

22 March 2024

Venetin Aghostin
Senior Development Planner
Fairfield City Council

**ADDENDUM TRAFFIC & PARKING STATEMENT
IN REPLY TO COUNCIL'S RFI LETTER
PROPOSED RESIDENTIAL FLAT BUILDING &
TOWNHOUSES DEVELOPMENT
400-404 CABRAMATTA ROAD WEST, CABRAMATTA, 2 ORANGE GROVE
ROAD, CABRAMATTA, AND 6 LINKS AVENUE, CABRAMATTA
(DA NO. 260.1/2023)**

We refer to Council's RFI letter dated 21 December 2023 in relation to DA No. 260.1/2023 for the proposed residential flat building (RFB) and townhouses development at 400-404 Cabramatta Road West, Cabramatta, 2 Orange Grove Road, Cabramatta, and 6 Links Avenue, Cabramatta, and provide the following additional assessment and information for Council's consideration.

This traffic Statement has been prepared for Tcon Constructions and is to be read in conjunction with the amended architectural plans for the residential flat building prepared by Aleksandar Projects and for the townhouses prepared by Designiche Building Designers (reduced copy of both sets of amended plans – Revision C - attached in **Appendix 'A' and 'B'** of this statement).

1. Vehicular Access and Traffic Impacts

b) The proposed development layout has been amended to provide 'STOP' signage at the egress point from the site into Links Avenue, giving priority to traffic travelling along Links Avenue, and in accordance with Clauses 1.5.1 viii. and xi. of SSDCP. It is recommended to extend the existing 'No Stopping' signage located along both sides of Links Avenue, between the bend on Links Avenue and the intersection with Orange Grove Road. Further, there is the proposed extension of the existing road BB line marking to be 30 meters in length within Links Avenue at its approach to its signalised intersection with Orange Grove Road.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

This will alleviate potential traffic impacts on residents on Links Avenue, preventing congestion from vehicles entering and exiting the street as well as the subject site driveway. Refer to **Appendix 'J'** for the attached aerial map of Links Avenue with the proposed signage and BB line marking extensions.

Traffic calming measures have been provided within the internal roads of the development layout as shown in the proposed on-site signage plan in **Appendix 'K'**, including speed humps and dedicated pedestrian walkways, with associated '10 km/h Shared Zone' signage, in order to reduce speed environment, raise awareness of the presence of pedestrians and children and increase safety for all users of the carpark.

c) Hemanote Consultants have consulted with TfNSW on Council's concerns regarding the proposed development having only one vehicular access from Links Avenue. As shown in **Appendix 'F'** of this statement, TfNSW has advised that vehicular conflict points along arterial roads are to be limited in order to maintain network safety and efficiency. Given that Orange Grove Road and Cabramatta Road West are major arterial roads, carrying high volumes of traffic, vehicular access is not to be provided through these roads. TfNSW has specifically stated, "any future development of the site to not have vehicular access on the classified road frontage, with all vehicular access to be provided *via Links Road*". This is also in line with Clause 1.5.1 x. of SSDCP, TfNSW current publication of the *Guide to Traffic Generating Developments* and Clause 2.119 of *State Environmental Planning Policy (Infrastructure) 2021*.

d) It is recommended that vehicular access to the residential flat building towards the north of the site be restricted to the eastern internal road of the development. This is to limit access to the number of vehicles passing through the western internal road where a majority of the residential townhouses are proposed and reduce the adverse impacts on privacy. This is to be accompanied by the proposed traffic control measures, including speed humps to reduce vehicle speed, as well as signage.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

This includes signage to be provided at the end of the main access road into the site, showing 'Apartment Building All Traffic' with an associated right turn arrow. In addition, 'left-turn only' signage out of the basement car park for the RFB and left-turn arrows are to be provided. Refer to **Appendix 'J'** for the proposed signage plan.

e) Line-marked dedicated pedestrian walkways have been provided within the internal roadway, to provide a defined pedestrian path across the site. The on-site parking area is also signposted with a speed limit of '10 km/h Shared Zone' to reduce the speed environment, raise awareness of the presence of pedestrians and children and increase safety for all users of the carpark.

f) 'No Parking' signage is to be posted along either side of all internal circulation roadways as shown in **Appendix 'K'**, in order to prevent residents and visitors from parking in front of the residential townhouses.

4. Inconsistencies with Site Specific DCP (SSDCP) Controls

a) a. It is recommended to extend the existing 'No Stopping' signage located along the northern and southern sides of Links Avenue, between the bend on Links Avenue and the intersection with Orange Grove Road. This will mitigate potential traffic impacts on residents on Links Avenue, preventing congestion from vehicles entering and exiting the street as well as the site driveway. This is as demonstrated in **Appendix 'J'** of this statement.

a) j. The proposed internal carriageways of the site have a minimum width of 6 meters between kerbs, as per Clause 1.5.1 iv. of SSDCP, which is adequate for vehicles to access the proposed garages and provide two-way manoeuvring around the site. Additionally, 'No Parking' signage is to be posted along either side of all internal circulation roadways, as shown in **Appendix 'K'**, to prevent residents and visitors from parking in front of the residential townhouses.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

b) The on-site basement car parking areas have been amended to provide a total of 22 visitor car parking spaces in compliance with Chapter 12, Section 12.1, Table 1, of Fairfield CityWide Development Control Plan 2013, in addition to a separate 3 metres wide car wash bay.

h) The proposed at-grade car parking layout has been amended to remove the mentioned car parking spaces, providing a landscaped and common space area at the end of Block D, as additional landscape next to U.1 townhouse.

k) A Pedestrian Access and Mobility Plan (PAMP) has been prepared by Hemanote Consultants as per Council's request and in line with Clause 1.5.1 ix. of SSDCP, in order to provide a framework for developing infrastructure strategies and pedestrian routes to improve the accessibility, safety, convenience and connectivity of all pedestrians within the local area. The PAMP is provided separately from this statement.

5. Inconsistencies with the ADG

Vehicle Access Points

a) The proposed development plans have been amended to provide on-site signage between all conflict vehicle points, specifically between basement and at-grade level vehicular and pedestrian access. 'STOP' signage has been installed at the basement entry/exit point, giving priority to traffic within the internal circulation roadways, improving traffic flow and reducing vehicle conflict. Additional speed humps, dedicated pedestrian walkways, and '10 km/h Shared Zone' signage have been provided as calming measures to slow down vehicles and raise awareness of the presence of both pedestrians and vehicles on-site. This is as demonstrated in **Appendix 'K'** of this statement.

b) Between the intersection of the basement access, loading bay and circulation roadway, the installation of 'STOP' and 'Watch for Reversing Truck' signage has been provided as a measure to mitigate conflict between vehicular manoeuvring within this area of the site.

In addition, to further improve traffic flow within the site, it is recommended that all traffic access to the RFB be restricted to the eastern side of the circulation roadway and signage be provided at the end of the main access road into the site, **Hemanote Consultants Building All Traffic**, with an associated right turn arrow.

Hemanote Consultants Building All
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

In addition, 'left-turn only' signage out of the basement car park for the RFB and left turn arrows are to be provided. This is to limit access to the number of vehicles passing through the western circulation roadway where pedestrian walkways are proposed, therefore improving pedestrian safety.

d) Pedestrian and vehicle access has been separated to the site, where vehicular access is directly through Links Avenue and into the proposed site driveway, whereas pedestrian access is through separate access walkways leading from Orange Grove Road / Cumberland Highway and Cabramatta Road West, as shown in **Appendix 'A' and 'B'**. Direct vehicular access from Links Avenue to the proposed RFB is through the eastern internal road as previously mentioned. Pedestrian access is through the mentioned walkways from Orange Grove Road / Cumberland Highway and Cabramatta Road West, which is safer for pedestrians as they do not have to cross through the main driveway access and within the internal roadway to get to the RFB.

Car Parking and Basement

a) Three charging stations for electric vehicles have been provided within basement 1 of the RFB.

6. Transport for NSW (TfNSW)

Traffic Volume Surveys

Traffic volume surveys were undertaken by *Geocounts Data Supply* on behalf of Hemanote Consultants at the following intersections:

- Cumberland Highway / Cabramatta Road West / Orange Grove Road
- Orange Grove Road / Links Avenue / Golf Club Access
- Orange Grove Road / Viscount Place

near the subject site on Thursday 22 February 2024, during morning period (6.30am to 9.30am) and afternoon period (2.30pm to 6.30pm), considering traffic peak periods. Refer to **Appendix 'G'** for the attached traffic survey results.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Estimated Future Traffic Generation

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 **medium-density** residential developments:

Larger units and townhouses (three or more bedrooms):

- Weekday peak hour vehicle trips = 0.5-0.65 per dwelling.

Therefore, the proposed townhouses with fifty-three (53) residential apartments (32 x 3-bed units and 21 x 4-bed units) have an estimated traffic generation as follows:

- 27 to 35 peak hour vehicle trips (In and Out trips).

Further, as requested by TfNSW, given the lack of public transport opportunities in close proximity to the subject site, a re-estimated traffic generation rate for **high-density** residential developments has been provided as follows:

- AM peak (1 hour) vehicle trips per unit = 0.26.
- PM peak (1 hour) vehicle trips per unit = 0.29.

Therefore, the proposed RFB with eighty-five (85) residential units has an estimated traffic generation of:

- 22 AM peak hour vehicle trips (In and Out trips).
- 25 PM peak hour vehicle trips (In and Out trips).

The **total** estimated peak hour traffic generation from the proposed development is:

- **57 AM peak hour vehicle trips** (20% Inbound and 80% Outbound trips for typical residential development)
- **60 PM peak hour vehicle trips** (80% Inbound and 20% Outbound trips for typical residential development)

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Intersection Performance (Pre & Post-development)

Average Vehicle Delay (AVD) and Level of Service (LOS) – The AVD and LOS provides 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).

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)

A **pre-development** SIDRA intersection performance analysis was undertaken for the existing intersections of Cumberland Highway / Cabramatta Road West / Orange Grove Road, Orange Grove Road / Links Avenue / Golf Club Access and Orange Grove Road / Viscount Place, in the vicinity of the subject site.

The SIDRA base model has incorporated the information provided in the Traffic Control Signal plans and the signal phase times obtained from TfNSW. Subsequently, the SIDRA base model was calibrated against the observed field back-of-queue length at the start of the green signals to establish a calibrated base.

It is important to note that data from the observed queue length at each approach leg of the intersections during the peak AM & PM hours were utilised to calculate the actual average and 95th percentile back-of-queue length. This data was then compared against the SIDRA base model using the estimated values in the Queue Analysis Report, which includes the Basic Saturation Flow parameter.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

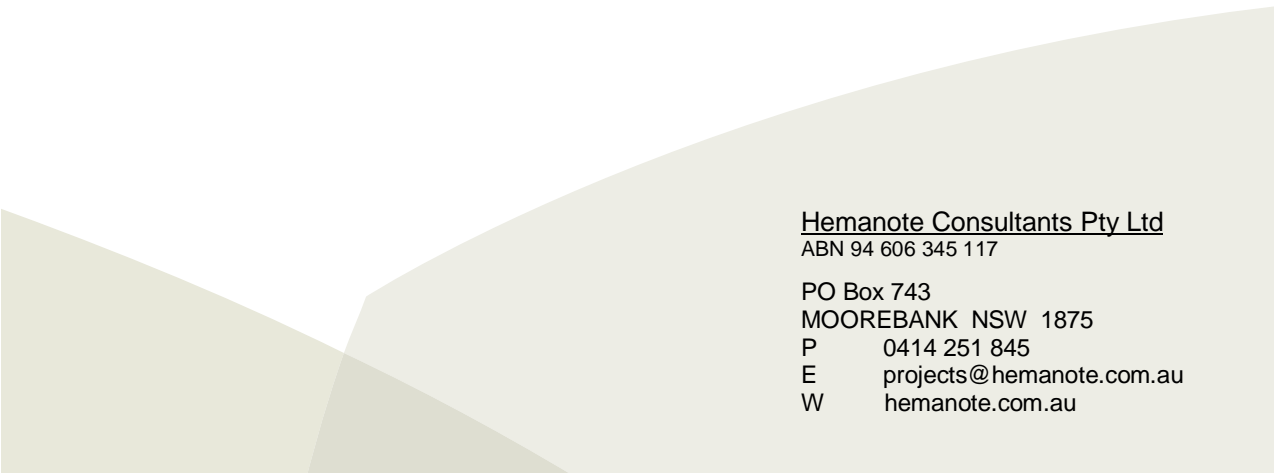
PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Please refer to **Appendix 'H'**, which summarises the average and 95th percentile back-of-the-queue lengths at the start of the green light obtained from the field and the SIDRA basic model. Additionally, it presents the new values based on the calibrated model, along with the parameters used for the calibration.

Refer to Figure 1 on the following page, showing the intersections network layout controlled by traffic signalling systems. Cabramatta Road West, Cumberland Highway, Orange Grove Road and Viscount Place have divided carriageways, with three through traffic lanes in each direction for Cabramatta Road West, Cumberland Highway and Orange Grove Road, and two through traffic lanes for Viscount Place in each direction. Links Avenue has an undivided carriageway with one through-traffic lane in each direction.

A post-development SIDRA intersection performance modelling analysis was then undertaken for the subject intersections, and it was modelled as the proposed network layout as shown in Figure 1 on the following page.

Refer to the summary of the results of the SIDRA intersection performance analysis (undertaken for pre & post-development) attached in **Appendix 'I'** of this statement.

A decorative graphic in the bottom right corner of the page, consisting of several overlapping, semi-transparent, light-colored geometric shapes (triangles and polygons) that create a layered, abstract effect.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

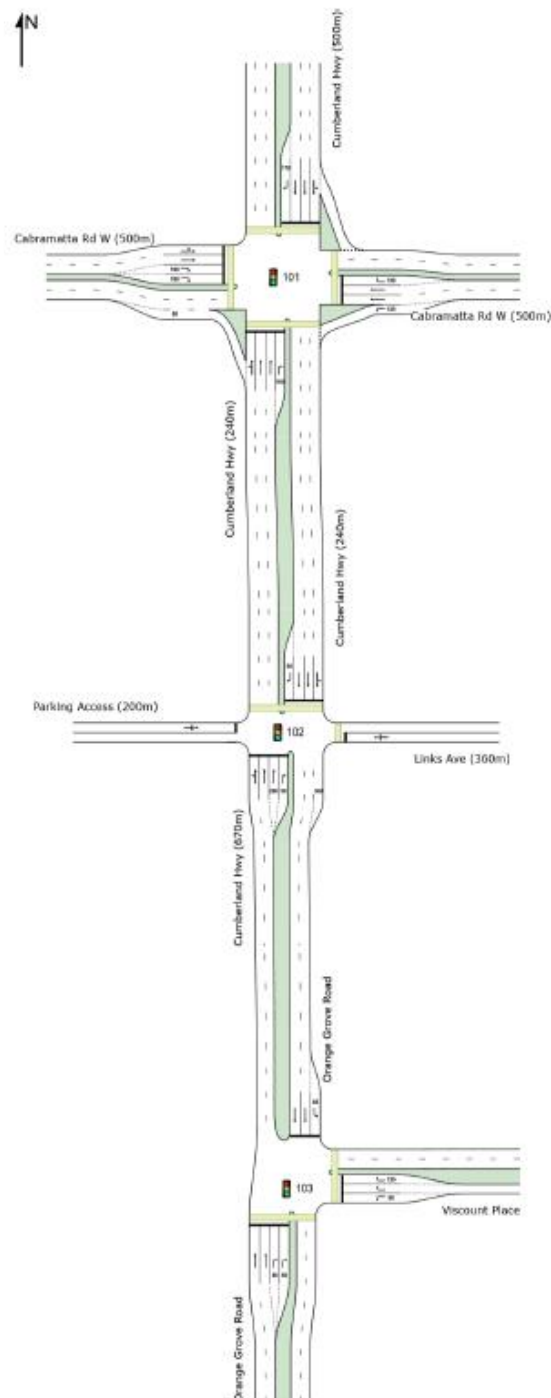


Figure 1: Intersection Network Layout

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

The following assumptions have been considered and adopted in the SIDRA Network Intersection modelling for the post-development conditions considering that the main access to and from the subject site is through Links Avenue:

- Morning and afternoon peak traffic generation was adopted as per the future traffic generation in the previous section of the statement.
- Traffic generated by the development was split into inbound and outbound traffic for AM & PM peak hours as outlined in future traffic generation of the statement.
- Pre-development network analysis is modelled for the base year (2024) in surrounding traffic.
- Post-development network analysis is modelled for when the residential development is in operation.

