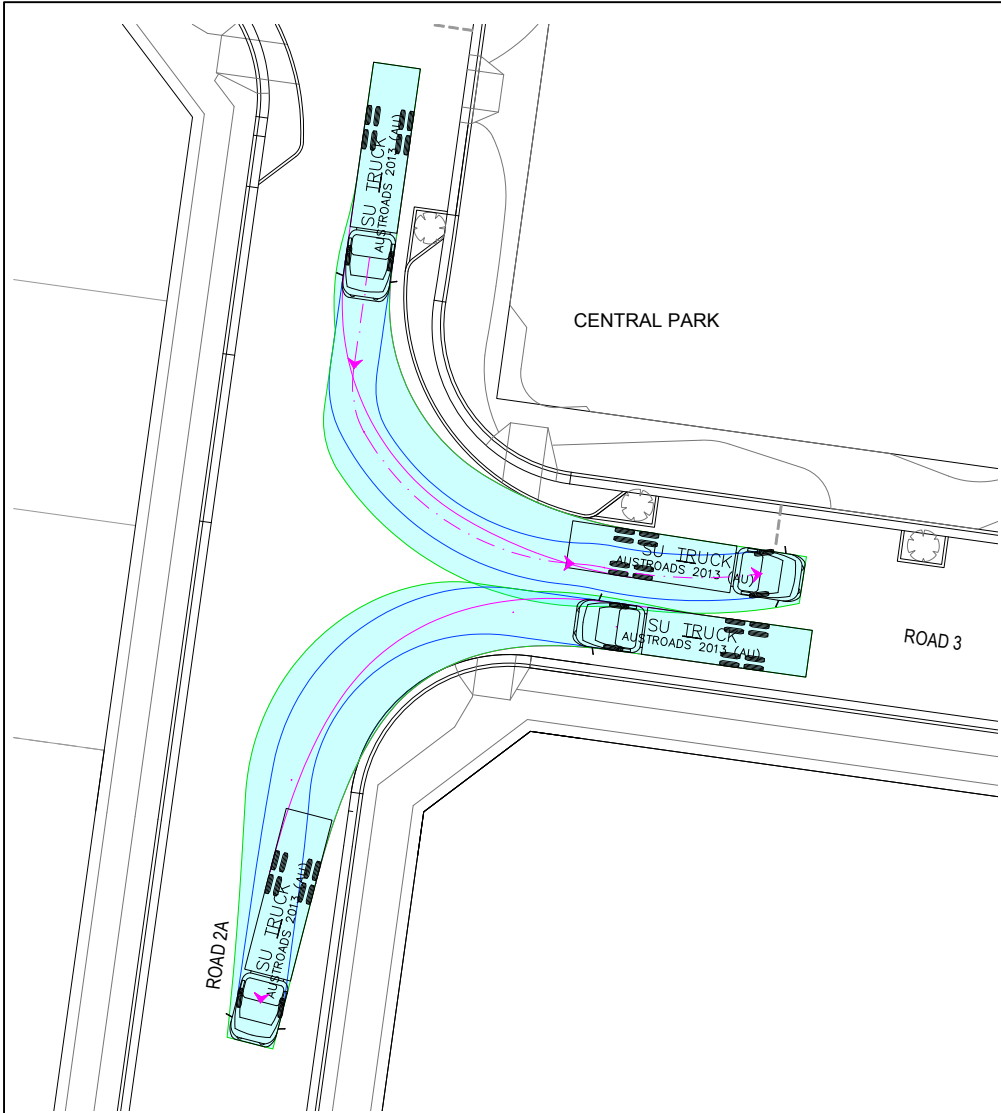
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TURNING MOVEMENTS
SHEET 6 OF 18

Sheet 121 of 145

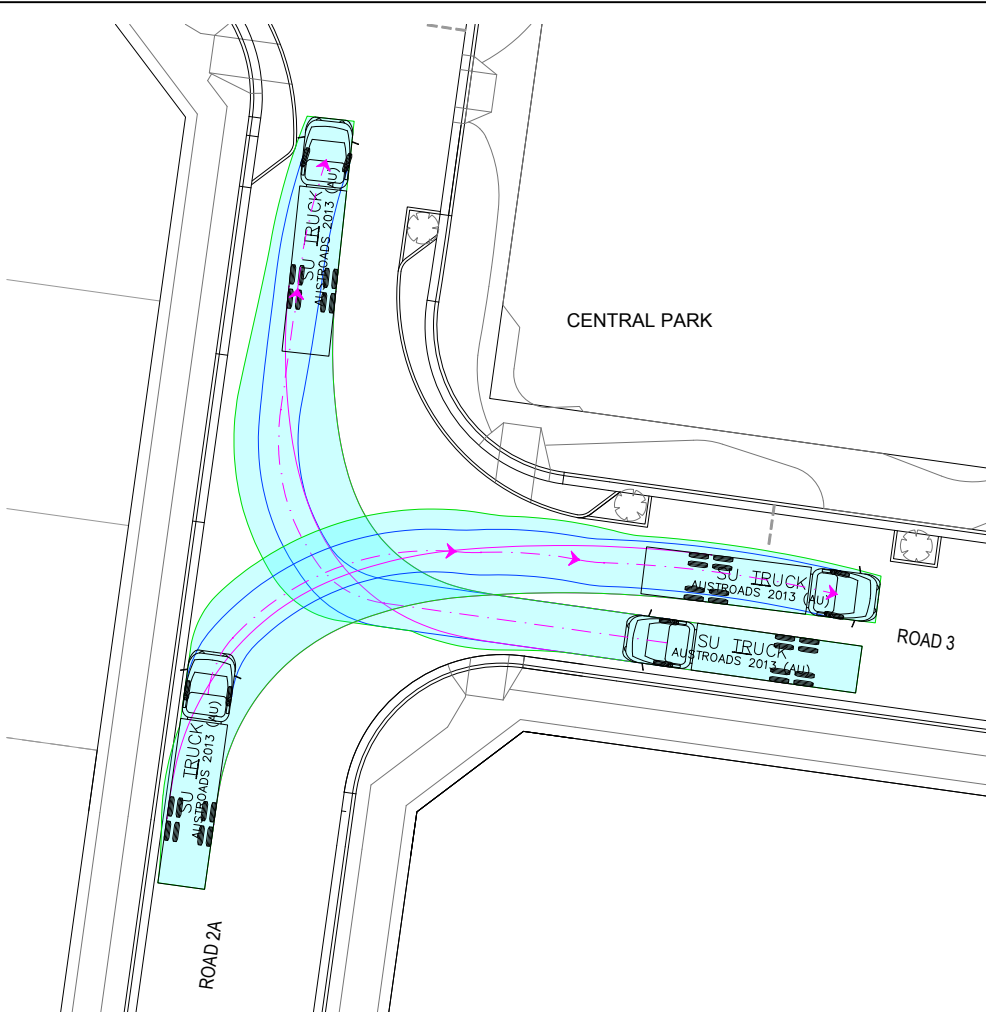
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Project Number	Reference	Drawing No	Revision
2301879	321	705	B

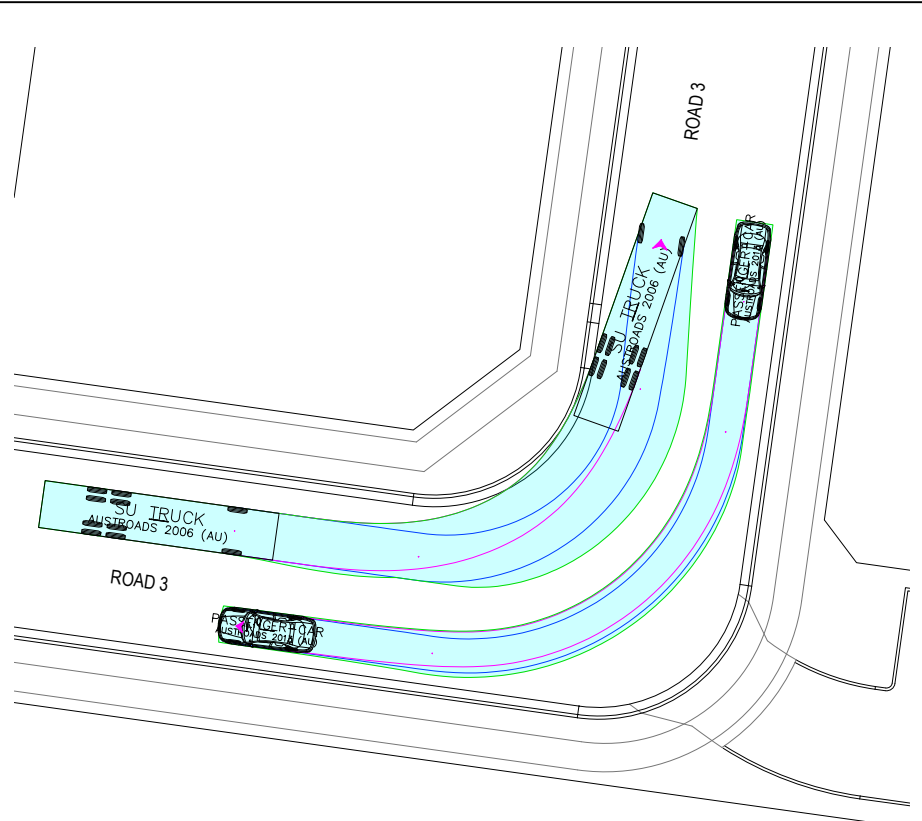




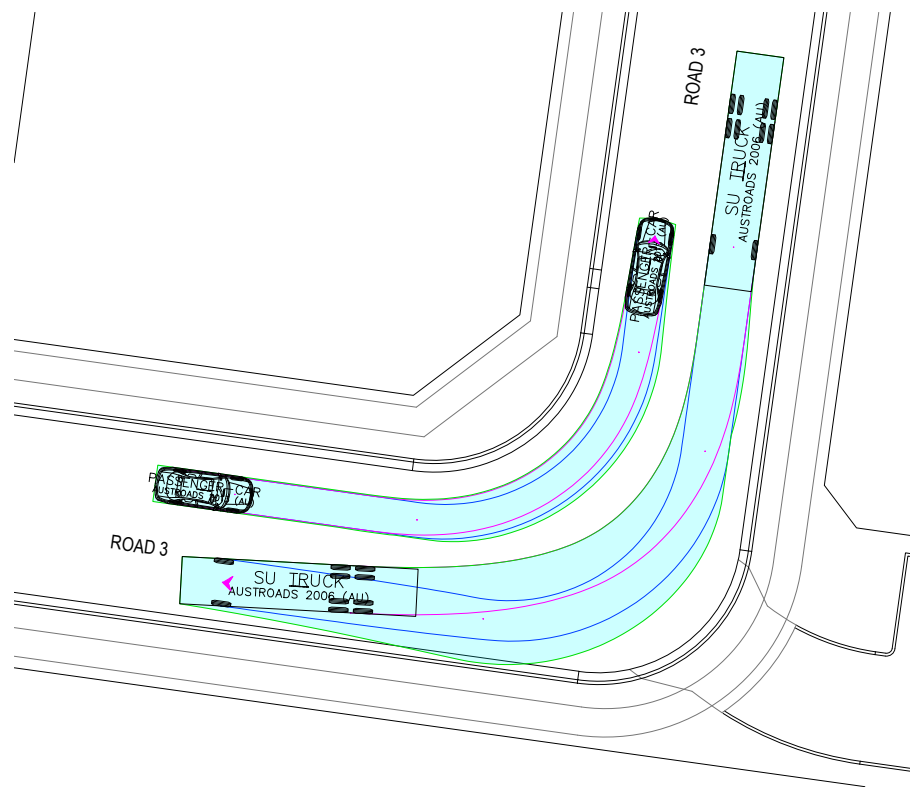
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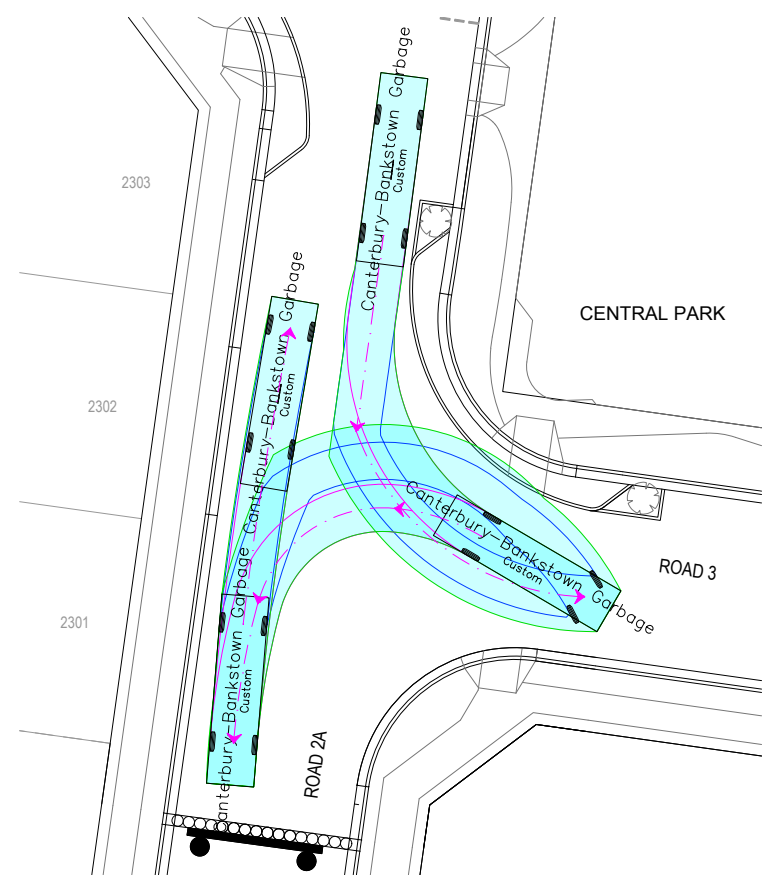
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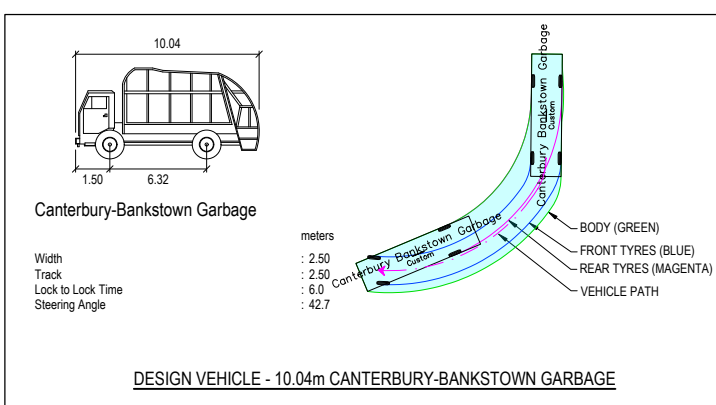
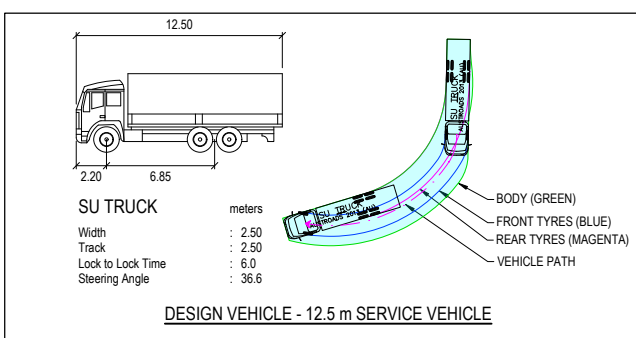
CAR OUTSIDE / SU TRUCK INSIDE



CAR INSIDE / SU TRUCK OUTSIDE



GARBAGE - THREE POINT TURN



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Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	S. FERGUSON
Date	06.11.25
DA Number	-

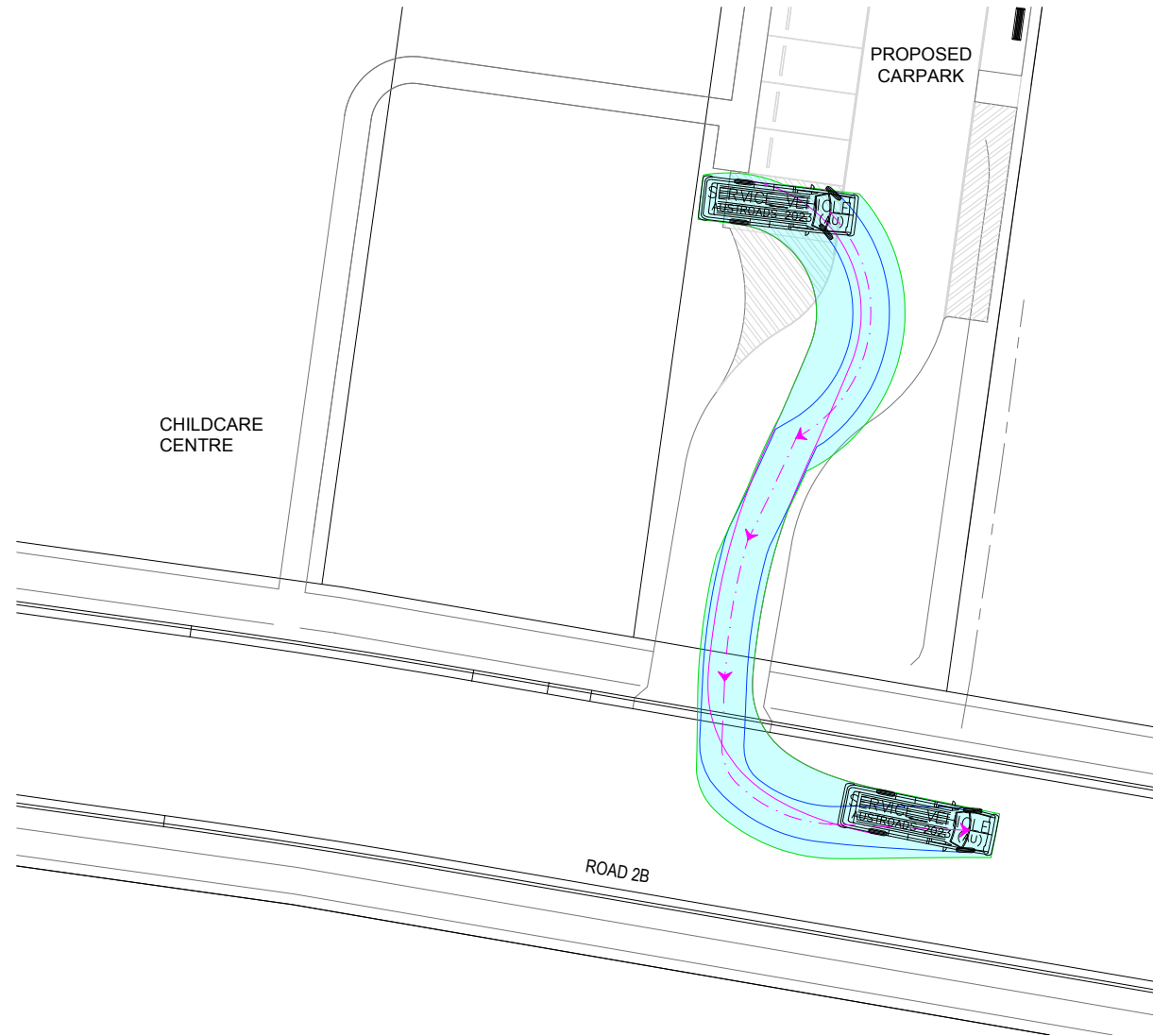
BW Beveridge Williams
Development & Infrastructure Consultants
Level 4, LPC House, Suite 4.05, 3 Fordham way
Oran Park NSW 2570
ph: 02 46255055
www.beveridgewilliams.com.au

Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
TURNING MOVEMENTS
SHEET 7 OF 18

