

198 BENNETT ROAD, ST CLAIR
PROPOSED CHILDCARE CENTRE

TRAFFIC & PARKING IMPACT ASSESSMENT

MARCH 2021

HEMANOTE CONSULTANTS PTY LTD
TRAFFIC ENGINEERING & DESIGN CONSULTANTS
PO BOX 743, MOOREBANK NSW 1875
CONTACT: 0414 251 845
EMAIL: projects@hemanote.com.au



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PROPOSED CHILDCARE CENTRE

DATE: 05 MARCH 2021

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Document Management

Traffic & Parking Assessment – 198 Bennett Road, St Clair

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1 INTRODUCTION

This report has been prepared by Hemanote Consultants to assess the traffic and parking implications of the proposed childcare centre to be located at 198 Bennett Road, St Clair, accommodating up to 58 children places between the ages of 0 to 5 years old.

This report is to be read in conjunction with the architectural plans prepared by Baini Design (reduced copy of the plans is attached in Appendix 'A' of this report) and submitted to Penrith City Council as part of a Development Application.

This report is set as follows:

- *Section 2:* Description of the existing site location and its use;
- *Section 3:* Description of existing traffic conditions near the subject site;
- *Section 4:* Description of the proposal, vehicular access, on-site parking provision, layout and circulation;
- *Section 5:* Assessment of impacts on parking;
- *Section 6:* Assessment of impacts on traffic in the vicinity of the subject site; and
- *Section 7:* Outlines conclusions.

2 EXISTING SITE DESCRIPTION

➤ Site Location

The subject site is located on the eastern side of Bennett Road at property No. 198 (legally known as Lot 1156 of DP259309), within the suburb of St Clair. The overall site has a primary frontage of 30.21 metres to Bennett Road from the west and a secondary frontage of 21.79 metres to Coonawarra Drive from the south. Refer to Figure 1 for a site locality map.

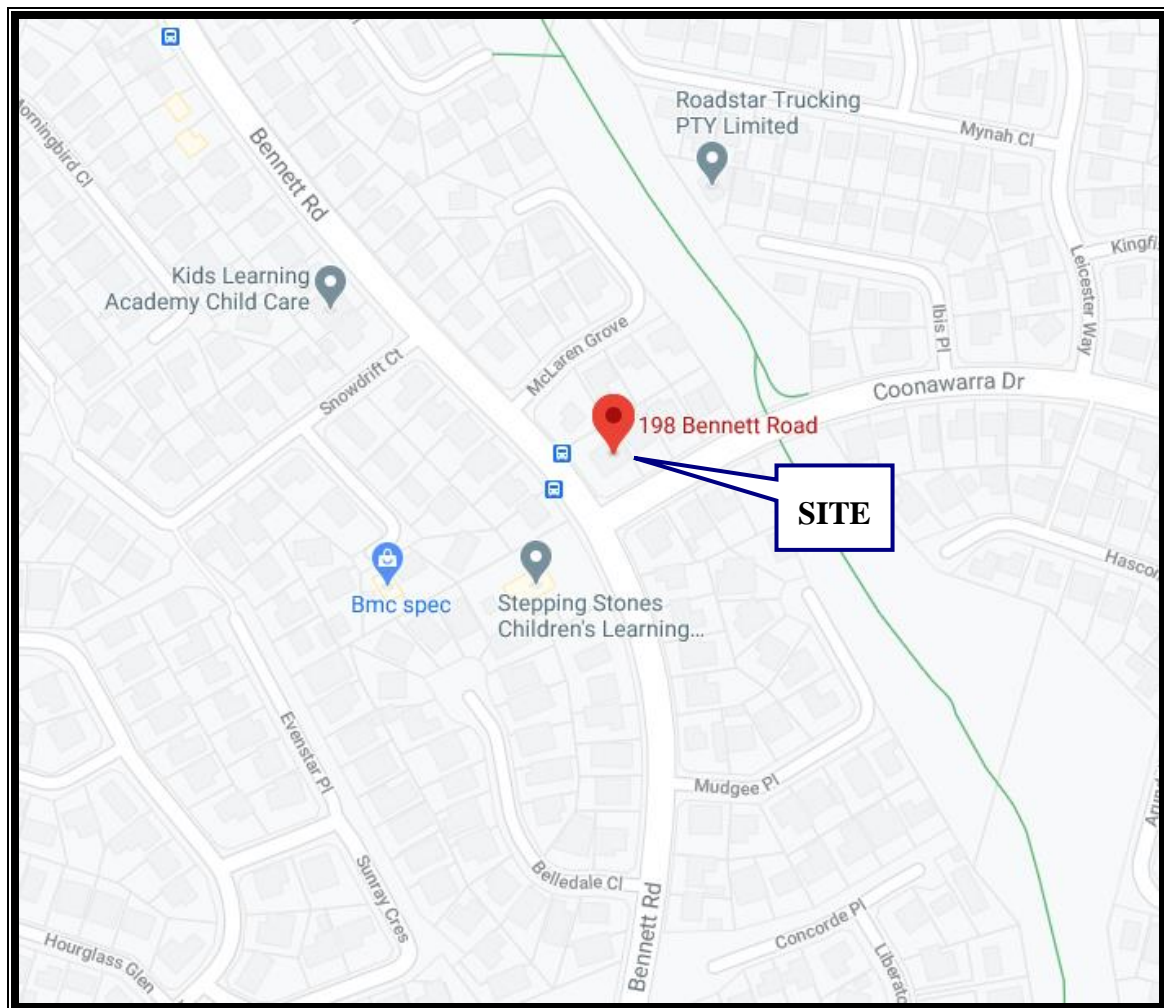


Figure 1: Site Locality Map

➤ **Existing Site & Surrounding Land Use**

The subject site has an area of 916m² and is currently occupied by a single residential dwelling. It is located in a mainly residential area, characterised by single dwellings, and is in close proximity to some retail and commercial sites. The site is also located 5.4 kilometres from Mount Druitt Railway Station.



Photo 1: Site frontage to Bennett Road



Photo 2: Site frontage to Coonawarra Drive

3 EXISTING TRAFFIC CONDITIONS

3.1 Road Network and Classification

Bennett Road is a local road that runs in a north to south direction between Great Western Highway (state road) to the north and Erskine Park Road (state road) to the south. It intersects with Coonawarra Drive (local road) at the subject site.

3.2 Road Description and Traffic Control

Bennett road has a two-way undivided carriageway with a width between kerbs of approximately 13 metres. This carriageway generally provides one travel lane per direction, plus a kerbside parking lane on both sides of the road. At present, unrestricted parking is permitted on both sides of Bennett Road, with the exception of signposted 'No Stopping' and 'Bus Zone' along the frontage and directly opposite the subject site near its intersection with Coonawarra Drive, in addition to existing bus stops. The legal speed limit on Bennett Road is signposted at 50km/h. Bennett Road intersects with Coonawarra Drive near the subject site and is controlled by a roundabout.



Figure 2: Aerial photograph of the subject site and surrounding road network



Photo 3: Bennett Road at the subject site – facing north



Photo 4: Bennett Road at the subject site – facing south

Coonawarra Drive has a two-way undivided carriageway, with a width between kerbs of approximately 13 metres. This carriageway generally provides one travel lane per direction, plus a parallel kerbside parking lane on both sides of the road. At present, unrestricted parking is permitted on both sides of Coonawarra Drive with the exception of signposted 'No Stopping' on both sides of the road at its intersection with Bennett Road. The legal speed limit Coonawarra Drive is signposted at 50km/hr.



Photo 5: Coonawarra Drive the subject site – facing east



Photo 6: Coonawarra Drive the subject site – facing west

3.3 Current Traffic Flows

A traffic volume count was undertaken by R.O.A.R. DATA Pty. Ltd. on behalf of Hemanote Consultants at the intersection of Coonawarra Road / Bennett Road near the subject site on Wednesday 11 November 2020, during morning period (7.00am to 10.00am) and afternoon period (3.00pm to 6.00pm), considering the childcare centre proposed hours of operation and traffic peak periods.

The traffic flows in the morning & afternoon peak hours are shown in Table 1 below and in Appendix 'C' of this report.

Traffic movement	Morning Peak Hour (Vehicles Per Hour)	Evening Peak Hour (Vehicles Per Hour)
	8.00am – 9.00am	4.45pm – 5.45pm
Bennett Road (North of Coonawarra Road)		
Northbound	476	579
Southbound	363	344
Bennett Road (South of Coonawarra Road)		
Northbound	431	367
Southbound	239	352
Coonawarra Road		
Eastbound	402	281
Westbound	323	501

Table 1: Current traffic flows in the vicinity of the subject site (on a typical weekday)

The results of the traffic volume counts undertaken determined that the traffic morning peak period on Coonawarra Road / Bennett Road near the subject site were between 8.00am to 9.00am and the afternoon peak period was between 4.45 pm to 5.45pm on a typical weekday.