These assumptions will result in the development trip distribution shown in Figures 2 and 3 for relevant traffic movement and modelled intersections.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

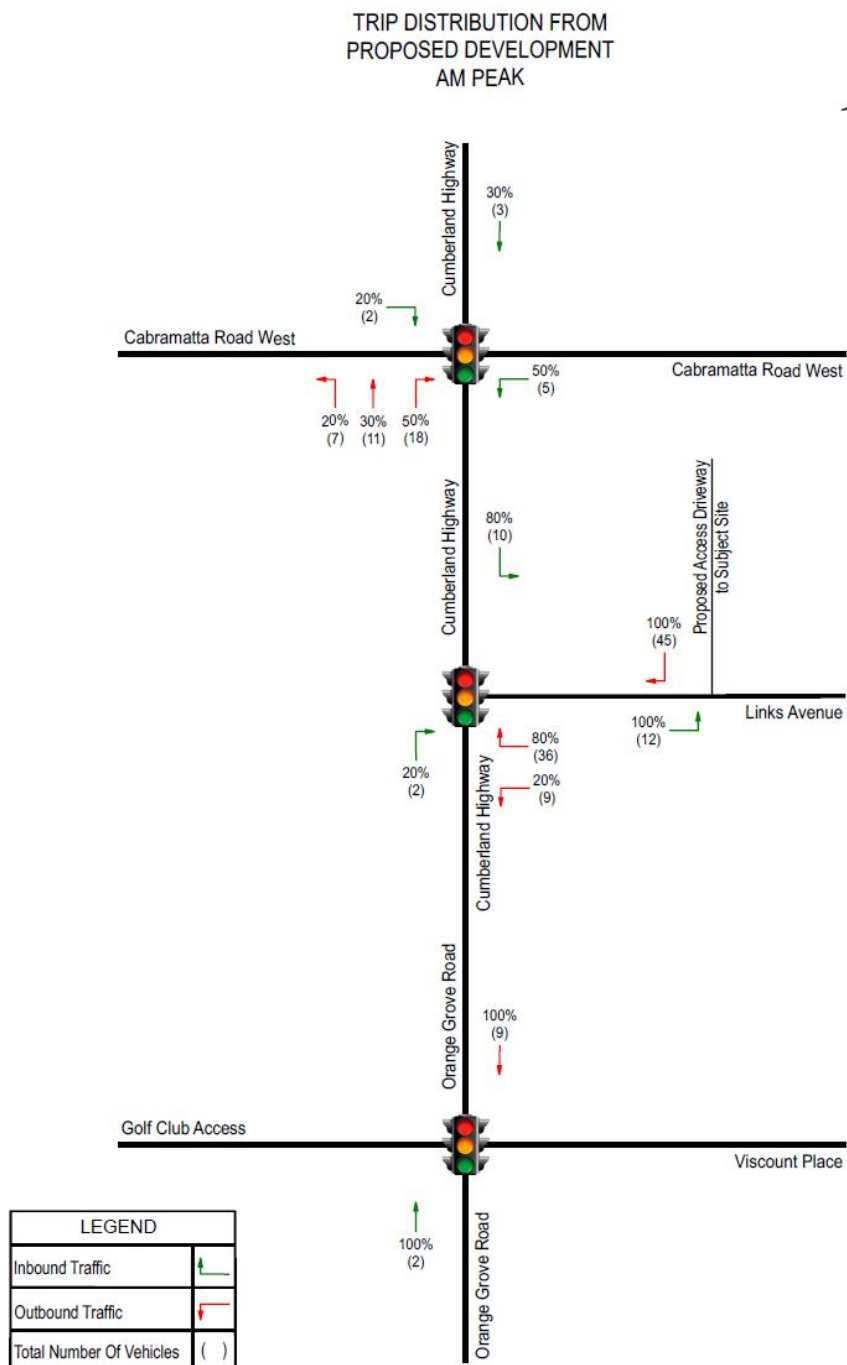


Figure 2: Development Traffic Distribution on the Surrounding Road Network – AM Peak

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

TRIP DISTRIBUTION FROM PROPOSED DEVELOPMENT PM PEAK

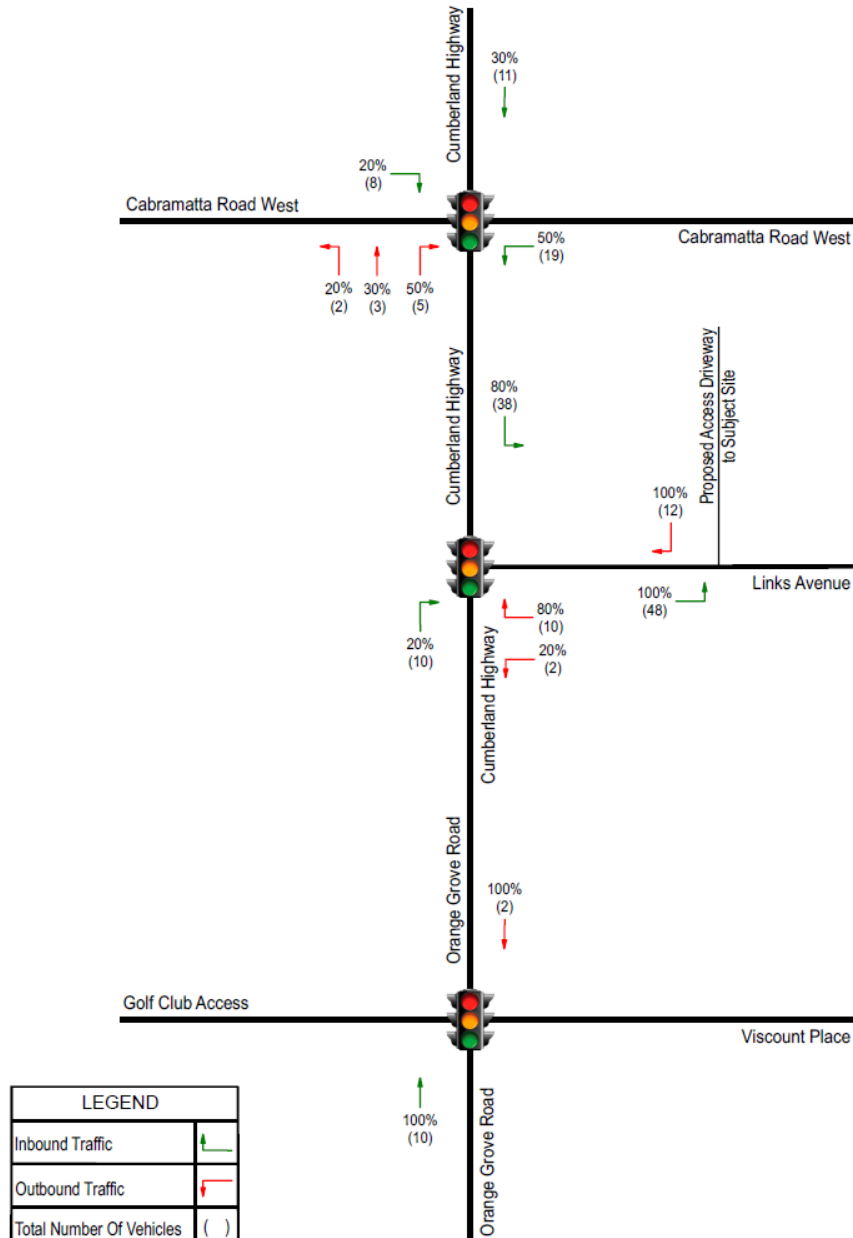


Figure 3: Development Traffic Distribution on the Surrounding Road Network – **PM Peak**

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

The outcome of the SIDRA modelling

A summary of the results of the SIDRA intersection performance analysis has been provided in Tables 1 to 2 below, as well as the SIDRA Movement Summary Tables attached in **Appendix 'I'** of this statement.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Intersection	Approach Leg	Traffic Movement	Pre Development				Post Development			
			LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)	LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)
Cumberland Highway / Cabramatta Road West / Orange Grove Road	South: Orange Grove Road	Left Turn into Cabramatta Road West	A	7.3	0.723	31.3	A	7.2	0.731	31.9
	South: Orange Grove Road	Through	D	44.7	0.723	31.3	D	45.1	0.731	31.9
	South: Orange Grove Road	Right Turn into Cabramatta Road West	F	174.9	1.088	21.7	F	259.3	1.190	28.7
	East: Cabramatta Road West	Left Turn into Orange Grove Road	A	14.3	0.222	5.9	A	14.4	0.228	6
	East: Cabramatta Road West	Through	D	49.4	0.565	16	D	49.4	0.565	16
	East: Cabramatta Road West	Right Turn into Cumberland Highway	F	75	0.605	6.5	F	75	0.605	6.5
	North: Cumberland Highway	Left Turn into Cabramatta Road West	B	24.7	0.599	22.4	B	24.8	0.6	22.5
	North: Cumberland Highway	Through	C	38.5	0.599	23.1	C	38.6	0.6	23.2
	North: Cumberland Highway	Right Turn into Cabramatta Road West	F	77.7	0.763	9.8	F	77.7	0.763	9.8
	West: Cabramatta Road West	Left Turn into Cumberland Highway	F	95.4	0.984	46.3	F	95.5	0.984	46.3
	West: Cabramatta Road West	Through	F	118.3	0.984	46.3	F	118.4	0.984	46.3
	West: Cabramatta Road West	Right Turn into Orange Grove Road	F	90	0.878	10.3	F	90.7	0.885	10.4

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Intersection	Approach Leg	Traffic Movement	Pre Development				Post Development			
			LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)	LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)
Orange Grove Road / Links Avenue / Golf Club Access	South: Orange Grove Road	Left Turn into Golf Club Access	A	11.7	0.304	8.5	A	12.3	0.312	9
	South: Orange Grove Road	Through	A	5.3	0.304	8.6	A	5.9	0.312	9.2
	South: Orange Grove Road	Right Turn into Links Avenue	F	77.7	0.014	0.1	F	79.1	0.042	0.2
	East: Links Avenue	Left Turn into Orange Grove Road	E	64.9	0.346	3.2	E	65.4	0.520	6.5
	East: Links Avenue	Through	E	69.4	0.346	3.2	E	69.4	0.520	6.5
	East: Links Avenue	Right Turn into Orange Grove Road	F	73.9	0.346	3.2	F	74.5	0.520	6.5
	North: Orange Grove Road	Left Turn into Links Avenue	A	11.3	0.107	2.5	A	11.2	0.111	2.8
	North: Orange Grove Road	Through	A	4.5	0.107	2.6	A	5	0.111	2.8
	North: Orange Grove Road	Right Turn into Golf Club Access	F	77.5	0.013	0.1	F	78.6	0.013	0.1
	West: Golf Club Access	Left Turn into Orange Grove Road	E	61.8	0.023	0.2	F	144.1	0.0	0.3
	West: Golf Club Access	Through	E	61.1	0.023	0.2	F	161.3	0.0	0.3
	West: Golf Club Access	Right Turn into Orange Grove Road	E	72.9	0.023	0.2	F	170.6	0.0	0.3

Hemanote Consultants Pty Ltd

ABN 94 606 345 117

PO Box 743

MOOREBANK NSW 1875

P 0414 251 845

E projects@hemanote.com.au

W hemanote.com.au

Intersection	Approach Leg	Traffic Movement	Pre Development				Post Development			
			LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)	LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)
Orange Grove Road / Viscount Place	South: Orange Grove Road	Through	A	5.8	0.786	32	A	5.8	0.787	32.1
	South: Orange Grove Road	Right Turn into Viscount Place	F	70.7	0.835	5	F	70.7	0.835	5
	East: Viscount Place	Left Turn into Orange Grove Road	D	48.6	0.245	3.6	D	48.6	0.245	3.6
	East: Viscount Place	Right Turn into Orange Grove Road	E	64.5	0.644	4.2	E	64.5	0.644	4.2
	North: Orange Grove Road	Left Turn into Viscount Place	A	11.9	0.185	2.9	A	11.9	0.185	2.9
	North: Orange Grove Road	Through	B	17.7	0.864	47.4	B	18.3	0.868	48.4

Table 1: Existing Intersection Performance – AM Peak (Base Year 2024)

Hemanote Consultants Pty Ltd

ABN 94 606 345 117

PO Box 743

MOOREBANK NSW 1875

P 0414 251 845

E projects@hemanote.com.au

W hemanote.com.au

Intersection	Approach Leg	Traffic Movement	Pre Development				Post Development			
			LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)	LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)
Cumberland Highway / Cabramatta Road West / Orange Grove Road	South: Orange Grove Road	Left Turn into Cabramatta Road West	D	49.9	0.992	54.2	D	51.4	0.995	54.2
	South: Orange Grove Road	Through	F	112.5	0.992	54.2	F	114.2	0.992	54.2
	South: Orange Grove Road	Right Turn into Cabramatta Road West	F	96.4	0.962	26.9	F	102.6	0.978	28.3
	East: Cabramatta Road West	Left Turn into Orange Grove Road	A	12.6	0.209	5.5	A	12.8	0.227	6.1
	East: Cabramatta Road West	Through	F	81.4	0.957	39.2	F	81.4	0.957	39.2
	East: Cabramatta Road West	Right Turn into Cumberland Highway	F	74.7	0.584	6.2	F	74.7	0.584	6.2
	North: Cumberland Highway	Left Turn into Cabramatta Road West	B	25.8	0.67	22.1	B	26.6	0.663	22.4
	North: Cumberland Highway	Through	D	48.2	0.657	22.5	D	48.4	0.663	22.7
	North: Cumberland Highway	Right Turn into Cabramatta Road West	F	80.6	0.898	22.4	F	80.6	0.898	22.4
	West: Cabramatta Road West	Left Turn into Cumberland Highway	C	3.8	0.825	27.9	C	3.8	0.826	27.9
	West: Cabramatta Road West	Through	E	60.9	0.825	27.9	E	60.9	0.826	27.9
	West: Cabramatta Road West	Right Turn into Orange Grove Road	F	77	0.660	7.1	F	77.5	0.687	7.5

Hemanote Consultants Pty Ltd

ABN 94 606 345 117

PO Box 743

MOOREBANK NSW 1875

P 0414 251 845

E projects@hemanote.com.au

W hemanote.com.au

Intersection	Approach Leg	Traffic Movement	Pre Development				Post Development			
			LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)	LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)
Orange Grove Road / Links Avenue / Golf Club Access	South: Orange Grove Road	Left Turn into Golf Club Access	B	17.5	0.768	21.4	B	16.6	0.768	20.9
	South: Orange Grove Road	Through	A	11.1	0.768	22.4	A	10.2	0.768	21.4
	South: Orange Grove Road	Right Turn into Links Avenue	F	79.6	0.110	0.6	F	79.2	0.243	1.3
	East: Links Avenue	Left Turn into Orange Grove Road	E	63	0.356	2.4	E	66.4	0.574	3.4
	East: Links Avenue	Through	E	67.4	0.356	2.4	F	70.9	0.574	3.4
	East: Links Avenue	Right Turn into Orange Grove Road	F	74.1	0.356	2.4	F	78.0	0.574	3.4
	North: Orange Grove Road	Left Turn into Links Avenue	A	11.6	0.112	2.9	A	10.6	0.120	2.9
	North: Orange Grove Road	Through	A	5.1	0.112	2.9	A	4.6	0.120	3
	North: Orange Grove Road	Right Turn into Golf Club Access	F	79.4	0.106	0.6	F	78.3	0.104	0.6
	West: Golf Club Access	Left Turn into Orange Grove Road	E	61.6	0.225	1.9	E	62.9	0.249	2
	West: Golf Club Access	Through	E	65.8	0.225	1.9	E	67.2	0.249	2
	West: Golf Club Access	Right Turn into Orange Grove Road	F	71.3	0.225	1.9	F	72.8	0.249	2

Hemanote Consultants Pty Ltd

ABN 94 606 345 117

PO Box 743

MOOREBANK NSW 1875

P 0414 251 845

E projects@hemanote.com.au

W hemanote.com.au

Intersection	Approach Leg	Traffic Movement	Pre Development				Post Development			
			LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)	LOS	Avg Delay (sec)	DOS (Veh/C)	Back of Queue (Veh)
Orange Grove Road / Viscount Place	South: Orange Grove Road	Through	A	8	0.295	4.1	A	8	0.3	4.2
	South: Orange Grove Road	Right Turn into Viscount Place	C	31	0.8	7.9	C	31	0.8	7.9
	East: Viscount Place	Left Turn into Orange Grove Road	A	14.4	0.707	13.4	A	14.4	0.707	13.4
	East: Viscount Place	Right Turn into Orange Grove Road	C	29.7	0.813	10.4	C	29.7	0.813	10.4
	North: Orange Grove Road	Left Turn into Viscount Place	A	12.5	0.435	6.4	A	12.5	0.435	6.4
	North: Orange Grove Road	Through	B	25	0.775	7.1	B	25.1	0.778	7.2

Table 2: Existing Intersection Performance – PM Peak (Base Year 2024)

Hemanote Consultants Pty Ltd

ABN 94 606 345 117

PO Box 743

MOOREBANK NSW 1875

P 0414 251 845

E projects@hemanote.com.au

W hemanote.com.au

It can be concluded from the results of the SIDRA modelling that:

AM Base Year

- The current overall operational performance (pre-development) at the cross-intersection of Orange Grove Road and Links Avenue is operating at a Level of Service (LOS) 'B' during AM peak periods.
- The proposed residential development will generally not alter the current Level of Service (LOS) at the subject intersection, with the exception of the traffic movements at the west approach leg (Golf Club access road), where the average delay will increase. It should be noted that the traffic count survey indicated that there is no through traffic at this leg, and the SIDRA model has to be included as it is permitted. However, if the through traffic movement is restricted and the traffic movements are limited to right and left turns only into Orange Grove Road, then the average delay will revert back to the pre-development condition.
- The vehicle queue length on Links Avenue at the existing intersection will increase from 23.6m to 46.4m (an increase of 3 vehicles). This is acceptable, and the post-development queue length will be well within the distance between the proposed access driveway and the intersection and will not impact vehicular access for the subject site.
- Furthermore, the proposed residential development will not alter the LOS at Cumberland Highway / Cabramatta Road West / Orange Grove Road and Orange Grove Road / Viscount Place intersections.