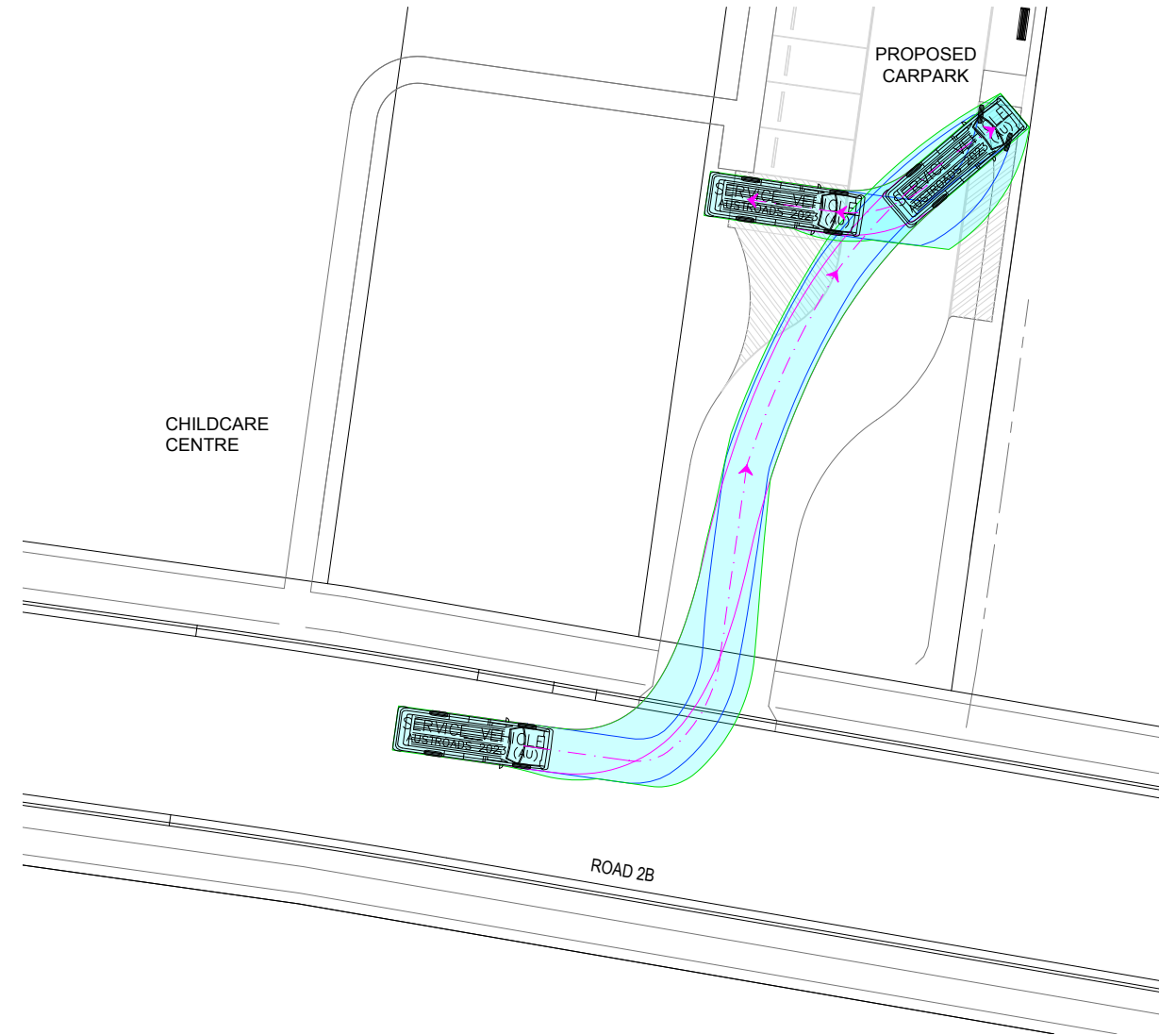
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Sheet 122 of 145			
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Project Number	Reference	Drawing No	Revision
2301879	321	706	B

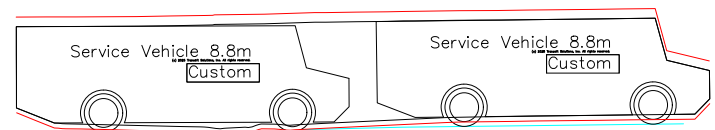




SV TRUCK - VEHICLE EXITING



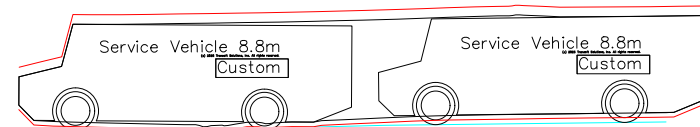
SV TRUCK - VEHICLE ENTERING



Ground Clearance (units: m)

Part #	Front	Wheelbase	Rear
#1	0.25	0.25	0.25

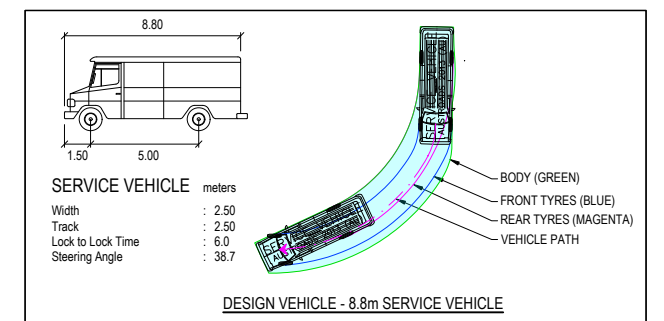
8.8m SERVICE VEHICLE - CHILDCARE CARPARK ENTRY VERTICAL CLEARANCE



Ground Clearance (units: m)

Part #	Front	Wheelbase	Rear
#1	0.25	0.25	0.25

8.8m SERVICE VEHICLE - CHILDCARE CARPARK EXIT VERTICAL CLEARANCE



LEGEND	
ROAD ALIGNMENT	
BODY CLEARANCE	

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C	FINAL ISSUE FOR SSDA	06.11.25	GN	SG					
B	UPDATED TURNING TEMPLATE	23.10.25	GN	SG					
A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	
Date	06.11.25
DA Number	-

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Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	TURNING MOVEMENTS SHEET 8 OF 18

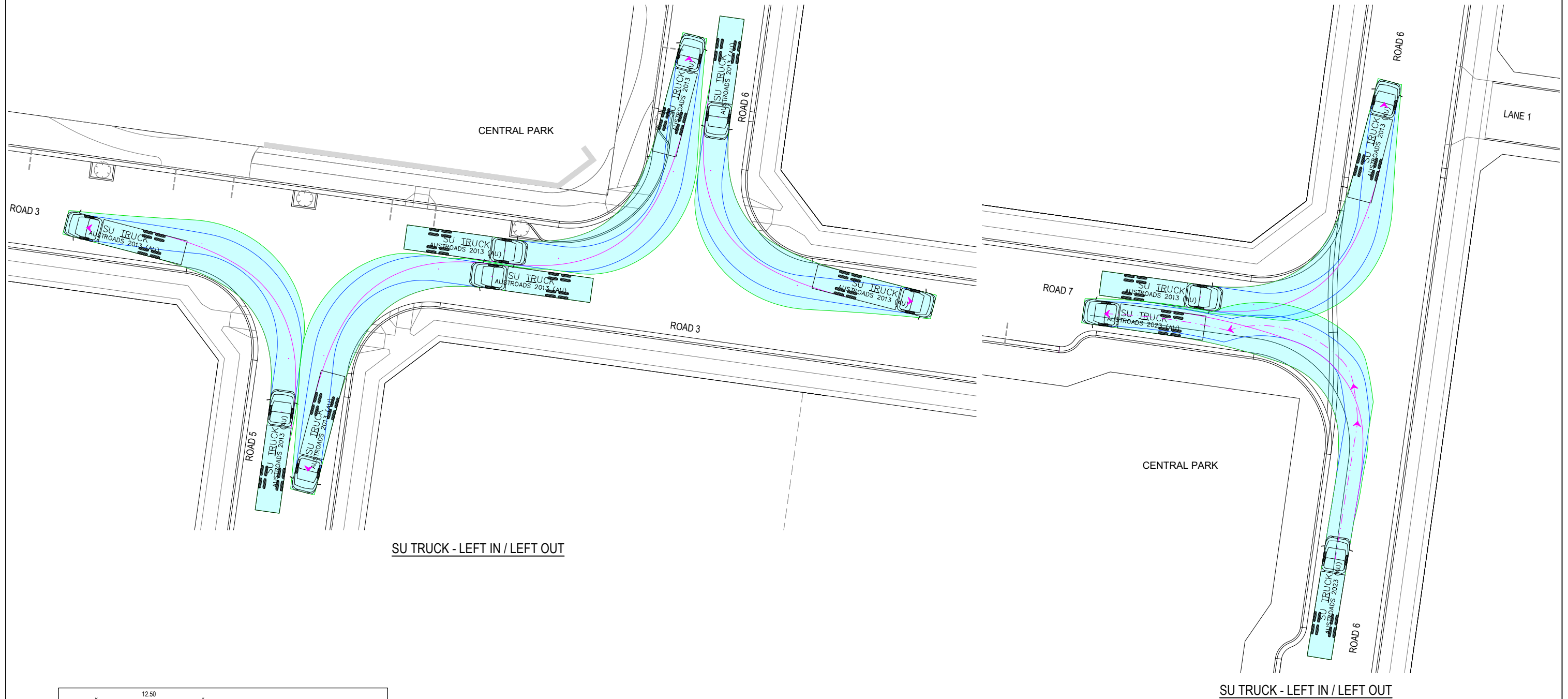
Sheet 123 of 145

Scale
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Project Number	Reference	Drawing No	Revision
2301879	321	707	C

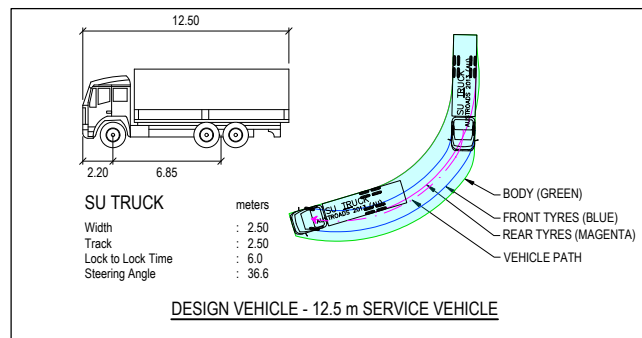


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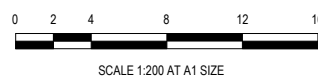
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A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



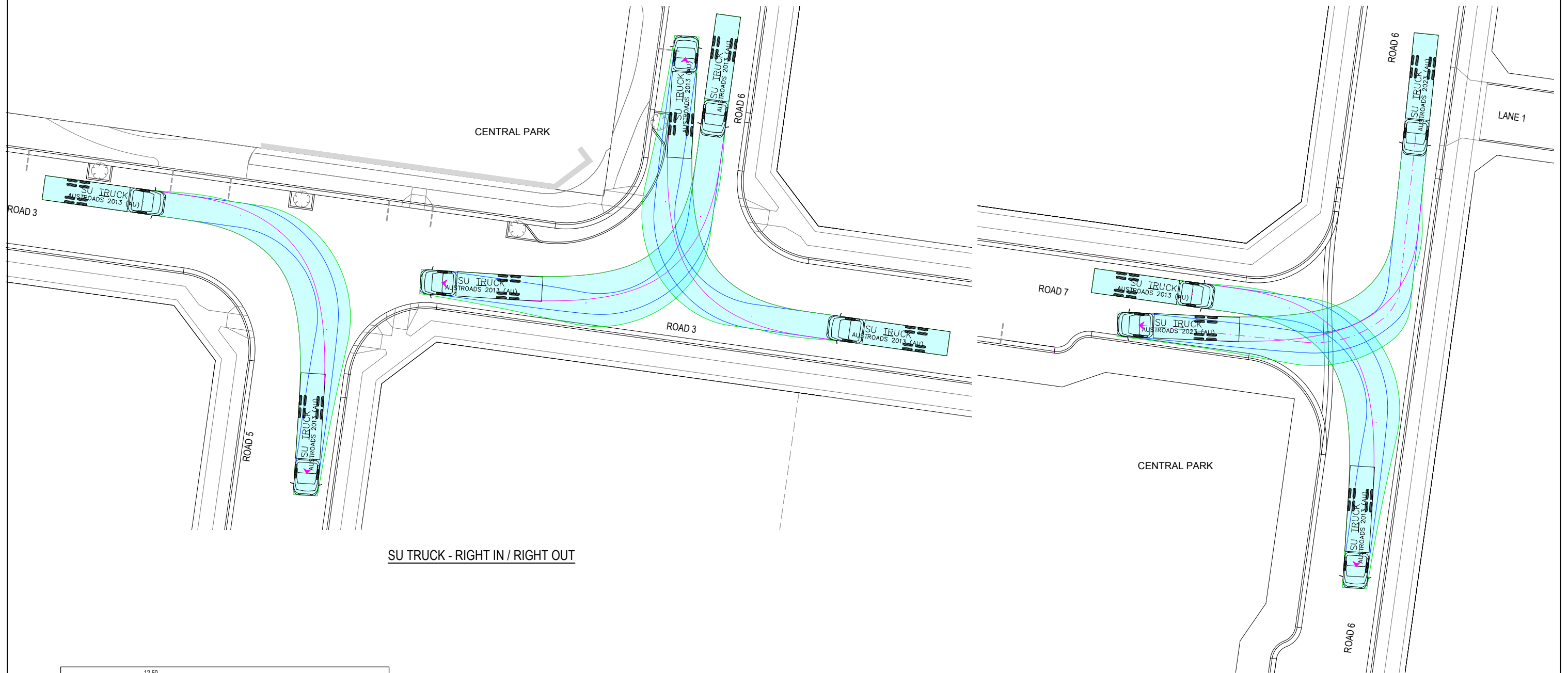
Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	
Date	06.11.25
DA Number	-

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Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	TURNING MOVEMENTS SHEET 9 OF 18

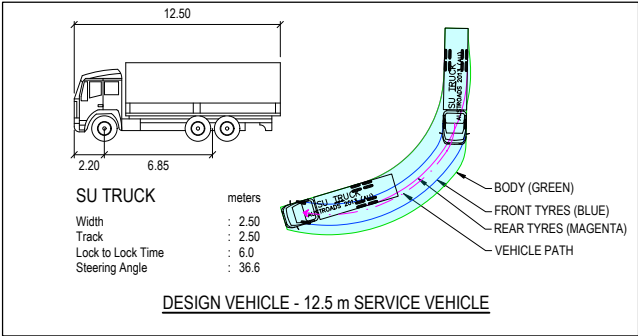
Sheet 124 of 145			
Scale	1:200 @ A1		
Project Number	Reference	Drawing No	Revision
2301879	321	708	B





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DESIGN VEHICLE - 12.5 m SERVICE VEHICLE

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Date	23.06.2025
Drawn	D. RAFTER
Approved	
Date	06.11.25
DA Number	-

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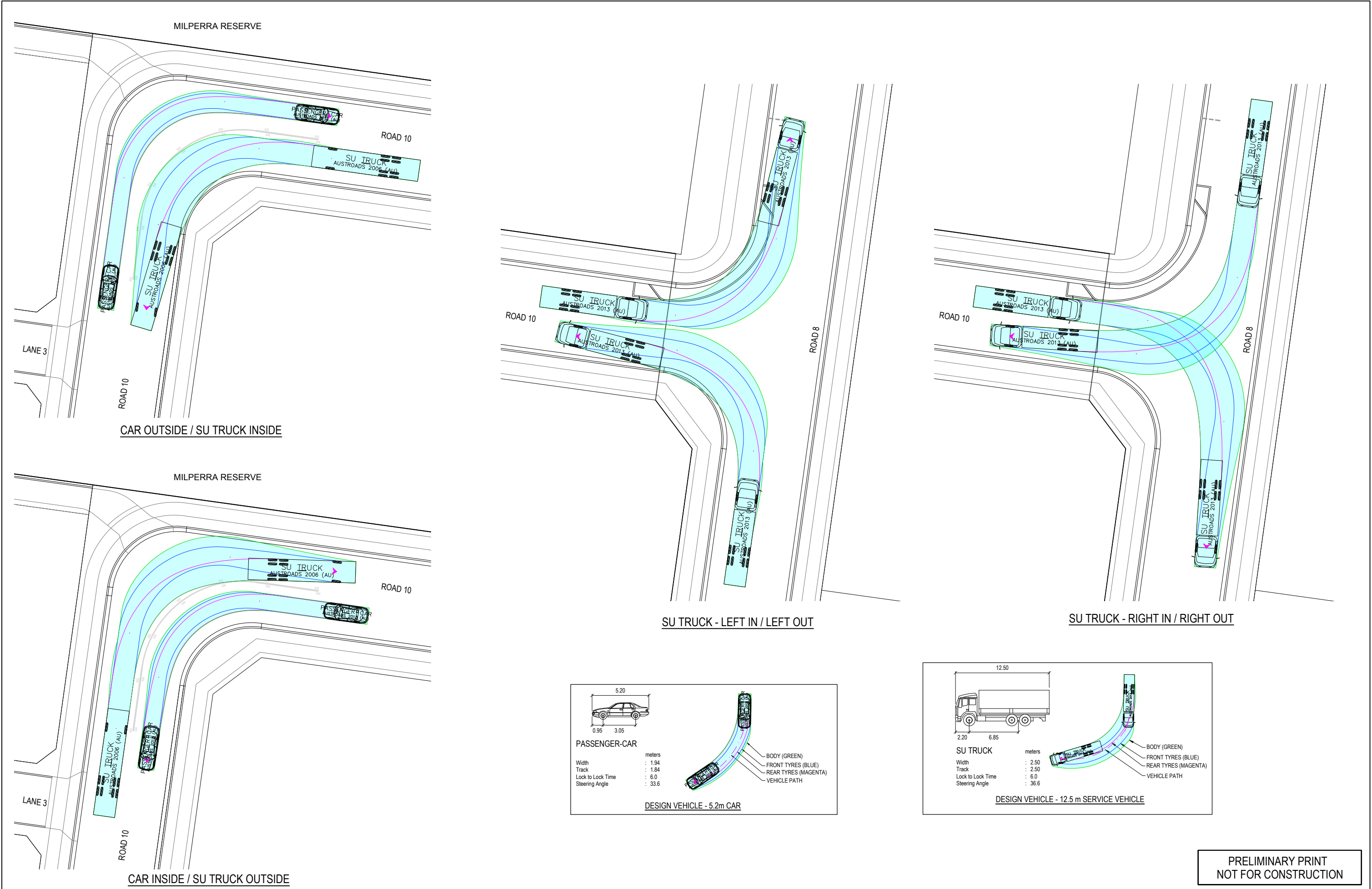
Level 4, LPC House, Suite 4.05, 3 Fordham way
Oran Park NSW 2570

ph: 02 46255055
www.beveridgewilliams.com.au

Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	TURNING MOVEMENTS SHEET 10 OF 18

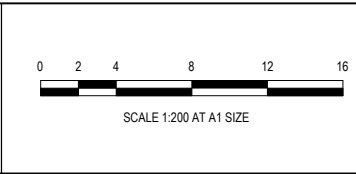
Sheet 125 of 145			
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Project Number	Reference	Drawing No	Revision
2301879	321	709	B





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REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP



Designed R. GOVENDER
Date 23.06.2025
Drawn D. RAFTER
Approved 06.11.25
Date
DA Number

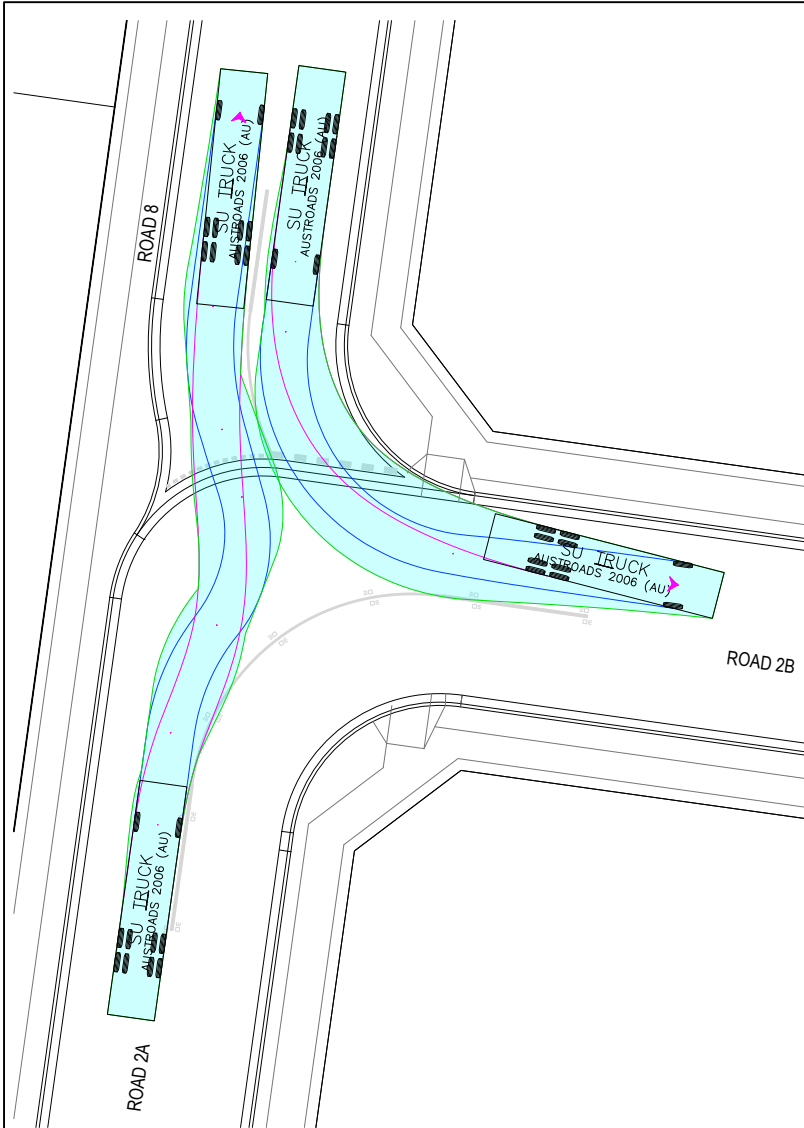
BW Beveridge Williams
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www.beveridgewilliams.com.au

Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

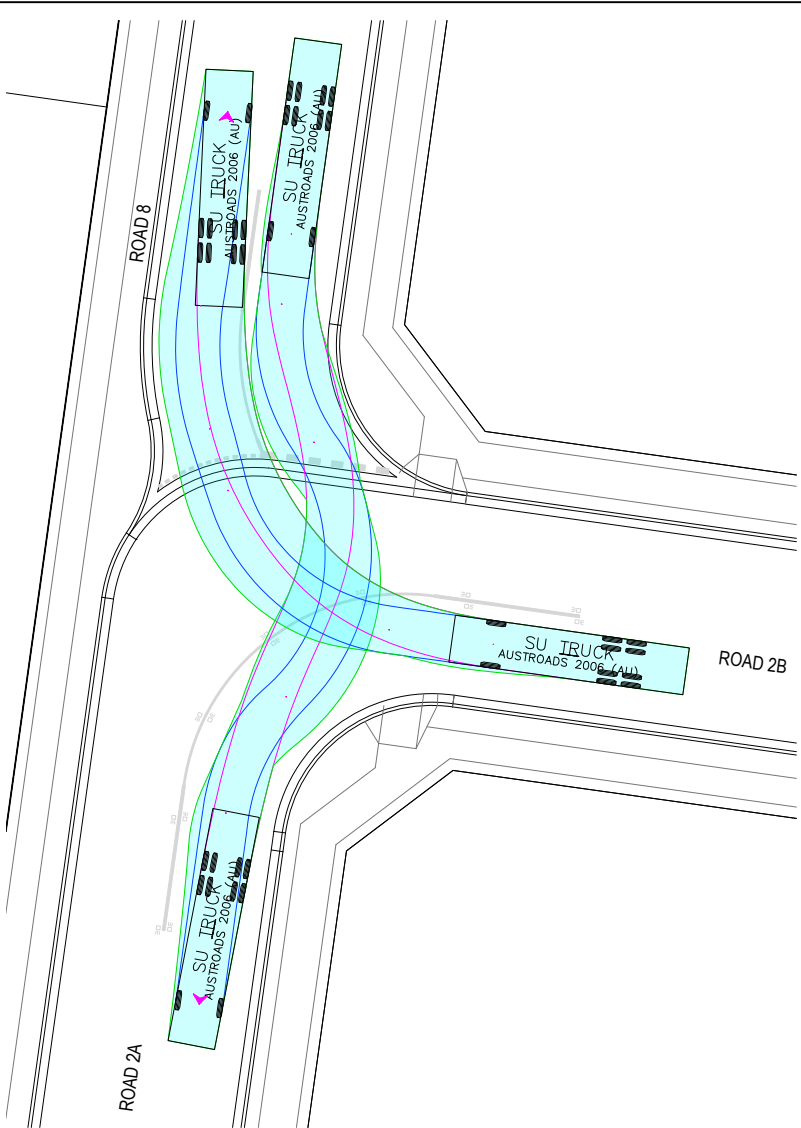
Drawing Title
TURNING MOVEMENTS
SHEET 11 OF 18

Sheet 126 of 145
Scale 1:200 @ A1

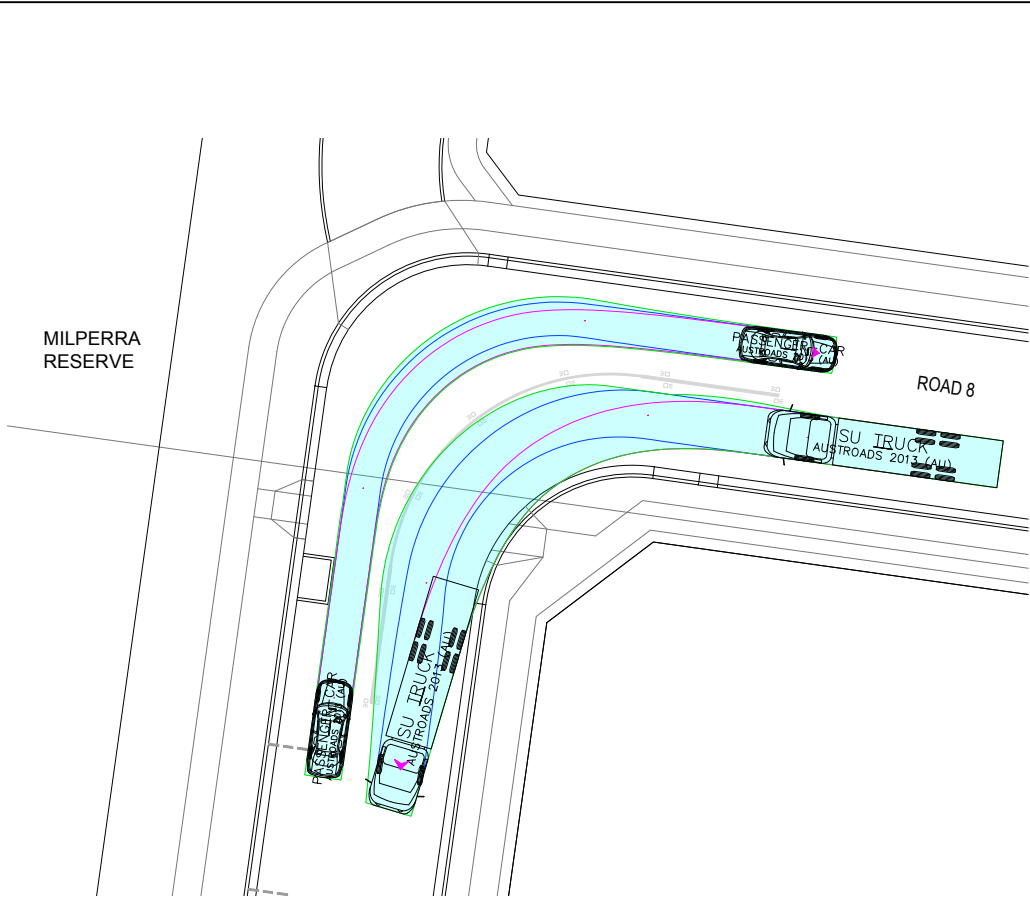
Project Number	Reference	Drawing No	Revision
2301879	321	710	B



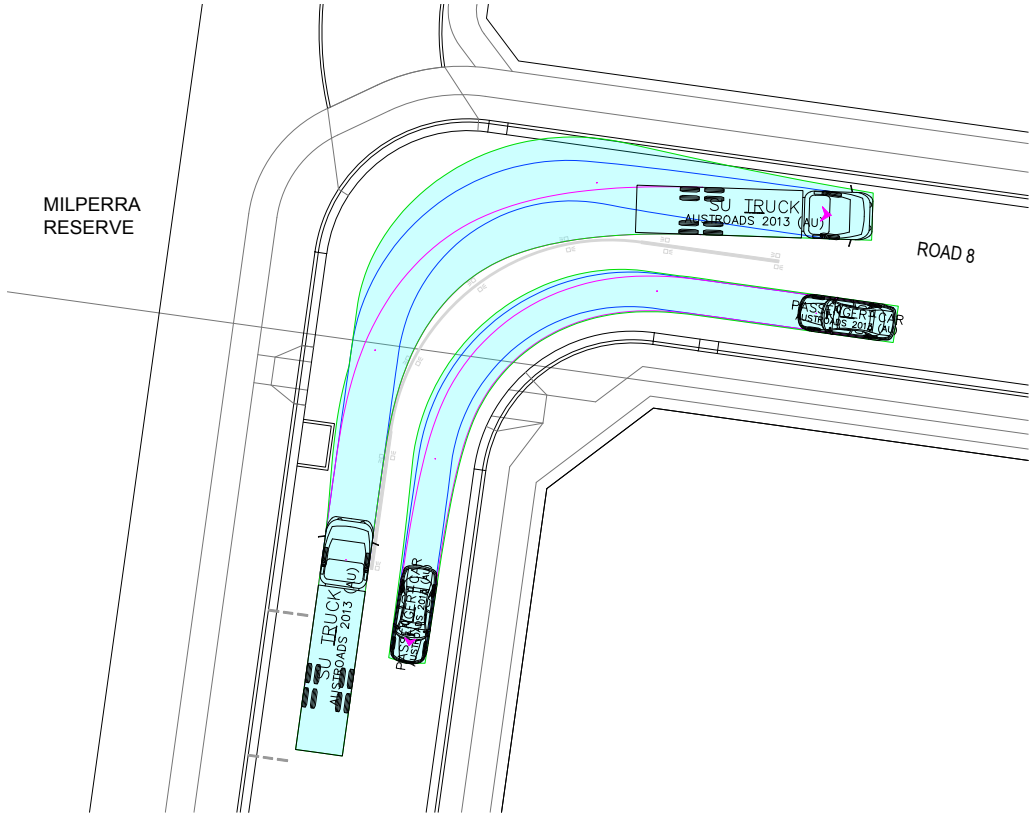
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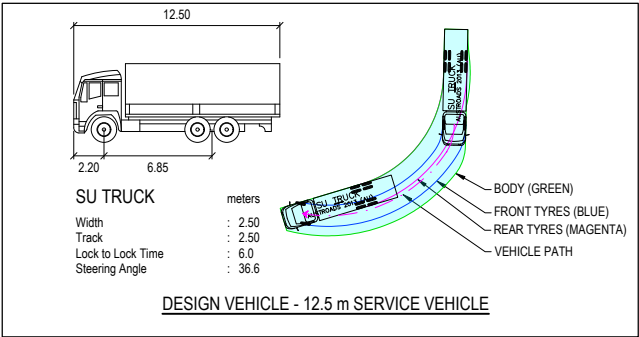
SU TRUCK - RIGHT IN / RIGHT OUT



CAR OUTSIDE / SU TRUCK INSIDE

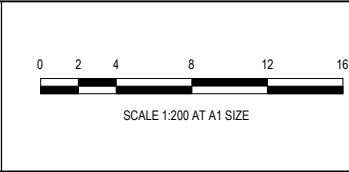


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A	PRELIMINARY ISSUE FOR SSDA	17.10.25	RG	SG					



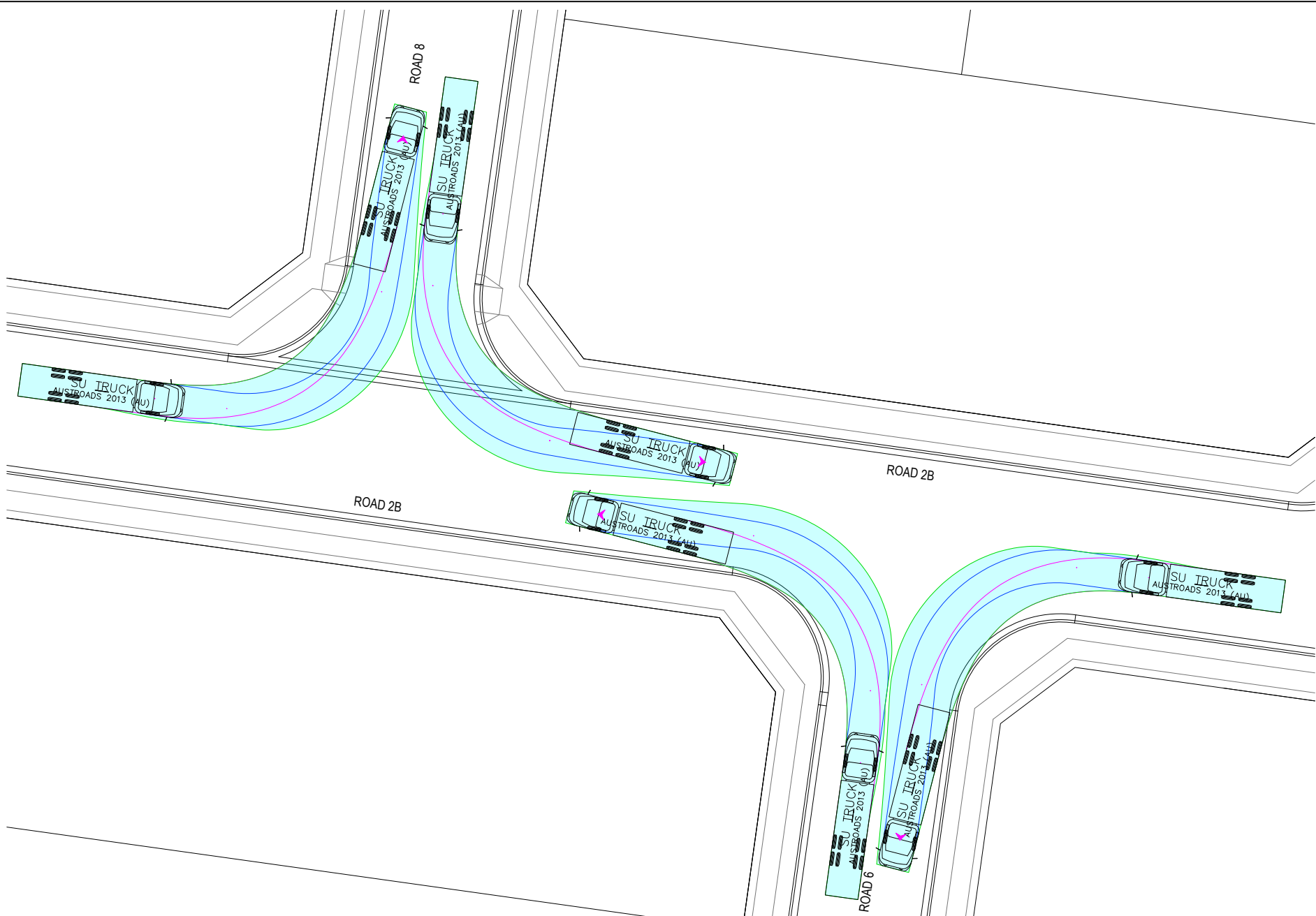
Designed	R. GOVENDER
Date	23.06.2025
Drawn	D. RAFTER
Approved	
Date	06.11.25
DA Number	-

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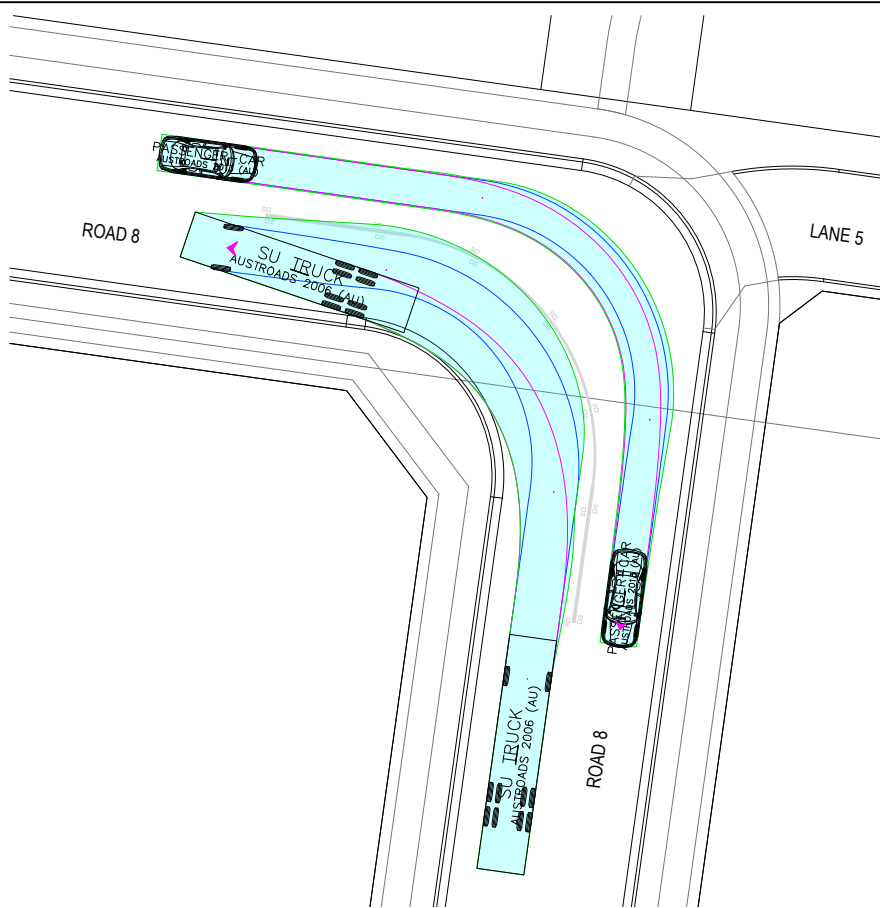
Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	TURNING MOVEMENTS SHEET 12 OF 18

Sheet 127 of 145			
Scale	1:200 @ A1		
Project Number	Reference	Drawing No	Revision
2301879	321	711	B

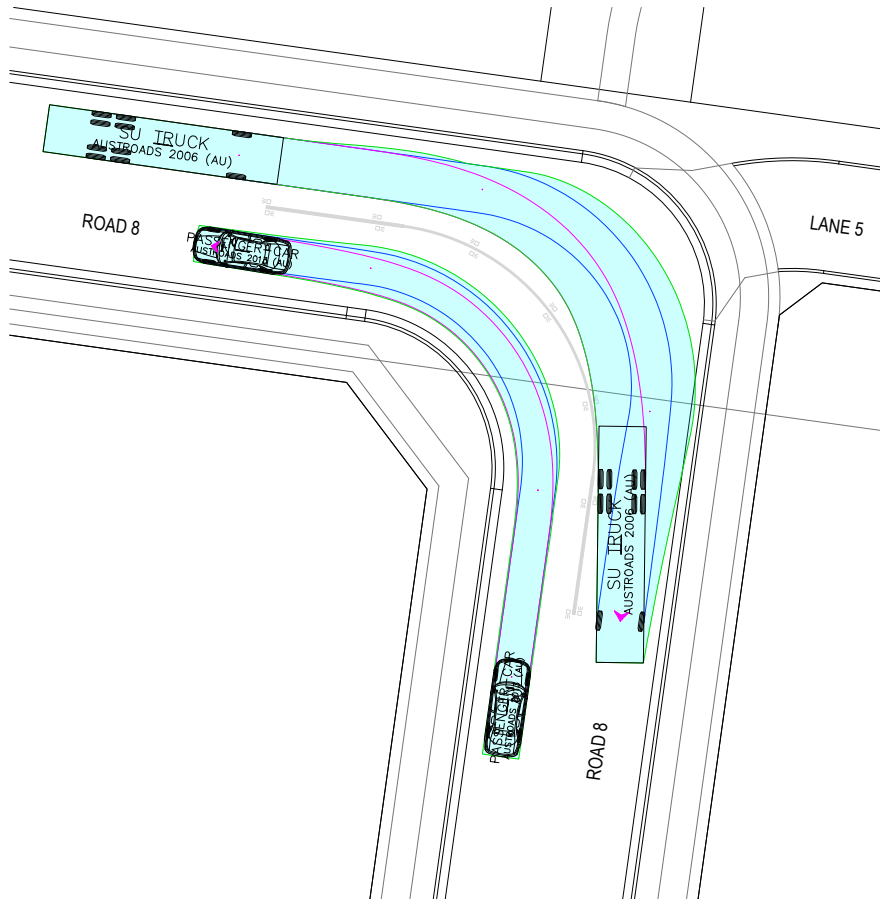




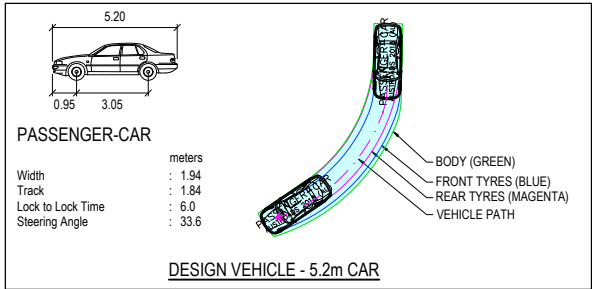
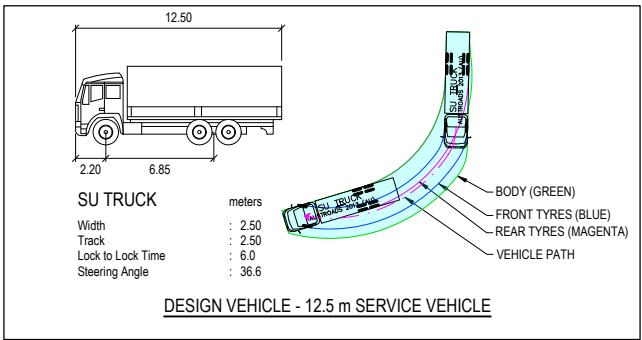
SU TRUCK - LEFT IN / LEFT OUT



CAR OUTSIDE / SU TRUCK INSIDE



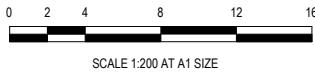
CAR INSIDE / SU TRUCK OUTSIDE



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WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
TURNING MOVEMENTS
SHEET 13 OF 18