The traffic flows on Bennett Road and Coonawarra Road are appropriate for local roads in a mainly residential area, where traffic is free flowing without major queuing or delays near the subject site in peak hours, with spare capacity.

It is determined that the existing mid-block level of service on both Bennett Road and Coonawarra Road are between levels 'B' and 'C' in accordance with Table 4.4 of the Roads & Maritime Services' *"Guide to Traffic Generating Developments - 2002"* (shown below), where peak hour flow is more than 200 vehicles/hr, but less than 600 vehicles/hr/.

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Table 4.4: Urban road peak hour flows per direction RMS Guide)

➤ **Current Intersection Performance**

Average Vehicle Delay (AVD) and Level of Service (LOS) – The AVD and LOS provide a measure of the operational performance of an intersection, as indicated in Table 4.2 of the Roads & Maritime Services *"Guide to Traffic Generating Developments - 2002"* (shown below).

It has been observed that the current operational performance of the intersection of Coonawarra Road / Bennett Road is good with spare capacity at level of service 'B', with an average delay of less than 28 seconds per vehicle.

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

Table 4.2: Level of Service Criteria for intersections (RMS Guide)

3.4 Existing Transportation Services

The subject site has good access to public transport services in the form of trains and buses. The site is located 5.4 kilometres from Mount Druitt Railway Station and 5.7 kilometres from St Marys Railway Station.

Frequent bus services operate along Bennett Road, Coonawarra Drive, Colorado Drive, Erskine Park Road, Peppertree Drive, Banks Drive, Blackwell Avenue, Endeavour Avenue and Moore Street in close proximity of the subject site (i.e. bus routes S11, 775, 776 and 835).



Figure 3: Bus services near the subject site (Bus no. 776)

4 PROPOSED DEVELOPMENT

4.1 *Description of the proposal*

The proposed development application seeks approval for the demolition of the existing residential dwelling located at 198 Bennett Road, St Clair, and the construction of a childcare centre, accommodating up to 58 children places with basement parking.

The proposed development will include the following:

- Childcare centre accommodating up to fifty-eight (58) children:
 - 8 children places between the ages of 0 to 2 years old (2 staff members);
 - 20 children places between the ages of 2 to 3 years old (4 staff members);
 - 30 children places between the ages of 3 to 5 years old (3 staff members).
- A total of fifteen (15) on-site car parking, with 9 car spaces allocated for staff parking and 6 visitor car parking spaces for the drop-off and pick-up of children (including 1 accessible parking space & an adjacent shared area), in addition to 2 bicycle storage spaces in basement level.
- There will be a maximum of nine (9) staff members at any given time. The proposed hours of operation of the centre will be from 7.00am to 6.00pm on weekdays only.

Refer to **Appendix 'A'** for the proposed development plans.

4.2 Vehicular & Pedestrian Access

Vehicular access to and from the off-street parking facilities will be via two separate (one existing and one new) access driveway crossings located in Bennett Road and Coonawarra Road. The new driveway crossing in Bennett Road is to provide an 'Exit Only' access point, having a width of 4 metres. The existing driveway crossing in Coonawarra Road is to provide an 'Entry Only' point, having a width of 3.6 metres.

These driveway crossings are adequate for a low volume (Category 1) access driveway in accordance with AS2890.1:2004 – Table 3.2. These access driveways provide one-way vehicular movement within the basement, without causing delays or congestion to traffic on the street and are located more than 6 metres from the tangent point of the adjacent kerbline, in accordance with Figure 3.1 of AS2890.1:2004.

The vehicular access is to be located in accordance with the requirements of AS2890.1:2004, where vehicles enter and exit the site in a forward direction at all times.

The clear sight line triangle (2.5m x 2m) between the driver's eye view and pedestrians is provided on both sides of the exit driveway, as per Figure 3.3 of AS2890.1:2004. A separate pedestrian access gate is also provided at the front of the site in Coonawarra Drive, to segregate pedestrians and vehicles and improve safety within the site.

4.3 On-site Parking Provision

Penrith Development Control Plan 2014, Section C10, requires off-street parking for childcare centres to be provided at a minimum rate of:

- 1 space per 10 children, plus
- 1 per employee.

Refer to Table 2 below for the required and proposed car parking provision for the subject development site:

Age Group	0-2 years	2-3 years	3-5 years	Total
Number of children	8	20	30	58
Staff to Children Ratio	1 to 4	1 to 5	1 to 10	-
Number of Staff	2	4	3	9
Off-street parking required (9 spaces for & staff 6 spaces for parents/visitors)				15
Off-street parking provided (9 spaces for & staff 6 spaces for parents/visitors)				15
Compliance with off-street car parking				Yes

Table 2: On-site parking requirement and provision

The proposed childcare centre for 58 children places would therefore require a minimum of 15 off-street car parking spaces.

The proposed development provides a total of fifteen (15) on-site car parking, with 9 car spaces allocated for staff parking and 6 visitor car parking spaces for the drop-off and pick-up of children (including 1 accessible parking space & an adjacent shared area), in addition to 2 bicycle storage spaces in basement level.

Therefore, the proposed on-site parking provision is adequate for the proposed development and in compliance with Council's parking requirements.

4.4 On-site Parking Layout and Circulation

The layout of the on-site car parking area and manoeuvring arrangements has been designed to enhance vehicular and pedestrian access, where vehicles enter and exit the site in a forward direction, through the provision of adequate internal aisle width and turning space.

AS2890.1:2004 Parking facilities Part 1: Off-street car parking requires a minimum parking space width of 2.4 meters (for all day staff parking) and 2.6 metres (for short-term visitor parking) and a minimum length of 5.4 meters. The proposed off-street car spaces have a width of 2.4 metres (for staff parking) and 2.6 metres (for visitors) and a length of 5.4 meters each, which is adequate.

The accessible car parking space has a width of 2.4 metres, in addition to an adjacent 2.4 metres wide shared area, which is adequate in accordance with AS2890.6:2009.

An extension at the blind aisle has been provided beyond the last parking space in accordance with Clause 2.4.2 (c) of AS2890.1:2004.

Car parking spaces adjacent to walls or obstructions have been made wider than the minimum width, to accommodate full door opening in accordance with Clause 2.4.2(d) of AS2890.1:2004.

Clause 2.4.2 of AS2890.1:2004 requires a minimum aisle width of 5.8 metres for two-way aisles, adjacent to 90° angle parking. The proposed aisle within the site has a minimum width of 6.75 metres, which is adequate for two-way traffic and manoeuvring into and out of parking spaces.

The 'Entry' ramp to the basement level has a clear width of 3 metres, in addition to a 300mm kerb on either side, and has a grade of 1:8 (12.5%) for the first 2 metres within the site. It has a maximum grade of 1:4 (25%) with a change of grade of 1:8 (12.5%) for 2 metres at the end of the ramp. The 'Exit' ramp out of the basement level has a clear width of 3 metres, in addition to a 300mm kerb on either side, and has a grade of 1:20 (5%) for the first 5 metres within the site. It has a maximum grade of 1:4 (25%) with a change of grade of 1:8 (12.5%) for the 2 metres at either end of the ramp.

A minimum 2.2 metres headroom clearance is to be generally provided from the car park basement level to the underside of all services conduits and suspended stormwater pipelines, in accordance with Clause 5.3.1 of AS2890.1:2004. A “Maximum Clearance 2.2m Height” sign is to be erected at the entrance to the basement car park area and is to be clearly visible to all drivers. A minimum 2.5 meters headroom clearance is to be provided above the accessible parking space and its adjacent shared zone in accordance with Clause 2.4 of AS2890.6:2009.

A traffic convex mirror is to be installed at the bottom of the ‘Entry’ ramp within the basement, to provide drivers with further assistance with viewing oncoming traffic.

Pedestrian markings have also been provided adjacent the drop-off and pick-up car spaces, to provide safe pedestrian access to and from the visitor parking spaces and the centre’s access lifts and stairs. It should be noted that the basement parking level is to be signposted as a ‘Shared Zone’ with a speed limit of 10 km/h, in conjunction with a speed cushion and warning signages at the bottom on the main ramp, to reduce speed, raise awareness of the presence of pedestrians and children in the car park and increase safety for all users of the car park.

All vehicular manoeuvring within the site has been designed and checked using the B99 and B85 design vehicle turning paths from AS2890.1:2004 and Austroads. Refer to the vehicle swept paths diagrams attached in Appendix ‘B’ of this report.

Therefore, the car parking layout and circulation are adequate in accordance with AS2890.1:2004 and AS2890.6:2009, where vehicles are to enter and exit the site in a forward direction at all times.

Waste Collection

All waste storage is to take place within the dedicated garbage storage area located in the basement level. Waste Bins will be transported to the street kerbside for collection on waste collection day.