PM Base Year

- The current overall operational performance (pre-development) at the cross-intersection of Orange Grove Road and Links Avenue is operating at a Level of Service (LOS) 'A' during PM peak periods. The proposed residential development will generally not alter the current LOS at the subject intersection.
- The vehicle queue length on Links Avenue at the existing intersection will increase from 17.3m to 24.3m (an increase of 1 vehicle). This is acceptable and the post development queue length will be well within the distance between the proposed access driveway and the intersection.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

- Furthermore, the proposed residential development will not alter the LOS at Cumberland Highway / Cabramatta Road West / Orange Grove Road and Orange Grove Road / Viscount Place intersections.

Therefore, the estimated traffic generation from the proposed development is of low impact on existing flows on Orange Grove Road, Links Avenue and surrounding streets and will not have adverse impacts on the current operational performance of the subject existing intersections, which will generally continue to operate at the same level of service.

The additional traffic generated by the proposed development can be readily accommodated within the existing road layout, without adverse impacts on the amenity of the area

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

6. d) It is not recommended to restrict vehicular movements to 'left-in, left-out' at the site access driveway, given that Links Avenue has a Cul-de-sac dead end to its south, and in general, a majority of vehicles exiting the site, are likely to turn right into Links Avenue and head towards Orange Grove Road. It is not suggested for vehicles to left-turn into Links Avenue out of the site, as vehicles will be forced to undertake a 3-point turn in order to travel back towards Orange Grove Road, causing adverse traffic impacts on Links Avenue.

7. Transport and Traffic Engineering Branch Comments

c) Vehicular swept paths have been undertaken at the site access driveway demonstrating a HRV entering and exiting the site in a forward direction, as well as manoeuvring throughout the internal circulation roadway. Refer to **Appendix 'E'** for heavy vehicle swept paths. In addition, swept paths have been carried out showing a B99 passing a B85 passenger vehicle simultaneously at the access driveway as well as at intersection areas. Refer to the updated vehicle swept path plans attached in **Appendix 'C'**.

d) A Loading Management Plan (LMP) has been prepared by Hemanote Consultants to address the frequency and type of vehicles expected to service the site and utilise the on-site loading bay. The LMP is provided separately from this statement.

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Given the additional traffic assessment and information provided in this statement, it is considered that the proposed amended on-site vehicular access, traffic and parking layout for the subject residential development is satisfactory and compliant with the requirements of AS2890.1:2004, AS2890.2:2018, and AS2890.6:2022, addressing both Council's and TfNSW's concerns.

If you require any further information, please do not hesitate to contact us.

Yours sincerely



Ramy Selim
Senior Traffic Engineer
Hemanote Consultants Pty Ltd

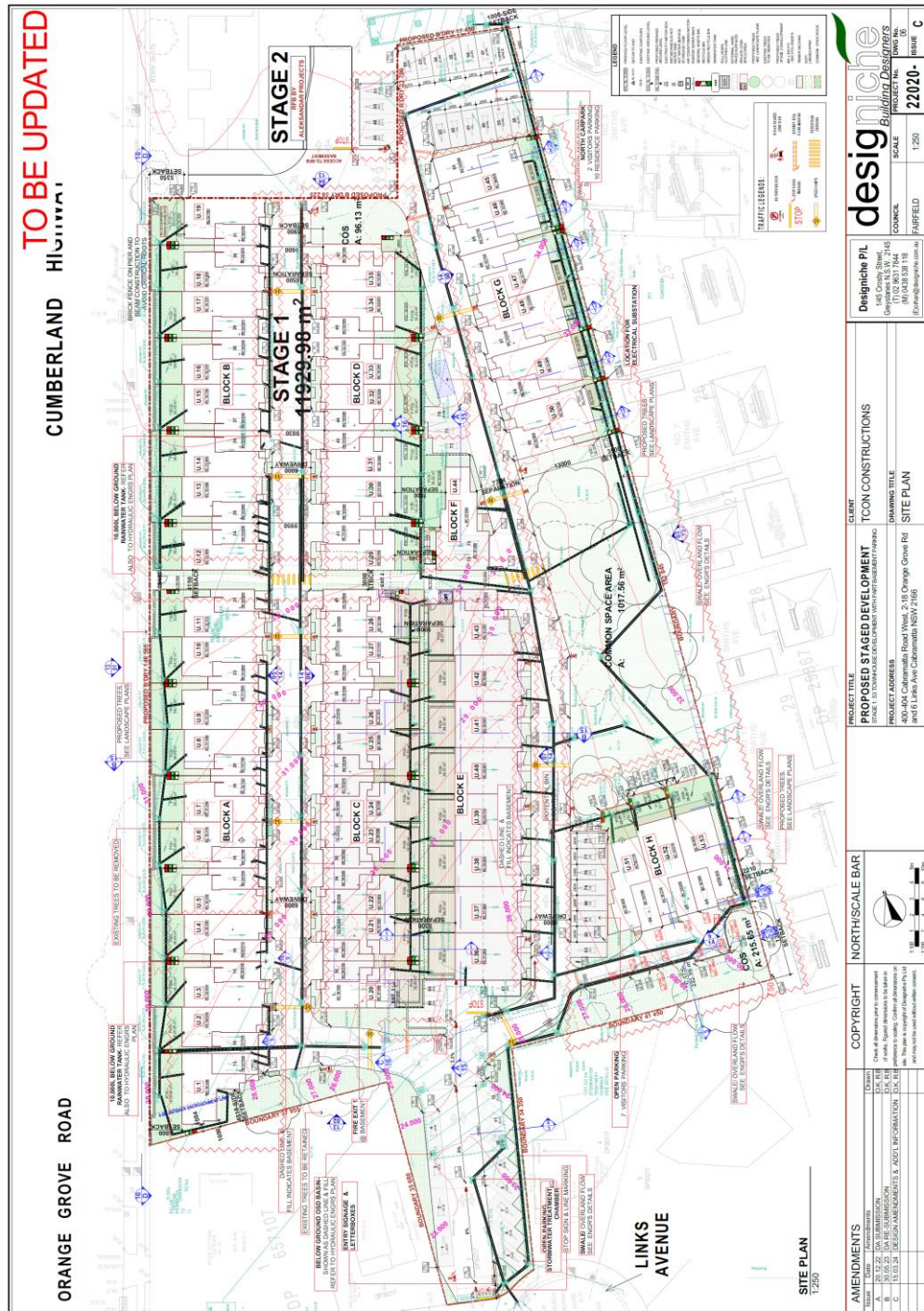
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix A – Amended Development Architectural Plans (Townhouses)

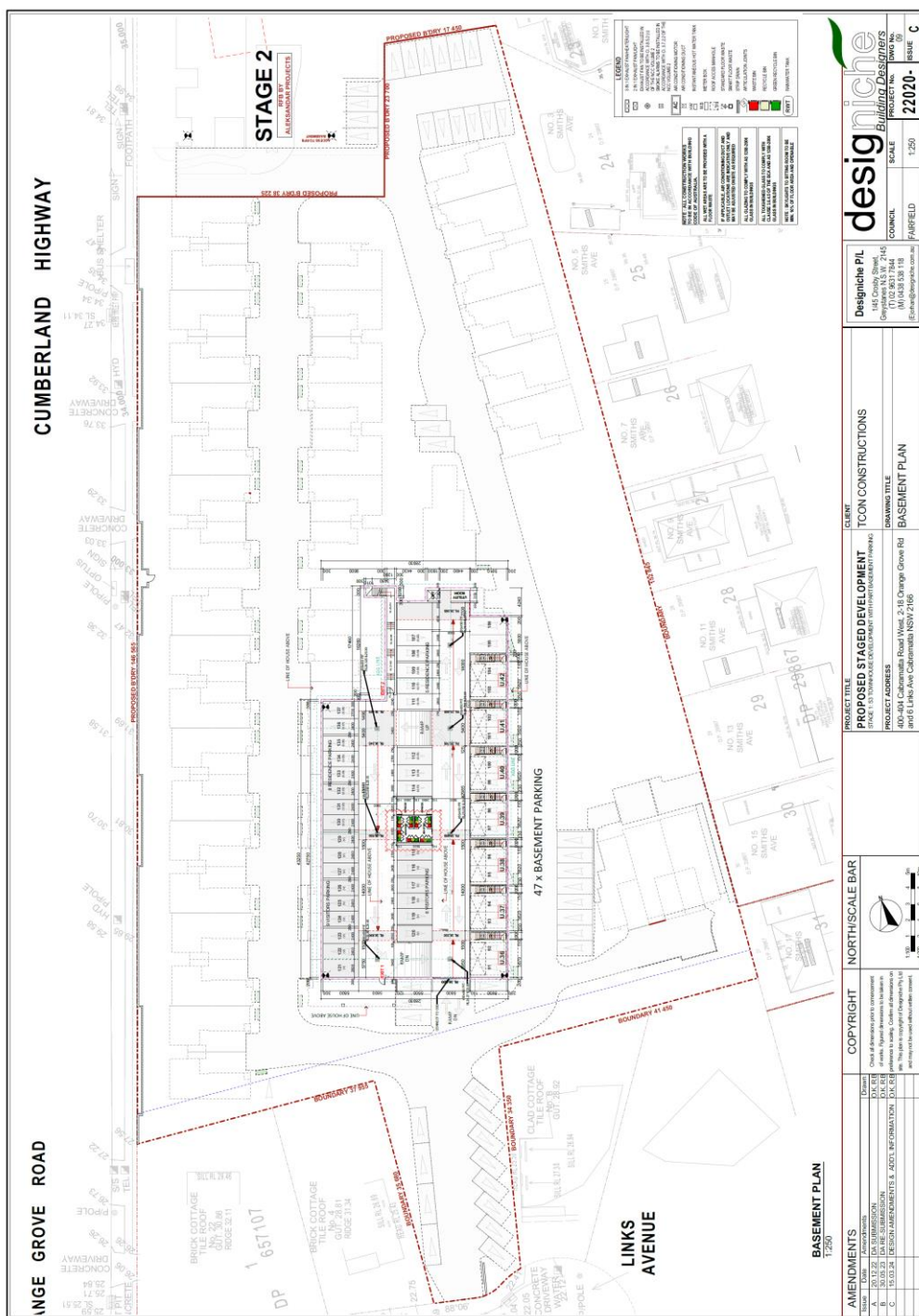
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



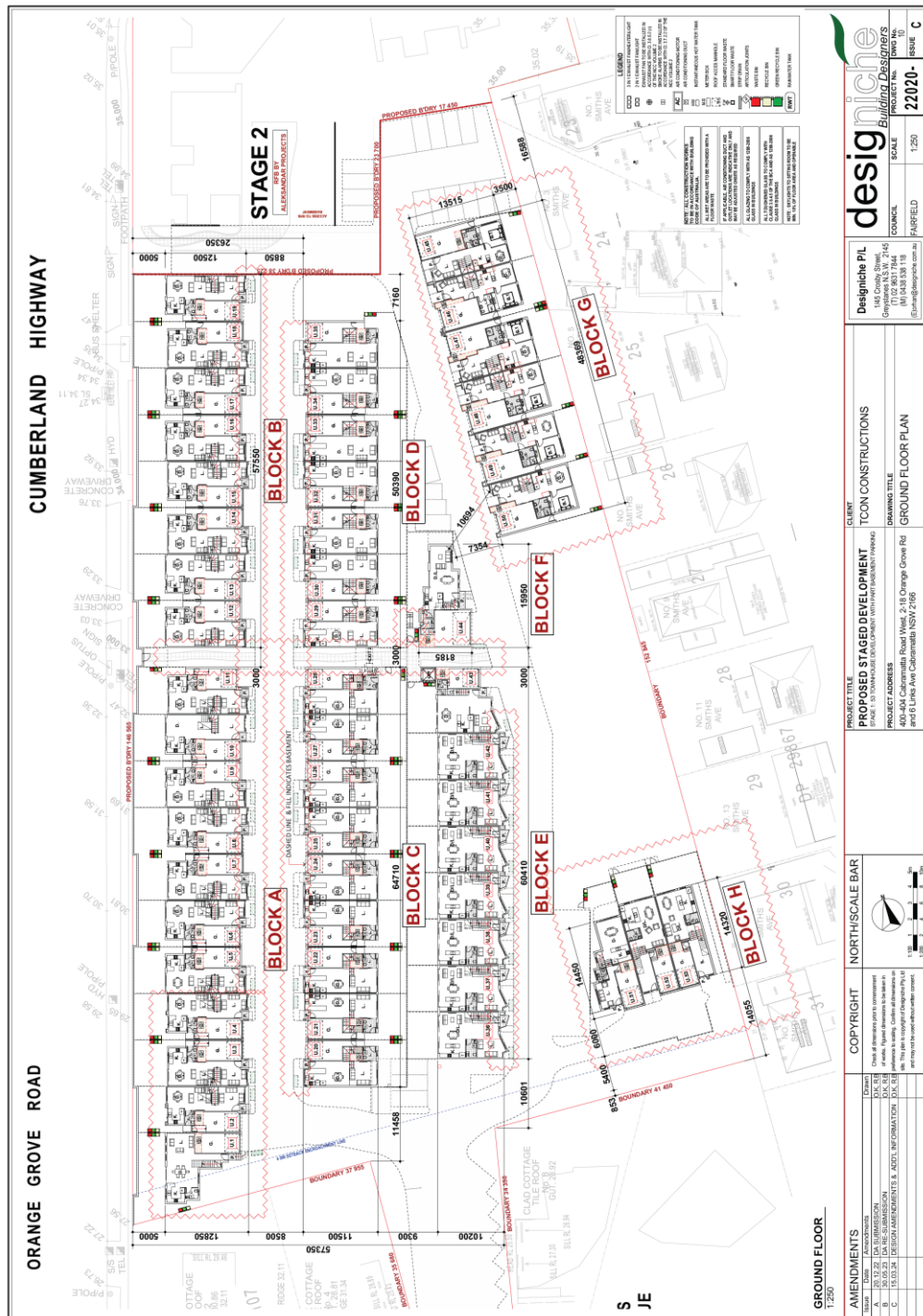
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