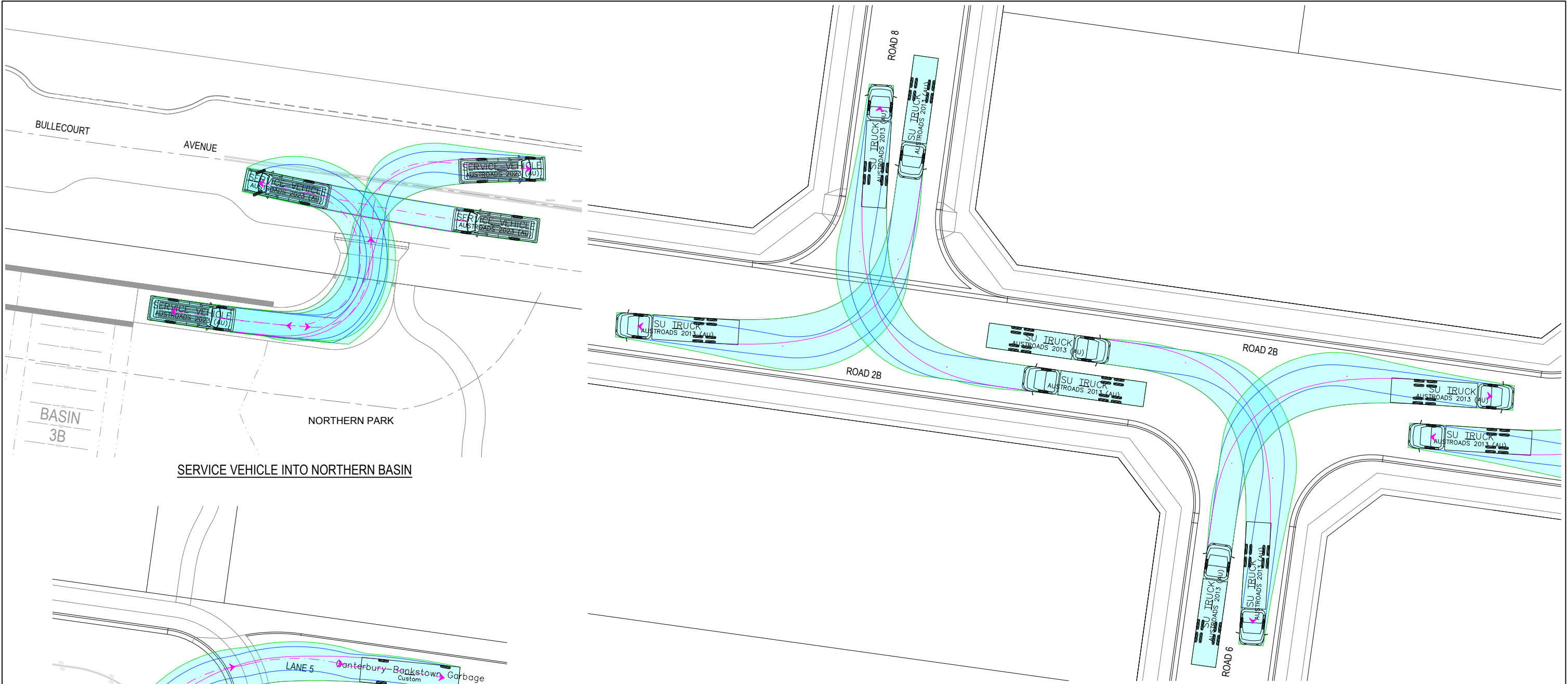
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Scale
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Project Number	Reference	Drawing No	Revision
2301879	321	712	B



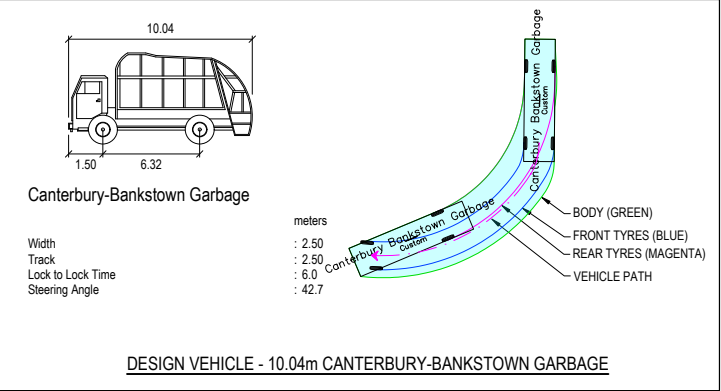
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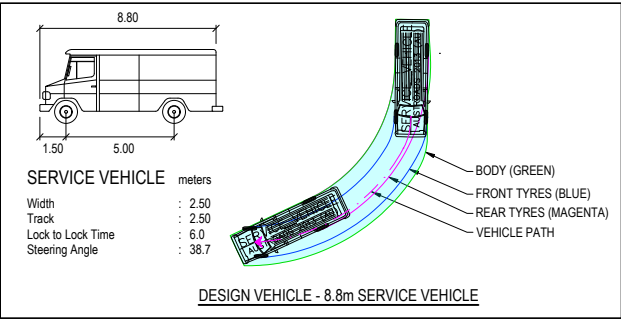
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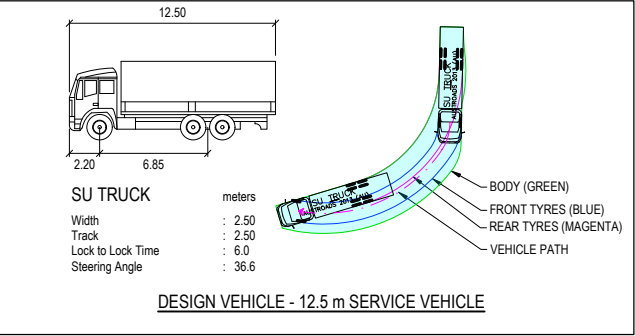
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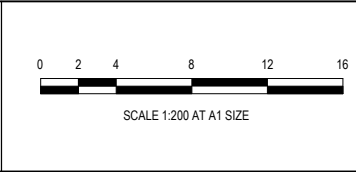
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DESIGN VEHICLE - 12.5 m SERVICE VEHICLE

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Date 23.06.2025
Drawn D. RAFTER
Approved 06.11.25
Date
DA Number

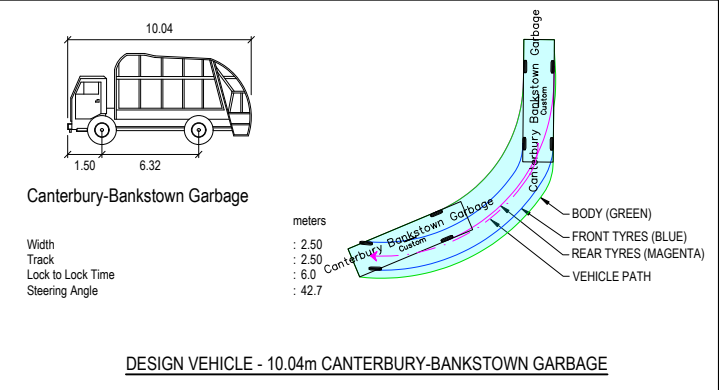
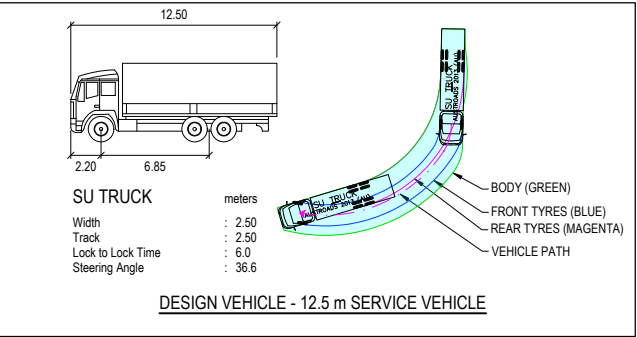
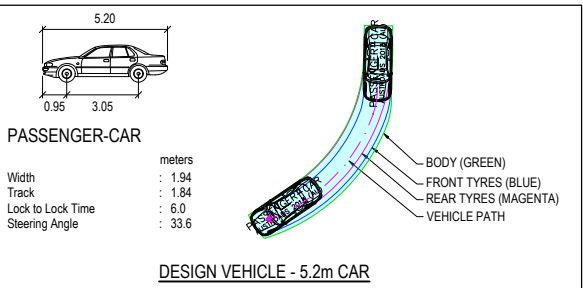
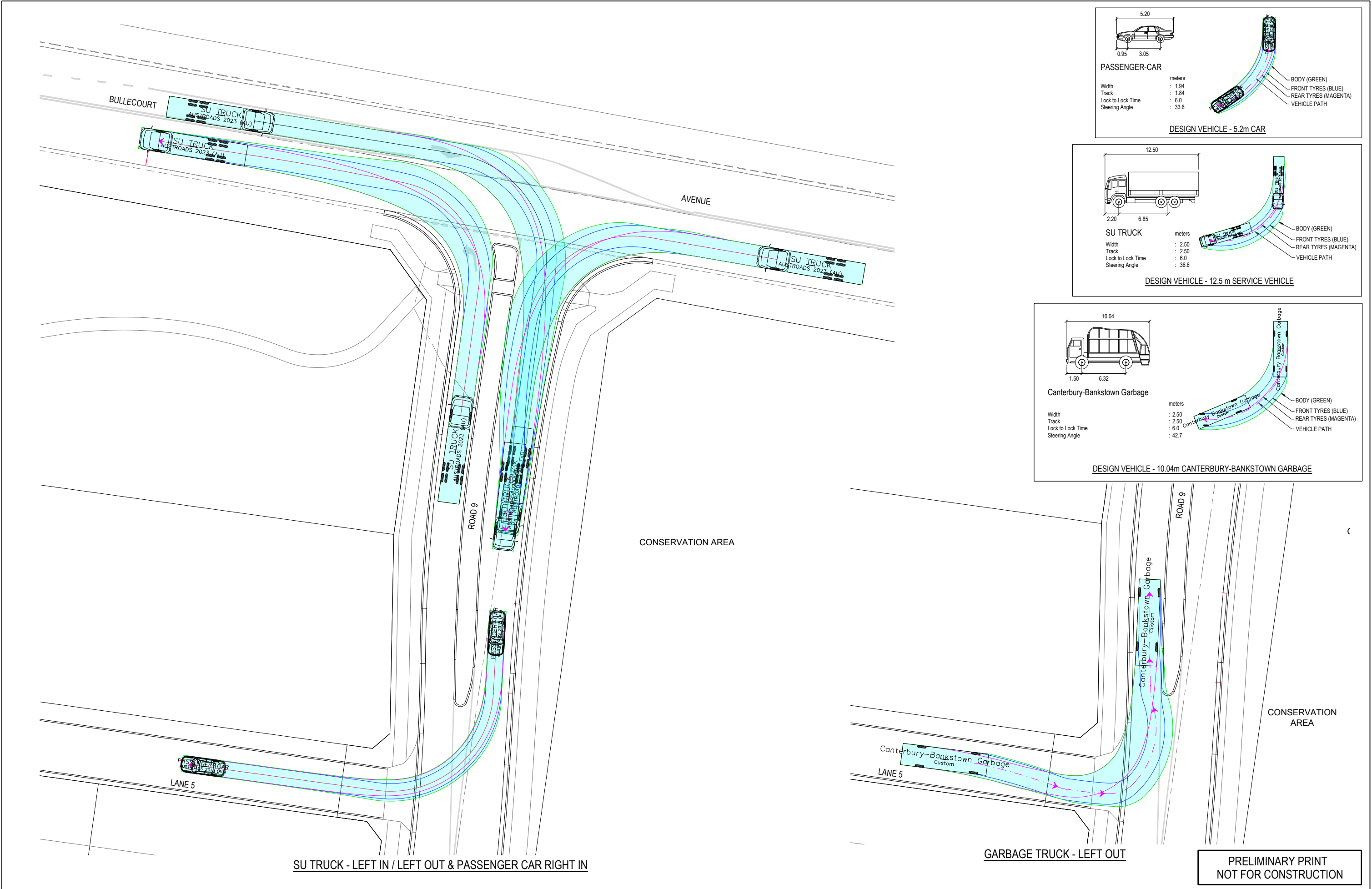
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Project Details
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LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing Title
TURNING MOVEMENTS
SHEET 14 OF 18

Sheet 129 of 145
Scale 1:200 @ A1

Project Number 2301879
Reference 321
Drawing No 713
Revision B



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Date	23.06.2025
Drawn	D. RAFTER
Approved	
Date	06.11.25
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WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing Title

TURNING MOVEMENTS
SHEET 15 OF 18

Sheet 130 of 145

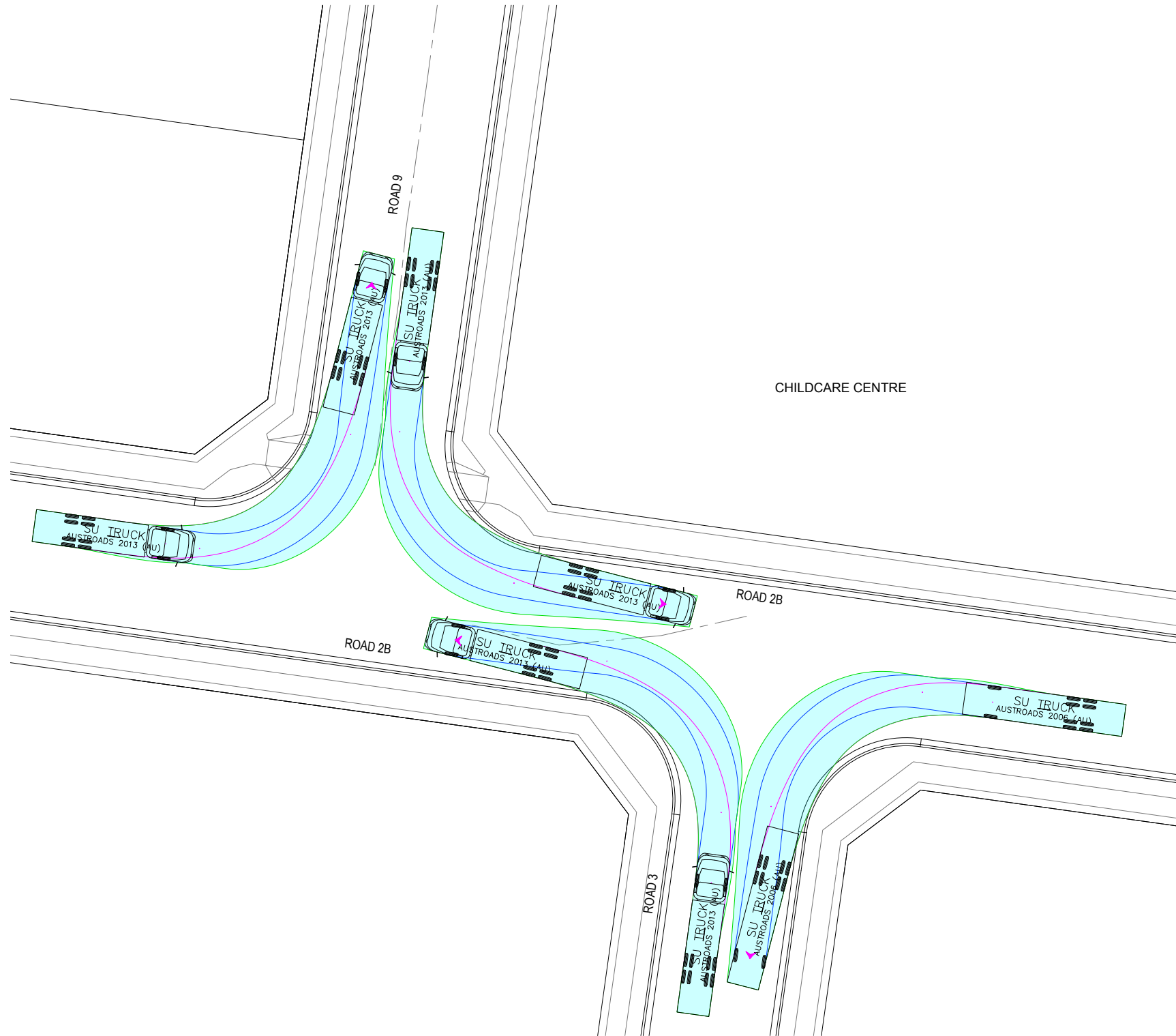
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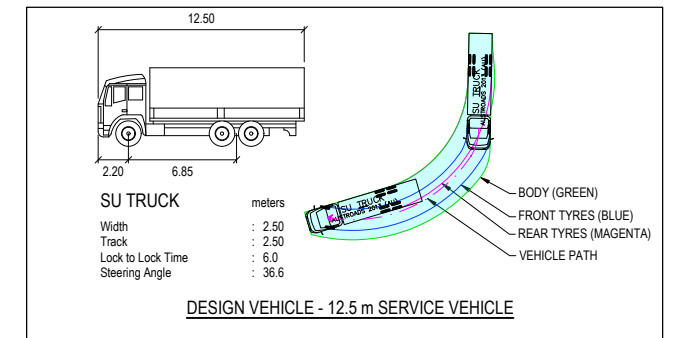
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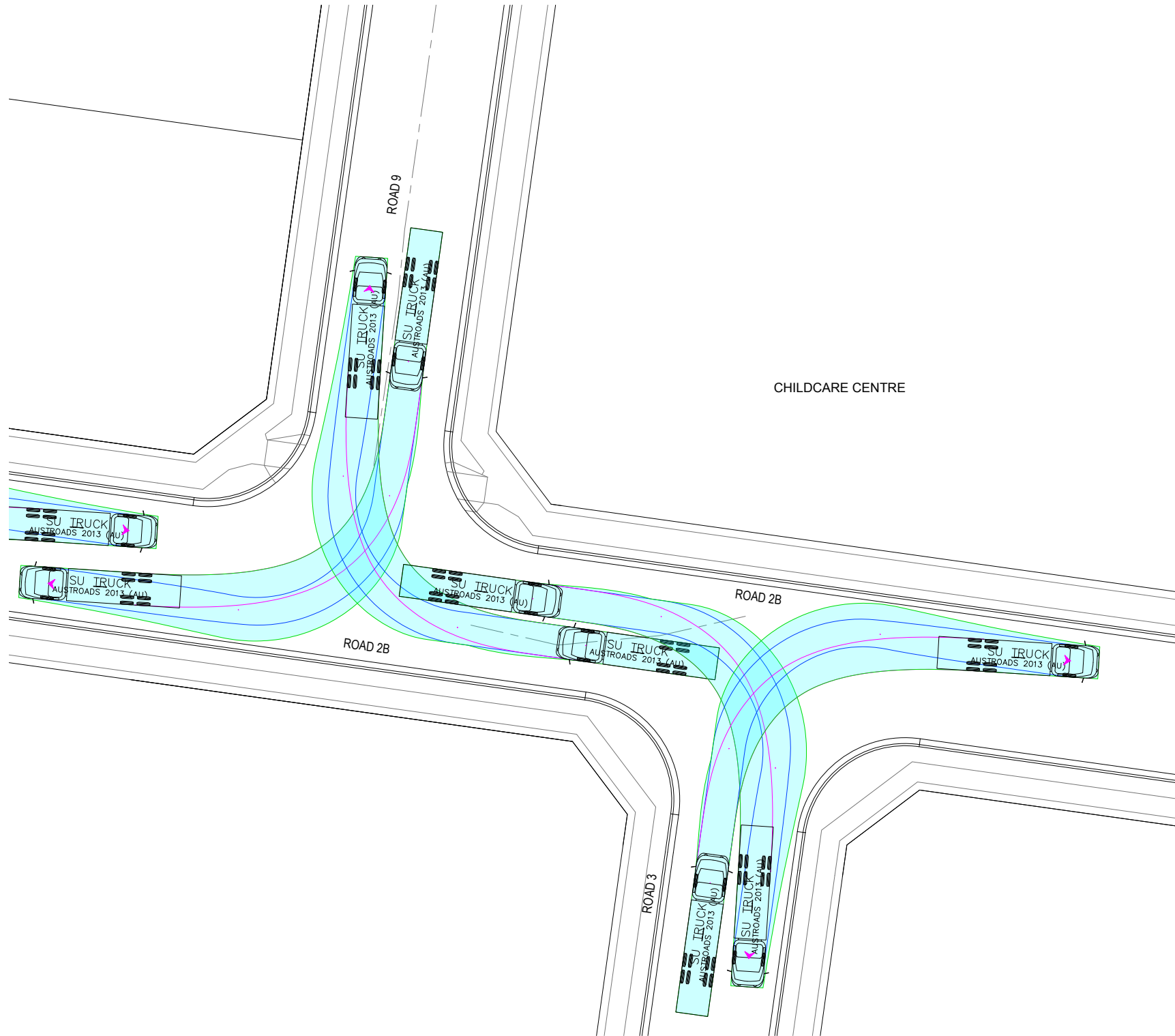
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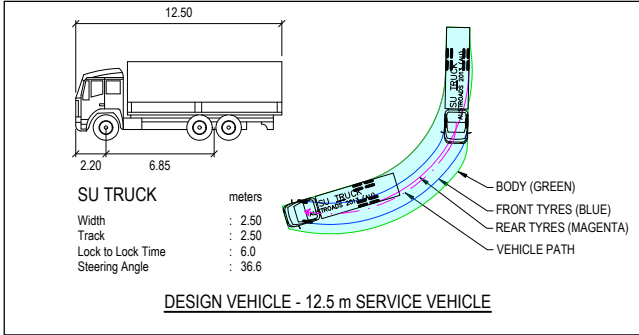
Project Details	WSU MILPERRA, LOT 1 IN DP101147 AND LOT 2 IN DP1291984 2A BULLECOURT AVENUE, MILPERRA
Drawing Title	TURNING MOVEMENTS SHEET 16 OF 18

Sheet 131 of 145			
Scale	1:200 @ A1		
Project Number	Reference	Drawing No	Revision
2301879	321	715	B