5 ON-STREET PARKING PROVISION

5.1 Existing Parking Controls

The subject site is located in a mainly residential area, where unrestricted parking is permitted on both sides of Bennett Road, with the exception of signposted 'No Stopping' and 'Bus Zone' along the frontage and directly opposite the subject site near its intersection with Coonawarra Drive, in addition to existing bus stops.

5.2 Impacts of Proposed Development on Parking

The parking demand resulting from the proposed childcare centre development can be accommodated within the proposed adequate and compliant on-site car and bicycle parking spaces for staff and visitors. The subject site has good access to existing public transport in the form of train and bus services.

Therefore, the proposed development will not have adverse impacts on parking in the surrounding area.

6 EXTERNAL TRAFFIC IMPACT

An indication of the potential traffic generation of the proposed development is provided by the *RMS Guide to Traffic Generating Development - 2002*.

The Guide specifies the following traffic generation rates for long-day care centres:

- 0.8 peak period vehicle trips per child between 7.00am and 9.00am; and
- 0.7 peak period vehicle trips per child between 4.00pm and 6.00pm.

Therefore, the proposed development with a total of 58 children places has a total estimated traffic generation as follows:

- 47 morning peak period vehicle trips (24 In and 23 Out trips); and
- 41 afternoon peak period vehicle trips (20 In and 21 Out trips).

The rates used by the RMS Guide are based on surveys of childcare centres, where it was determined that the mean proportion of children transported to the centre by car was 93% for long-day care centres.

The estimated peak period traffic generation is of low impact on existing flows on Bennett Road, Coonawarra Drive and the surrounding road network and can be readily accommodated without adverse impacts.

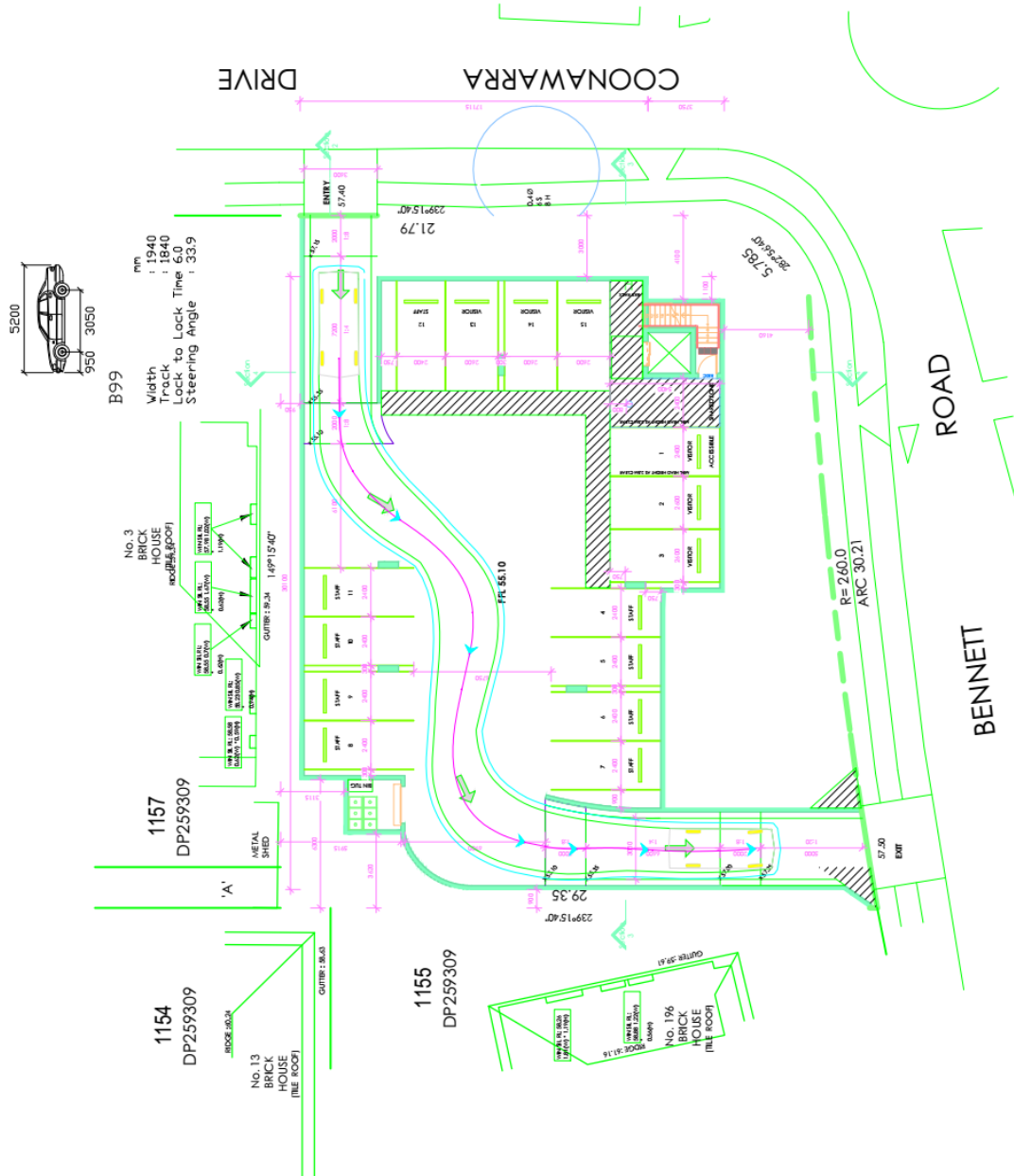
7 CONCLUSION

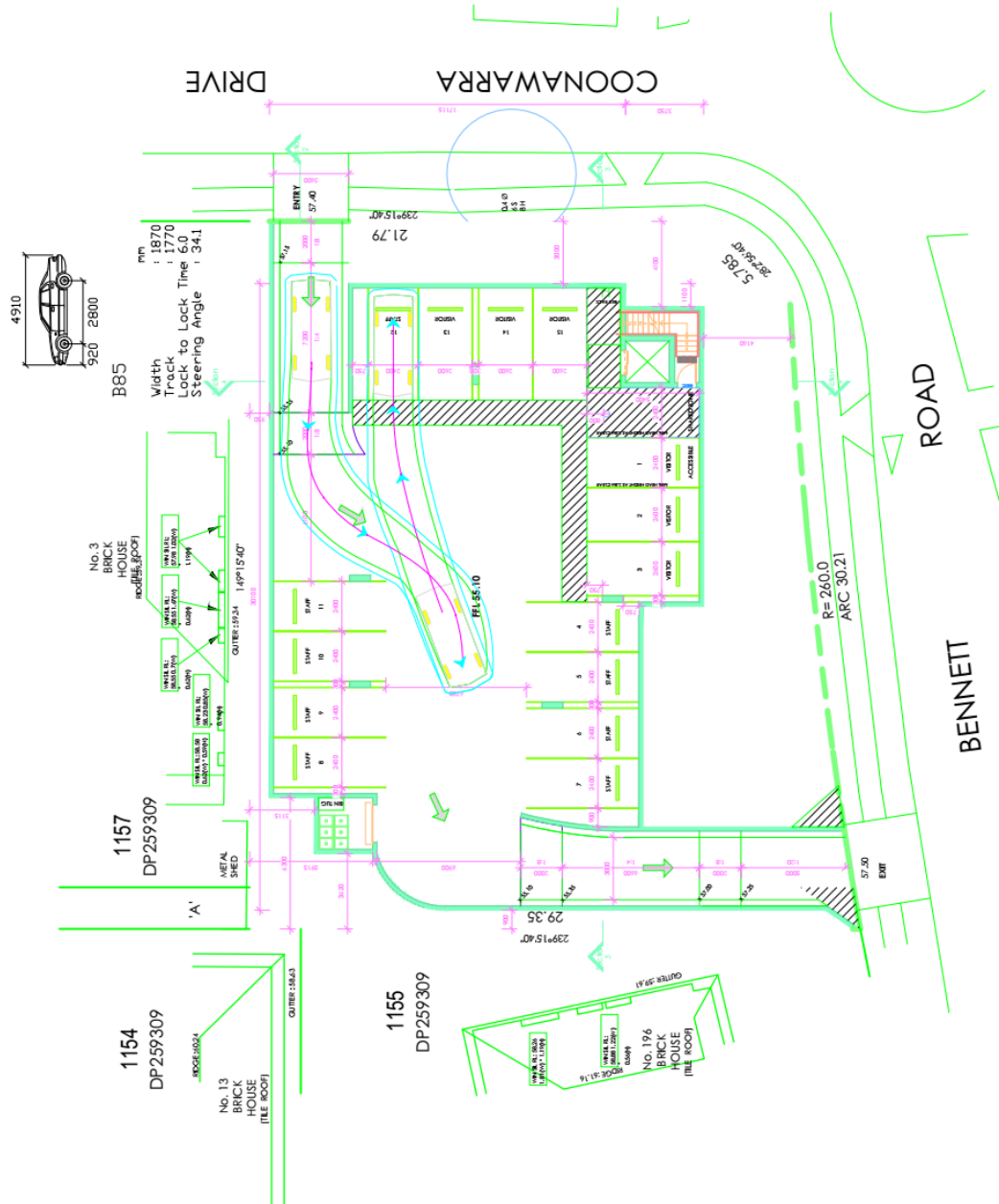
It can be concluded from the traffic and parking impact assessment that the proposed childcare centre development at 198 Bennett Road, St Clair will not have adverse impacts on existing traffic or parking conditions and is worthy of Council's support in its current form.