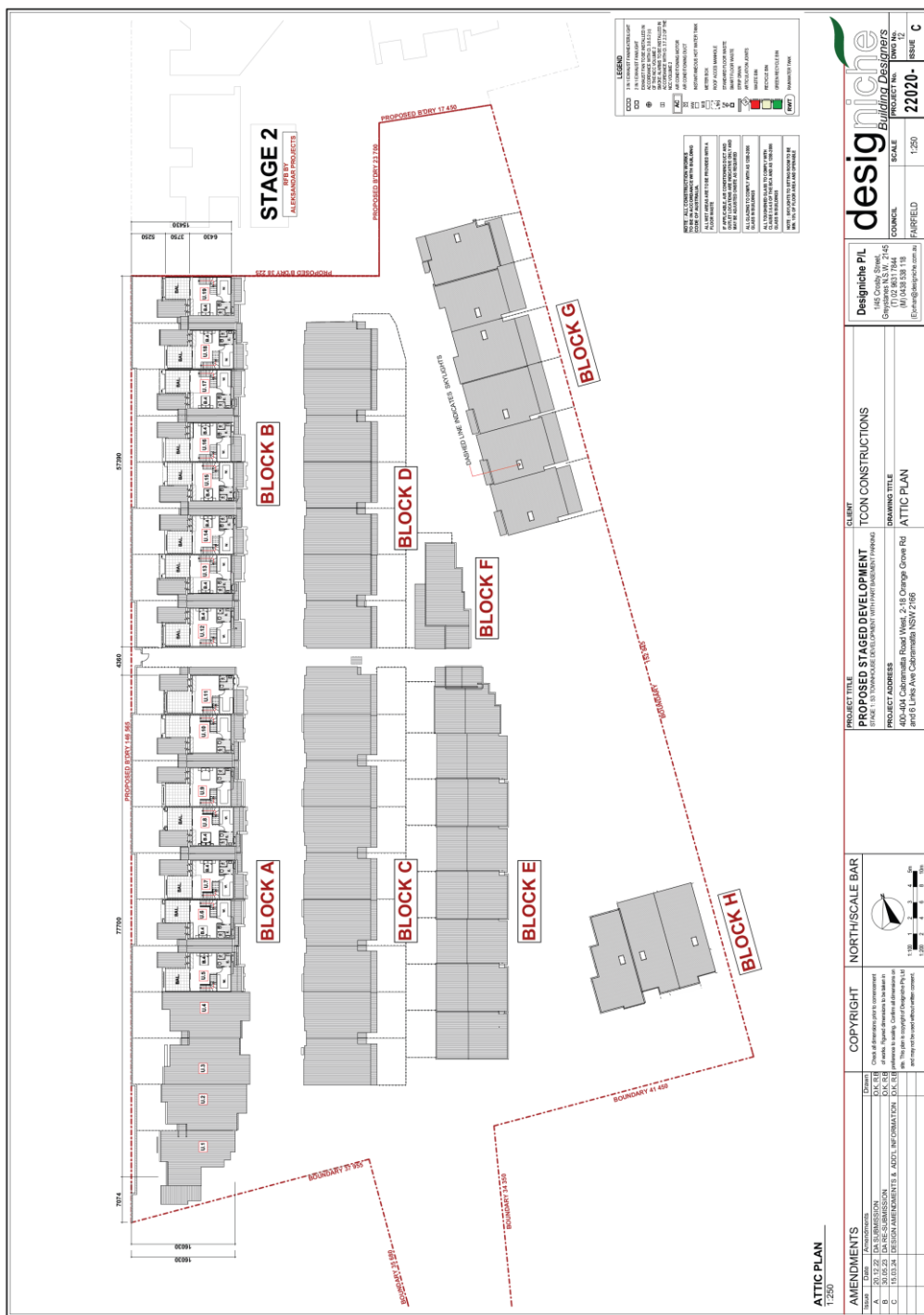
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix B – Amended Development Architectural Plans (RFB)

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



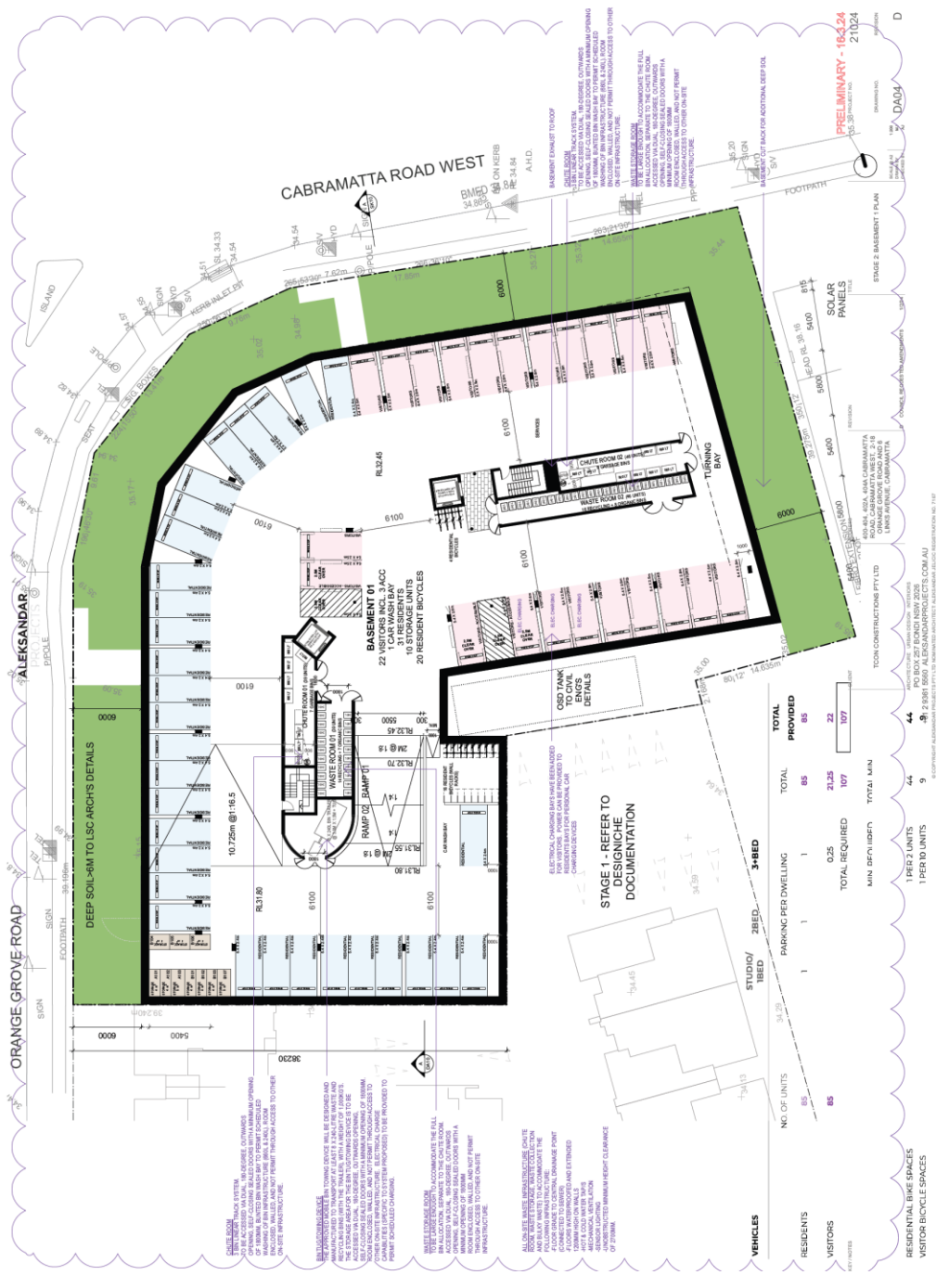
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

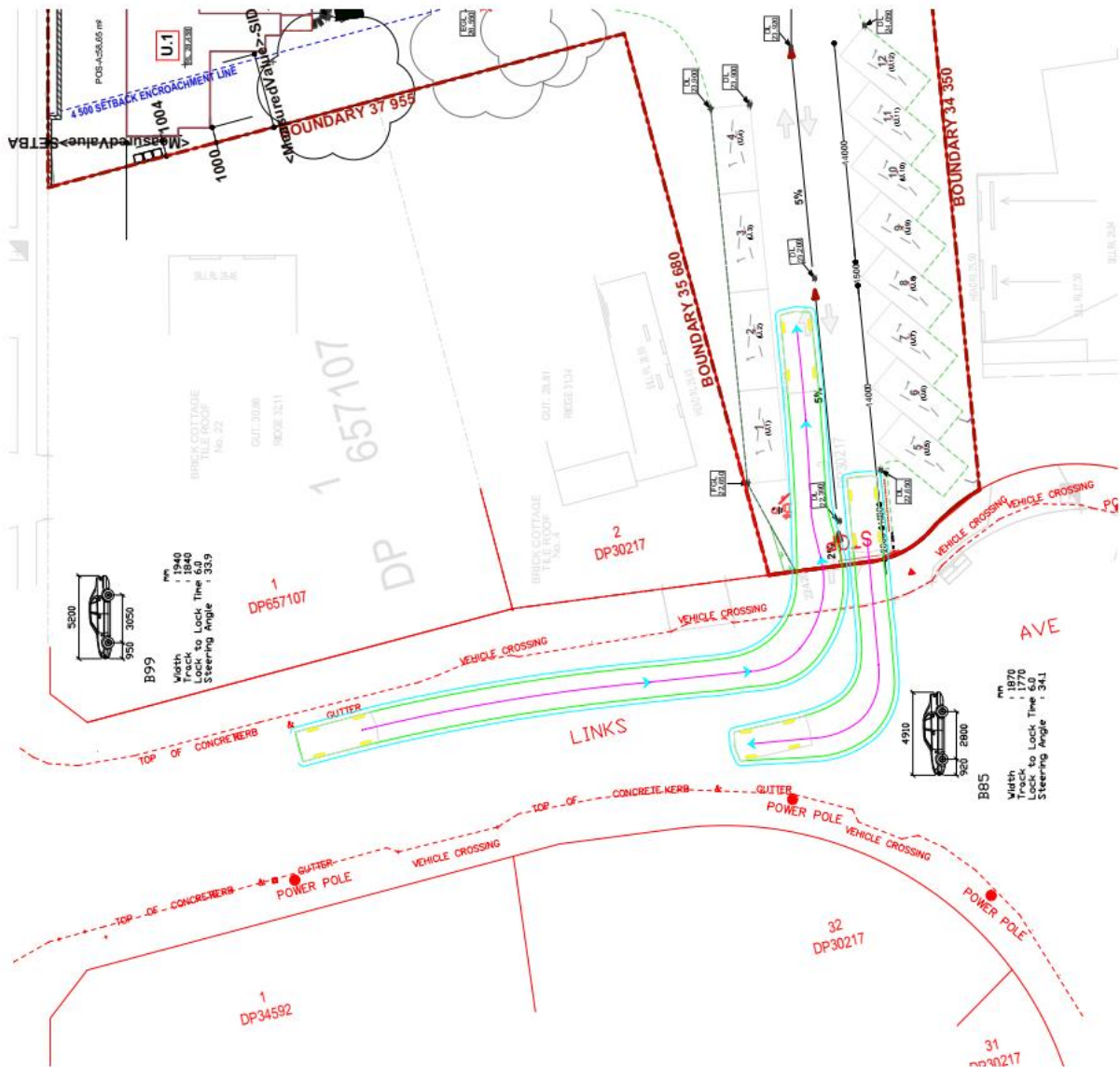


PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix C – Updated Vehicular Swept Paths (Townhouses)

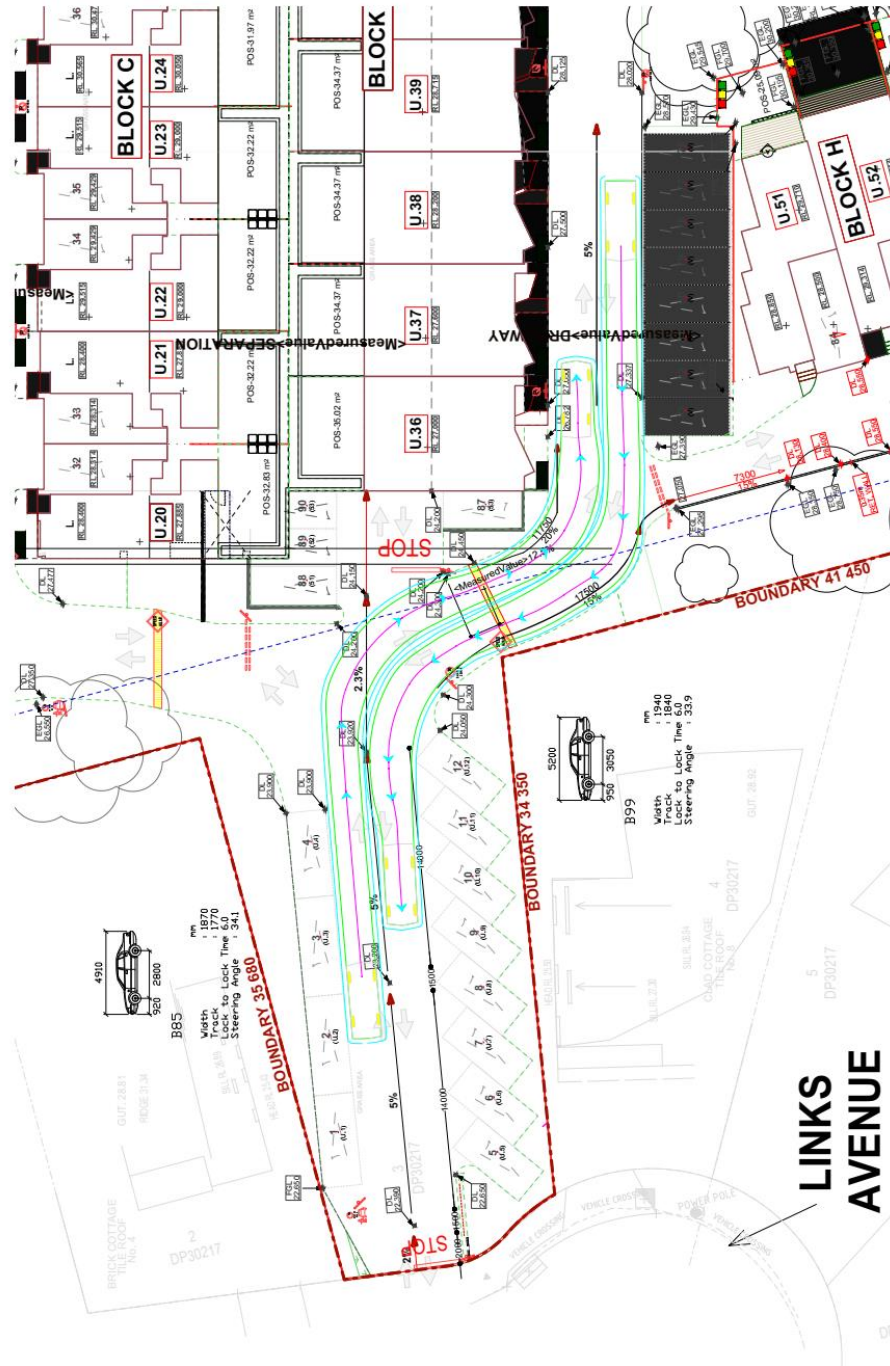
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

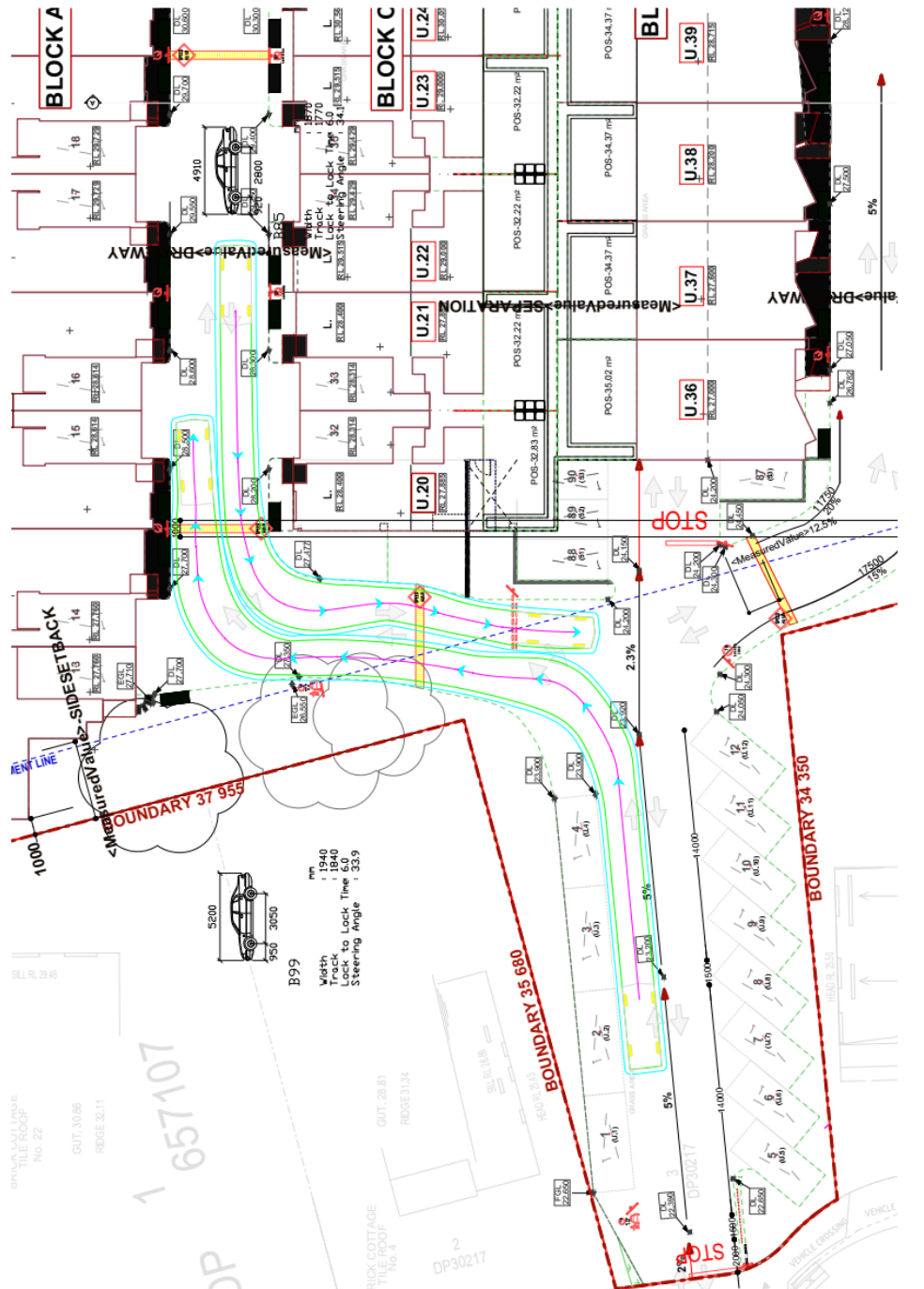
PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



