Traffic Impact Assessment

Edinglassie Village, Emu Plains

Prepared for Uniting / 27th March 2018

141456 TAAB

Structural
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Revision Register

Rev	Date	Prepared By	Approved By	Remarks
0	28/04/17	MB	PY	Draft issue for comment
1	24/08/17	MB	PY	Issue for DA
2	20/09/17	MB	PY	Revised issue for DA
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1 Introduction

Taylor Thomson Whitting (TTW) has been engaged by Uniting to provide a traffic and parking report for a development application at Edinglassie Village. The site is an aged care development along Emerald Street in Emu Plains, NSW. This report details the parking requirements and traffic impacts likely to occur as a result of the new development on the site.

The redevelopment proposal, as prepared by Morrison Design Partnership Architects (MDPA), seeks to provide 100 rooms across five 20-room 'households' with a total capacity for 100 beds. A staff team consisting of up to 33 staff shall cater for the site and its residents. The proposed facility is to replace existing nursing home and hostel buildings on the site, with an overall reduction in capacity of 26 rooms.

This report has been carried out with respect to assorted legislation, guidelines, and standards, including but not limited to:

- Roads and Maritime Services (RMS) Guide to Traffic Generating Developments, 2002
- Penrith Development Control Plan, 2014 (DCP)
- Penrith Local Environmental Plan, 2010 (LEP)
- NSW State Environmental Planning Policy Housing for Seniors or People with a Disability, 2004 (SEPP)
- National Construction Code Building Code of Australia – Volume One, 2016 (BCA)

The remainder of this report is set out as follows:

- Section 2 describes the existing site and local transport;
- Section 3 summarises the proposed development;
- Section 4 reviews the future traffic impacts; and
- Section 5 presents the conclusions of the report.

2 Existing Conditions

2.1 Site Location

Edinglassie Village is located along Emerald Street, Emu Plains. Overall the site is bound by Emerald Street to the east, Emu Plains Primary School to the south, Troy Street to the west, and the Great Western Highway to the north. The new Residential Aged Care (RAC) facility is proposed to be located in the northeast corner of the site as shown in Figure 2.1.

Figure 2.1: Site location

The area surrounding the site is generally zoned R3 – Medium Density Residential with the exception of the shopping centre located opposite the Great Western Highway which is zoned B2 – Local Centre. Developments on the eastern side of Emerald Street are zoned R2 – Low Density Residential (refer Penrith LEP Land Zoning Map Sheet LZN_006).

Emerald Street provides the single approach route to the redevelopment area, connecting to the Great Western Highway at the north of the site. Its intersection with Forbes Street to the south also provides connection to local and arterial roads. The road is a two-way road with a single lane in each direction. Parking is provided on both sides of the street with no parking restrictions in place. The speed limit is 50 km/hr, and entries to the subject site are located within a 40 km/hr School Zone area.

Pedestrian footpaths are provided along all frontages of the site and both sides of Emerald Street. The area can experience high volumes of pedestrian movements during peak school periods, with students travelling to bus services, Lennox Village shopping centre, and residential areas.

2.2 Public Transport

Bus stations are situated along the Great Western Highway and Emerald Street. Stops along both approaches are located approximately 150 metres from the site entrance. This satisfies the SEPP (Housing for Seniors) requirements of an accessible pathway less than 400m to a local bus stop. Bus routes and approximate frequencies are shown in Table 2.1, however these are subject to daily variations. Services are operated by Blue Mountains Transit.

The nearest train station to the site is Emu Plains Station. The stations are serviced by the T1 (Western) and Blue Mountains lines. Station is located approximately 2 kilometres or 20-25 minutes' walk from the site, and buses along Emerald Street and the Great Western Highway also provide a connection to Station.

Table 2.1: Local bus services

Route		Peak frequency	Daily frequency
688*	Penrith to Emu Heights	Every 20 minutes	Every 60 minutes
1688**	Penrith to Leonay & Emu Heights	Every 60 minutes	Every 60 minutes
689	Penrith to Leonay	Every 30 minutes	Every 60 minutes
690P	Springwood to Penrith	3 services daily	
691	Penrith to Mount Riverview	3 services daily	

** Weekdays only*

*** Weekends and public holidays only*

2.3 Car Parking and Access

The existing nursing home area at Edinglassie Village (to be demolished for the redevelopment) provides only a small parking provision of around 5 spaces. Car parking is accessed via two driveways on Emerald Street, north and south of the Chapel building. It is possible to turn in and out of the site in both directions along Emerald Street.

An additional parking area located near the Chapel contains 10 parking spaces.

2.4 Traffic Volumes

As a local road, Emerald Street provides access to only relatively small residential areas. There is no through route to other major roads or commercial areas. Traffic volumes along Emerald Street are reasonably low.

The adjacent Great Western Highway is a State Road controlled by Roads and Maritime Services (RMS). Based on RMS traffic counts, traffic volumes along the Highway peak at approximately 800 vehicles per hour (in a single direction). Counts are recorded at the Victoria Bridge (approximately 2.5 kilometres to the east), between 2012 and 2017. In 2016 and 2017, daily traffic is typically on the order of 11,000 vehicles, with peak hour values of 800-850 eastbound vehicles during peak hour. Records from earlier years indicate roughly similar eastbound and westbound volumes.

Overall, local traffic volumes along Emerald Street and the Great Western Highway are not significant with respect to their design and function.

3 Proposed Development

The proposed redevelopment of Edinglassie Village shall provide an aged care facility with 100 rooms and capacity for 100 beds, catered for by up to 33 staff. The facility will incorporate:

- Individual aged care units
- Dining and servery facilities
- Common lounge areas
- Nursing staff and facilities
- Administration

The proposal also includes 55 parking spaces for staff and visitors located across two areas, as well as parking spaces for a mini bus or an ambulance and a loading dock area. 50 spaces (7 of which are accessible) and the ambulance/minibus access are located south of the main building, accessed through an existing driveway and parking area. The remaining 5 parking spaces (2 of which are accessible spaces) and the service loading dock are accessed via a revised drive-in area immediately north of the Chapel.