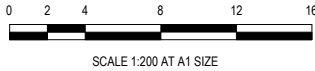
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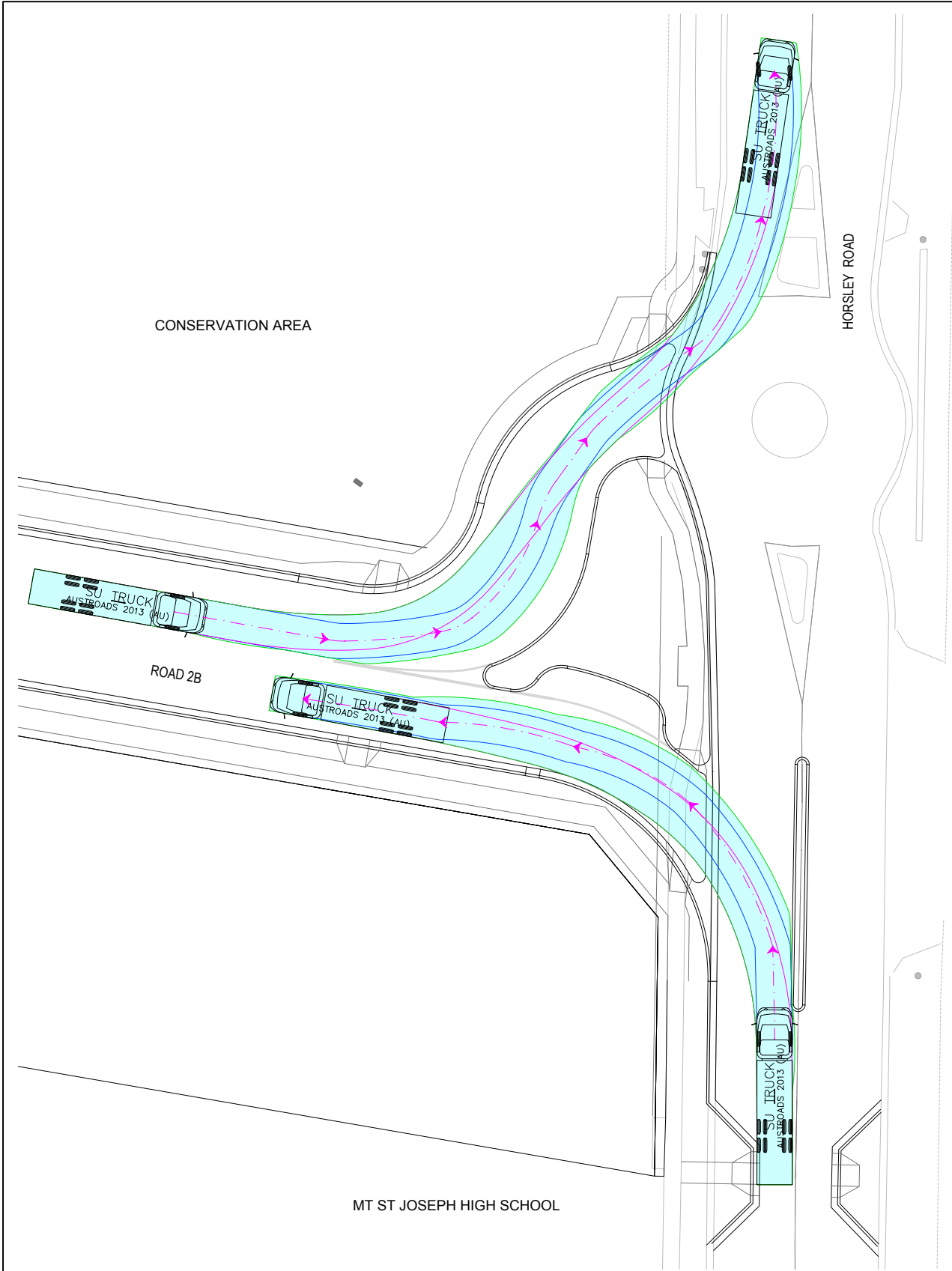
Project Details
WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA
Drawing Title
TURNING MOVEMENTS
SHEET 17 OF 18

Sheet 132 of 145

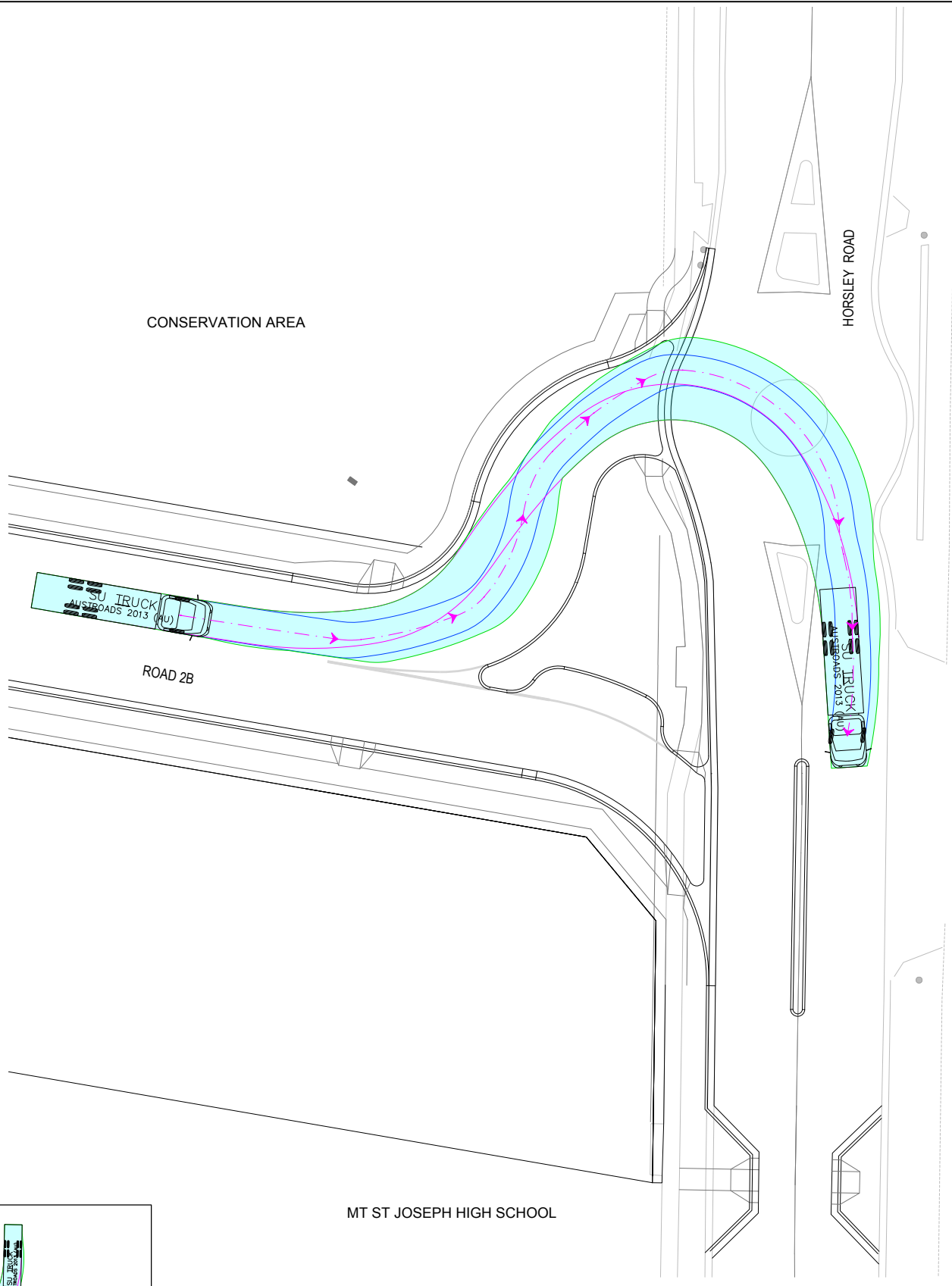
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Project Number	Reference	Drawing No	Revision
2301879	321	716	B

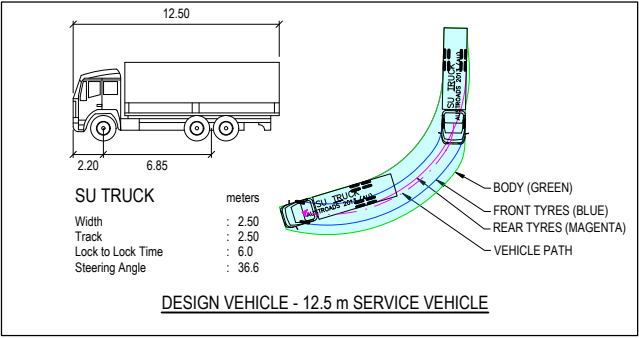




TRUCK - ENTRY AND EXIT - ROAD 2 & HORSLEY ROAD



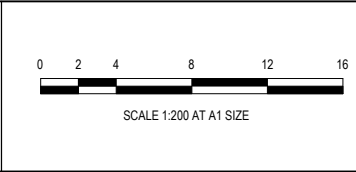
TRUCK - EXIT - ROAD 2 & HORSLEY ROAD



DESIGN VEHICLE - 12.5 m SERVICE VEHICLE

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Date
Drawn
Approved
Date
DA Number

R. GOVENDER
23.06.2025
D. RAFTER
06.11.25
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Project
Details

WSU MILPERRA, LOT 1 IN DP101147 AND
LOT 2 IN DP1291984
2A BULLECOURT AVENUE, MILPERRA

Drawing
Title

TURNING MOVEMENTS
SHEET 18 OF 18

Sheet 133 of 145

Scale
1:200 @ A1

Project Number
2301879

Reference
321

Drawing No
717

Revision
B

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Appendix B

SIDRA Movement Summary

MOVEMENT SUMMARY

Site: [1 S2 A (3)] Ashford Avenue / Site Access 2025 AM S1

(S1 EX 2025 AM + Childcare)

Network: [1] S1 EX + Childcare 2025 AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Site Access

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
2	T1	All MCs	57	3.7	57	3.7	0.030	0.0	LOS A	0.0	0.0	0.01	0.02	48.9
3	R2	All MCs	1	0.0	1	0.0	0.030	6.6	LOS A	0.0	0.0	0.01	0.02	16.0
Approach			58	3.6	58	3.6	0.030	0.1	NA	0.0	0.0	0.01	0.02	45.4
East: Site Access														
4	L2	All MCs	1	0.0	1	0.0	0.002	0.1	LOS A	0.0	0.0	0.14	0.04	13.9
6	R2	All MCs	1	0.0	1	0.0	0.002	0.3	LOS A	0.0	0.0	0.14	0.04	9.9
Approach			2	0.0	2	0.0	0.002	0.2	LOS A	0.0	0.0	0.14	0.04	12.1
North: Ashford Avenue														
7	L2	All MCs	1	0.0	1	0.0	0.027	8.2	LOS A	0.0	0.0	0.00	0.02	44.6
8	T1	All MCs	49	4.3	49	4.3	0.027	0.0	LOS A	0.0	0.0	0.00	0.02	49.6
Approach			51	4.2	51	4.2	0.027	0.2	NA	0.0	0.0	0.00	0.02	49.5
All Vehicles			111	3.8	111	3.8	0.030	0.1	NA	0.0	0.0	0.01	0.02	46.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

 Site: [2 S1 AM] Ashford Avenue / Bullecourt Avenue 2025 AM

S1 (S1 EX 2025 AM + Childcare)

Network: [1] S1 EX + Childcare 2025 AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
1	L2	All MCs	16	0.0	16	0.0	0.221	7.7	LOS A	0.5	3.7	0.69	0.71	38.1
2	T1	All MCs	55	1.9	55	1.9	0.221	7.8	LOS A	0.5	3.7	0.69	0.71	46.9
3	R2	All MCs	82	2.6	82	2.6	0.221	11.3	LOS A	0.5	3.7	0.69	0.71	34.3
3u	U	All MCs	1	0.0	1	0.0	0.221	12.7	LOS A	0.5	3.7	0.69	0.71	34.3
Approach			154	2.1	154	2.1	0.221	9.7	LOS A	0.5	3.7	0.69	0.71	41.4
East: Bullecourt Avenue														
4	L2	All MCs	31	3.4	31	3.4	0.449	5.4	LOS A	1.4	11.2	0.46	0.54	42.5
5	T1	All MCs	304	14.2	304	14.2	0.449	6.0	LOS A	1.4	11.2	0.46	0.54	43.9
6	R2	All MCs	177	7.7	177	7.7	0.449	9.3	LOS A	1.4	11.2	0.46	0.54	49.9
6u	U	All MCs	2	100.0	2	100.0	0.449	13.9	LOS A	1.4	11.2	0.46	0.54	42.5
Approach			514	11.7	514	11.7	0.449	7.1	LOS A	1.4	11.2	0.46	0.54	46.6
North: Ashford Avenue														
7	L2	All MCs	229	12.8	229	12.8	0.497	10.8	LOS A	1.6	12.3	0.85	0.80	45.8
8	T1	All MCs	29	3.6	29	3.6	0.497	10.5	LOS A	1.6	12.3	0.85	0.80	45.8
9	R2	All MCs	61	22.4	61	22.4	0.497	15.1	LOS B	1.6	12.3	0.85	0.80	45.1
9u	U	All MCs	5	20.0	5	20.0	0.497	16.7	LOS B	1.6	12.3	0.85	0.80	49.6
Approach			325	13.9	325	13.9	0.497	11.7	LOS A	1.6	12.3	0.85	0.80	45.8
West: Bullecourt Avenue														
10	L2	All MCs	186	9.0	186	9.0	0.746	11.1	LOS A	3.8	29.3	0.88	0.83	44.7
11	T1	All MCs	446	10.8	446	10.8	0.746	11.3	LOS A	3.8	29.3	0.88	0.83	29.3
12	R2	All MCs	16	6.7	16	6.7	0.746	14.5	LOS A	3.8	29.3	0.88	0.83	29.3
12u	U	All MCs	2	100.0	2	100.0	0.746	20.9	LOS B	3.8	29.3	0.88	0.83	33.3
Approach			651	10.5	651	10.5	0.746	11.3	LOS A	3.8	29.3	0.88	0.83	36.9
All Vehicles			1643	10.8	1643	10.8	0.746	9.9	LOS A	3.8	29.3	0.72	0.72	42.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

Site: [3 S2 A (2)] Site Access / Bullecourt Avenue 2025 AM S1
(S1 EX 2025 AM + Childcare)
Network: [1] S1 EX + Childcare 2025 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Site Access														
1	L2	All MCs	15	0.0	15	0.0	0.015	2.0	LOS A	0.0	0.2	0.48	0.33	0.48
Approach			15	0.0	15	0.0	0.015	2.0	LOS A	0.0	0.2	0.48	0.33	0.48
East: Bullecourt Avenue														
4	L2	All MCs	1	0.0	1	0.0	0.274	8.9	LOS A	0.0	0.0	0.00	0.00	0.00
5	T1	All MCs	495	11.7	495	11.7	0.274	0.0	LOS A	0.0	0.0	0.00	0.00	0.00
Approach			496	11.7	496	11.7	0.274	0.0	NA	0.0	0.0	0.00	0.00	0.00
West: Bullecourt Avenue														
11	T1	All MCs	725	10.4	725	10.4	0.404	0.1	LOS A	0.0	0.0	0.00	0.00	0.00
12	R2	All MCs	15	0.0	15	0.0	0.014	11.2	LOS A	0.0	0.2	0.50	0.74	0.50
Approach			740	10.2	740	10.2	0.404	0.3	NA	0.0	0.2	0.01	0.01	0.01
All Vehicles			1251	10.7	1251	10.7	0.404	0.2	NA	0.0	0.2	0.01	0.01	0.01

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [4 S1 AM] Horsley Road / Bullecourt Avenue 2025 AM

S1 (S1 EX 2025 AM + Childcare)

Network: [1] S1 EX + Childcare 2025 AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/ Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	433	7.8	433	7.8	0.479	5.8	LOS A	1.6	12.5	0.40	0.52	36.0
2	T1	All MCs	96	8.8	96	8.8	0.479	5.7	LOS A	1.6	12.5	0.40	0.52	47.1
3u	U	All MCs	21	70.0	21	70.0	0.479	11.7	LOS A	1.6	12.5	0.40	0.52	36.0
Approach			549	10.3	549	10.3	0.479	6.0	LOS A	1.6	12.5	0.40	0.52	39.9
North: Horsley Road														
8	T1	All MCs	86	7.3	86	7.3	0.242	9.2	LOS A	0.6	4.6	0.73	0.74	41.6
9	R2	All MCs	62	32.2	62	32.2	0.242	13.3	LOS A	0.6	4.6	0.73	0.74	41.6
9u	U	All MCs	2	0.0	2	0.0	0.242	13.2	LOS A	0.6	4.6	0.73	0.74	46.4
Approach			151	17.5	151	17.5	0.242	10.9	LOS A	0.6	4.6	0.73	0.74	41.8
West: Bullecourt Avenue														
10	L2	All MCs	181	15.7	181	15.7	0.670	7.2	LOS A	2.8	21.2	0.63	0.59	43.7
12	R2	All MCs	533	8.9	533	8.9	0.670	9.5	LOS A	2.8	21.2	0.63	0.59	32.4
12u	U	All MCs	6	33.3	6	33.3	0.670	11.8	LOS A	2.8	21.2	0.63	0.59	32.4
Approach			720	10.8	720	10.8	0.670	8.9	LOS A	2.8	21.2	0.63	0.59	37.3
All Vehicles			1420	11.3	1420	11.3	0.670	8.0	LOS A	2.8	21.2	0.55	0.58	38.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

 Site: [5 S1 AM] Horsley Road / Site Access 2025 AM S1 (S1

EX 2025 AM + Childcare)

Network: [1] S1 EX + Childcare 2025 AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Site Access

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h	
South: Horsley Road															
1	L2	All MCs	7	0.0	7	0.0	0.397	7.2	LOS A	1.1	8.1	0.08	0.51	0.08	35.8
2	T1	All MCs	609	5.0	609	5.0	0.397	4.9	LOS A	1.1	8.1	0.08	0.51	0.08	41.3
3u	U	All MCs	1	0.0	1	0.0	0.397	8.8	LOS A	1.1	8.1	0.08	0.51	0.08	41.3
Approach			618	4.9	618	4.9	0.397	5.0	LOS A	1.1	8.1	0.08	0.51	0.08	41.3
North: Horsley Road															
8	T1	All MCs	682	5.6	682	5.6	0.444	4.9	LOS A	1.5	11.3	0.10	0.50	0.10	38.8
9	R2	All MCs	7	0.0	7	0.0	0.444	10.1	LOS A	1.5	11.3	0.10	0.50	0.10	33.3
9u	U	All MCs	1	0.0	1	0.0	0.444	8.8	LOS A	1.5	11.3	0.10	0.50	0.10	38.8
Approach			691	5.5	691	5.5	0.444	5.0	LOS A	1.5	11.3	0.10	0.50	0.10	38.8
West: Site Access															
10	L2	All MCs	7	0.0	7	0.0	0.020	3.2	LOS A	0.0	0.3	0.57	0.40	0.57	7.4
12	R2	All MCs	7	0.0	7	0.0	0.020	3.2	LOS A	0.0	0.3	0.57	0.40	0.57	7.4
12u	U	All MCs	1	0.0	1	0.0	0.020	3.2	LOS A	0.0	0.3	0.57	0.40	0.57	8.0
Approach			16	0.0	16	0.0	0.020	3.2	LOS A	0.0	0.3	0.57	0.40	0.57	7.5
All Vehicles			1324	5.2	1324	5.2	0.444	5.0	LOS A	1.5	11.3	0.10	0.50	0.10	39.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

 **Site: [6 S1 AM] Horsley Road / Beaconsfield Street / School**
Access Roundabout 2025 AM S1 (S1 EX 2025 AM + Childcare)
Network: [1] S1 EX + Childcare 2025 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Beaconsfield Street/School Access Roundabout
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	47	0.0	47	0.0	0.440	7.0	LOS A	0.8	5.9	0.46	0.58	14.2
2	T1	All MCs	277	5.7	277	5.7	0.440	3.8	LOS A	0.8	5.9	0.46	0.58	34.2
3	R2	All MCs	71	9.0	71	9.0	0.440	6.9	LOS A	0.8	5.9	0.46	0.58	42.6
3u	U	All MCs	35	0.0	35	0.0	0.440	7.9	LOS A	0.8	5.9	0.46	0.58	41.1
Approach			429	5.1	429	5.1	0.440	5.0	LOS A	0.8	5.9	0.46	0.58	28.7
East: Beaconsfield Street														
4	L2	All MCs	45	14.0	45	14.0	0.333	7.5	LOS A	0.8	5.9	0.68	0.73	38.4
5	T1	All MCs	61	1.7	61	1.7	0.333	11.5	LOS A	0.8	5.9	0.68	0.73	15.1
6	R2	All MCs	121	10.4	121	10.4	0.333	9.6	LOS A	0.8	5.9	0.68	0.73	32.5
6u	U	All MCs	7	0.0	7	0.0	0.333	10.3	LOS A	0.8	5.9	0.68	0.73	40.3
Approach			235	8.5	235	8.5	0.333	9.7	LOS A	0.8	5.9	0.68	0.73	23.4
North: Horsley Road														
7	L2	All MCs	268	8.2	268	8.2	0.248	5.0	LOS A	0.7	5.3	0.41	0.52	43.4
8	T1	All MCs	287	5.1	287	5.1	0.330	3.5	LOS A	1.0	7.6	0.41	0.55	34.9
9	R2	All MCs	119	0.0	119	0.0	0.330	10.0	LOS A	1.0	7.6	0.41	0.55	12.3
9u	U	All MCs	28	3.7	28	3.7	0.330	7.4	LOS A	1.0	7.6	0.41	0.55	29.7
Approach			703	5.4	703	5.4	0.330	5.4	LOS A	1.0	7.6	0.41	0.54	27.1
All Vehicles			1367	5.9	1367	5.9	0.440	6.0	LOS A	1.0	7.6	0.47	0.58	26.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [1 S2 A (2)] Ashford Avenue / Site Access 2025 PM S1

(S1 EX 2025 PM + Childcare)

Network: [2] S1 EX + Childcare 2025 PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Site Access