**LINKS
AVENUE**

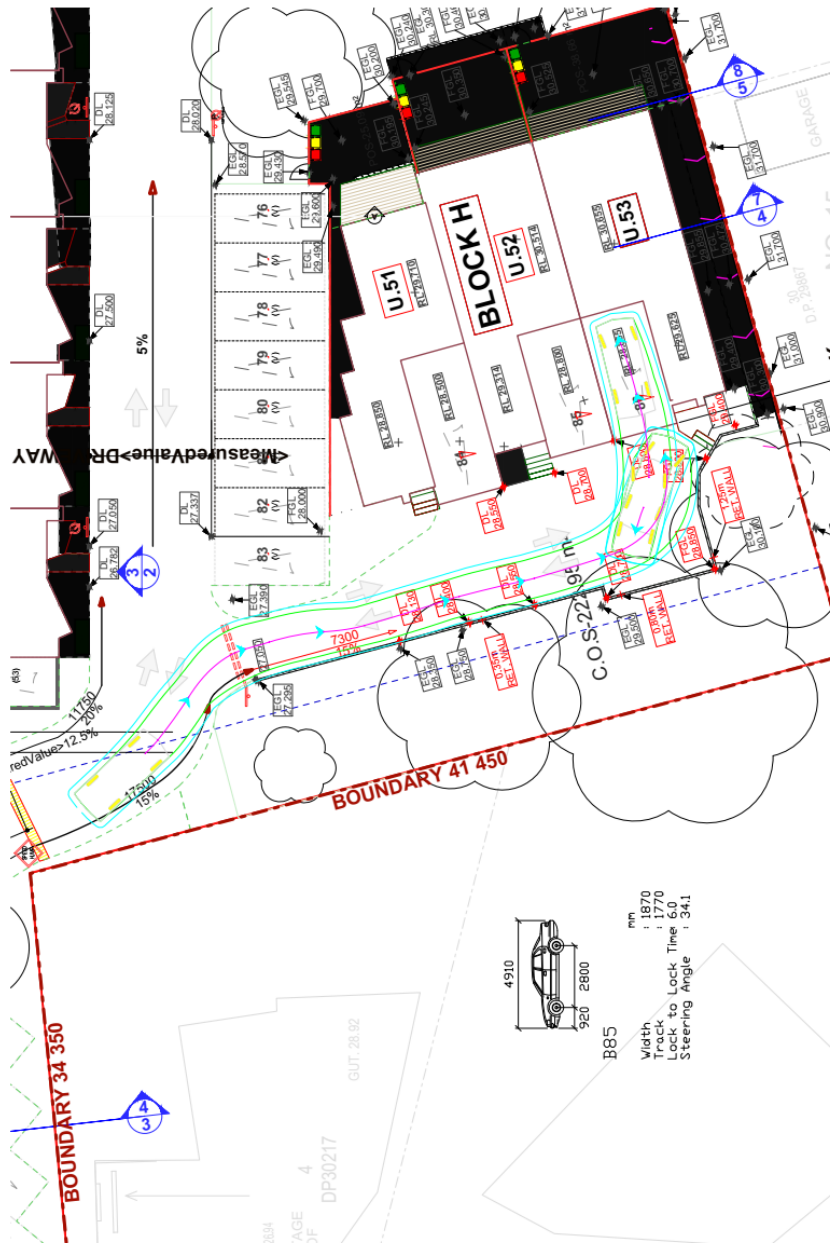
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



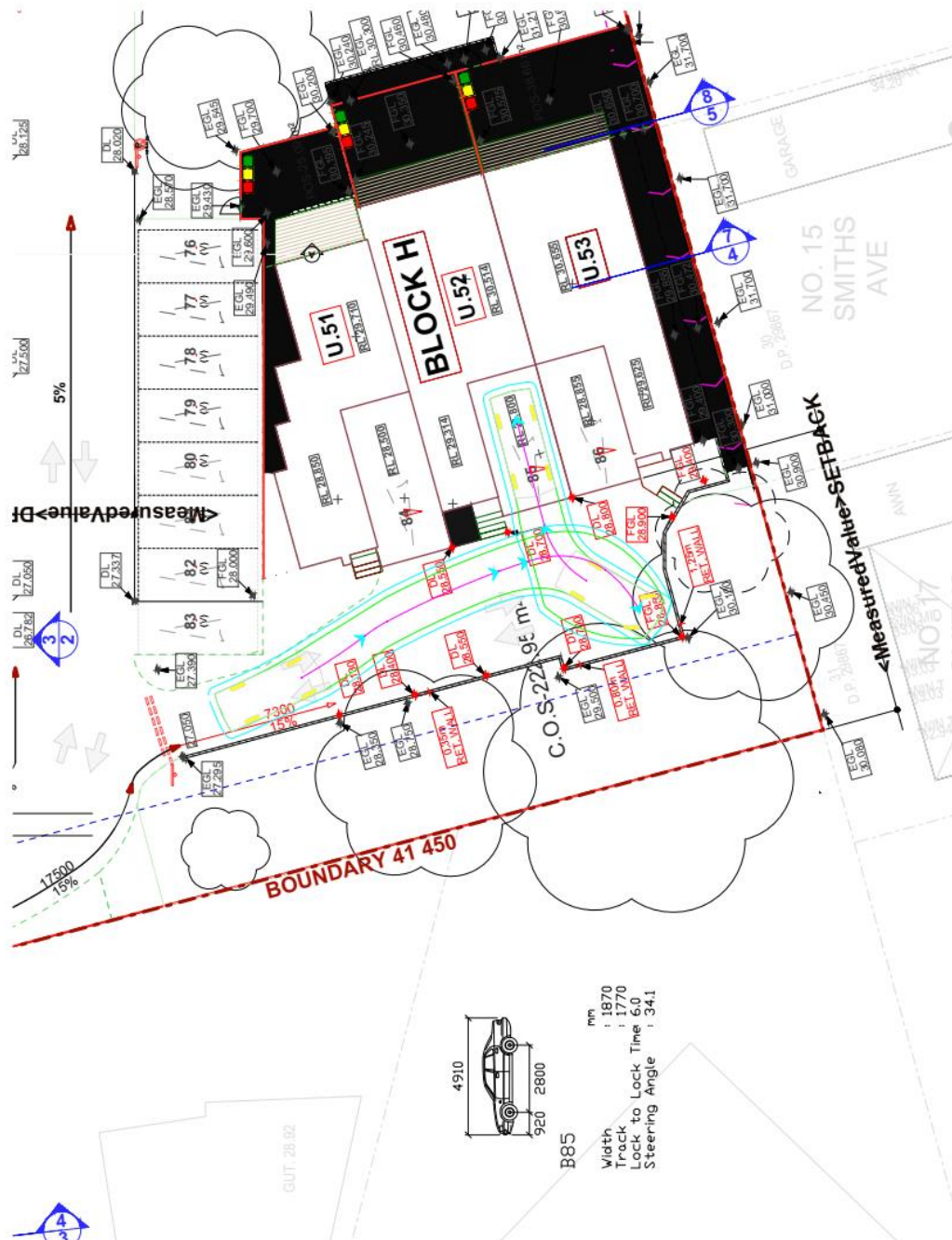
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



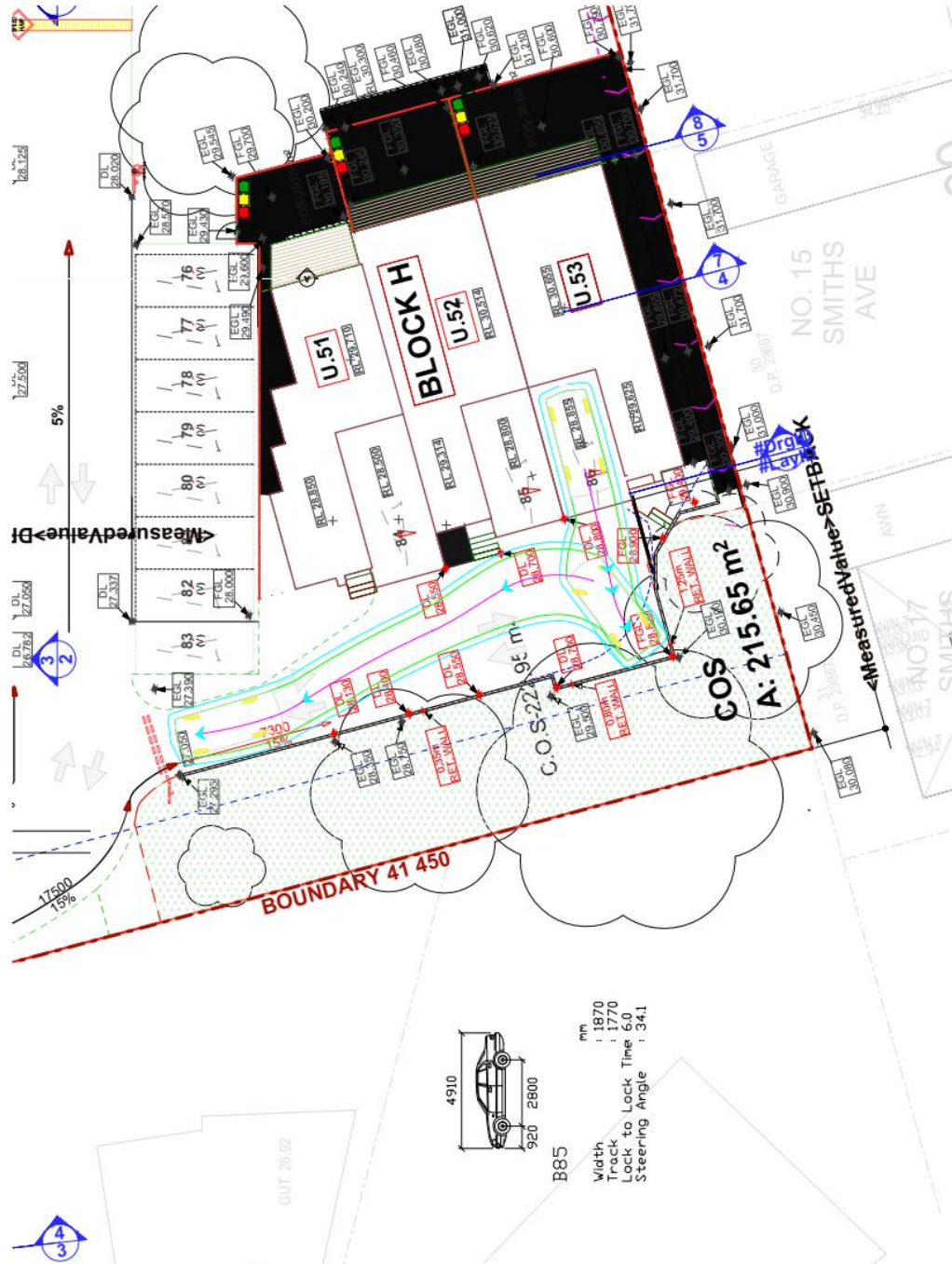
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



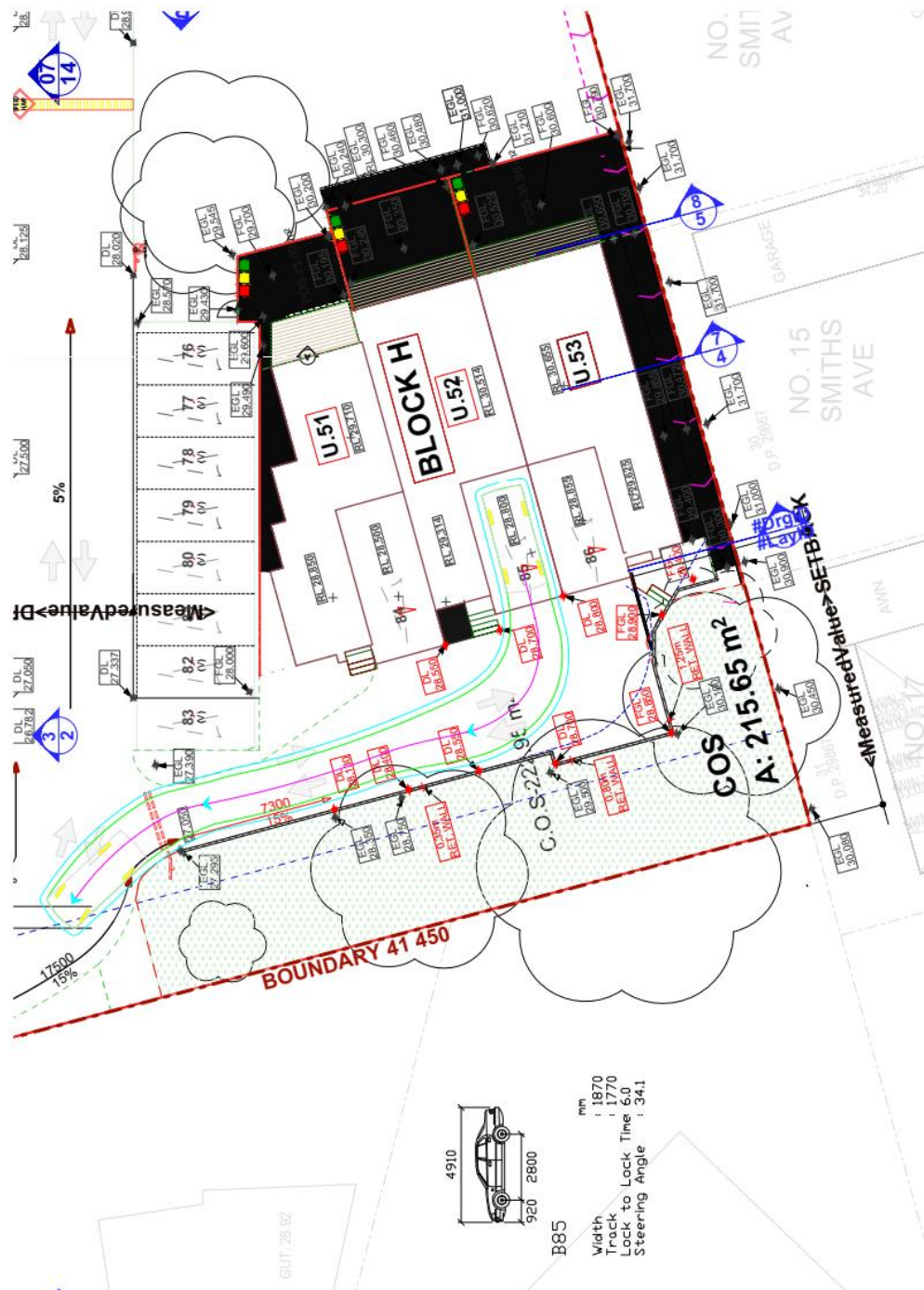
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