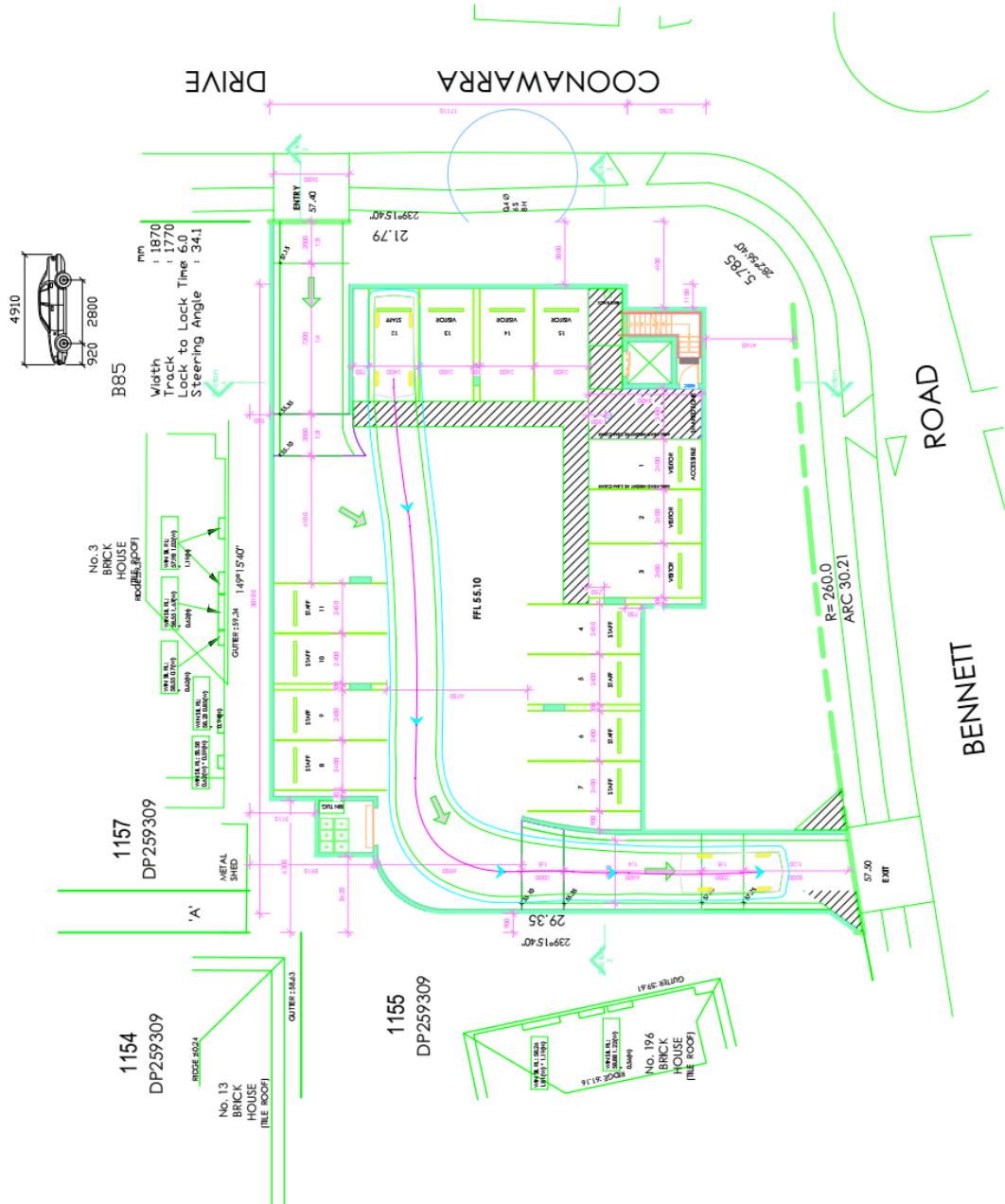
- The current traffic flows on Bennett Road and Coonawarra Road are appropriate for local roads, in a mainly residential area, where traffic is free flowing without major queuing or delays in peak hours, with spare capacity.
- The estimated peak hour traffic generation is of low impact on existing flows on Bennett Road, Coonawarra Drive and the surrounding road network. The traffic generated by the proposed childcare centre development can be readily accommodated within the existing road network.
- The potential increase in the number of vehicle movements in and about Bennett Road, Coonawarra Drive and adjacent streets will not have adverse impacts on the amenity of the area.
- The parking demand resulting from the proposed childcare centre can be easily accommodated within the proposed adequate and compliant off-street car and bicycle parking for both staff and visitors/parents, which is in compliance Council's parking requirements.
- The on-site vehicular access, car parking layout and vehicular circulation is adequate for the proposed development and in accordance with AS2890.1:2004 and AS2890.6:2009, where vehicles are to enter and exit the site in a forward direction at all times.
- The subject site has good access to existing public transport services.
- The proposed development will not have adverse impact on parking in the surrounding area.