3.1 Operation

The site will be catered for by a staff team with a number of shift schedules throughout the day. TTW has been advised by Uniting that the day shift will be managed by 20 staff, the evening shift by 13 staff, and the night shift by 5 staff. The maximum number of staff on-site at any one time during changeover periods is therefore 33 staff.

3.2 Site Access

Site vehicular access shall be via two driveways. One existing two-way driveway on the southern side of the Chapel shall be retained, and one existing one-way circulation area north of the Chapel shall be converted to a two-way driveway.

As per the current Development Control Plan (DCP), the location of driveways shall be such that the minimum distance to an intersection of any two roads is 6 metres. The nearest intersecting road for the western side of Emerald Street is the Great Western Highway. The existing and proposed locations of both driveways satisfy this requirement, located at least 50 metres from the Highway. Vegetation surrounding the driveway entry is to be monitored to ensure that sufficient visibility is maintained at all times, both to pedestrians along the adjacent footpath and to vehicles along Emerald Street.

3.3 Parking

3.3.1 Design and Layout

On-site parking is proposed across two parking zones.

The main southern car park is to be accessed via the existing 5-metre wide driveway located south of the Chapel. This width is sufficient to provide for all heavy vehicle and loading dock movements and will retain the existing crossover design.

A secondary northern car park is accessed via a new 3.5-metre wide driveway located north of the Chapel (approximately 60 metres from the Great Western Highway). To allow for vehicles to pass at the driveway, allowance has been made internally for a passing bay (see turning path analysis in **Appendix A**).

3.3.2 Parking Capacity

For an aged care facility, the RMS *Guide to Traffic Generating Developments* suggests parking requirements of 1 car space per 10 beds (for visitors), 1 car space per 2 employees, and 1 ambulance space. The NSW SEPP (Housing for Seniors) outlines identical parking requirements for residential care facilities. Note that while the site will be able to cater for dementia patients, this will not be the sole purpose of the site.

The proposed provision of 100 beds will require 10 visitor parking spaces. The maximum 33 on-site staff will require 17 car parking spaces. This will result in a minimum parking provision of 27 car spaces. As per the current architectural plans, the development is to provide 55 parking spaces, which satisfies the requirements of the RMS and the NSW SEPP.

Accessible parking spaces are required to be provided on-site. The Building Code of Australia (BCA) specifies that one accessible space should be provided for every 100 car parking spaces (or part thereof) in buildings accommodating the aged. The Edinglassie Village redevelopment area should therefore provide a minimum of one accessible parking space and associated shared area. The current plans show a provision of 7 accessible parking spaces, meeting and exceeding the BCA requirements. This includes a shared clear zone between spaces with appropriate signage and line marking in accordance with AS2890.6, and an accessible route to the building.

The NSW SEPP (Housing for Seniors) provides guidance on the design of parking spaces for hostels and self-contained dwellings however these standards do not apply to residential care facilities.

All parking on-site is to be allocated for visitors and staff only. No parking on-site is to be allocated for residents of the facility, which is in accordance with RMS and NSW SEPP guidelines.

3.3.3 Speciality Parking

One specialty parking area at the southern entry is to be located on site for an ambulance vehicle or a mini bus. Parking space for an ambulance vehicle is an operational requirement for residential aged care facilities, with a relatively high frequency of visits compared to other types of development. The space can also be used by a mini bus, which are typically a similar size or smaller than an ambulance.

An awning is to be provided over the ambulance parking space, to meet the preferred layout of NSW Ambulance Service. The area shall provide a minimum vertical clearance of 3.8 metres, as per NSW Ambulance specifications, to allow for bariatric ambulance vehicles with radio antennae. Swept path analysis has been completed, as attached in **Appendix A**, which demonstrates that the area provides sufficient circulation for a 6.95m ambulance vehicle. The layout provides a full turning route for vehicles, allowing them to enter, exit, and travel through the site in a forward direction.

3.3.4 Additional Parking

Of the additional 10 parking spaces south of the Chapel, 4 are to be removed to provide for landscaping and manoeuvring space.

Average parking occupancy in these 4 spaces since 2014 is 1 vehicle[1], and this reduction is therefore considered to have no negative impact on overall parking capacity. Further, the southern car park provides significant excess parking above the required rates and will be able to cater for this minor demand if necessary.

[1] Average occupancy of 1.00 vehicles across 19 aerial imagery recordings between February 2014 and January 2018. Imagery provided by Nearmap.

3.4 Loading

A loading dock and service facility is to be provided, with access on both sides for connection to the northern and southern car parking areas. The largest anticipated vehicle accessing the area is an 8.8m Medium Rigid Vehicle. The site also allows for a 10.5m waste collection vehicle (as specified by Penrith City Council) to access the site if required, however it is anticipated that waste collection will occur through a private contractor with smaller vehicles.

Swept path analysis has been completed for a number of design vehicles and access scenarios as attached in **Appendix A**. These plans demonstrate that all vehicles are able to enter and exit Emerald Street in a forward direction. Design scenario criteria include:

- 6.4m Small Rigid Vehicle (SRV) driving through loading dock in both directions
- 8.8m Medium Rigid Vehicle (MRV) driving through loading dock northbound
- 8.8m Medium Rigid Vehicle (MRV) reversing into loading dock from both directions
- 10.5m Waste Collection Vehicle (as specified by Penrith City Council) reversing into loading dock from southern car park
- 6.95m Bariatric Ambulance accessing ambulance bay

4 Traffic Impact of the Development

4.1 Trip Generation

Based on the RMS *Guide to Traffic Generating Developments*, aged care facilities are expected to generate 2.1 trips per dwelling per day, or 0.4 trips per dwelling in a peak hour. A trip is a one-way movement only, so a standard return journey would be considered as two trips. Therefore, on average, each dwelling is expected to generate just over one return journey per day.