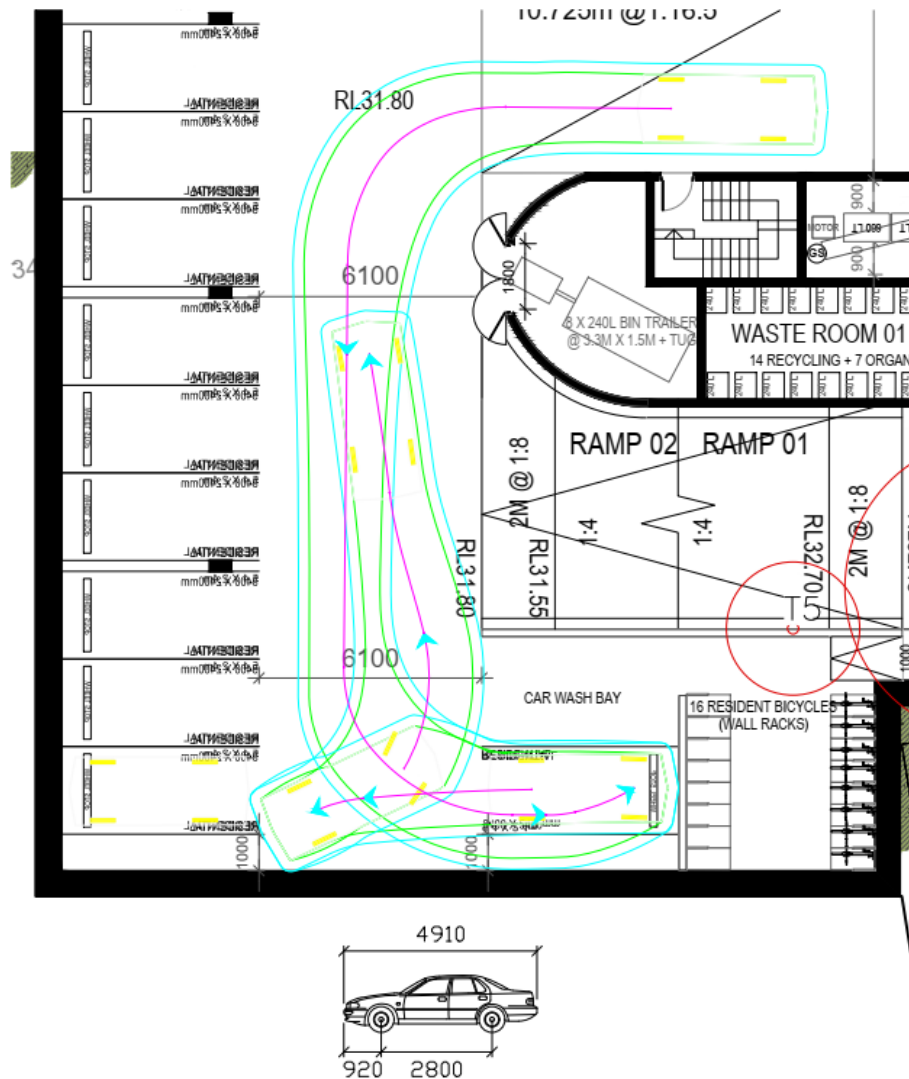
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix D – Updated Vehicular Swept Paths (RFB)

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

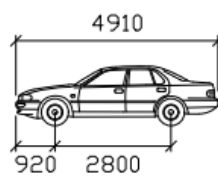
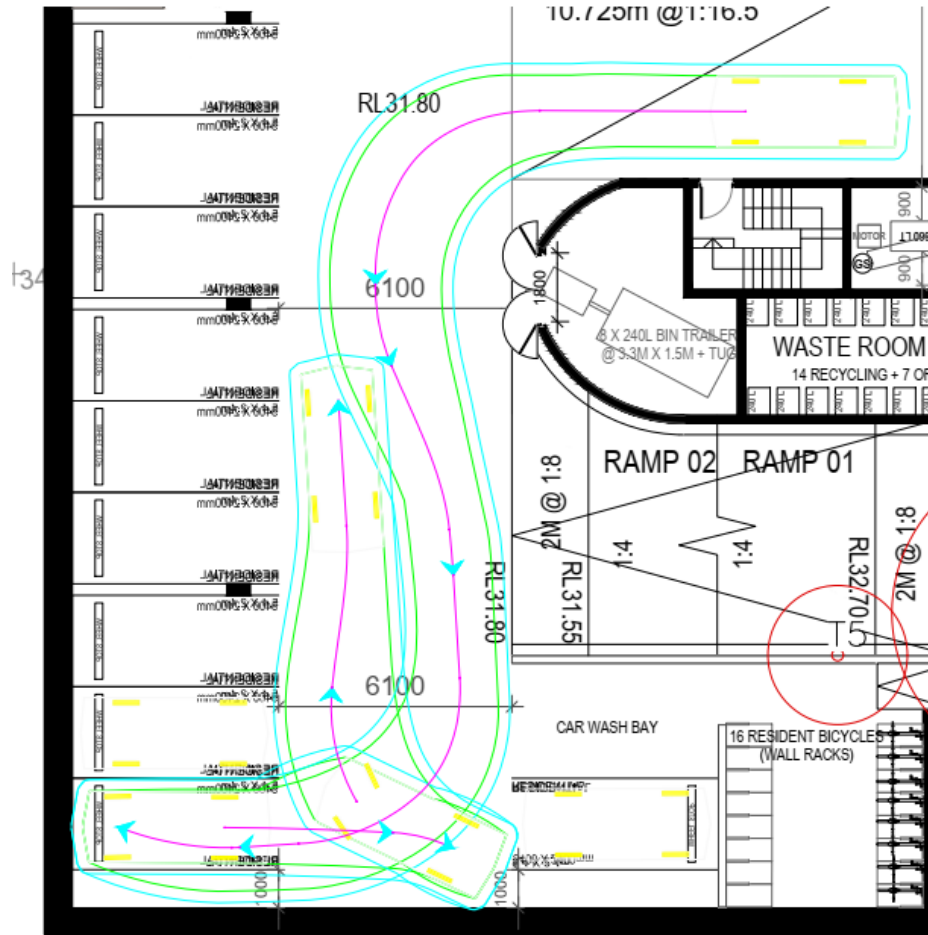


B85

Width : 1870 mm
Track : 1770 mm
Lock to Lock Time : 6.0
Steering Angle : 34.1

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

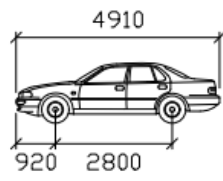


B85

Width : 1870 mm
Track : 1770 mm
Lock to Lock Time : 6.0
Steering Angle : 34.1

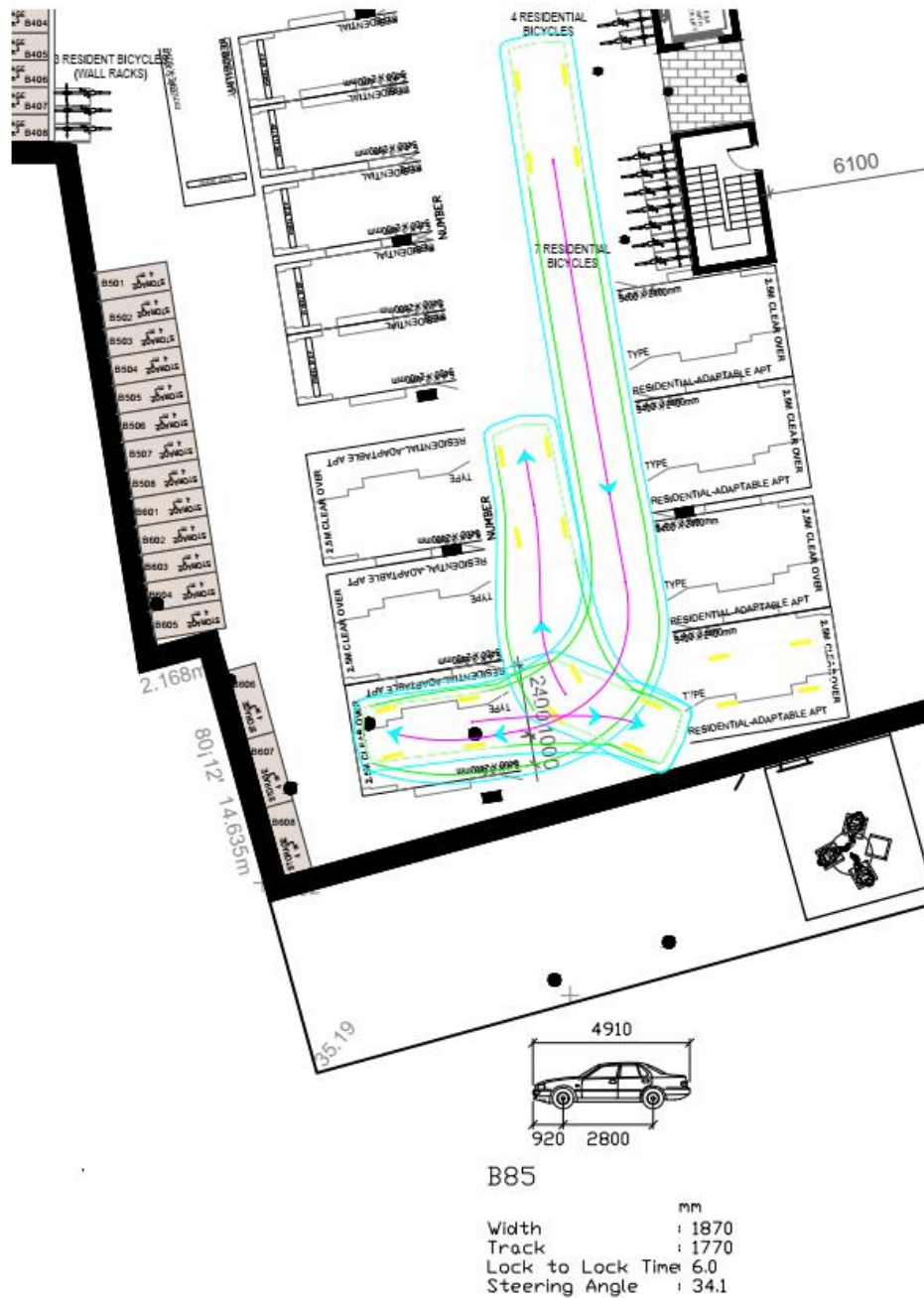
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



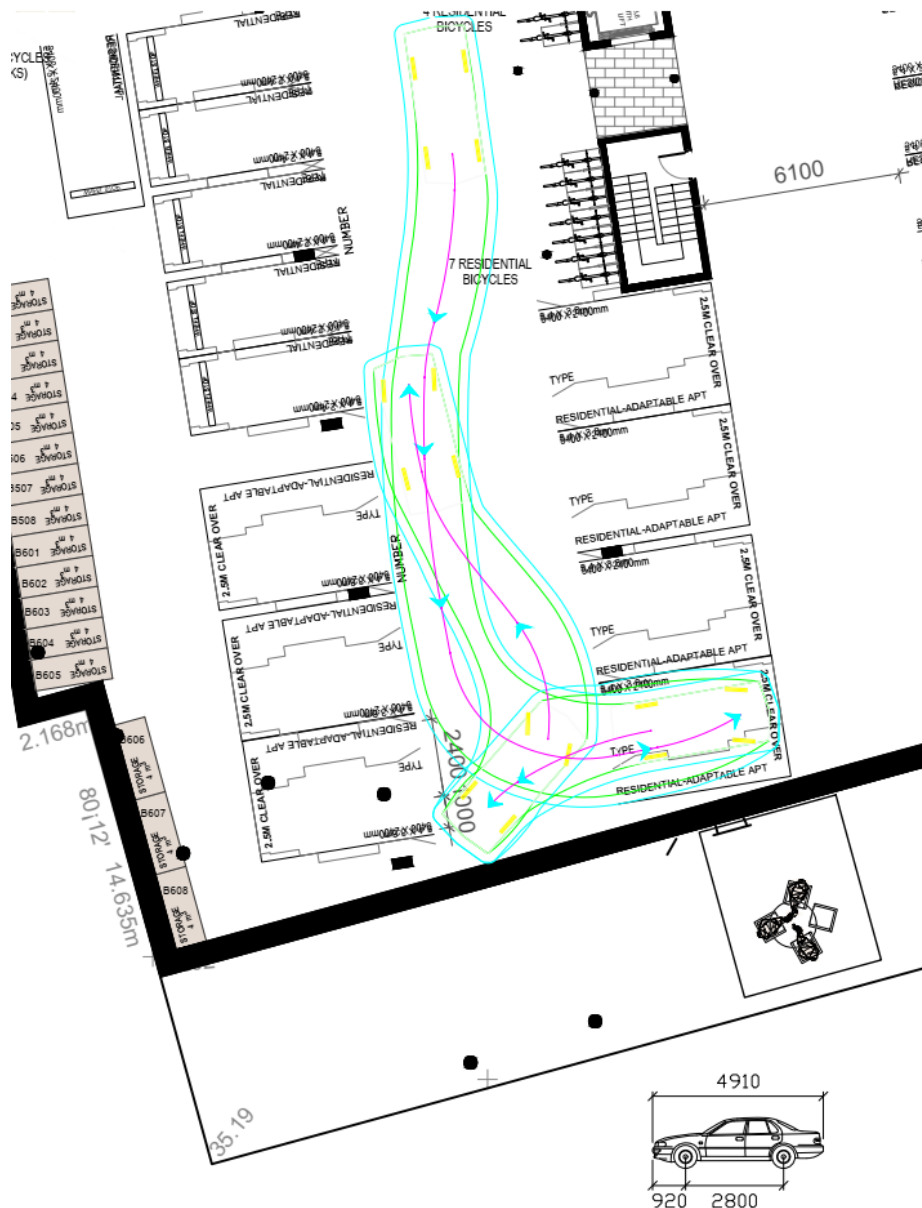
	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