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
2	T1	All MCs	71	3.0	71	3.0	0.038	0.0	LOS A	0.0	0.0	0.01	0.01	49.0
3	R2	All MCs	1	0.0	1	0.0	0.038	6.7	LOS A	0.0	0.0	0.01	0.01	16.1
Approach			72	2.9	72	2.9	0.038	0.1	NA	0.0	0.0	0.01	0.01	46.1
East: Site Access														
4	L2	All MCs	1	0.0	1	0.0	0.002	0.3	LOS A	0.0	0.0	0.23	0.08	13.9
6	R2	All MCs	1	0.0	1	0.0	0.002	0.6	LOS A	0.0	0.0	0.23	0.08	9.9
Approach			2	0.0	2	0.0	0.002	0.5	LOS A	0.0	0.0	0.23	0.08	12.1
North: Ashford Avenue														
7	L2	All MCs	1	0.0	1	0.0	0.065	8.2	LOS A	0.0	0.0	0.00	0.01	44.7
8	T1	All MCs	123	2.6	123	2.6	0.065	0.0	LOS A	0.0	0.0	0.00	0.01	49.8
Approach			124	2.5	124	2.5	0.065	0.1	NA	0.0	0.0	0.00	0.01	49.8
All Vehicles			198	2.7	198	2.7	0.065	0.1	NA	0.0	0.0	0.01	0.01	48.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY



Site: [2 S1 A] Ashford Avenue / Bullecourt Avenue 2025 PM

S1 (S1 EX 2025 PM + Childcare)

Network: [2] S1 EX + Childcare 2025 PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Qued	Eff. Stop	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]						[Veh. veh	Dist]				km/h
			veh/h	%	veh/h	%	v/c	sec		veh	m				
South: Ashford Avenue															
1	L2	All MCs	23	0.0	23	0.0	0.234	10.4	LOS A	0.6	4.3	0.85	0.79	0.85	36.1
2	T1	All MCs	39	2.7	39	2.7	0.234	10.7	LOS A	0.6	4.3	0.85	0.79	0.85	45.2
3	R2	All MCs	49	4.3	49	4.3	0.234	14.2	LOS A	0.6	4.3	0.85	0.79	0.85	31.6
3u	U	All MCs	1	0.0	1	0.0	0.234	15.5	LOS B	0.6	4.3	0.85	0.79	0.85	31.6
Approach			113	2.8	113	2.8	0.234	12.2	LOS A	0.6	4.3	0.85	0.79	0.85	39.3
East: Bullecourt Avenue															
4	L2	All MCs	87	1.2	87	1.2	0.734	10.0	LOS A	3.8	28.2	0.87	0.76	1.04	37.0
5	T1	All MCs	462	7.1	462	7.1	0.734	10.5	LOS A	3.8	28.2	0.87	0.76	1.04	40.2
6	R2	All MCs	152	9.0	152	9.0	0.734	14.1	LOS A	3.8	28.2	0.87	0.76	1.04	47.1
6u	U	All MCs	1	0.0	1	0.0	0.734	15.4	LOS B	3.8	28.2	0.87	0.76	1.04	37.0
Approach			702	6.7	702	6.7	0.734	11.2	LOS A	3.8	28.2	0.87	0.76	1.04	42.0
North: Ashford Avenue															
7	L2	All MCs	291	4.7	291	4.7	0.565	7.2	LOS A	1.9	13.7	0.69	0.65	0.71	48.6
8	T1	All MCs	76	2.8	76	2.8	0.565	7.4	LOS A	1.9	13.7	0.69	0.65	0.71	48.6
9	R2	All MCs	195	4.3	195	4.3	0.565	10.9	LOS A	1.9	13.7	0.69	0.65	0.71	47.4
9u	U	All MCs	5	0.0	5	0.0	0.565	12.5	LOS A	1.9	13.7	0.69	0.65	0.71	51.9
Approach			566	4.3	566	4.3	0.565	8.6	LOS A	1.9	13.7	0.69	0.65	0.71	48.2
West: Bullecourt Avenue															
10	L2	All MCs	107	11.8	107	11.8	0.369	5.8	LOS A	1.0	7.4	0.57	0.56	0.57	48.3
11	T1	All MCs	208	11.1	208	11.1	0.369	5.8	LOS A	1.0	7.4	0.57	0.56	0.57	35.9
12	R2	All MCs	7	0.0	7	0.0	0.369	8.9	LOS A	1.0	7.4	0.57	0.56	0.57	35.9
12u	U	All MCs	5	0.0	5	0.0	0.369	10.5	LOS A	1.0	7.4	0.57	0.56	0.57	39.4
Approach			328	10.9	328	10.9	0.369	5.9	LOS A	1.0	7.4	0.57	0.56	0.57	43.0
All Vehicles			1709	6.5	1709	6.5	0.734	9.4	LOS A	3.8	28.2	0.75	0.69	0.83	44.2

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

Site: [3 S2 A (3)] Site Access / Bullecourt Avenue 2025 PM S1
(S1 EX 2025 PM + Childcare)
Network: [2] S1 EX + Childcare 2025 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Site Access														
1	L2	All MCs	15	0.0	15	0.0	0.019	3.2	LOS A	0.0	0.2	0.55	0.45	0.55
Approach			15	0.0	15	0.0	0.019	3.2	LOS A	0.0	0.2	0.55	0.45	0.55
East: Bullecourt Avenue														
4	L2	All MCs	1	0.0	1	0.0	0.365	8.9	LOS A	0.0	0.0	0.00	0.00	0.00
5	T1	All MCs	682	6.3	682	6.3	0.365	0.0	LOS A	0.0	0.0	0.00	0.00	0.00
Approach			683	6.3	683	6.3	0.365	0.1	NA	0.0	0.0	0.00	0.00	0.00
West: Bullecourt Avenue														
11	T1	All MCs	533	7.1	533	7.1	0.291	0.1	LOS A	0.0	0.0	0.00	0.00	0.00
12	R2	All MCs	15	0.0	15	0.0	0.018	12.4	LOS A	0.0	0.2	0.58	0.79	0.58
Approach			547	6.9	547	6.9	0.291	0.4	NA	0.0	0.2	0.02	0.02	0.02
All Vehicles			1245	6.5	1245	6.5	0.365	0.2	NA	0.0	0.2	0.01	0.02	0.01

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [4 S1 A] Horsley Road / Bullecourt Avenue 2025 PM S1

(S1 EX 2025 PM + Childcare)

Network: [2] S1 EX + Childcare 2025 PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/ Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	495	5.5	495	5.5	0.563	7.2	LOS A	1.9	14.2	0.65	0.60	34.0
2	T1	All MCs	28	7.4	28	7.4	0.563	7.1	LOS A	1.9	14.2	0.65	0.60	46.1
3u	U	All MCs	9	88.9	9	88.9	0.563	14.9	LOS B	1.9	14.2	0.65	0.60	34.0
Approach			533	7.1	533	7.1	0.563	7.3	LOS A	1.9	14.2	0.65	0.60	35.5
North: Horsley Road														
8	T1	All MCs	93	8.0	93	8.0	0.374	9.1	LOS A	0.9	6.9	0.70	0.73	41.2
9	R2	All MCs	187	8.4	187	8.4	0.374	12.0	LOS A	0.9	6.9	0.70	0.73	41.2
9u	U	All MCs	2	50.0	2	50.0	0.374	15.4	LOS B	0.9	6.9	0.70	0.73	44.9
Approach			282	8.6	282	8.6	0.374	11.1	LOS A	0.9	6.9	0.70	0.73	41.3
West: Bullecourt Avenue														
10	L2	All MCs	45	30.2	45	30.2	0.424	6.0	LOS A	1.4	10.4	0.27	0.59	44.0
12	R2	All MCs	492	4.9	492	4.9	0.424	8.0	LOS A	1.4	10.4	0.27	0.59	33.9
12u	U	All MCs	2	0.0	2	0.0	0.424	9.5	LOS A	1.4	10.4	0.27	0.59	33.9
Approach			539	7.0	539	7.0	0.424	7.9	LOS A	1.4	10.4	0.27	0.59	35.7
All Vehicles			1354	7.4	1354	7.4	0.563	8.3	LOS A	1.9	14.2	0.51	0.62	37.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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Project: C:\Users\TimZhang\OneDrive - TTPP\19334 Milperra WSU Masterplan - Mirvac\07 Modelling Files\250725 Subdivision DA P08V01\19334-SID001-250725.sipx

MOVEMENT SUMMARY

 **Site: [5 S1 A] Horsley Road / Site Access 2025 PM S1 (S1 EX 2025 PM + Childcare)**
Network: [2] S1 EX + Childcare 2025 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Site Access
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	7	0.0	7	0.0	0.339	7.2	LOS A	0.9	6.4	0.08	0.51	35.9
2	T1	All MCs	516	4.9	516	4.9	0.339	4.9	LOS A	0.9	6.4	0.08	0.51	41.4
3u	U	All MCs	1	0.0	1	0.0	0.339	8.8	LOS A	0.9	6.4	0.08	0.51	41.4
Approach			524	4.8	524	4.8	0.339	5.0	LOS A	0.9	6.4	0.08	0.51	41.3
North: Horsley Road														
8	T1	All MCs	579	5.1	579	5.1	0.379	4.9	LOS A	1.2	8.6	0.09	0.51	38.9
9	R2	All MCs	7	0.0	7	0.0	0.379	10.1	LOS A	1.2	8.6	0.09	0.51	33.4
9u	U	All MCs	1	0.0	1	0.0	0.379	8.8	LOS A	1.2	8.6	0.09	0.51	38.9
Approach			587	5.0	587	5.0	0.379	5.0	LOS A	1.2	8.6	0.09	0.51	38.8
West: Site Access														
10	L2	All MCs	7	0.0	7	0.0	0.019	2.6	LOS A	0.0	0.2	0.52	0.35	7.8
12	R2	All MCs	7	0.0	7	0.0	0.019	2.6	LOS A	0.0	0.2	0.52	0.35	7.8
12u	U	All MCs	1	0.0	1	0.0	0.019	2.6	LOS A	0.0	0.2	0.52	0.35	8.3
Approach			16	0.0	16	0.0	0.019	2.6	LOS A	0.0	0.2	0.52	0.35	7.9
All Vehicles			1127	4.9	1127	4.9	0.379	4.9	LOS A	1.2	8.6	0.09	0.51	39.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [6 S1 A] Horsley Road / Beaconsfield Street / School

Access Roundabout 2025 PM S1 (S1 EX 2025 PM + Childcare)

Network: [2] S1 EX + Childcare 2025 PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Beaconsfield Street/School Access Roundabout

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	1	0.0	1	0.0	0.326	6.5	LOS A	0.6	4.2	0.37	0.48	0.37
2	T1	All MCs	288	3.3	288	3.3	0.326	3.2	LOS A	0.6	4.2	0.37	0.48	0.37
3	R2	All MCs	51	8.3	51	8.3	0.326	6.3	LOS A	0.6	4.2	0.37	0.48	0.37
3u	U	All MCs	9	0.0	9	0.0	0.326	7.4	LOS A	0.6	4.2	0.37	0.48	0.37
Approach			349	3.9	349	3.9	0.326	3.8	LOS A	0.6	4.2	0.37	0.48	0.37
East: Beaconsfield Street														
4	L2	All MCs	62	6.8	62	6.8	0.384	6.8	LOS A	0.9	7.0	0.67	0.69	0.67
5	T1	All MCs	1	0.0	1	0.0	0.384	11.1	LOS A	0.9	7.0	0.67	0.69	0.67
6	R2	All MCs	225	7.0	225	7.0	0.384	9.1	LOS A	0.9	7.0	0.67	0.69	0.67
6u	U	All MCs	3	66.7	3	66.7	0.384	13.1	LOS A	0.9	7.0	0.67	0.69	0.67
Approach			292	7.6	292	7.6	0.384	8.7	LOS A	0.9	7.0	0.67	0.69	0.67
North: Horsley Road														
7	L2	All MCs	180	10.5	180	10.5	0.170	4.6	LOS A	0.5	3.4	0.29	0.50	0.29
8	T1	All MCs	403	0.0	403	0.0	0.280	3.1	LOS A	0.9	6.0	0.28	0.38	0.28
9	R2	All MCs	1	0.0	1	0.0	0.280	9.6	LOS A	0.9	6.0	0.28	0.38	0.28
9u	U	All MCs	4	0.0	4	0.0	0.280	7.0	LOS A	0.9	6.0	0.28	0.38	0.28
Approach			588	3.2	588	3.2	0.280	3.6	LOS A	0.9	6.0	0.29	0.41	0.29
All Vehicles			1229	4.5	1229	4.5	0.384	4.9	LOS A	0.9	7.0	0.40	0.50	0.40

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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Project: C:\Users\TimZhang\OneDrive - TTPP\19334 Milperra WSU Masterplan - Mirvac\07 Modelling Files\250725 Subdivision DA P08V01\19334-SID001-250725.sipx

MOVEMENT SUMMARY

Site: [1 S2 A] Ashford Avenue / Site Access 2025 AM S2 (S2
2025 AM + Childcare + ADJ + DEV)
Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Site Access
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
2	T1	All MCs	57	3.7	57	3.7	0.031	0.0	LOS A	0.0	0.0	0.01	0.03	47.8
3	R2	All MCs	2	0.0	2	0.0	0.031	6.7	LOS A	0.0	0.0	0.01	0.03	16.0
Approach			59	3.6	59	3.6	0.031	0.2	NA	0.0	0.0	0.01	0.03	41.8
East: Site Access														
4	L2	All MCs	8	0.0	8	0.0	0.071	0.1	LOS A	0.1	0.7	0.19	0.08	14.0
6	R2	All MCs	76	0.0	76	0.0	0.071	0.4	LOS A	0.1	0.7	0.19	0.08	9.9
Approach			84	0.0	84	0.0	0.071	0.4	LOS A	0.1	0.7	0.19	0.08	10.4
North: Ashford Avenue														
7	L2	All MCs	19	0.0	19	0.0	0.036	8.2	LOS A	0.0	0.0	0.00	0.31	41.6
8	T1	All MCs	49	4.3	49	4.3	0.036	0.0	LOS A	0.0	0.0	0.00	0.31	45.8
Approach			68	3.1	68	3.1	0.036	2.3	NA	0.0	0.0	0.00	0.31	44.5
All Vehicles			212	2.0	212	2.0	0.071	1.0	NA	0.1	0.7	0.08	0.14	24.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [2 S2 A] Ashford Avenue / Bullecourt Avenue 2025 AM

S2 (S2 2025 AM + Childcare + ADJ + DEV)

Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
1	L2	All MCs	92	0.0	92	0.0	0.374	9.3	LOS A	1.0	6.9	0.81	0.76	0.82
2	T1	All MCs	55	1.9	55	1.9	0.374	9.5	LOS A	1.0	6.9	0.81	0.76	0.82
3	R2	All MCs	82	2.6	82	2.6	0.374	13.0	LOS A	1.0	6.9	0.81	0.76	0.82
3u	U	All MCs	1	0.0	1	0.0	0.374	14.4	LOS A	1.0	6.9	0.81	0.76	0.82
Approach			229	1.4	229	1.4	0.374	10.7	LOS A	1.0	6.9	0.81	0.76	0.82
East: Bullecourt Avenue														
4	L2	All MCs	31	3.4	31	3.4	0.551	5.7	LOS A	2.0	15.3	0.55	0.56	0.55
5	T1	All MCs	340	14.2	340	14.2	0.551	6.3	LOS A	2.0	15.3	0.55	0.56	0.55
6	R2	All MCs	249	7.2	249	7.2	0.551	9.6	LOS A	2.0	15.3	0.55	0.56	0.55
6u	U	All MCs	2	100.0	2	100.0	0.551	14.5	LOS B	2.0	15.3	0.55	0.56	0.55
Approach			622	11.2	622	11.2	0.551	7.6	LOS A	2.0	15.3	0.55	0.56	0.55
North: Ashford Avenue														
7	L2	All MCs	268	12.5	268	12.5	0.615	14.0	LOS A	2.3	18.2	0.94	0.90	1.20
8	T1	All MCs	29	3.6	29	3.6	0.615	13.7	LOS A	2.3	18.2	0.94	0.90	1.20
9	R2	All MCs	61	22.4	61	22.4	0.615	18.4	LOS B	2.3	18.2	0.94	0.90	1.20
9u	U	All MCs	5	20.0	5	20.0	0.615	20.0	LOS B	2.3	18.2	0.94	0.90	1.20
Approach			364	13.6	364	13.6	0.615	14.8	LOS B	2.3	18.2	0.94	0.90	1.20
West: Bullecourt Avenue														
10	L2	All MCs	186	9.0	186	9.0	0.882	20.4	LOS B	7.0	53.3	1.00	1.23	1.77
11	T1	All MCs	485	11.1	485	11.1	0.882	20.6	LOS B	7.0	53.3	1.00	1.23	1.77
12	R2	All MCs	35	3.0	35	3.0	0.882	23.5	LOS B	7.0	53.3	1.00	1.23	1.77
12u	U	All MCs	2	100.0	2	100.0	0.882	31.7	LOS C	7.0	53.3	1.00	1.23	1.77
Approach			708	10.4	708	10.4	0.882	20.7	LOS B	7.0	53.3	1.00	1.23	1.77
All Vehicles			1924	10.2	1924	10.2	0.882	14.2	LOS A	7.0	53.3	0.82	0.89	1.16

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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Updated Resi Traffic Distribution.sipx

MOVEMENT SUMMARY

▼ Site: [3 S2 A] Site Access / Bullecourt Avenue 2025 AM S2
(S2 2025 AM + Childcare + ADJ + DEV)
Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Site Access														
1	L2	All MCs	88	0.0	88	0.0	0.096	2.4	LOS A	0.1	1.0	0.51	0.45	0.51
Approach			88	0.0	88	0.0	0.096	2.4	LOS A	0.1	1.0	0.51	0.45	0.51
East: Bullecourt Avenue														
4	L2	All MCs	16	0.0	16	0.0	0.302	8.9	LOS A	0.0	0.0	0.00	0.03	0.00
5	T1	All MCs	529	12.7	529	12.7	0.302	0.0	LOS A	0.0	0.0	0.00	0.03	0.00
Approach			545	12.4	545	12.4	0.302	0.3	NA	0.0	0.0	0.00	0.03	0.00
West: Bullecourt Avenue														
11	T1	All MCs	783	10.9	783	10.9	0.437	0.1	LOS A	0.0	0.0	0.00	0.00	0.00
12	R2	All MCs	35	0.0	35	0.0	0.036	11.6	LOS A	0.1	0.4	0.53	0.79	0.53
Approach			818	10.4	818	10.4	0.437	0.6	NA	0.1	0.4	0.02	0.03	0.02
All Vehicles			1452	10.5	1452	10.5	0.437	0.6	NA	0.1	1.0	0.04	0.06	0.04

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [4 S2 A] Horsley Road / Bullecourt Avenue 2025 AM S2**
(S2 2025 AM + Childcare + ADJ + DEV)
Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/ Bullecourt Avenue
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Cycle	Number of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m	Rate	to Depart	km/h
South: Horsley Road														
1	L2	All MCs	467	9.2	467	9.2	0.555	6.1	LOS A	2.1	16.2	0.49	0.52	35.2
2	T1	All MCs	132	6.4	132	6.4	0.555	5.9	LOS A	2.1	16.2	0.49	0.52	46.8
3u	U	All MCs	21	70.0	21	70.0	0.555	12.2	LOS A	2.1	16.2	0.49	0.52	35.2
Approach			620	10.7	620	10.7	0.555	6.3	LOS A	2.1	16.2	0.49	0.52	39.9
North: Horsley Road														
8	T1	All MCs	79	8.0	79	8.0	0.283	9.9	LOS A	0.7	5.7	0.80	0.76	40.5
9	R2	All MCs	78	25.7	78	25.7	0.283	13.8	LOS A	0.7	5.7	0.80	0.76	40.5
9u	U	All MCs	2	0.0	2	0.0	0.283	13.8	LOS A	0.7	5.7	0.80	0.76	45.7
Approach			159	16.6	159	16.6	0.283	11.8	LOS A	0.7	5.7	0.80	0.76	40.7
West: Bullecourt Avenue														
10	L2	All MCs	181	15.7	181	15.7	0.767	9.4	LOS A	4.2	32.4	0.82	0.64	41.9
12	R2	All MCs	591	9.6	591	9.6	0.767	11.6	LOS A	4.2	32.4	0.82	0.64	29.5
12u	U	All MCs	6	33.3	6	33.3	0.767	14.1	LOS A	4.2	32.4	0.82	0.64	29.5
Approach			778	11.2	778	11.2	0.767	11.1	LOS A	4.2	32.4	0.82	0.64	34.5
All Vehicles			1557	11.6	1557	11.6	0.767	9.3	LOS A	4.2	32.4	0.69	0.60	37.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [5 S2 A] Horsley Road / Site Egress 2025 AM S2 (S2**
2025 AM + Childcare + ADJ + DEV)
Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Site Access
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	Dist] m			km/h
South: Horsley Road														
2	T1	All MCs	694	6.7	694	6.7	0.431	1.8	LOS A	1.3	9.9	0.02	0.42	0.02
3u	U	All MCs	1	0.0	1	0.0	0.431	5.2	LOS A	1.3	9.9	0.02	0.42	0.02
Approach			695	6.7	695	6.7	0.431	1.8	LOS A	1.3	9.9	0.02	0.42	0.02
North: Horsley Road														
8	T1	All MCs	700	5.4	700	5.4	0.492	5.2	LOS A	1.8	13.4	0.24	0.48	0.24
9u	U	All MCs	1	0.0	1	0.0	0.492	9.0	LOS A	1.8	13.4	0.24	0.48	0.24
Approach			701	5.4	701	5.4	0.492	5.2	LOS A	1.8	13.4	0.24	0.48	0.24
West: Site Egress														
10	L2	All MCs	43	0.0	43	0.0	0.102	4.3	LOS A	0.2	1.4	0.62	0.50	0.62
12	R2	All MCs	32	0.0	32	0.0	0.102	4.3	LOS A	0.2	1.4	0.62	0.50	0.62
Approach			75	0.0	75	0.0	0.102	4.3	LOS A	0.2	1.4	0.62	0.50	0.62
All Vehicles			1471	5.7	1471	5.7	0.492	3.5	LOS A	1.8	13.4	0.16	0.45	0.16