Following the above calculations, the development would generate an expected 40 trips during site peak hour (100 rooms * 0.4 trips per dwelling). As a worst-case scenario, it is assumed that all 40 trips are arrivals during the morning peak and likewise 40 departures during the afternoon peak.

4.2 Traffic Impact

This development of 100 rooms shall replace the existing nursing home and hostel currently on the Edinglassie Village site. 53 nursing home rooms and 73 hostel rooms are to be removed as part of the redevelopment (in a number of construction stages). Overall this is a decrease of 26 rooms as a result of this redevelopment.

Peak hour traffic would be expected to be reduced by around 10 trips per hour, providing some minor improvements to local traffic flows.

Relative to other local traffic particularly on the Great Western Highway (11,000 vehicles per day in each direction[2]), traffic volumes at this site are considered negligible and are unlikely to create impact to the local network.

4.3 Parking and Staging

As an aged care facility, the development will be required to continue operating during the construction period. Total number of residents and number of parking spaces will vary throughout the construction period as follows:

- Existing scenario
  - 126 beds across Block H and D
  - Approximately 5 parking spaces (servicing 25 rooms per space)
- Closure and demolition of existing Block H and D
  - Continued operation of other unaffected areas of the site
  - Residents relocated to Block E
- Completion of new RAC facilities
  - 50 residents move into new facilities
  - 5 parking spaces in new northern car park (servicing 10 rooms per space)
- Completion of new southern car park
  - Up to 100 residents in new facilities
  - 55 parking spaces across two car parks (servicing 1.8 rooms per space)

The provision of parking at all stages of construction is equivalent or better than the current service rate.

4.4 Other Impacts

No changes are required to the public bus stops located near the site. It is not expected that there shall be any further traffic impacts as a result of the Edinglassie Village development.

[2] RMS Traffic Count Station ID 87001 (110m West of High Street, Penrith)

5 Conclusion

The proposed Edinglassie Village redevelopment shall provide a residential aged care facility with capacity for 100 beds across five 20-room 'households'. Up to 33 on-site staff will cater to the needs of the residents and guests.

55 car parking spaces are to be provided on-site. 7 of these spaces will be allocated as accessible parking spaces, with appropriate shared zone and line marking to be included. These provisions satisfy the requirements of the RMS, NSW SEPP (Housing for Seniors), and the Building Code of Australia. An additional specialty parking space is to be provided for an ambulance or mini bus vehicle.

Ambulance vehicle patient loading access is to be incorporated on the site as part of a port cochère, which shall be managed and signposted to ensure availability at all times. A loading dock is also to be provided on-site, with sufficient manoeuvring space for the anticipated vehicles.

The proposed development has the potential to generate an estimated 40 vehicle trips during the site peak hour. With consideration of the existing traffic generation from the current site which has 26 more rooms than the proposed development, this represents a decrease of around 10 trips during the peak hour. The site is therefore expected to create no operational impact on the local road network.

Overall the proposed redevelopment is considered to provide appropriate parking and transport provision for the site requirements, and is expected to create no noticeable impact on traffic conditions in the local road network.

Prepared by
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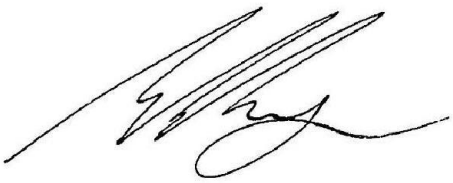

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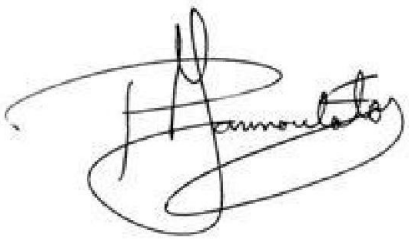