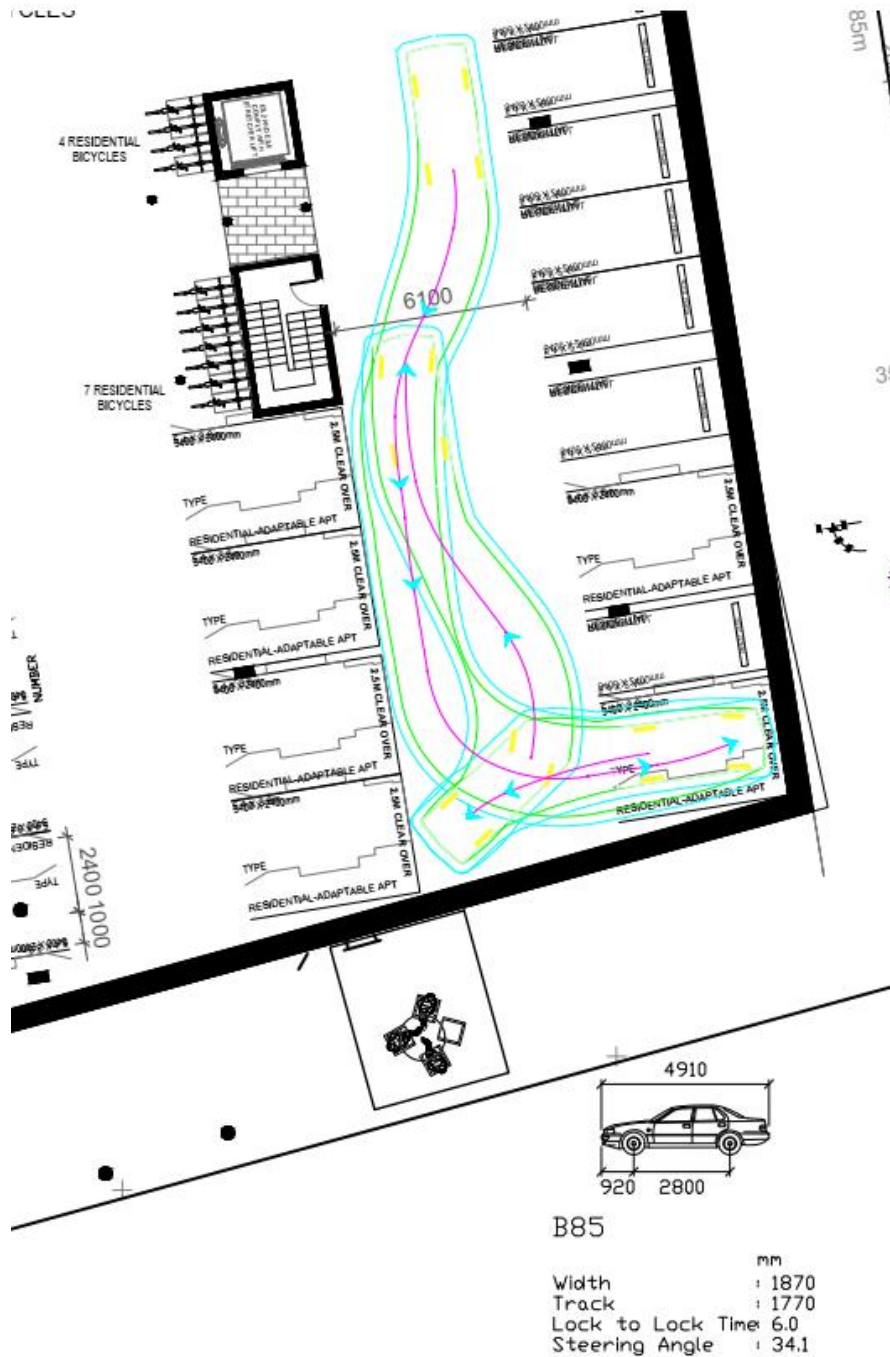


B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



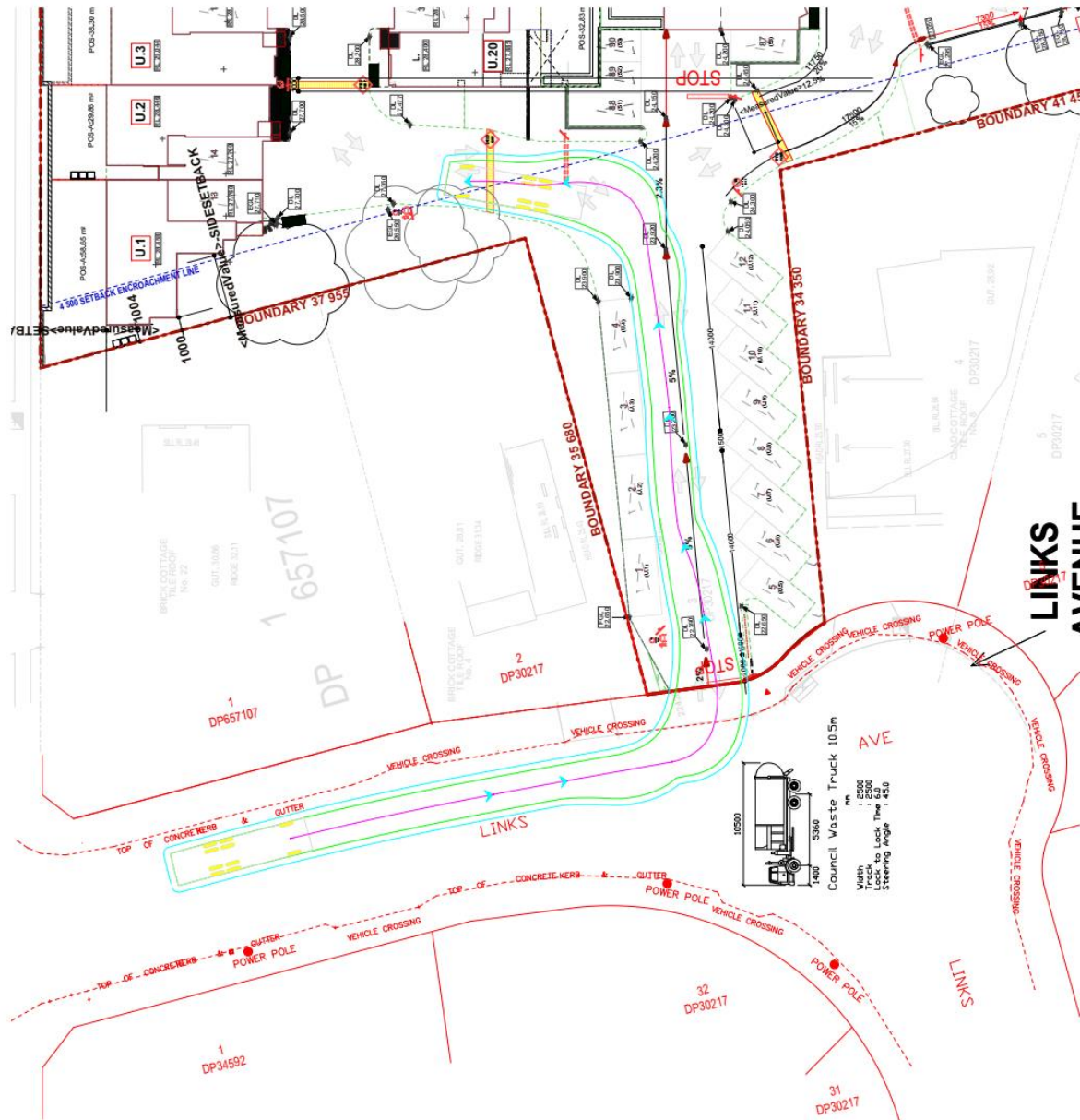
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix E – Updated Vehicular Swept Paths (Heavy Vehicle access)

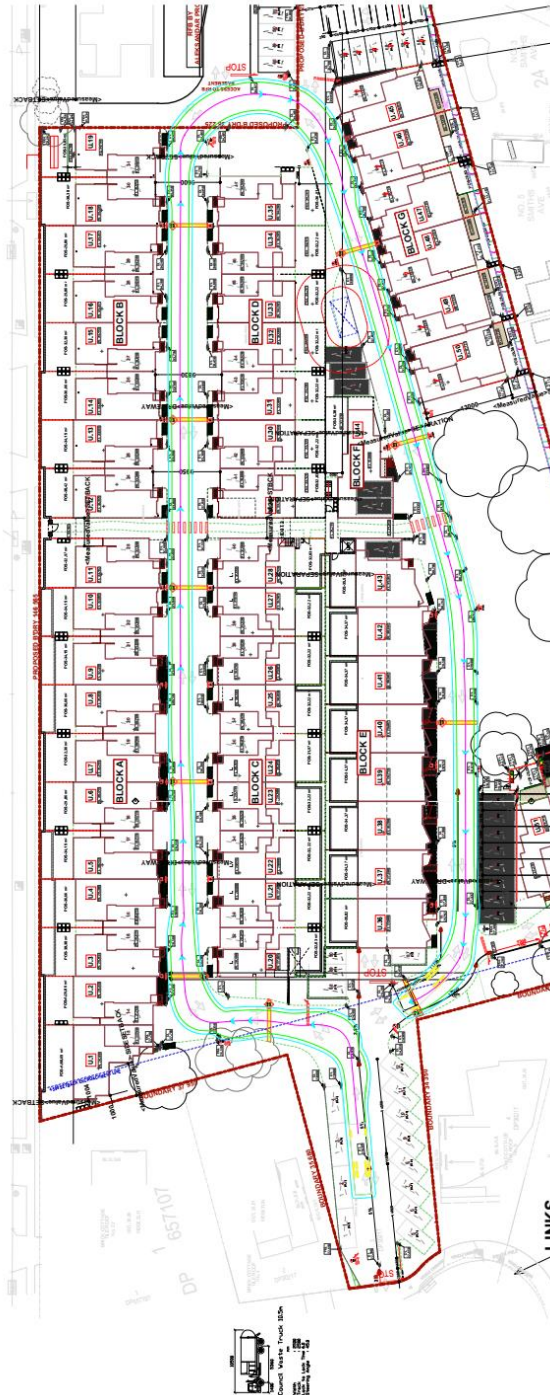
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



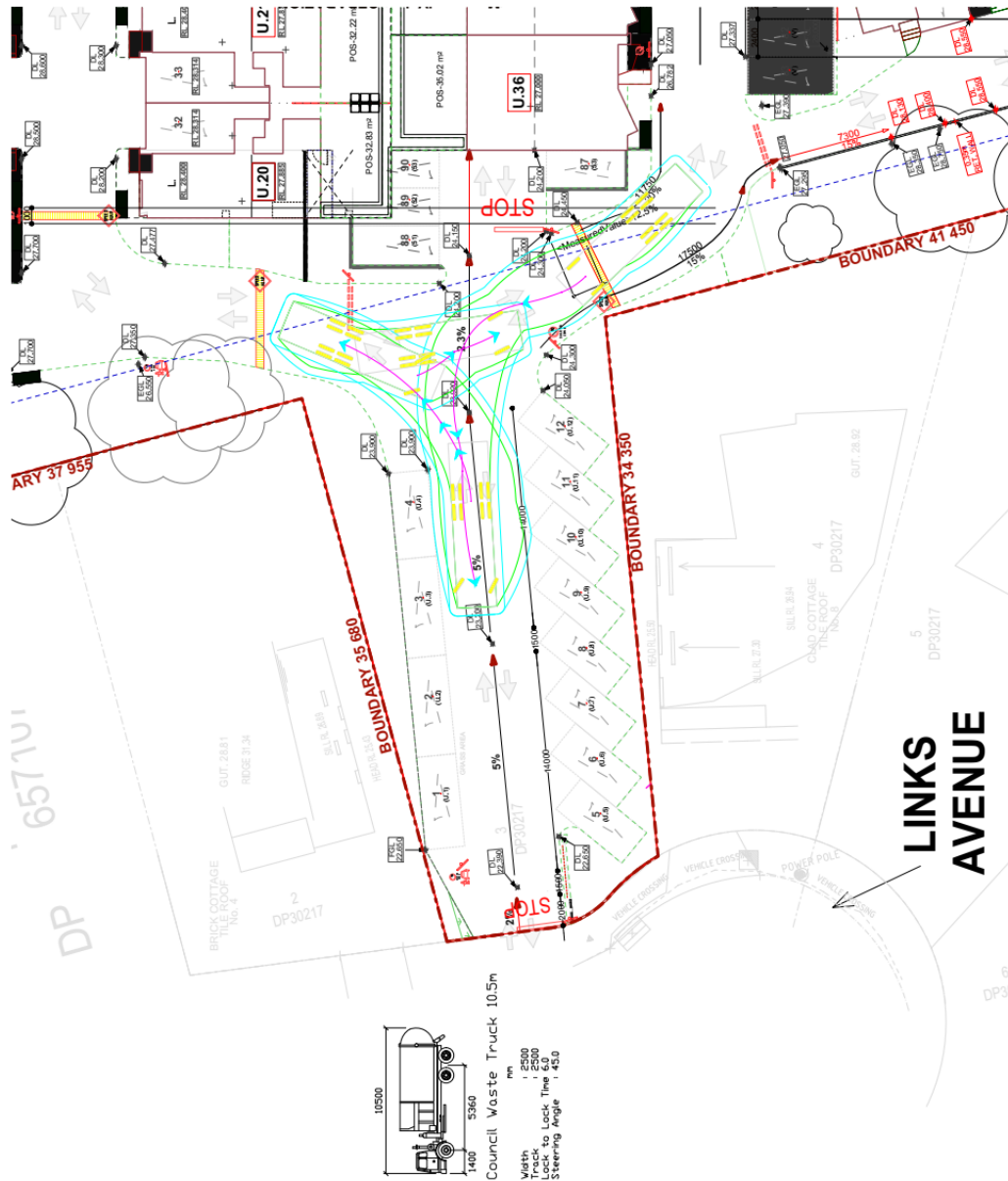
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



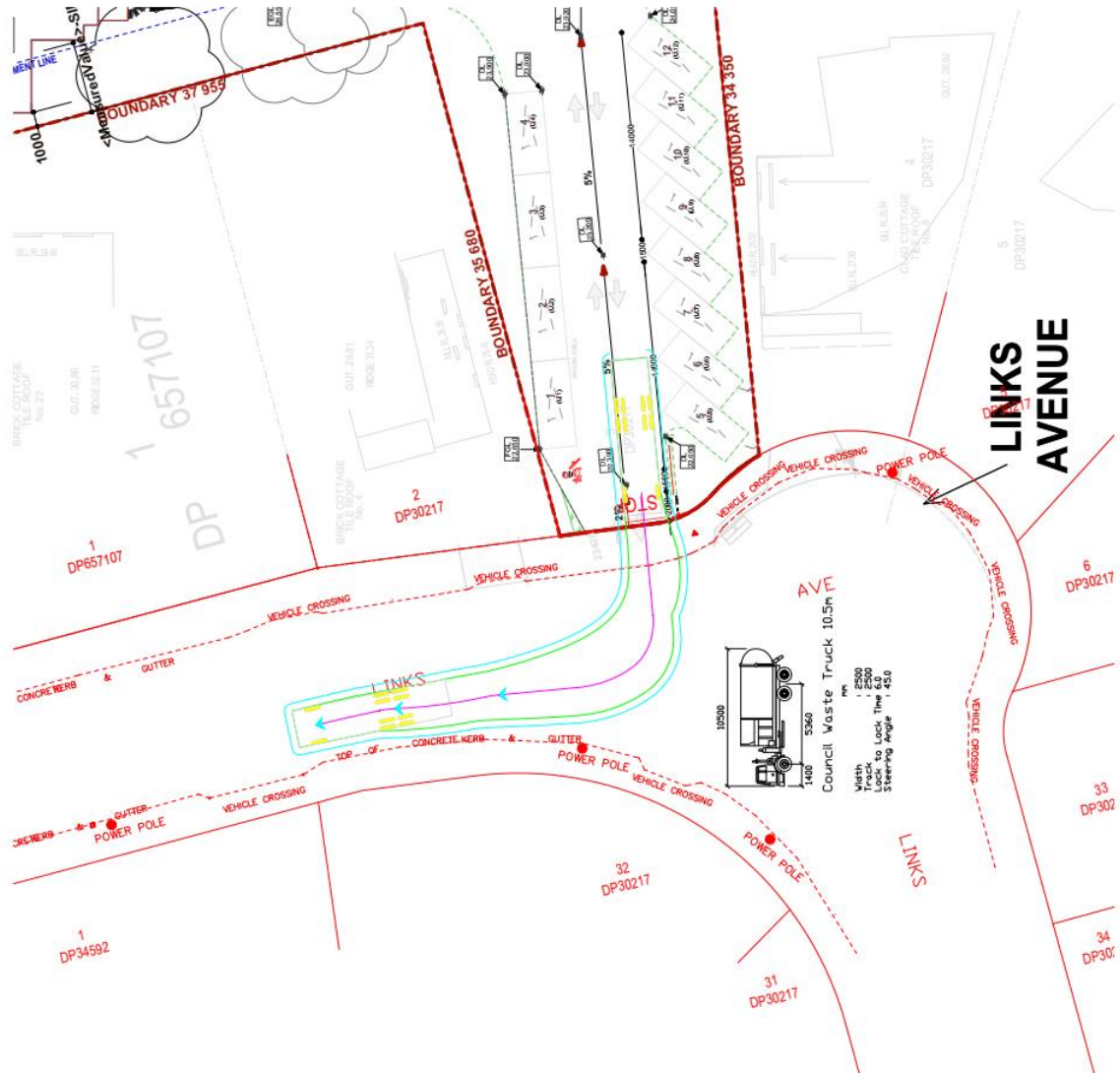
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix F – Email From Transport for New South Wales (TfNSW)

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

From: Brett Morrison (TAR TECHN) <Brett.Morrison4@transport.nsw.gov.au>
Sent: Thursday, March 7, 2024 1:08 PM
To: projects@hemanote.com.au; Development Sydney
<Development.Sydney@transport.nsw.gov.au>
Subject: RE: Seeking TfNSW feedback & Advice - 400-404 Cabramatta Road West, Cabramatta
- Proposed Multi Dwelling Housing & RFB

Hany,

TfNSW advises that current practice is to limit the number of vehicular conflict points along the arterial road network to maintain network safety and efficiency. This current practice is reflected in Section 6.2.1 of TfNSW current publication of the Guide to Traffic Generating Developments, which states 'access across the boundary with a major road is to be avoided wherever possible'.

Cabramatta Road and Orangegrove Roads are major arterial roads, which carries a high volume of traffic, where transport safety and efficiency of through traffic is of great importance.

It is also noted that any future development application would need to address clause 2.119 of *State Environmental Planning Policy (Infrastructure) 2021*, states:

*"The consent authority must not grant consent to development on land that has frontage to a classified road unless it is satisfied that:
where practicable, vehicular access to the land is provided by a road other than the classified road".*

With consideration of the above, TfNSW would require any future development of the site to not have vehicular access on the classified road frontage, with all vehicular access to be provided by via Links Road.