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [1] Horsley Road / Site Access 2025 AM S2 (S2 2025 AM + Childcare + ADJ + DEV)
Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Cycle	Number of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]	Rate to Depart		km/h
			veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Horsley Road														
1	L2	All MCs	14	0.0	14	0.0	0.754	5.8	LOS A	0.0	0.0	0.00	0.00	50.2
2	T1	All MCs	694	6.7	694	6.7	0.754	0.5	LOS A	0.0	0.0	0.00	0.00	57.0
Approach			707	6.5	707	6.5	0.754	0.6	NA	0.0	0.0	0.00	0.00	56.8
North: Horsley Road														
8	T1	All MCs	700	5.4	700	5.4	0.372	0.0	LOS A	0.0	0.0	0.00	0.00	59.8
Approach			700	5.4	700	5.4	0.372	0.0	NA	0.0	0.0	0.00	0.00	59.8
All Vehicles			1407	6.0	1407	6.0	0.754	0.3	NA	0.0	0.0	0.00	0.00	57.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [6 S2 A] Horsley Road / Beaconsfield Street / School Access Roundabout 2025 AM S2 (S2 2025 AM + Childcare + ADJ + DEV)**

Network: [3] S2 2025 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Beaconsfield Street/School Access Roundabout
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Horsley Road															
1	L2	All MCs	47	0.0	47	0.0	0.497	7.6	LOS A	1.1	7.8	0.54	0.63	0.57	14.2
2	T1	All MCs	309	6.8	309	6.8	0.497	4.5	LOS A	1.1	7.8	0.54	0.63	0.57	33.7
3	R2	All MCs	71	9.0	71	9.0	0.497	7.5	LOS A	1.1	7.8	0.54	0.63	0.57	42.3
3u	U	All MCs	35	0.0	35	0.0	0.497	8.5	LOS A	1.1	7.8	0.54	0.63	0.57	40.7
Approach			462	5.9	462	5.9	0.497	5.6	LOS A	1.1	7.8	0.54	0.63	0.57	28.7
East: Beaconsfield Street															
4	L2	All MCs	45	14.0	45	14.0	0.421	8.2	LOS A	1.1	8.2	0.73	0.75	0.76	38.0
5	T1	All MCs	61	1.7	61	1.7	0.421	12.1	LOS A	1.1	8.2	0.73	0.75	0.76	15.0
6	R2	All MCs	176	12.0	176	12.0	0.421	10.4	LOS A	1.1	8.2	0.73	0.75	0.76	32.1
6u	U	All MCs	7	0.0	7	0.0	0.421	10.9	LOS A	1.1	8.2	0.73	0.75	0.76	40.0
Approach			289	9.8	289	9.8	0.421	10.4	LOS A	1.1	8.2	0.73	0.75	0.76	24.2
North: Horsley Road															
7	L2	All MCs	304	7.3	304	7.3	0.273	5.0	LOS A	0.8	6.0	0.42	0.52	0.42	43.5
8	T1	All MCs	300	6.7	300	6.7	0.341	3.6	LOS A	1.1	8.1	0.42	0.54	0.42	34.8
9	R2	All MCs	119	0.0	119	0.0	0.341	10.0	LOS A	1.1	8.1	0.42	0.54	0.42	12.2
9u	U	All MCs	28	3.7	28	3.7	0.341	7.5	LOS A	1.1	8.1	0.42	0.54	0.42	29.2
Approach			752	5.7	752	5.7	0.341	5.3	LOS A	1.1	8.1	0.42	0.53	0.42	27.6
All Vehicles			1503	6.6	1503	6.6	0.497	6.4	LOS A	1.1	8.2	0.52	0.61	0.53	27.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [1 S1 P] Ashford Avenue / Site Access 2025 PM S2 (S2
2025 PM + Childcare + ADJ + DEV)
Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Site Access
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
2	T1	All MCs	71	3.0	71	3.0	0.043	0.1	LOS A	0.0	0.2	0.09	0.14	42.5
3	R2	All MCs	9	0.0	9	0.0	0.043	7.3	LOS A	0.0	0.2	0.09	0.14	15.7
Approach			80	2.6	80	2.6	0.043	1.0	NA	0.0	0.2	0.09	0.14	30.8
East: Site Access														
4	L2	All MCs	2	0.0	2	0.0	0.023	0.3	LOS A	0.0	0.2	0.28	0.16	13.9
6	R2	All MCs	22	0.0	22	0.0	0.023	0.9	LOS A	0.0	0.2	0.28	0.16	9.8
Approach			24	0.0	24	0.0	0.023	0.8	LOS A	0.0	0.2	0.28	0.16	10.2
North: Ashford Avenue														
7	L2	All MCs	87	0.0	87	0.0	0.111	8.2	LOS A	0.0	0.0	0.00	0.44	40.3
8	T1	All MCs	123	2.6	123	2.6	0.111	0.0	LOS A	0.0	0.0	0.00	0.44	44.1
Approach			211	1.5	211	1.5	0.111	3.4	NA	0.0	0.0	0.00	0.44	42.4
All Vehicles			315	1.7	315	1.7	0.111	2.6	NA	0.0	0.2	0.04	0.35	37.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [2 S1 P] Ashford Avenue / Bullecourt Avenue 2025 PM

S2 (S2 2025 PM + Childcare + ADJ + DEV)

Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
1	L2	All MCs	45	0.0	45	0.0	0.323	11.7	LOS A	0.9	6.3	0.92	0.82	35.4
2	T1	All MCs	39	2.7	39	2.7	0.323	12.0	LOS A	0.9	6.3	0.92	0.82	44.5
3	R2	All MCs	49	4.3	49	4.3	0.323	15.5	LOS B	0.9	6.3	0.92	0.82	30.6
3u	U	All MCs	1	0.0	1	0.0	0.323	16.8	LOS B	0.9	6.3	0.92	0.82	30.6
Approach			135	2.3	135	2.3	0.323	13.2	LOS A	0.9	6.3	0.92	0.82	37.9
East: Bullecourt Avenue														
4	L2	All MCs	87	1.2	87	1.2	0.884	19.2	LOS B	7.3	54.5	1.00	1.14	29.0
5	T1	All MCs	500	7.6	500	7.6	0.884	19.9	LOS B	7.3	54.5	1.00	1.14	34.0
6	R2	All MCs	179	8.8	179	8.8	0.884	23.4	LOS B	7.3	54.5	1.00	1.14	41.9
6u	U	All MCs	1	0.0	1	0.0	0.884	24.5	LOS B	7.3	54.5	1.00	1.14	29.0
Approach			767	7.1	767	7.1	0.884	20.6	LOS B	7.3	54.5	1.00	1.14	36.0
North: Ashford Avenue														
7	L2	All MCs	366	4.9	366	4.9	0.727	11.9	LOS A	3.7	26.6	0.90	0.84	44.4
8	T1	All MCs	76	2.8	76	2.8	0.727	12.0	LOS A	3.7	26.6	0.90	0.84	44.4
9	R2	All MCs	195	4.3	195	4.3	0.727	15.6	LOS B	3.7	26.6	0.90	0.84	44.3
9u	U	All MCs	5	0.0	5	0.0	0.727	17.1	LOS B	3.7	26.6	0.90	0.84	49.3
Approach			642	4.4	642	4.4	0.727	13.0	LOS A	3.7	26.6	0.90	0.84	44.4
West: Bullecourt Avenue														
10	L2	All MCs	107	11.8	107	11.8	0.499	6.3	LOS A	1.5	11.3	0.68	0.61	47.5
11	T1	All MCs	233	10.9	233	10.9	0.499	6.3	LOS A	1.5	11.3	0.68	0.61	34.3
12	R2	All MCs	95	0.0	95	0.0	0.499	9.4	LOS A	1.5	11.3	0.68	0.61	34.3
12u	U	All MCs	5	0.0	5	0.0	0.499	11.0	LOS A	1.5	11.3	0.68	0.61	38.3
Approach			440	8.6	440	8.6	0.499	7.1	LOS A	1.5	11.3	0.68	0.61	40.4
All Vehicles			1984	6.3	1984	6.3	0.884	14.7	LOS B	7.3	54.5	0.89	0.91	39.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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Project: C:\Users\TimZhang\OneDrive - TTPP\19334 Milperra WSU Masterplan - Mirvac\07 Modelling Files\SSDA 1\19334-SID002-251105
Updated Resi Traffic Distribution.sipx

MOVEMENT SUMMARY

▼ Site: [3 S1 P] Site Access / Bullecourt Avenue 2025 PM S2
(S2 2025 PM + Childcare + ADJ + DEV)
Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Site Access / Bullecourt Avenue
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	Dist] m			km/h
South: Site Access														
1	L2	All MCs	35	0.0	35	0.0	0.049	3.7	LOS A	0.1	0.5	0.58	0.54	9.2
Approach			35	0.0	35	0.0	0.049	3.7	LOS A	0.1	0.5	0.58	0.54	9.2
East: Bullecourt Avenue														
4	L2	All MCs	46	0.0	46	0.0	0.414	8.9	LOS A	0.0	0.0	0.00	0.07	47.1
5	T1	All MCs	726	6.8	726	6.8	0.414	0.1	LOS A	0.0	0.0	0.00	0.07	56.7
Approach			773	6.4	773	6.4	0.414	0.6	NA	0.0	0.0	0.00	0.07	55.7
West: Bullecourt Avenue														
11	T1	All MCs	548	8.1	548	8.1	0.301	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
12	R2	All MCs	99	0.0	99	0.0	0.141	13.7	LOS A	0.2	1.5	0.65	0.93	21.7
Approach			647	6.8	647	6.8	0.301	2.1	NA	0.2	1.5	0.10	0.10	44.7
All Vehicles			1455	6.4	1455	6.4	0.414	1.3	NA	0.2	1.5	0.06	0.06	46.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [4 S1 P] Horsley Road / Bullecourt Avenue 2025 PM S2**
(S2 2025 PM + Childcare + ADJ + DEV)
Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road / Bullecourt Avenue
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	539	6.2	539	6.2	0.648	8.9	LOS A	2.7	20.1	0.77	0.67	31.3
2	T1	All MCs	38	5.6	38	5.6	0.648	8.7	LOS A	2.7	20.1	0.77	0.67	44.7
3u	U	All MCs	9	88.9	9	88.9	0.648	17.2	LOS B	2.7	20.1	0.77	0.67	31.3
Approach			586	7.5	586	7.5	0.648	9.0	LOS A	2.7	20.1	0.77	0.67	33.2
North: Horsley Road														
8	T1	All MCs	85	8.6	85	8.6	0.432	9.7	LOS A	1.2	8.6	0.74	0.76	40.3
9	R2	All MCs	234	6.8	234	6.8	0.432	12.6	LOS A	1.2	8.6	0.74	0.76	40.3
9u	U	All MCs	2	50.0	2	50.0	0.432	16.2	LOS B	1.2	8.6	0.74	0.76	44.3
Approach			321	7.5	321	7.5	0.432	11.8	LOS A	1.2	8.6	0.74	0.76	40.4
West: Bullecourt Avenue														
10	L2	All MCs	45	30.2	45	30.2	0.449	6.1	LOS A	1.6	11.7	0.32	0.58	43.8
12	R2	All MCs	507	6.0	507	6.0	0.449	8.2	LOS A	1.6	11.7	0.32	0.58	33.6
12u	U	All MCs	2	0.0	2	0.0	0.449	9.6	LOS A	1.6	11.7	0.32	0.58	33.6
Approach			555	8.0	555	8.0	0.449	8.0	LOS A	1.6	11.7	0.32	0.58	35.4
All Vehicles			1462	7.7	1462	7.7	0.648	9.2	LOS A	2.7	20.1	0.59	0.65	36.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [5 S1 P] Horsley Road / Site Egress 2025 PM S2 (S2**
2025 PM + Childcare + ADJ + DEV)
Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road / Site Access
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h
South: Horsley Road														
2	T1	All MCs	544	7.0	544	7.0	0.339	1.8	LOS A	0.9	6.6	0.02	0.02	26.5
3u	U	All MCs	1	0.0	1	0.0	0.339	5.2	LOS A	0.9	6.6	0.02	0.02	26.5
Approach			545	6.9	545	6.9	0.339	1.8	LOS A	0.9	6.6	0.02	0.02	26.5
North: Horsley Road														
8	T1	All MCs	640	4.6	640	4.6	0.424	5.0	LOS A	1.4	10.3	0.14	0.14	38.6
9u	U	All MCs	1	0.0	1	0.0	0.424	8.8	LOS A	1.4	10.3	0.14	0.14	38.6
Approach			641	4.6	641	4.6	0.424	5.0	LOS A	1.4	10.3	0.14	0.14	38.6
West: Site Access														
10	L2	All MCs	17	0.0	17	0.0	0.038	2.9	LOS A	0.1	0.5	0.53	0.39	9.3
12	R2	All MCs	15	0.0	15	0.0	0.038	2.9	LOS A	0.1	0.5	0.53	0.39	9.3
Approach			32	0.0	32	0.0	0.038	2.9	LOS A	0.1	0.5	0.53	0.39	9.3
All Vehicles			1218	5.5	1218	5.5	0.424	3.5	LOS A	1.4	10.3	0.09	0.09	33.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [1 (2)] Horsley Road / Site Access 2025 PM S2 (S2 2025 PM + Childcare + ADJ + DEV)
Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	34	0.0	34	0.0	0.402	5.6	LOS A	0.0	0.0	0.00	0.03	0.00
2	T1	All MCs	544	7.0	544	7.0	0.402	0.1	LOS A	0.0	0.0	0.00	0.03	0.00
Approach			578	6.6	578	6.6	0.402	0.4	NA	0.0	0.0	0.00	0.03	0.00
North: Horsley Road														
8	T1	All MCs	640	4.6	640	4.6	0.338	0.0	LOS A	0.0	0.0	0.00	0.00	0.00
Approach			640	4.6	640	4.6	0.338	0.0	NA	0.0	0.0	0.00	0.00	0.00
All Vehicles			1218	5.5	1218	5.5	0.402	0.2	NA	0.0	0.0	0.00	0.02	0.00

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [6 S1 P] Horsley Road / Beaconsfield Street / School Access Roundabout 2025 PM S2** (S2 2025 PM + Childcare + ADJ + DEV)

Network: [4] S2 2025 PM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road / Beaconsfield Street / School Access Roundabout
Site Category: Base Year
Roundabout

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Horsley Road															
1	L2	All MCs	1	0.0	1	0.0	0.355	8.2	LOS A	0.7	4.9	0.42	0.59	0.42	14.8
2	T1	All MCs	302	4.9	302	4.9	0.355	5.8	LOS A	0.7	4.9	0.42	0.59	0.42	45.3
3	R2	All MCs	51	8.3	51	8.3	0.355	8.8	LOS A	0.7	4.9	0.42	0.59	0.42	49.3
3u	U	All MCs	9	0.0	9	0.0	0.355	10.1	LOS A	0.7	4.9	0.42	0.59	0.42	48.4
Approach			363	5.2	363	5.2	0.355	6.3	LOS A	0.7	4.9	0.42	0.59	0.42	45.8
East: Beaconsfield Street															
4	L2	All MCs	62	6.8	62	6.8	0.456	9.9	LOS A	1.2	9.3	0.72	0.75	0.77	45.8
5	T1	All MCs	1	0.0	1	0.0	0.456	13.8	LOS A	1.2	9.3	0.72	0.75	0.77	15.9
6	R2	All MCs	265	7.9	265	7.9	0.456	12.6	LOS A	1.2	9.3	0.72	0.75	0.77	42.1
6u	U	All MCs	3	66.7	3	66.7	0.456	17.4	LOS B	1.2	9.3	0.72	0.75	0.77	44.6
Approach			332	8.3	332	8.3	0.456	12.2	LOS A	1.2	9.3	0.72	0.75	0.77	42.7
North: Horsley Road															
7	L2	All MCs	220	8.6	220	8.6	0.198	6.5	LOS A	0.5	4.1	0.30	0.56	0.30	47.0
8	T1	All MCs	437	3.6	437	3.6	0.308	5.4	LOS A	1.0	7.1	0.30	0.48	0.30	47.1
9	R2	All MCs	1	0.0	1	0.0	0.308	11.5	LOS A	1.0	7.1	0.30	0.48	0.30	12.5
9u	U	All MCs	4	0.0	4	0.0	0.308	9.6	LOS A	1.0	7.1	0.30	0.48	0.30	38.5
Approach			662	5.2	662	5.2	0.308	5.8	LOS A	1.0	7.1	0.30	0.51	0.30	46.8
All Vehicles			1357	6.0	1357	6.0	0.456	7.5	LOS A	1.2	9.3	0.43	0.59	0.45	45.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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Updated Resi Traffic Distribution.sipx

MOVEMENT SUMMARY

 **Site: [1 S2 A (4)] Ashford Avenue / Site Access 2035 AM S3**

(S3 2035 AM + Childcare + ADJ + DEV)

Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Site Access

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
2	T1	All MCs	79	2.7	79	2.7	0.042	0.0	LOS A	0.0	0.0	0.01	0.03	0.01
3	R2	All MCs	2	0.0	2	0.0	0.042	6.7	LOS A	0.0	0.0	0.01	0.03	0.01
Approach			81	2.6	81	2.6	0.042	0.2	NA	0.0	0.0	0.01	0.03	0.01
East: Site Access														
4	L2	All MCs	8	0.0	8	0.0	0.072	0.2	LOS A	0.1	0.7	0.21	0.10	0.21
6	R2	All MCs	76	0.0	76	0.0	0.072	0.5	LOS A	0.1	0.7	0.21	0.10	0.21
Approach			84	0.0	84	0.0	0.072	0.5	LOS A	0.1	0.7	0.21	0.10	0.21
North: Ashford Avenue														
7	L2	All MCs	19	0.0	19	0.0	0.038	8.2	LOS A	0.0	0.0	0.00	0.29	0.00
8	T1	All MCs	54	3.9	54	3.9	0.038	0.0	LOS A	0.0	0.0	0.00	0.29	0.00
Approach			73	2.9	73	2.9	0.038	2.1	NA	0.0	0.0	0.00	0.29	0.00
All Vehicles			238	1.8	238	1.8	0.072	0.9	NA	0.1	0.7	0.08	0.13	0.08

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY



Site: [2 S2 A (2)] Ashford Avenue / Bullecourt Avenue 2035

AM S3 (S3 2035 AM + Childcare + ADJ + DEV)

Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
1	L2	All MCs	98	0.0	98	0.0	0.487	11.7	LOS A	1.5	10.8	0.87	0.86	1.03
2	T1	All MCs	76	1.4	76	1.4	0.487	11.9	LOS A	1.5	10.8	0.87	0.86	1.03
3	R2	All MCs	114	1.9	114	1.9	0.487	15.3	LOS B	1.5	10.8	0.87	0.86	1.03
3u	U	All MCs	1	0.0	1	0.0	0.487	16.8	LOS B	1.5	10.8	0.87	0.86	1.03
Approach			288	1.1	288	1.1	0.487	13.2	LOS A	1.5	10.8	0.87	0.86	1.03
East: Bullecourt Avenue														
4	L2	All MCs	33	3.2	33	3.2	0.576	5.8	LOS A	2.2	16.6	0.57	0.56	0.57
5	T1	All MCs	359	13.5	359	13.5	0.576	6.4	LOS A	2.2	16.6	0.57	0.56	0.57
6	R2	All MCs	261	6.9	261	6.9	0.576	9.6	LOS A	2.2	16.6	0.57	0.56	0.57
6u	U	All MCs	2	100.0	2	100.0	0.576	14.6	LOS B	2.2	16.6	0.57	0.56	0.57
Approach			655	10.6	655	10.6	0.576	7.7	LOS A	2.2	16.6	0.57	0.56	0.57
North: Ashford Avenue														
7	L2	All MCs	268	12.5	268	12.5	0.634	15.1	LOS B	2.5	19.3	0.96	0.93	1.26
8	T1	All MCs	29	3.6	29	3.6	0.634	14.8	LOS B	2.5	19.3	0.96	0.93	1.26
9	R2	All MCs	61	22.4	61	22.4	0.634	19.5	LOS B	2.5	19.3	0.96	0.93	1.26
9u	U	All MCs	5	20.0	5	20.0	0.634	21.1	LOS B	2.5	19.3	0.96	0.93	1.26
Approach			364	13.6	364	13.6	0.634	15.9	LOS B	2.5	19.3	0.96	0.93	1.26
West: Bullecourt Avenue														
10	L2	All MCs	186	9.0	186	9.0	0.948	33.8	LOS C	10.1	77.2	1.00	1.68	2.50
11	T1	All MCs	485	11.1	485	11.1	0.948	34.0	LOS C	10.1	77.2	1.00	1.68	2.50
12	R2	All MCs	35	3.0	35	3.0	0.948	36.9	LOS C	10.1	77.2	1.00	1.68	2.50
12u	U	All MCs	2	100.0	2	100.0	0.948	46.2	LOS D	10.1	77.2	1.00	1.68	2.50
Approach			708	10.4	708	10.4	0.948	34.2	LOS C	10.1	77.2	1.00	1.68	2.50
All Vehicles			2016	9.7	2016	9.7	0.948	19.3	LOS B	10.1	77.2	0.84	1.06	1.44

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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Updated Resi Traffic Distribution.sipx