PAUL YANNOULATOS
Technical Director

Appendix A –Turning Paths

Car Park and Service Vehicle Turning Path Analysis

T01 – Car Park Access – B99 Passenger Vehicle

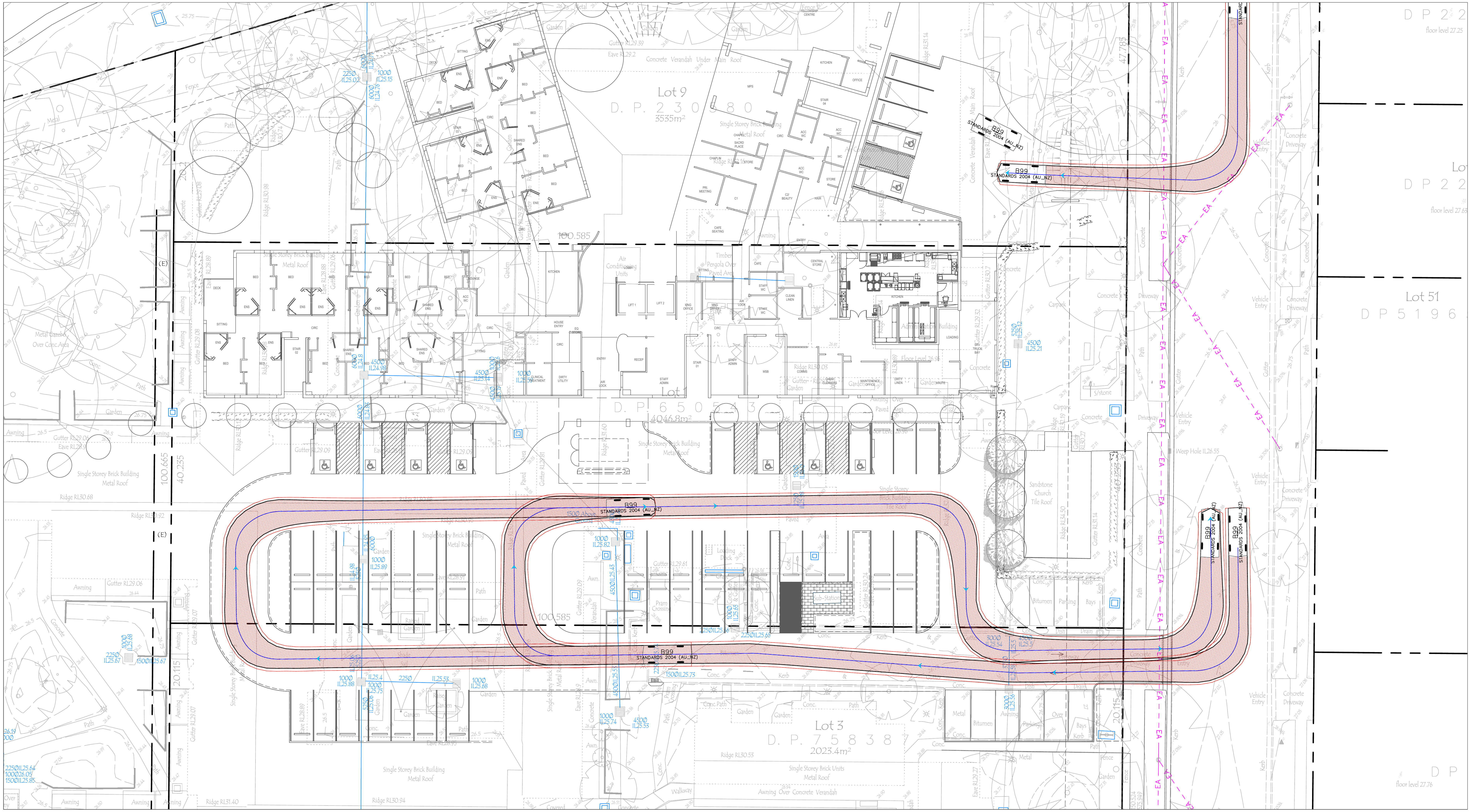
T11 – Service Vehicle Access – Small Rigid Vehicle

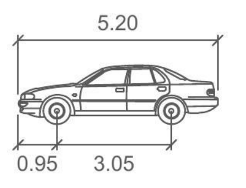
T12 – Service Vehicle Access – Medium Rigid Vehicle (reverse)

T13 – Service Vehicle Access – Medium Rigid Vehicle (through)

T14 – Service Vehicle Access – Waste Collection Vehicle

T21 – Ambulance Access – Bariatric Ambulance





B99

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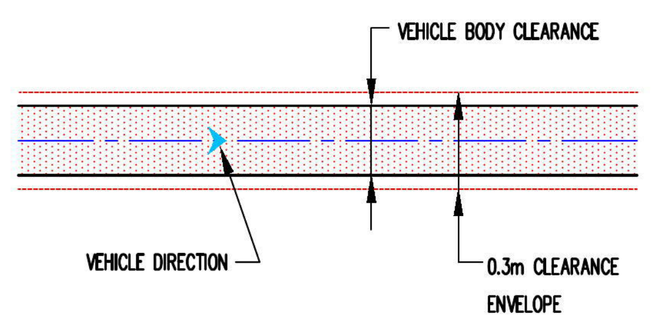