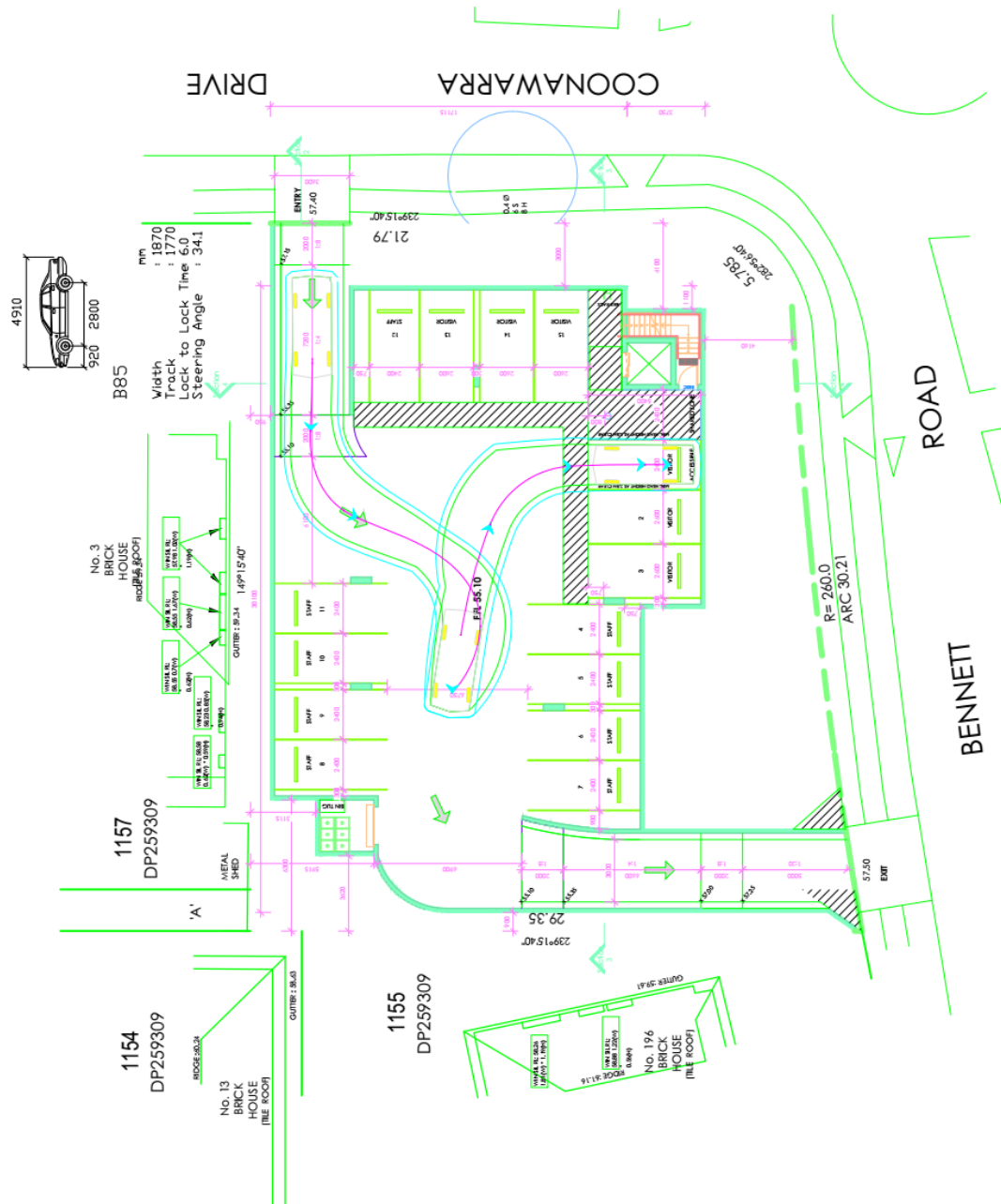
Appendix A – Proposed Development Plans

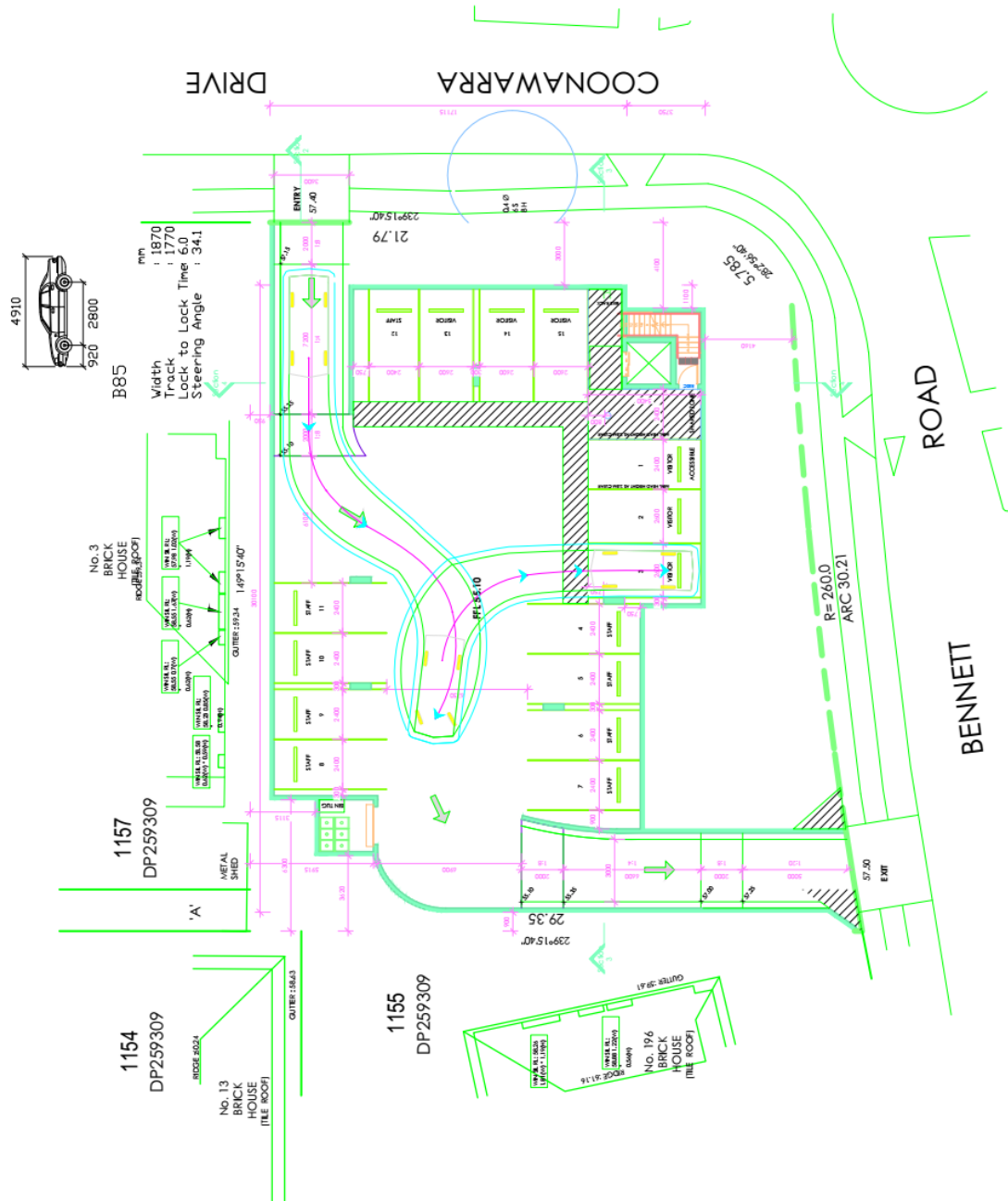
Appendix B – Vehicle Swept Paths

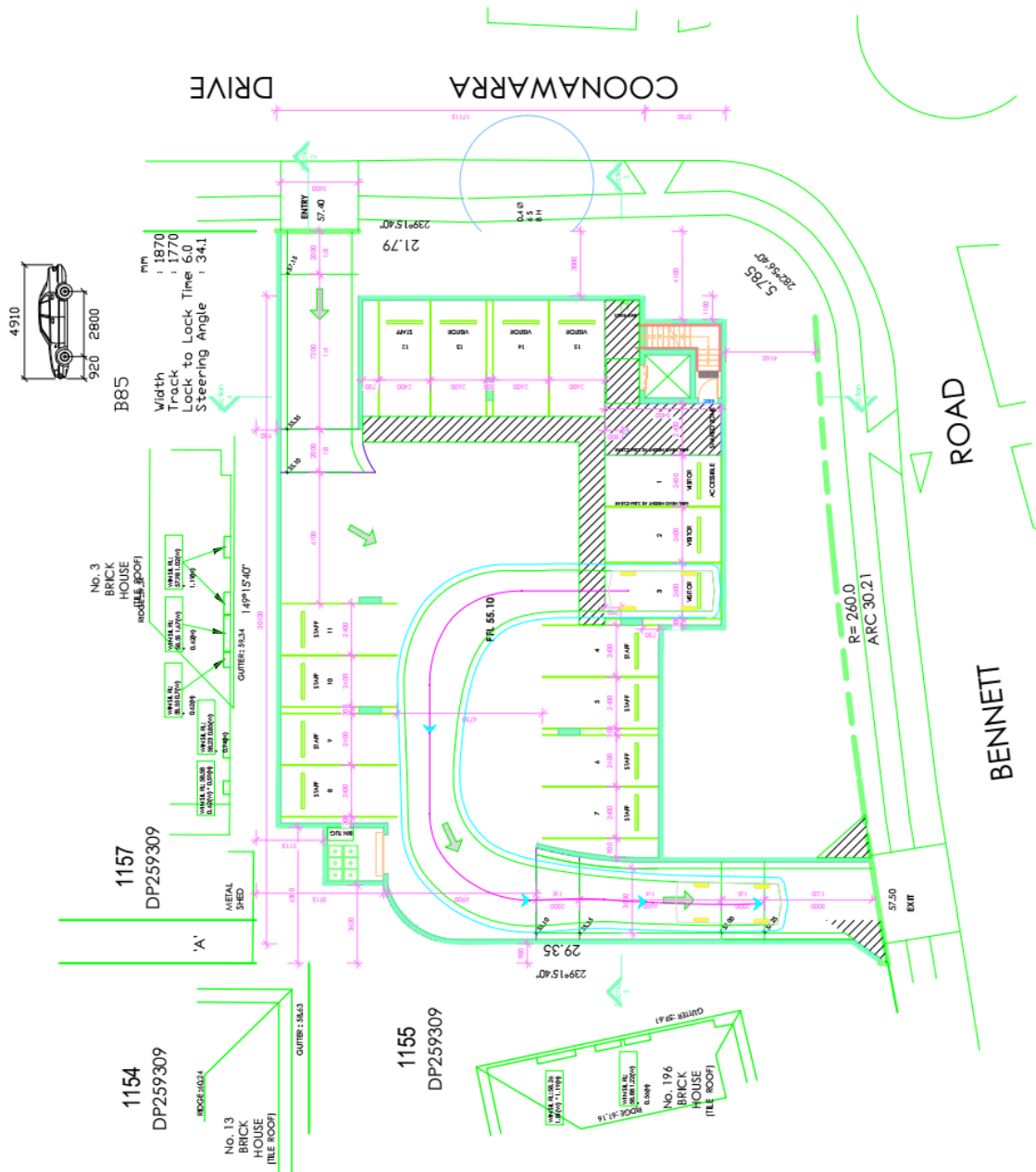


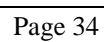


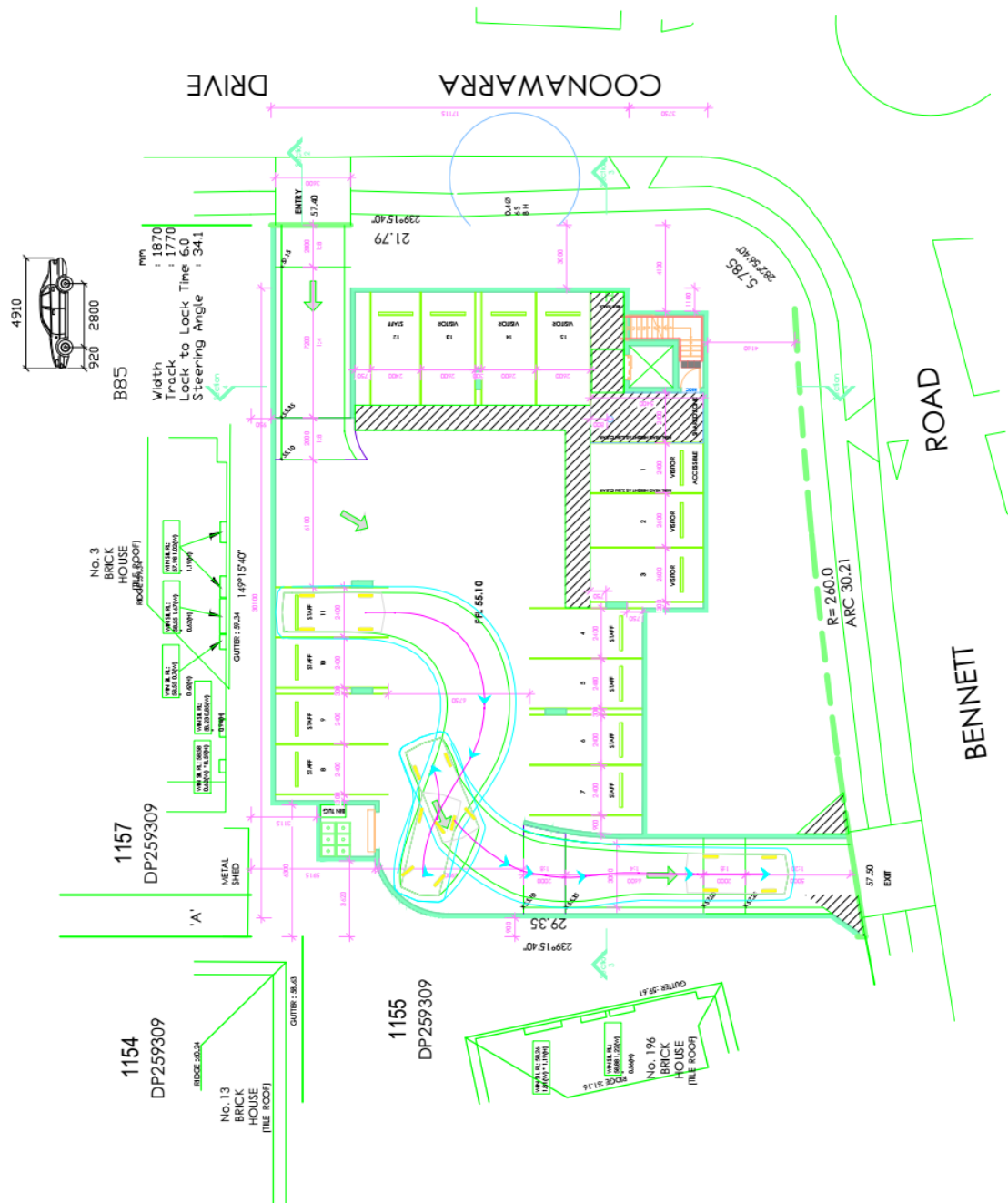


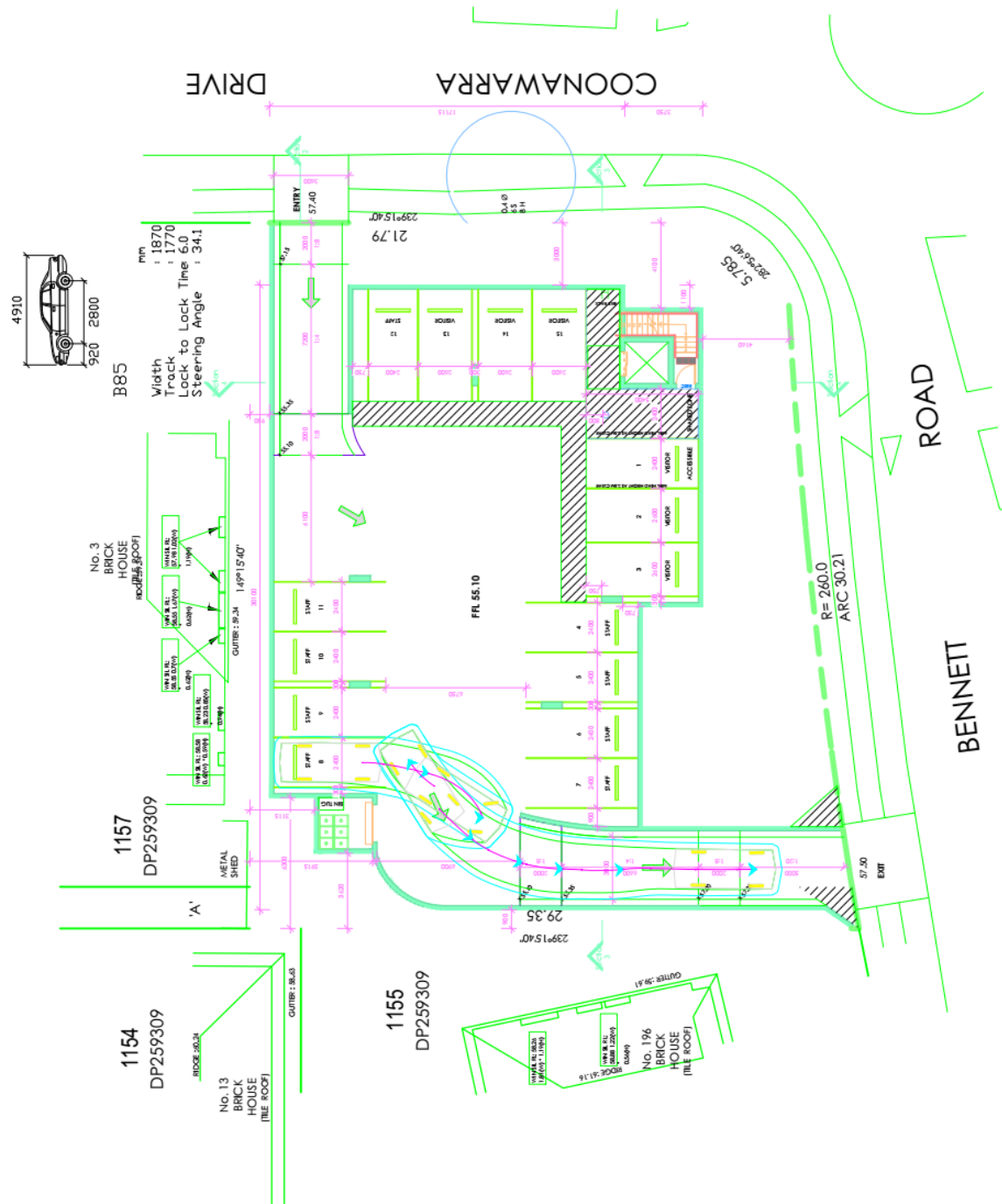


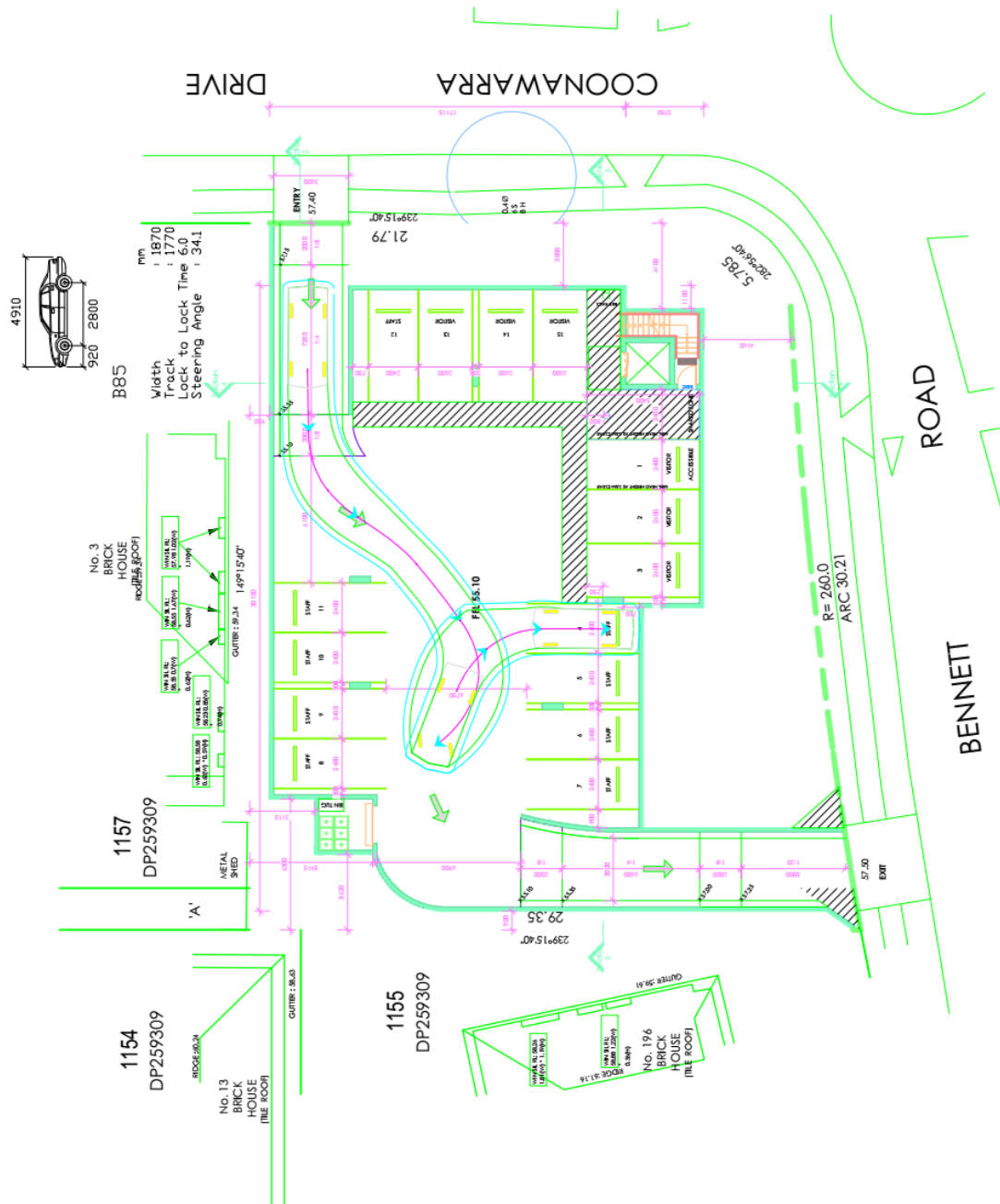


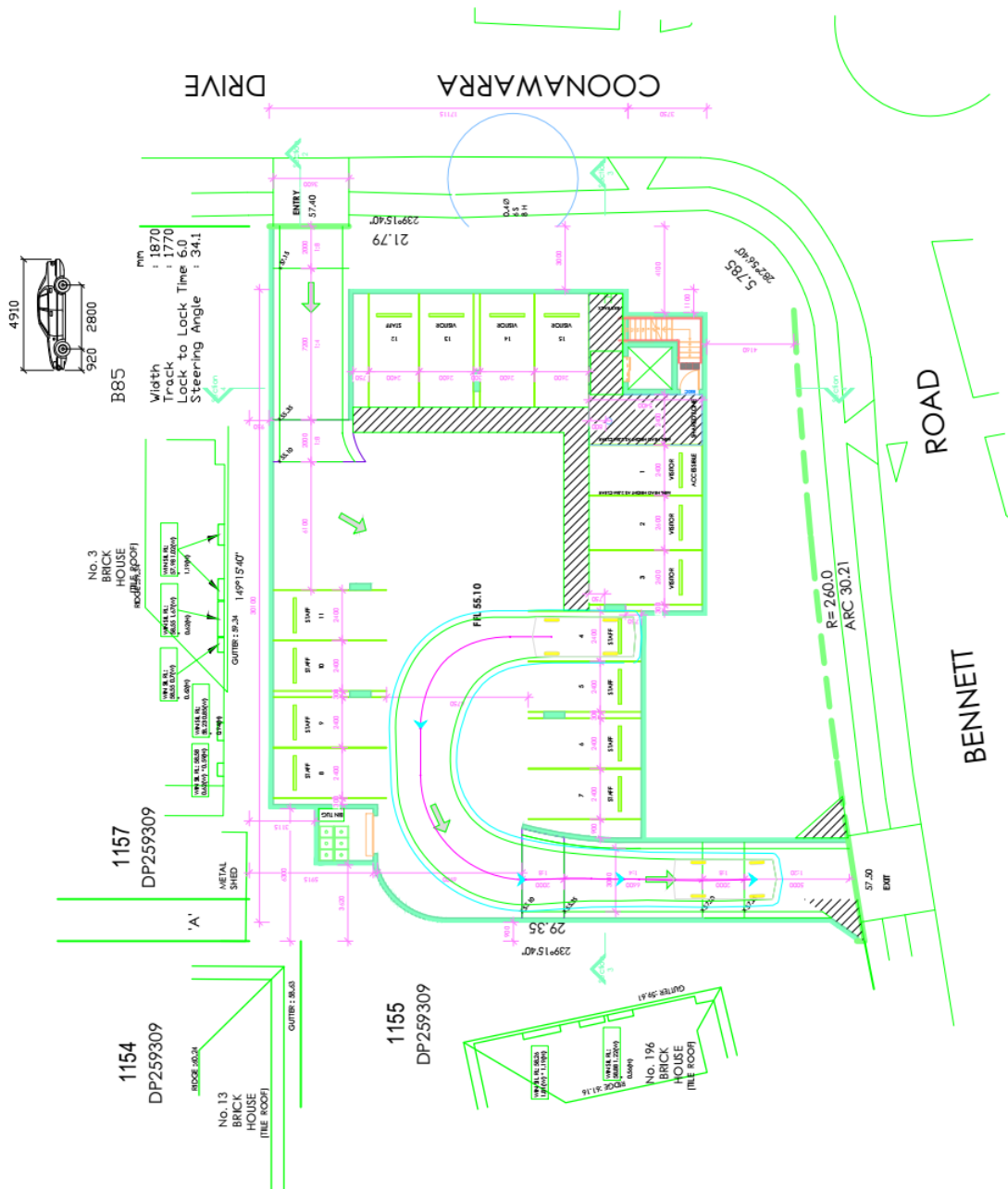


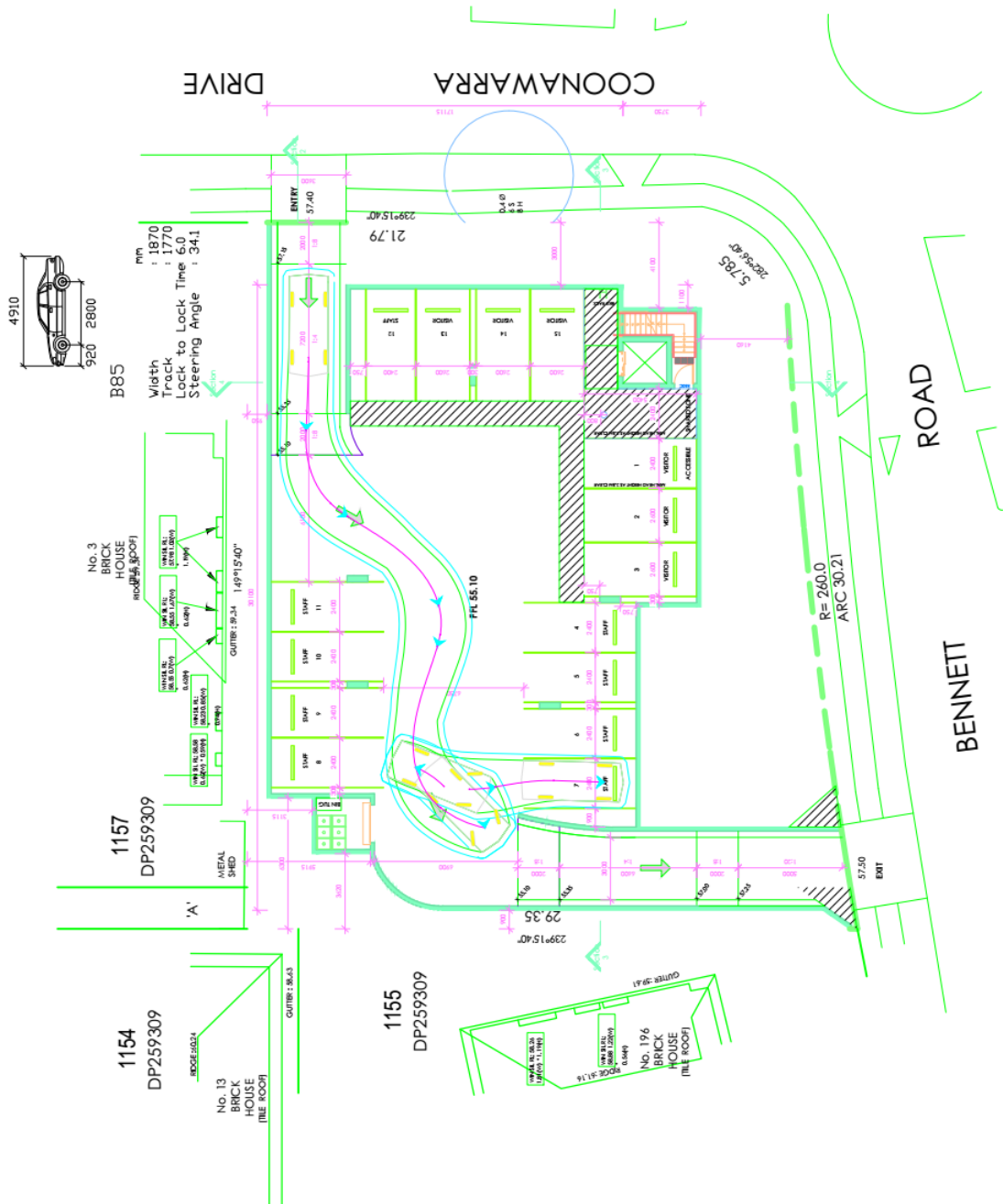


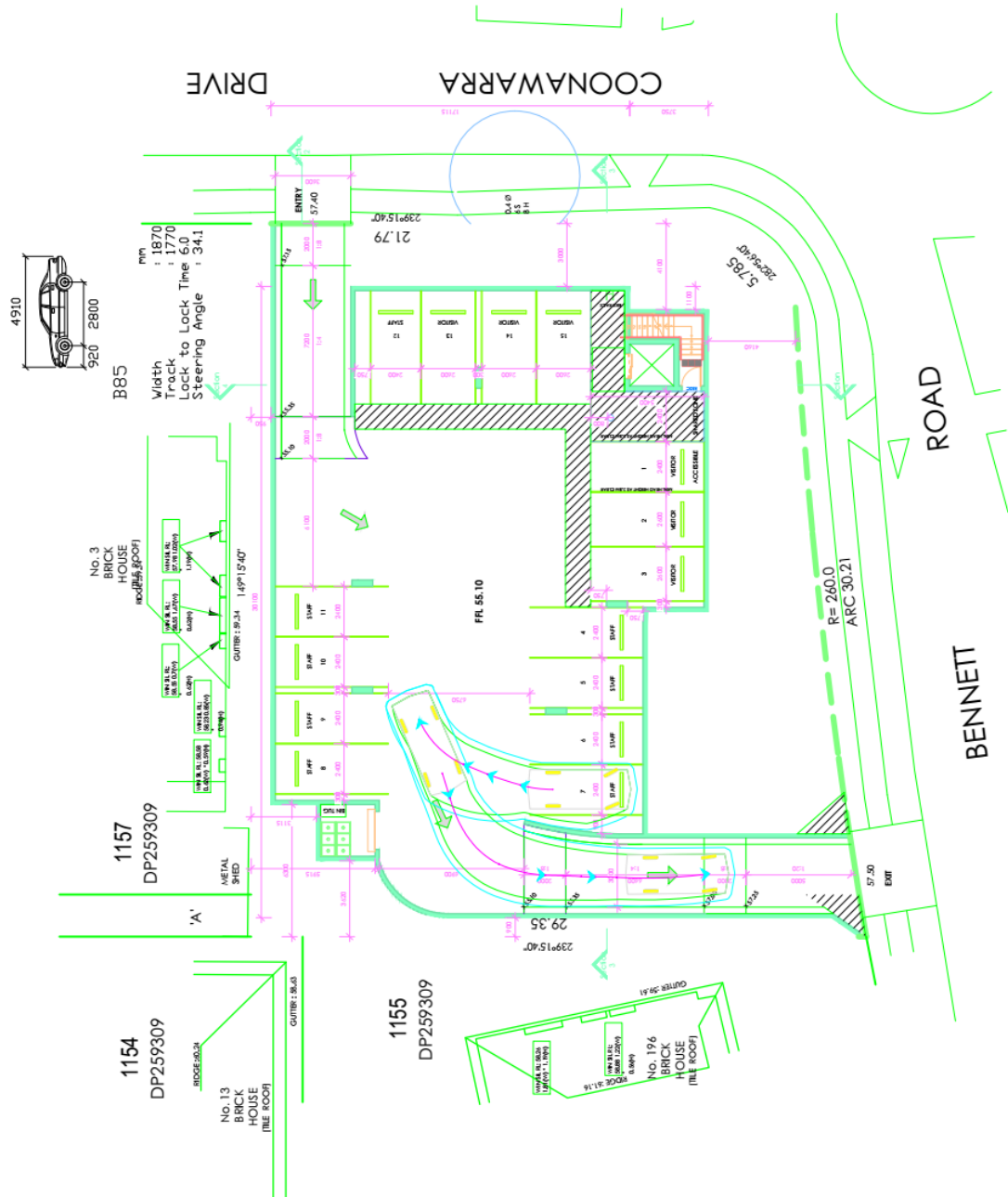












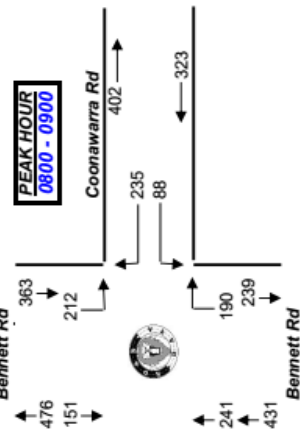
Appendix C – Traffic Volume Counts

R.O.A.R. DATA
 Reliable, Original & Authentic Results
 Mob.0418-239019



All Vehicles	NORTH			EAST			SOUTH		
	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd
Time Per	I	L	R	I	L	R	I	L	R