MOVEMENT SUMMARY

Site: [3 S2 A (4)] Site Access / Bullecourt Avenue 2035 AM S3
(S3 2035 AM + Childcare + ADJ + DEV)
Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Site Access														
1	L2	All MCs	88	0.0	88	0.0	0.100	2.6	LOS A	0.2	1.1	0.53	0.47	0.53
Approach			88	0.0	88	0.0	0.100	2.6	LOS A	0.2	1.1	0.53	0.47	0.53
East: Bullecourt Avenue														
4	L2	All MCs	16	0.0	16	0.0	0.319	8.9	LOS A	0.0	0.0	0.00	0.03	0.00
5	T1	All MCs	562	12.0	562	12.0	0.319	0.0	LOS A	0.0	0.0	0.00	0.03	0.00
Approach			578	11.7	578	11.7	0.319	0.3	NA	0.0	0.0	0.00	0.03	0.00
West: Bullecourt Avenue														
11	T1	All MCs	783	10.9	783	10.9	0.437	0.1	LOS A	0.0	0.0	0.00	0.00	0.00
12	R2	All MCs	35	0.0	35	0.0	0.037	11.8	LOS A	0.1	0.4	0.55	0.80	0.55
Approach			818	10.4	818	10.4	0.437	0.6	NA	0.1	0.4	0.02	0.03	0.02
All Vehicles			1484	10.3	1484	10.3	0.437	0.6	NA	0.2	1.1	0.04	0.06	0.04

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [4 S2 A (2)] Horsley Road / Bullecourt Avenue 2035 AM**
S3 (S3 2035 AM + Childcare + ADJ + DEV)
Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/ Bullecourt Avenue
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	467	9.2	467	9.2	0.555	6.1	LOS A	2.1	16.2	0.49	0.52	35.2
2	T1	All MCs	132	6.4	132	6.4	0.555	5.9	LOS A	2.1	16.2	0.49	0.52	46.8
3u	U	All MCs	21	70.0	21	70.0	0.555	12.2	LOS A	2.1	16.2	0.49	0.52	35.2
Approach			620	10.7	620	10.7	0.555	6.3	LOS A	2.1	16.2	0.49	0.52	39.9
North: Horsley Road														
8	T1	All MCs	80	7.9	80	7.9	0.285	9.9	LOS A	0.7	5.7	0.80	0.76	40.5
9	R2	All MCs	78	25.7	78	25.7	0.285	13.8	LOS A	0.7	5.7	0.80	0.76	40.5
9u	U	All MCs	2	0.0	2	0.0	0.285	13.8	LOS A	0.7	5.7	0.80	0.76	45.7
Approach			160	16.4	160	16.4	0.285	11.8	LOS A	0.7	5.7	0.80	0.76	40.7
West: Bullecourt Avenue														
10	L2	All MCs	181	15.7	181	15.7	0.767	9.4	LOS A	4.2	32.4	0.82	0.64	41.9
12	R2	All MCs	591	9.6	591	9.6	0.767	11.6	LOS A	4.2	32.4	0.82	0.64	29.5
12u	U	All MCs	6	33.3	6	33.3	0.767	14.1	LOS A	4.2	32.4	0.82	0.64	29.5
Approach			778	11.2	778	11.2	0.767	11.1	LOS A	4.2	32.4	0.82	0.64	34.5
All Vehicles			1558	11.6	1558	11.6	0.767	9.3	LOS A	4.2	32.4	0.69	0.60	37.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [5 S2 A (2)] Horsley Road / Site Egress 2035 AM S3 (S3**
2035 AM + Childcare + ADJ + DEV)
Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Site Access
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h
South: Horsley Road														
2	T1	All MCs	694	6.7	694	6.7	0.431	1.8	LOS A	1.3	10.0	0.02	0.42	0.02
3u	U	All MCs	1	0.0	1	0.0	0.431	5.2	LOS A	1.3	10.0	0.02	0.42	0.02
Approach			695	6.7	695	6.7	0.431	1.8	LOS A	1.3	10.0	0.02	0.42	0.02
North: Horsley Road														
8	T1	All MCs	743	5.1	743	5.1	0.519	5.2	LOS A	2.0	14.8	0.25	0.48	0.25
9u	U	All MCs	1	0.0	1	0.0	0.519	9.0	LOS A	2.0	14.8	0.25	0.48	0.25
Approach			744	5.1	744	5.1	0.519	5.2	LOS A	2.0	14.8	0.25	0.48	0.25
West: Site Egress														
10	L2	All MCs	43	0.0	43	0.0	0.102	4.3	LOS A	0.2	1.4	0.62	0.50	0.62
12	R2	All MCs	32	0.0	32	0.0	0.102	4.3	LOS A	0.2	1.4	0.62	0.50	0.62
Approach			75	0.0	75	0.0	0.102	4.3	LOS A	0.2	1.4	0.62	0.50	0.62
All Vehicles			1514	5.6	1514	5.6	0.519	3.6	LOS A	2.0	14.8	0.16	0.45	0.16

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [1 (3)] Horsley Road / Site Access 2035 AM S3 (S3 2035 AM + Childcare + ADJ + DEV)
Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	14	0.0	14	0.0	0.760	5.8	LOS A	0.0	0.0	0.00	0.01	50.2
2	T1	All MCs	694	6.7	694	6.7	0.760	0.5	LOS A	0.0	0.0	0.00	0.01	56.9
Approach			707	6.5	707	6.5	0.760	0.6	NA	0.0	0.0	0.00	0.01	56.7
North: Horsley Road														
8	T1	All MCs	743	5.1	743	5.1	0.394	0.0	LOS A	0.0	0.0	0.00	0.00	59.7
Approach			743	5.1	743	5.1	0.394	0.0	NA	0.0	0.0	0.00	0.00	59.7
All Vehicles			1451	5.8	1451	5.8	0.760	0.3	NA	0.0	0.0	0.00	0.01	57.0

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [6 S2 A (2)] Horsley Road / Beaconsfield Street / School Access Roundabout 2035 AM S3 (S3 2035 AM + Childcare + ADJ + DEV)**

Network: [5] S3 2035 AM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Beaconsfield Street/School Access Roundabout
Site Category: Base Year
Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Horsley Road															
1	L2	All MCs	47	0.0	47	0.0	0.505	7.7	LOS A	1.1	8.1	0.55	0.64	0.58	14.2
2	T1	All MCs	316	6.7	316	6.7	0.505	4.5	LOS A	1.1	8.1	0.55	0.64	0.58	33.7
3	R2	All MCs	73	8.7	73	8.7	0.505	7.6	LOS A	1.1	8.1	0.55	0.64	0.58	42.2
3u	U	All MCs	35	0.0	35	0.0	0.505	8.6	LOS A	1.1	8.1	0.55	0.64	0.58	40.7
Approach			471	5.8	471	5.8	0.505	5.6	LOS A	1.1	8.1	0.55	0.64	0.58	28.8
East: Beaconsfield Street															
4	L2	All MCs	45	14.0	45	14.0	0.429	8.5	LOS A	1.1	8.6	0.75	0.76	0.78	37.9
5	T1	All MCs	61	1.7	61	1.7	0.429	12.4	LOS A	1.1	8.6	0.75	0.76	0.78	15.0
6	R2	All MCs	176	12.0	176	12.0	0.429	10.7	LOS A	1.1	8.6	0.75	0.76	0.78	31.9
6u	U	All MCs	7	0.0	7	0.0	0.429	11.2	LOS A	1.1	8.6	0.75	0.76	0.78	39.8
Approach			289	9.8	289	9.8	0.429	10.8	LOS A	1.1	8.6	0.75	0.76	0.78	24.1
North: Horsley Road															
7	L2	All MCs	321	6.9	321	6.9	0.287	5.0	LOS A	0.9	6.4	0.43	0.52	0.43	43.5
8	T1	All MCs	318	6.3	318	6.3	0.355	3.6	LOS A	1.2	8.6	0.43	0.54	0.43	34.9
9	R2	All MCs	119	0.0	119	0.0	0.355	10.0	LOS A	1.2	8.6	0.43	0.54	0.43	12.2
9u	U	All MCs	28	3.7	28	3.7	0.355	7.5	LOS A	1.2	8.6	0.43	0.54	0.43	29.3
Approach			786	5.5	786	5.5	0.355	5.3	LOS A	1.2	8.6	0.43	0.53	0.43	28.0
All Vehicles			1546	6.4	1546	6.4	0.505	6.4	LOS A	1.2	8.6	0.52	0.61	0.54	27.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

Site: [1 S2 A (5)] Ashford Avenue / Site Access 2035 PM S3

(S3 2035 PM + Childcare + ADJ + DEV)

Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Site Access

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Ashford Avenue														
2	T1	All MCs	89	2.4	89	2.4	0.053	0.1	LOS A	0.0	0.2	0.08	0.13	43.5
3	R2	All MCs	9	0.0	9	0.0	0.053	7.4	LOS A	0.0	0.2	0.08	0.13	15.7
Approach			99	2.1	99	2.1	0.053	0.8	NA	0.0	0.2	0.08	0.13	32.9
East: Site Access														
4	L2	All MCs	2	0.0	2	0.0	0.024	0.5	LOS A	0.0	0.2	0.32	0.19	13.8
6	R2	All MCs	22	0.0	22	0.0	0.024	1.1	LOS A	0.0	0.2	0.32	0.19	9.7
Approach			24	0.0	24	0.0	0.024	1.1	LOS A	0.0	0.2	0.32	0.19	10.2
North: Ashford Avenue														
7	L2	All MCs	87	0.0	87	0.0	0.131	8.2	LOS A	0.0	0.0	0.00	0.38	40.9
8	T1	All MCs	161	2.0	161	2.0	0.131	0.0	LOS A	0.0	0.0	0.00	0.38	44.9
Approach			248	1.3	248	1.3	0.131	2.9	NA	0.0	0.0	0.00	0.38	43.3
All Vehicles			372	1.4	372	1.4	0.131	2.2	NA	0.0	0.2	0.04	0.30	38.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY



Site: [2 S2 A (3)] Ashford Avenue / Bullecourt Avenue 2035

PM S3 (S3 2035 PM + Childcare + ADJ + DEV)

Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Ashford Avenue / Bullecourt Avenue

Site Category: Base Year

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Qued	Eff. Stop	Number of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh]	Dist]		Rate	to Depart	km/h
			veh/h	%	veh/h	%	v/c	sec		veh	m				
South: Ashford Avenue															
1	L2	All MCs	52	0.0	52	0.0	0.420	14.4	LOS A	1.2	8.8	0.95	0.89	1.07	33.5
2	T1	All MCs	49	2.1	49	2.1	0.420	14.7	LOS B	1.2	8.8	0.95	0.89	1.07	42.9
3	R2	All MCs	63	3.3	63	3.3	0.420	18.2	LOS B	1.2	8.8	0.95	0.89	1.07	28.3
3u	U	All MCs	1	0.0	1	0.0	0.420	19.5	LOS B	1.2	8.8	0.95	0.89	1.07	28.3
Approach			165	1.9	165	1.9	0.420	16.0	LOS B	1.2	8.8	0.95	0.89	1.07	36.1
East: Bullecourt Avenue															
4	L2	All MCs	89	1.2	89	1.2	0.951	30.8	LOS C	10.8	80.3	1.00	1.51	2.30	22.4
5	T1	All MCs	511	7.4	511	7.4	0.951	31.6	LOS C	10.8	80.3	1.00	1.51	2.30	28.1
6	R2	All MCs	182	8.7	182	8.7	0.951	35.2	LOS C	10.8	80.3	1.00	1.51	2.30	36.5
6u	U	All MCs	1	0.0	1	0.0	0.951	36.2	LOS C	10.8	80.3	1.00	1.51	2.30	22.4
Approach			783	7.0	783	7.0	0.951	32.3	LOS C	10.8	80.3	1.00	1.51	2.30	30.1
North: Ashford Avenue															
7	L2	All MCs	406	4.4	406	4.4	0.819	15.4	LOS B	5.3	38.6	1.00	0.97	1.46	41.5
8	T1	All MCs	86	2.4	86	2.4	0.819	15.5	LOS B	5.3	38.6	1.00	0.97	1.46	41.5
9	R2	All MCs	222	3.8	222	3.8	0.819	19.1	LOS B	5.3	38.6	1.00	0.97	1.46	42.1
9u	U	All MCs	5	0.0	5	0.0	0.819	20.6	LOS B	5.3	38.6	1.00	0.97	1.46	47.5
Approach			720	3.9	720	3.9	0.819	16.6	LOS B	5.3	38.6	1.00	0.97	1.46	41.8
West: Bullecourt Avenue															
10	L2	All MCs	107	11.8	107	11.8	0.516	6.9	LOS A	1.6	11.9	0.70	0.64	0.72	47.1
11	T1	All MCs	233	10.9	233	10.9	0.516	6.9	LOS A	1.6	11.9	0.70	0.64	0.72	33.7
12	R2	All MCs	95	0.0	95	0.0	0.516	9.9	LOS A	1.6	11.9	0.70	0.64	0.72	33.7
12u	U	All MCs	5	0.0	5	0.0	0.516	11.5	LOS A	1.6	11.9	0.70	0.64	0.72	37.9
Approach			440	8.6	440	8.6	0.516	7.6	LOS A	1.6	11.9	0.70	0.64	0.72	39.9
All Vehicles			2108	5.9	2108	5.9	0.951	20.5	LOS B	10.8	80.3	0.93	1.10	1.58	35.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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MOVEMENT SUMMARY

▼ Site: [3 S2 A (5)] Site Access / Bullecourt Avenue 2035 PM S3
(S3 2035 PM + Childcare + ADJ + DEV)
Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: Base Year
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Site Access														
1	L2	All MCs	20	0.0	20	0.0	0.029	3.8	LOS A	0.0	0.3	0.59	0.52	9.2
Approach			20	0.0	20	0.0	0.029	3.8	LOS A	0.0	0.3	0.59	0.52	9.2
East: Bullecourt Avenue														
4	L2	All MCs	46	0.0	46	0.0	0.423	8.9	LOS A	0.0	0.0	0.00	0.07	47.1
5	T1	All MCs	743	6.7	743	6.7	0.423	0.1	LOS A	0.0	0.0	0.00	0.07	56.7
Approach			789	6.3	789	6.3	0.423	0.6	NA	0.0	0.0	0.00	0.07	55.7
West: Bullecourt Avenue														
11	T1	All MCs	556	8.0	556	8.0	0.305	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
12	R2	All MCs	99	0.0	99	0.0	0.145	13.9	LOS A	0.2	1.6	0.66	0.93	21.6
Approach			655	6.8	655	6.8	0.305	2.1	NA	0.2	1.6	0.10	0.10	44.8
All Vehicles			1464	6.4	1464	6.4	0.423	1.3	NA	0.2	1.6	0.05	0.11	47.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [4 S2 A (3)] Horsley Road / Bullecourt Avenue 2035 PM**
S3 (S3 2035 PM + Childcare + ADJ + DEV)
Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/ Bullecourt Avenue
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Horsley Road														
1	L2	All MCs	541	6.2	541	6.2	0.667	9.4	LOS A	2.9	21.6	0.80	0.69	0.89
2	T1	All MCs	38	5.6	38	5.6	0.667	9.2	LOS A	2.9	21.6	0.80	0.69	0.89
3u	U	All MCs	9	88.9	9	88.9	0.667	18.0	LOS B	2.9	21.6	0.80	0.69	0.89
Approach			588	7.5	588	7.5	0.667	9.5	LOS A	2.9	21.6	0.80	0.69	0.89
North: Horsley Road														
8	T1	All MCs	87	8.4	87	8.4	0.443	10.0	LOS A	1.2	9.0	0.75	0.77	0.80
9	R2	All MCs	238	6.6	238	6.6	0.443	12.8	LOS A	1.2	9.0	0.75	0.77	0.80
9u	U	All MCs	2	50.0	2	50.0	0.443	16.5	LOS B	1.2	9.0	0.75	0.77	0.80
Approach			327	7.4	327	7.4	0.443	12.1	LOS A	1.2	9.0	0.75	0.77	0.80
West: Bullecourt Avenue														
10	L2	All MCs	46	29.5	46	29.5	0.456	6.1	LOS A	1.6	12.0	0.32	0.58	0.32
12	R2	All MCs	515	5.9	515	5.9	0.456	8.2	LOS A	1.6	12.0	0.32	0.58	0.32
12u	U	All MCs	2	0.0	2	0.0	0.456	9.6	LOS A	1.6	12.0	0.32	0.58	0.32
Approach			563	7.9	563	7.9	0.456	8.0	LOS A	1.6	12.0	0.32	0.58	0.32
All Vehicles			1479	7.6	1479	7.6	0.667	9.5	LOS A	2.9	21.6	0.61	0.66	0.65

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [5 S2 A (3)] Horsley Road / Site Egress 2035 PM S3 (S3**
2035 PM + Childcare + ADJ + DEV)
Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Site Access
Site Category: Base Year
Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	Dist] m			km/h
South: Horsley Road														
2	T1	All MCs	546	6.9	546	6.9	0.340	1.8	LOS A	0.9	6.7	0.02	0.42	26.5
3u	U	All MCs	1	0.0	1	0.0	0.340	5.2	LOS A	0.9	6.7	0.02	0.42	26.5
Approach			547	6.9	547	6.9	0.340	1.8	LOS A	0.9	6.7	0.02	0.42	26.5
North: Horsley Road														
8	T1	All MCs	664	4.4	664	4.4	0.439	5.0	LOS A	1.5	10.9	0.14	0.49	38.6
9u	U	All MCs	1	0.0	1	0.0	0.439	8.8	LOS A	1.5	10.9	0.14	0.49	38.6
Approach			665	4.4	665	4.4	0.439	5.0	LOS A	1.5	10.9	0.14	0.49	38.6
West: Site Egress														
10	L2	All MCs	17	0.0	17	0.0	0.038	2.9	LOS A	0.1	0.5	0.53	0.39	9.3
12	R2	All MCs	15	0.0	15	0.0	0.038	2.9	LOS A	0.1	0.5	0.53	0.39	9.3
Approach			32	0.0	32	0.0	0.038	2.9	LOS A	0.1	0.5	0.53	0.39	9.3
All Vehicles			1244	5.4	1244	5.4	0.439	3.5	LOS A	1.5	10.9	0.10	0.46	33.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [1 (4)] Horsley Road / Site Access 2035 PM S3 (S3 2035 PM + Childcare + ADJ + DEV)
Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Cycle	Number of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m	Rate to Depart		km/h
South: Horsley Road														
1	L2	All MCs	34	0.0	34	0.0	0.405	5.6	LOS A	0.0	0.0	0.00	0.03	0.00
2	T1	All MCs	546	6.9	546	6.9	0.405	0.1	LOS A	0.0	0.0	0.00	0.03	0.00
Approach			580	6.5	580	6.5	0.405	0.4	NA	0.0	0.0	0.00	0.03	0.00
North: Horsley Road														
8	T1	All MCs	664	4.4	664	4.4	0.350	0.0	LOS A	0.0	0.0	0.00	0.00	0.00
Approach			664	4.4	664	4.4	0.350	0.0	NA	0.0	0.0	0.00	0.00	0.00
All Vehicles			1244	5.4	1244	5.4	0.405	0.2	NA	0.0	0.0	0.00	0.02	0.00

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [6 S2 A (3)] Horsley Road / Beaconsfield Street / School Access Roundabout 2035 PM S3 (S3 2035 PM + Childcare + ADJ + DEV)**

Network: [6] S3 2035 PM + Childcare + ADJ + DEV (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Horsley Road/Beaconsfield Street/School Access Roundabout
Site Category: Base Year
Roundabout

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Horsley Road															
1	L2	All MCs	1	0.0	1	0.0	0.355	6.6	LOS A	0.7	4.9	0.43	0.51	0.43	14.2
2	T1	All MCs	302	4.9	302	4.9	0.355	3.4	LOS A	0.7	4.9	0.43	0.51	0.43	34.9
3	R2	All MCs	51	8.3	51	8.3	0.355	6.5	LOS A	0.7	4.9	0.43	0.51	0.43	43.1
3u	U	All MCs	9	0.0	9	0.0	0.355	7.6	LOS A	0.7	4.9	0.43	0.51	0.43	41.6
Approach			363	5.2	363	5.2	0.355	4.0	LOS A	0.7	4.9	0.43	0.51	0.43	36.7
East: Beaconsfield Street															
4	L2	All MCs	62	6.8	62	6.8	0.465	8.2	LOS A	1.3	9.6	0.74	0.75	0.80	38.4
5	T1	All MCs	1	0.0	1	0.0	0.465	12.4	LOS A	1.3	9.6	0.74	0.75	0.80	15.0
6	R2	All MCs	266	7.9	266	7.9	0.465	10.6	LOS A	1.3	9.6	0.74	0.75	0.80	32.3
6u	U	All MCs	3	66.7	3	66.7	0.465	14.9	LOS B	1.3	9.6	0.74	0.75	0.80	38.3
Approach			333	8.2	333	8.2	0.465	10.2	LOS A	1.3	9.6	0.74	0.75	0.80	33.7
North: Horsley Road															
7	L2	All MCs	227	8.3	227	8.3	0.204	4.6	LOS A	0.6	4.3	0.30	0.50	0.30	43.8
8	T1	All MCs	454	3.5	454	3.5	0.319	3.1	LOS A	1.0	7.4	0.30	0.38	0.30	36.3
9	R2	All MCs	1	0.0	1	0.0	0.319	9.6	LOS A	1.0	7.4	0.30	0.38	0.30	12.3
9u	U	All MCs	4	0.0	4	0.0	0.319	7.0	LOS A	1.0	7.4	0.30	0.38	0.30	32.3
Approach			686	5.1	686	5.1	0.319	3.6	LOS A	1.0	7.4	0.30	0.42	0.30	38.6
All Vehicles			1382	5.9	1382	5.9	0.465	5.3	LOS A	1.3	9.6	0.44	0.52	0.45	36.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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