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WITH AS2890.1

BASE FILES

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DA100	A	27.03.2018

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1	FOR ISSUE	MB	MB	27.03.18										

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Project
EDINGLASSIE VILLAGE

EMERALD STREET, EMU PLAINS

Sheet Subject
TURNING PATH ANALYSIS

CAR PARK ACCESS
B99 PASSENGER VEHICLE

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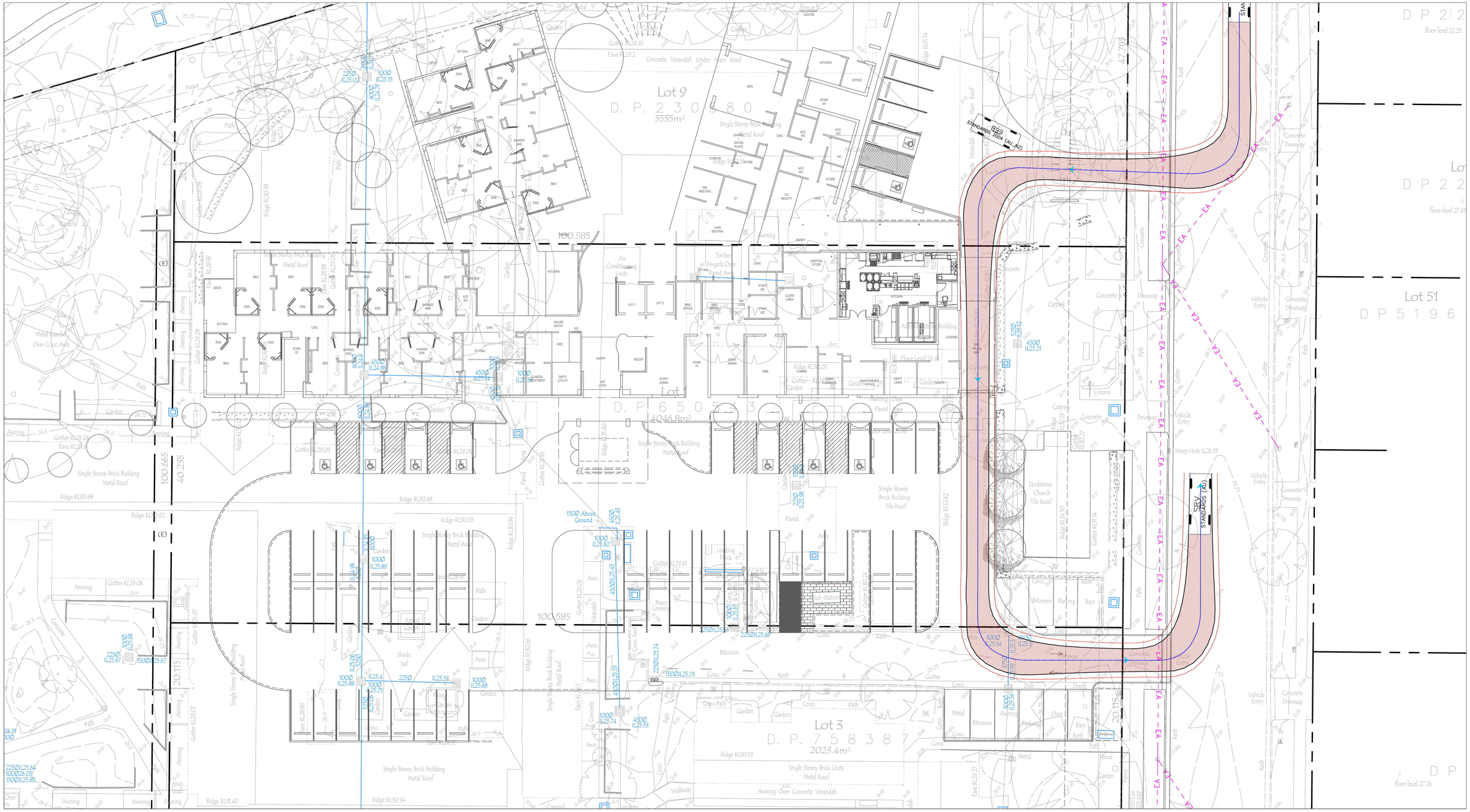

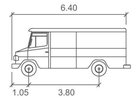

SRV

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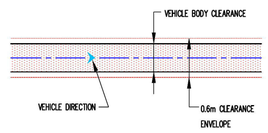

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Sheet Subject
TURNING PATH ANALYSIS
SERVICE VEHICLE ACCESS
SMALL RIGID VEHICLE

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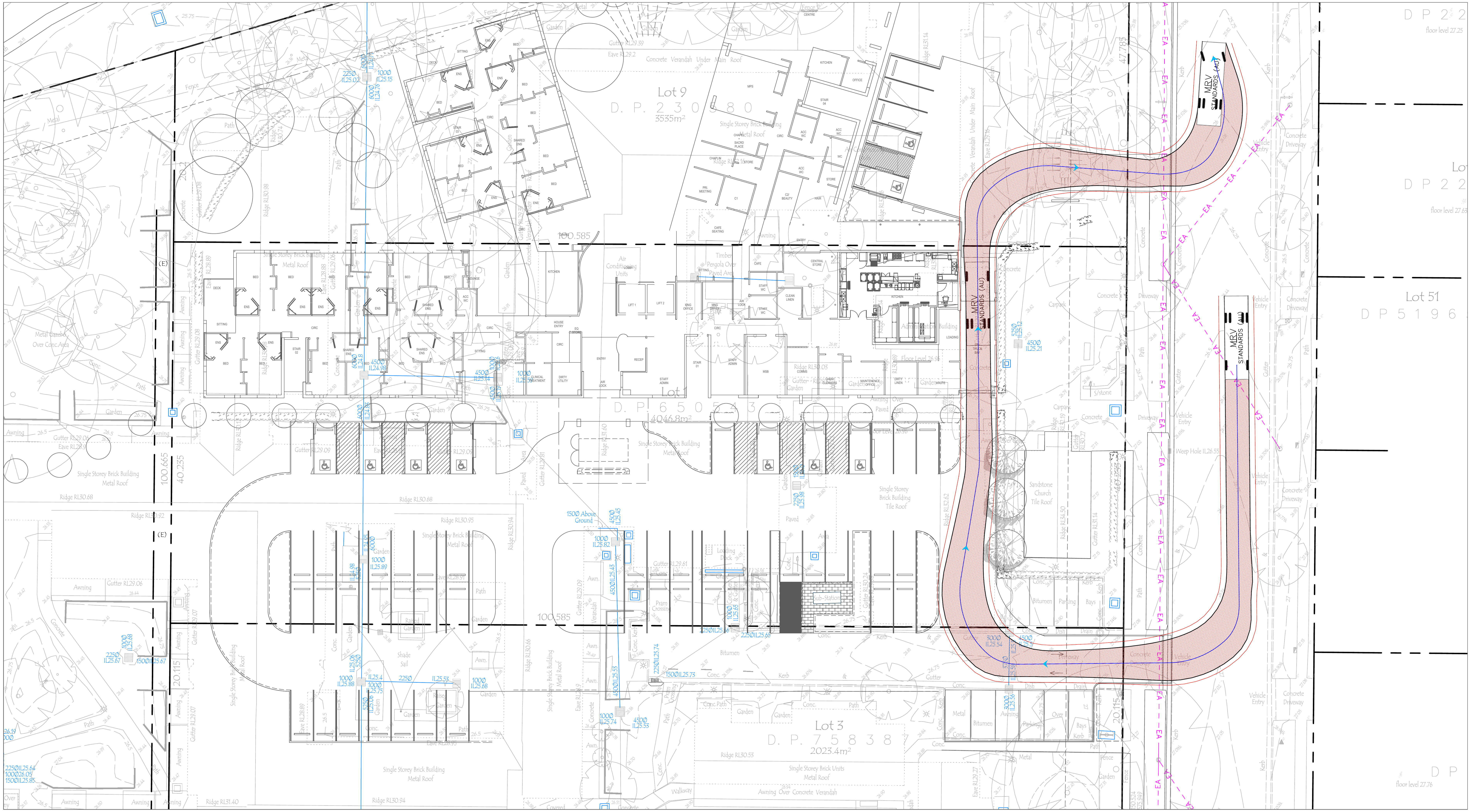