0700 - 0715	22	13	33	7	43	17	135		
0715 - 0730	31	21	28	12	35	22	149		
0730 - 0745	22	20	28	22	36	44	172		
0745 - 0800	29	26	32	18	32	48	185		
0800 - 0815	49	40	62	17	41	52	261		
0815 - 0830	41	50	53	15	49	57	265		
0830 - 0845	27	55	66	21	42	67	278		
0845 - 0900	34	67	54	35	58	66	313		
0900 - 0915	34	39	43	15	39	46	216		
0915 - 0930	36	18	40	18	26	44	182		
0930 - 0945	23	28	29	16	21	34	151		
0945 - 1000	28	21	34	18	18	29	148		
Period End	376	398	502	214	440	525	2455		

All Vehicles	NORTH			EAST			SOUTH		
	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd
Peak Per	I	L	R	I	L	R	I	L	R
0700 - 0800	104	80	121	59	146	131	641		
0715 - 0815	131	107	150	69	144	166	767		
0730 - 0830	141	136	175	72	158	201	883		
0745 - 0845	146	171	213	71	164	224	989		
0800 - 0900	151	212	235	88	190	241	1117		
0815 - 0915	138	211	216	86	188	235	1072		
0830 - 0930	131	179	203	89	165	222	989		
0845 - 0945	127	152	166	84	144	189	862		
0900 - 1000	121	106	146	67	104	153	697		
PEAK HR	151	212	235	88	190	241	1117		



Client : Hemanote Consultants
 Job No/Name : 7431 ST CLAIR Coonawarra Rd
 Day/Date : Wednesday 11th November 2020

All Vehicles	NORTH			EAST			SOUTH		
	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd
Time Per	I	L	R	I	L	R	I	L	R
1500 - 1515	46	46	57	46	33	75	303		
1515 - 1530	32	46	61	52	58	78	327		
1530 - 1545	27	44	40	35	39	60	245		
1545 - 1600	35	41	60	41	36	58	271		
1600 - 1615	43	31	68	55	30	54	281		
1615 - 1630	39	36	71	46	28	81	301		
1630 - 1645	35	40	64	49	29	51	268		
1645 - 1700	45	44	65	47	21	61	283		
1700 - 1715	40	35	64	47	32	65	283		
1715 - 1730	34	43	95	44	27	83	326		
1730 - 1745	50	53	94	45	26	52	320		
1745 - 1800	35	48	69	51	16	53	272		
Period End	461	507	808	558	375	771	3480		

All Vehicles	NORTH			EAST			SOUTH		
	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd	Bennett Rd	Coonawarra Rd	Bennett Rd
Peak Per	I	L	R	I	L	R	I	L	R
1500 - 1600	140	177	218	174	166	271	1146		
1515 - 1615	137	162	229	183	163	250	1124		
1530 - 1630	144	152	239	177	133	253	1098		
1545 - 1645	152	148	263	191	123	244	1121		
1600 - 1700	162	151	268	197	108	247	1133		
1615 - 1715	159	155	284	189	110	258	1135		
1630 - 1730	154	162	288	187	109	260	1160		
1645 - 1745	169	175	318	183	106	261	1212		
1700 - 1800	159	179	322	187	101	253	1201		
PEAK HR	169	175	318	183	106	261	1212		