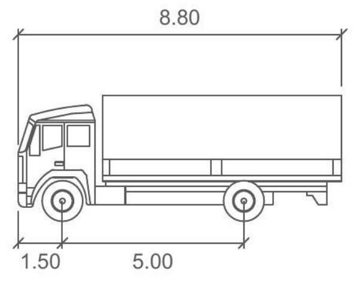

MRV
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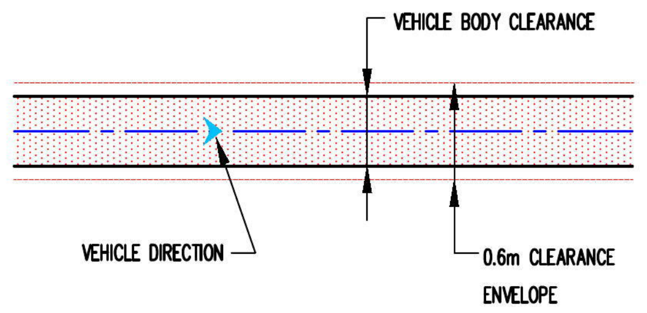

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Sheet Subject
TURNING PATH ANALYSIS

SERVICE VEHICLE ACCESS
MEDIUM RIGID VEHICLE (1/2)

Scale : A1
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Job No
141456

Drawing No
T12

Revision
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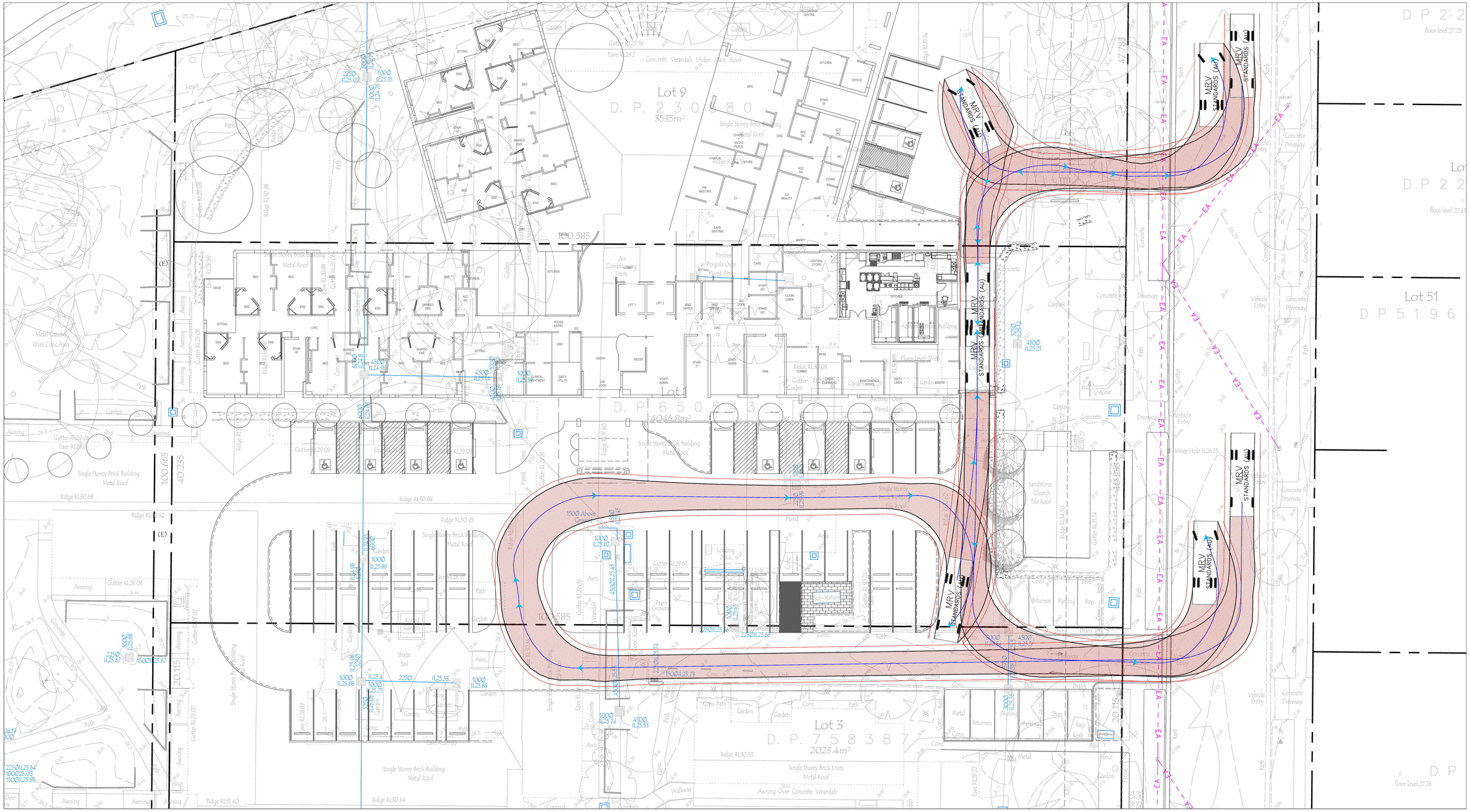
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Metal Roof
Single Storey Brick Units
Metal Roof
Awning Over Concrete Verandah
Concrete Verandah Under Main Roof
Timber Pergola Over Paved Area
Air Conditioning Units
Awning Over Paved Area
Metal Canopy Over Conc Area
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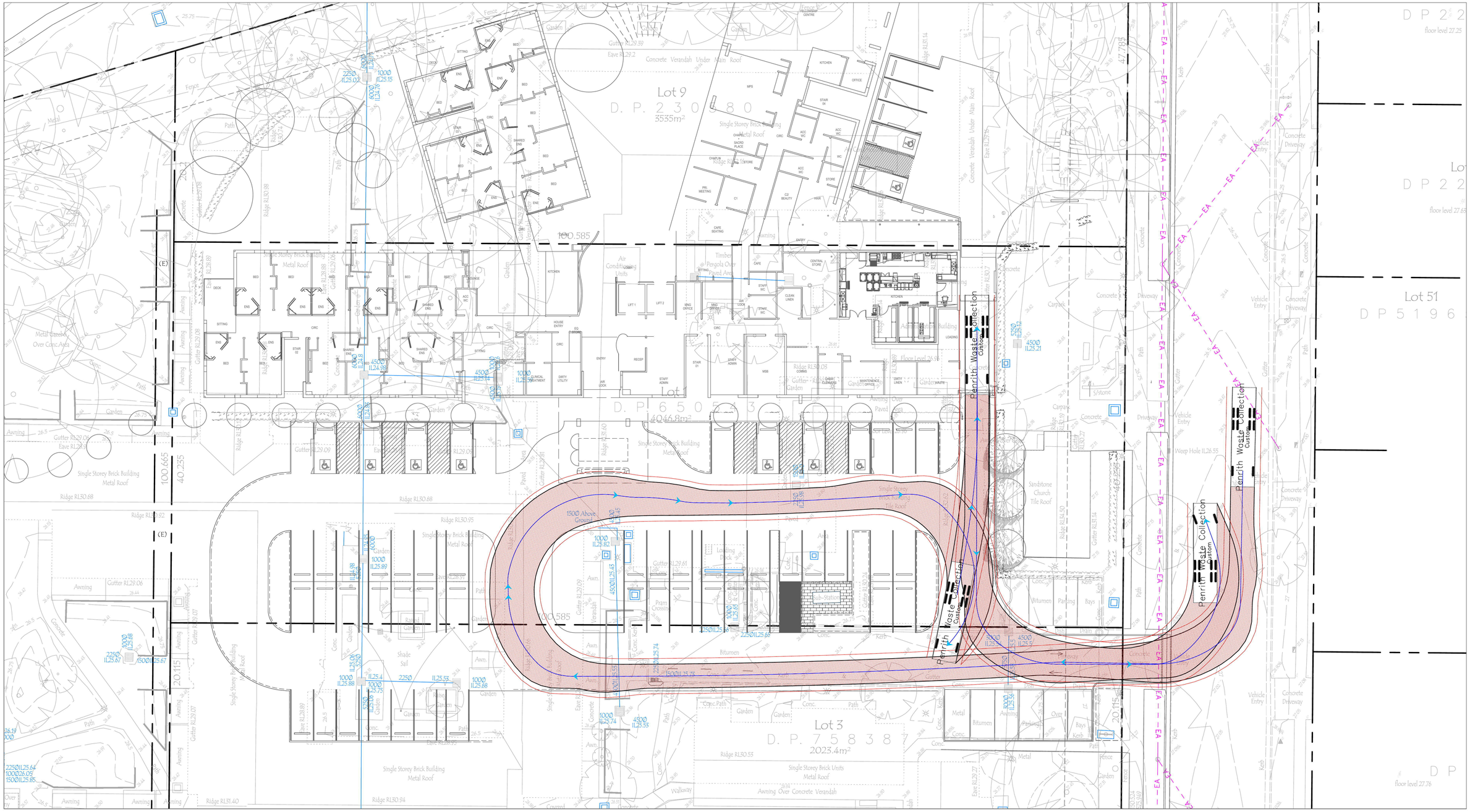
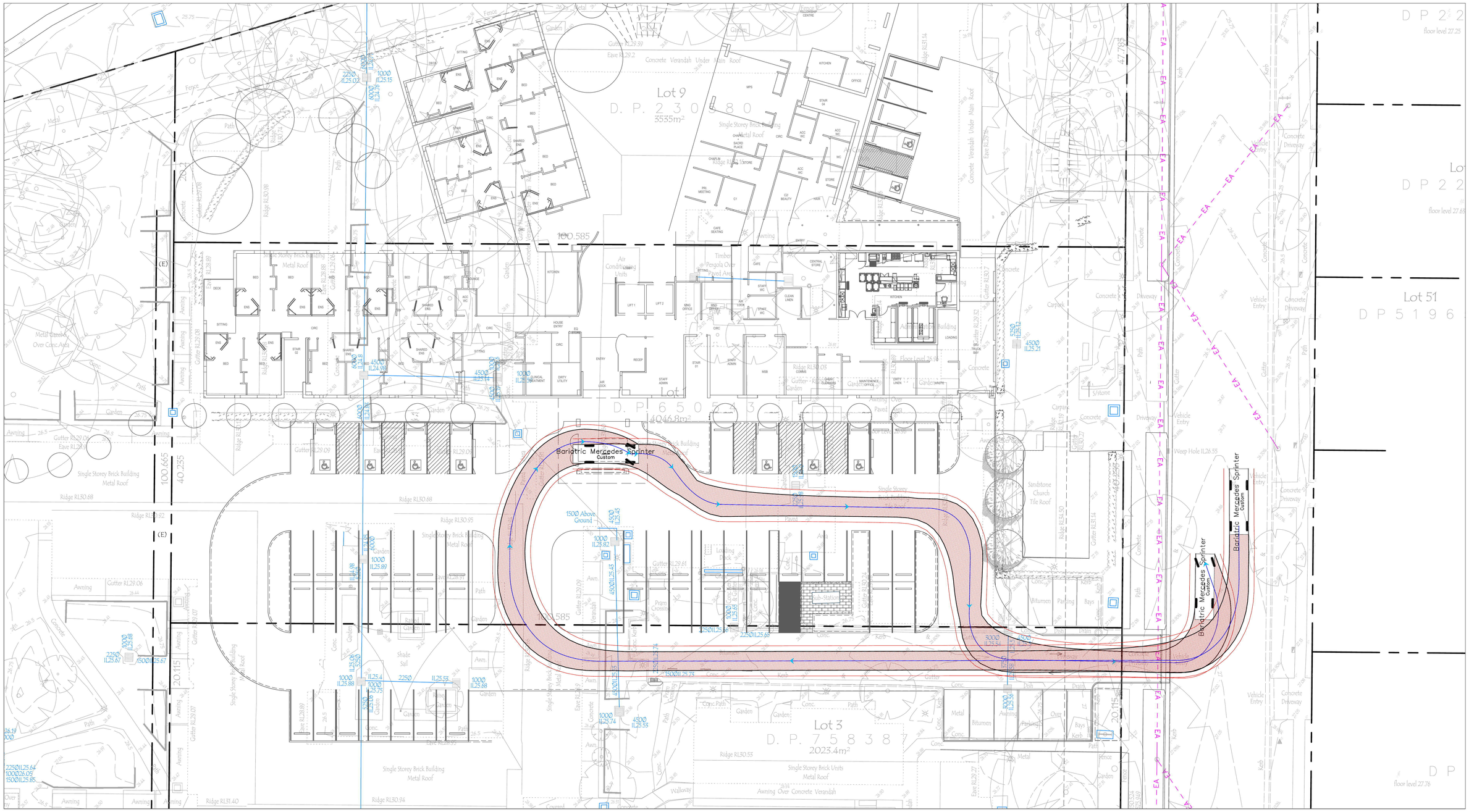
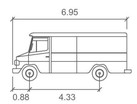
Ridge RL-1.22
Ridge RL-1.52
Ridge RL-1.82
Ridge RL-2.12
Ridge RL-2.42
Ridge RL-2.72
Ridge RL-3.02
Ridge RL-3.32
Ridge RL-3.62
Ridge RL-3.92
Ridge RL-4.22
Ridge RL-4.52
Ridge RL-4.82
Ridge RL-5.12
Ridge RL-5.42
Ridge RL-5.72
Ridge

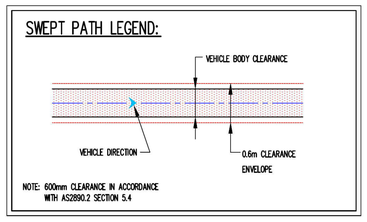

Lot 9
D. P. 230180
3535m²
Lot
D. P. 650523
4046.8m²
Lot 3
D. P. 758387
2023.4m²
Lot 51
DP 5196
DP 2
floor level 27.25
floor level 27.65
floor level 27.76
Penrith Waste Collection
Custom
Single Storey Brick Building
Metal Roof
Single Storey Brick Units
Metal Roof
Awning Over Concrete Verandah
Concrete Verandah Under Main Roof
Single Storey Brick Building
Tile Roof
Sandstone Church
Tile Roof
Air Conditioning Units
Timber Pergola Over Paved Area
Awning Over Paved Area
Sub-Station
Weep Hole IL26.55
100.585
100.665
40.255
20.115
47.795
150Ø Above Ground
Ridge RL30.68
Ridge RL30.92
Ridge RL30.95
Ridge RL31.40
Ridge RL30.94
Ridge RL30.55
Ridge RL30.98
Ridge RL31.14
Ridge RL30.07
Ridge RL29.92
Ridge RL29.61
Ridge RL29.37
Ridge RL29.27
Ridge RL29.19
Ridge RL29.09
Ridge RL29.07
Ridge RL28.89
Ridge RL28.88
Ridge RL28.87
Ridge RL28.86
Ridge RL28.85
Ridge RL28.84
Ridge RL28.83
Ridge RL28.82
Ridge RL28.81
Ridge RL28.80
Ridge RL28.79
Ridge RL28.78
Ridge RL28.77
Ridge RL28.76
Ridge RL28.75
Ridge RL28.74
Ridge RL28.73
Ridge RL28.72
Ridge RL28.71
Ridge RL28.70
Ridge





Bariatric Mercedes Sprinter

	meters
Width	: 1.99
Track	: 1.99
Lock to Lock Time	: 6.0
Steering Angle	: 40.4



BASE FILES

The vehicle turning paths shown on Taylor Thomson Whitting's drawings are have been based on information contained in:

Drawing Number	Revision	Date
DA100	A	27.03.2018

Vehicle turning paths may vary in later revisions of the above drawings and should not be relied on in any future design changes.

FileName: T21.dwg - USER: mbabbage - Plot File Created: Mar 27, 2018 - 4:40pm

A1 0 1 2 3 4 5 6 7 8 9 10

Rev	Description	Eng	Draft	Date
1	FOR ISSUE	MB	MB	27.03.18

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Traffic Engineer
Taylor Thomson Whitting
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Project
EDINGLASSIE VILLAGE
EMERALD STREET, EMU PLAINS

Sheet Subject
TURNING PATH ANALYSIS
AMBULANCE ACCESS
BARIATRIC AMBULANCE

Scale : A1 1:200 | Drawn MB | Authorised
Job No 141456 | Drawing No T21 | Revision 1
Plot File Created: Mar 27, 2018 - 4:40pm