Note: It is emphasised that the comments provided above are informal and of a Pre-DA nature, they are not to be interpreted as binding upon Transport for New South Wales (TfNSW) and may change following formal assessment of a submitted development application from the appropriate consent authority.

Brett Morrison

Senior Land Use Planner
Land Use Assessment Western
Planning and Programs
Greater Sydney
Transport for NSW

E Brett.Morrison4@transport.nsw.gov.au
4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150
PO Box 973 Parramatta CBD NSW 2124



**Transport
for NSW**

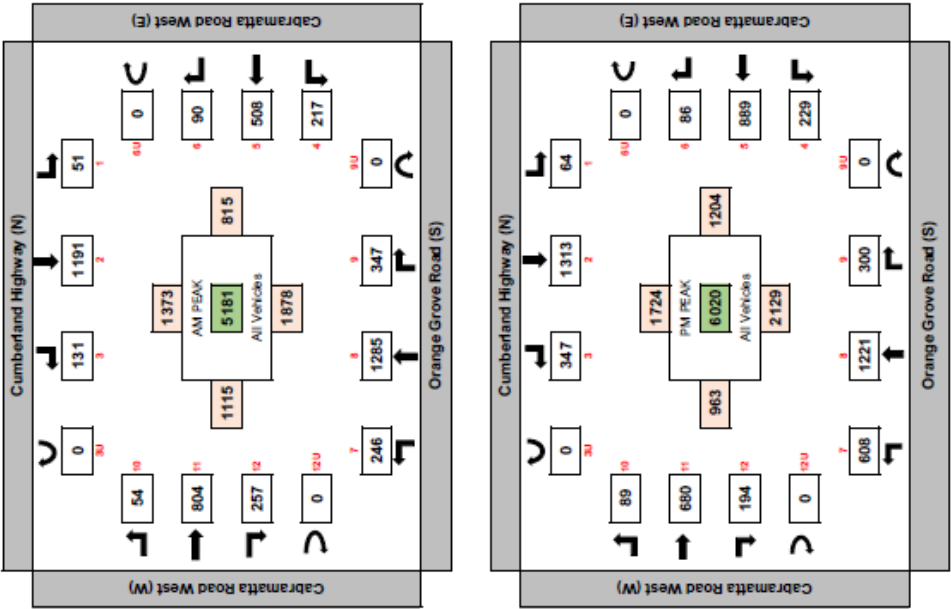
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix G – Traffic Volume Surveys

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Select Vehicle Type

All Vehicles



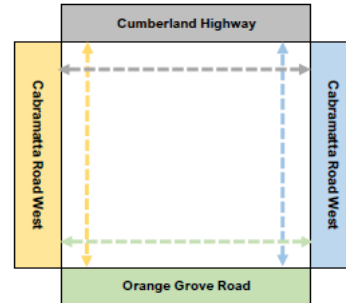
Report Type:	Peak Hour Volume Diagram
Geocounts Job ID:	1705591913351
Client Job Number:	n/a
Client Name:	Hemanote Consultants
Location:	Cabramatta
Survey Site:	EC01 (Cumberland Hwy/Cabramatta Rd West/Orange Grove Rd)
Survey Date:	Thursday, 22 February 2024
Site Coordinates:	-33.8994319, 150.9191707

AM Peak Hour:	7:45 to 8:45
PM Peak Hour:	16:30 to 17:30

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Report Type:	Pedestrian Data
Geocounts Job ID:	1705591913351
Client Job Number:	n/a
Client Name:	Hemanote Consultants
Location:	Cabramatta
Survey Site:	IC01 (Cumberland Hwy/Cabramatta Rd West/Orange Grove Rd)
Survey Date:	Thursday, 22 February 2024
Site Coordinates:	-33.8994319, 150.9191707



	North	East	South	West	Total
Peds Crossing AM	24	3	7	2	36
Peds Crossing PM	22	19	12	6	59
Peak Hour Peds AM	8:00 to 9:00				
Peak Hour Peds PM	15:00 to 16:00				

15min Peds

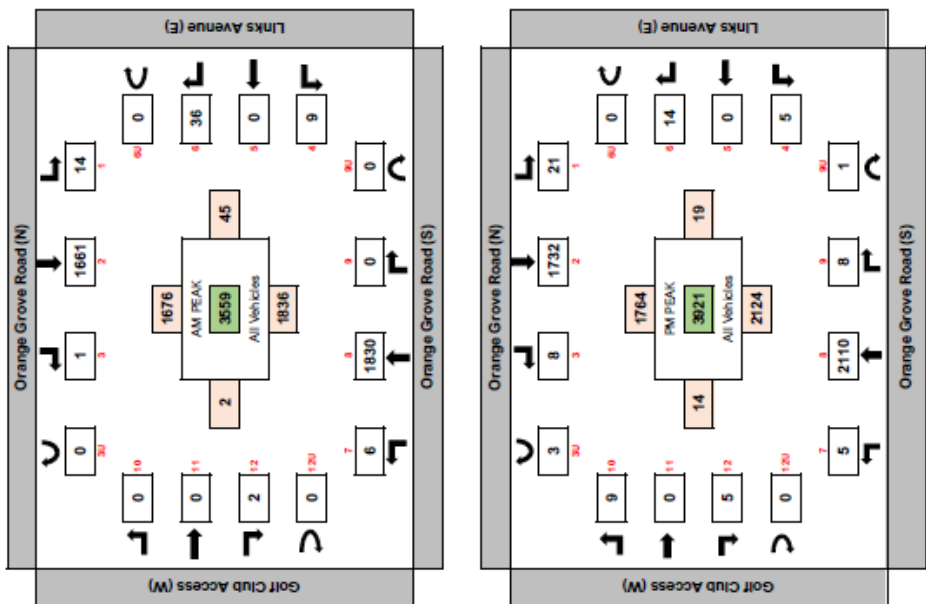
Leg	North	East	South	West	Total
6:30 to 6:45	1	0	0	0	1
6:45 to 7:00	0	0	0	0	0
7:00 to 7:15	1	1	0	0	2
7:15 to 7:30	0	0	0	0	0
7:30 to 7:45	2	0	2	0	4
7:45 to 8:00	0	0	0	0	0
8:00 to 8:15	4	1	0	0	5
8:15 to 8:30	4	0	1	1	6
8:30 to 8:45	8	1	0	0	9
8:45 to 9:00	3	0	3	0	6
9:00 to 9:15	0	0	0	0	0
9:15 to 9:30	1	0	1	1	3
14:30 to 14:45	2	0	0	0	2
14:45 to 15:00	0	0	1	0	1
15:00 to 15:15	10	5	0	3	18
15:15 to 15:30	0	0	2	0	2
15:30 to 15:45	1	0	0	0	1
15:45 to 16:00	1	5	1	0	7
16:00 to 16:15	1	0	0	1	2
16:15 to 16:30	3	3	1	0	7
16:30 to 16:45	0	0	0	0	0
16:45 to 17:00	1	0	4	1	6
17:00 to 17:15	2	0	1	0	3
17:15 to 17:30	0	2	1	0	3
17:30 to 17:45	0	3	0	0	3
17:45 to 18:00	0	0	0	0	0
18:00 to 18:15	1	1	1	1	4
18:15 to 18:30	0	0	0	0	0

60min Peds

Leg	North	East	South	West	Total
6:30 to 7:30	2	1	0	0	3
6:45 to 7:45	3	1	2	0	6
7:00 to 8:00	3	1	2	0	6
7:15 to 8:15	6	1	2	0	9
7:30 to 8:30	10	1	3	1	15
7:45 to 8:45	16	2	1	1	20
8:00 to 9:00	19	2	4	1	26
8:15 to 9:15	15	1	4	1	21
8:30 to 9:30	12	1	4	1	18
14:30 to 15:30	12	5	3	3	23
14:45 to 15:45	11	5	3	3	22
15:00 to 16:00	12	10	3	3	28
15:15 to 16:15	3	5	3	1	12
15:30 to 16:30	6	8	2	1	17
15:45 to 16:45	5	8	2	1	16
16:00 to 17:00	5	3	5	2	15
16:15 to 17:15	6	3	6	1	16
16:30 to 17:30	3	2	6	1	12
16:45 to 17:45	3	5	6	1	15
17:00 to 18:00	2	5	2	0	9
17:15 to 18:15	1	6	2	1	10
17:30 to 18:30	1	4	1	1	7

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Select Vehicle Type

All Vehicles



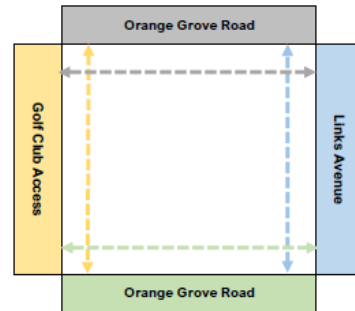
Report Type:	Peak Hour Volume Diagram
Geocounts Job ID:	1705591913351
Client Job Number:	N/A
Client Name:	Hemanote Consultants
Location:	Cabramatta
Survey Site:	1002 (Orange Grove Rd Links Ave Golf Club Access)
Survey Date:	Thursday, 22 February 2024
Site Coordinates:	-33.9017472, 150.9195055

AM Peak Hour:	7:45 to 8:45
PM Peak Hour:	16:30 to 17:30

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Report Type:	Pedestrian Data
Geocounts Job ID:	1705591913351
Client Job Number:	n/a
Client Name:	Hemanote Consultants
Location:	Cabramatta
Survey Site:	IC02 (Orange Grove Rd/Links Ave/Golf Club Access)
Survey Date:	Thursday, 22 February 2024
Site Coordinates:	-33.9017472, 150.9185055



	North	East	South	West	Total
Peds Crossing AM	1	13	0	0	14
Peds Crossing PM	2	17	1	1	21
Peak Hour Peds AM	7:30 to 8:30				
Peak Hour Peds PM	16:45 to 17:45				

15min Peds

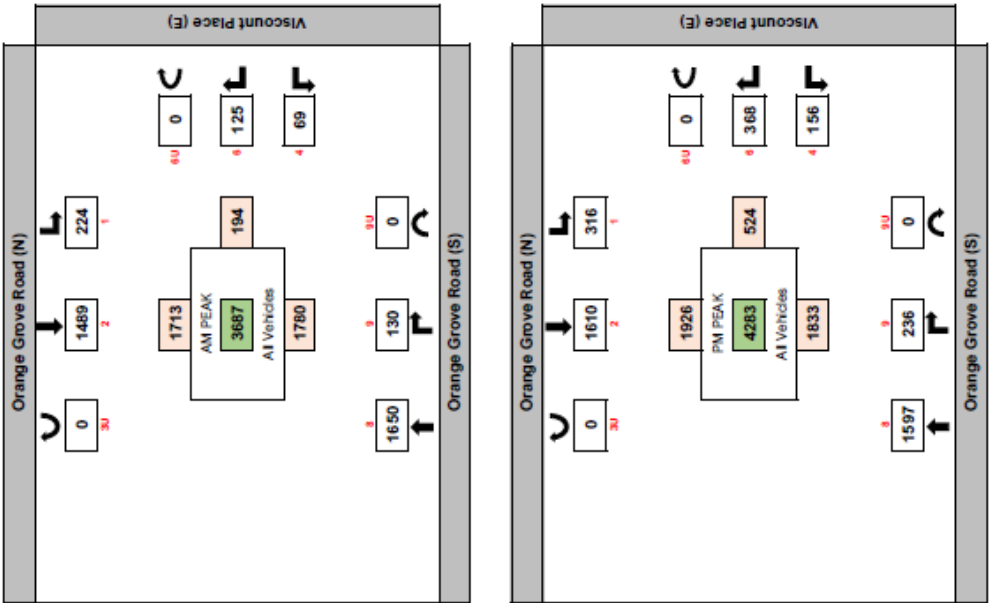
Leg	North	East	South	West	Total
6:30 to 6:45	0	0	0	0	0
6:45 to 7:00	0	1	0	0	1
7:00 to 7:15	0	0	0	0	0
7:15 to 7:30	0	0	0	0	0
7:30 to 7:45	0	3	0	0	3
7:45 to 8:00	0	2	0	0	2
8:00 to 8:15	1	1	0	0	2
8:15 to 8:30	0	2	0	0	2
8:30 to 8:45	0	2	0	0	2
8:45 to 9:00	0	0	0	0	0
9:00 to 9:15	0	0	0	0	0
9:15 to 9:30	0	2	0	0	2
14:30 to 14:45	0	1	0	0	1
14:45 to 15:00	0	1	0	0	1
15:00 to 15:15	0	0	0	0	0
15:15 to 15:30	0	1	0	0	1
15:30 to 15:45	0	2	0	0	2
15:45 to 16:00	0	3	0	0	3
16:00 to 16:15	0	0	0	0	0
16:15 to 16:30	0	2	0	0	2
16:30 to 16:45	0	0	0	0	0
16:45 to 17:00	0	1	0	0	1
17:00 to 17:15	0	0	0	0	0
17:15 to 17:30	0	2	0	0	2
17:30 to 17:45	2	3	1	1	7
17:45 to 18:00	0	1	0	0	1
18:00 to 18:15	0	0	0	0	0
18:15 to 18:30	0	0	0	0	0

60min Peds

Leg	North	East	South	West	Total
6:30 to 7:30	0	1	0	0	1
6:45 to 7:45	0	4	0	0	4
7:00 to 8:00	0	5	0	0	5
7:15 to 8:15	1	6	0	0	7
7:30 to 8:30	1	8	0	0	9
7:45 to 8:45	1	7	0	0	8
8:00 to 9:00	1	5	0	0	6
8:15 to 9:15	0	4	0	0	4
8:30 to 9:30	0	4	0	0	4
14:30 to 15:30	0	3	0	0	3
14:45 to 15:45	0	4	0	0	4
15:00 to 16:00	0	6	0	0	6
15:15 to 16:15	0	6	0	0	6
15:30 to 16:30	0	7	0	0	7
15:45 to 16:45	0	5	0	0	5
16:00 to 17:00	0	3	0	0	3
16:15 to 17:15	0	3	0	0	3
16:30 to 17:30	0	3	0	0	3
16:45 to 17:45	2	6	1	1	10
17:00 to 18:00	2	6	1	1	10
17:15 to 18:15	2	6	1	1	10
17:30 to 18:30	2	4	1	1	8

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Select Vehicle Type

All Vehicles



Report Type:	Peak Hour Volume Diagram
Geocounts Job ID:	1705591913851
Client Job Number:	n/a
Client Name:	Hemanote Consultants
Location:	Cabramatta
Survey Site:	1003 (Orange Grove Rd/Viscount Place)
Survey Date:	Thursday, 22 February 2024
Site Coordinates:	-33.907878, 150.9188396

AM Peak Hour:	8:00 to 9:00
PM Peak Hour:	16:30 to 18:30

Hemanote Consultants Pty Ltd

ABN 94 606 345 117

PO Box 743

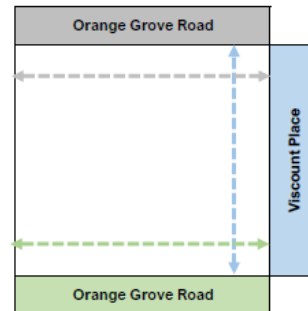
MOOREBANK NSW 1875

P 0414 251 845

E projects@hemanote.com.au

W hemanote.com.au

Report Type:	Pedestrian Data
Geocounts Job ID:	1705591913351
Client Job Number:	n/a
Client Name:	Hemanote Consultants
Location:	Cabramatta
Survey Site:	IC03 (Orange Grove Rd/Viscount Place)
Survey Date:	Thursday, 22 February 2024
Site Coordinates:	-33.907878, 150.9186396



	North	East	South	Total
Peds Crossing AM	0	4	0	4
Peds Crossing PM	0	18	9	27
Peak Hour Peds AM	7:30 to 8:30			
Peak Hour Peds PM	15:15 to 16:15			

15min Peds

Leg	North	East	South	Total
6:30 to 6:45	0	1	0	1
6:45 to 7:00	0	0	0	0
7:00 to 7:15	0	0	0	0
7:15 to 7:30	0	0	0	0
7:30 to 7:45	0	1	0	1
7:45 to 8:00	0	1	0	1
8:00 to 8:15	0	0	0	0
8:15 to 8:30	0	1	0	1
8:30 to 8:45	0	0	0	0
8:45 to 9:00	0	0	0	0
9:00 to 9:15	0	0	0	0
9:15 to 9:30	0	0	0	0
14:30 to 14:45	0	2	0	2
14:45 to 15:00	0	1	0	1
15:00 to 15:15	0	0	2	2
15:15 to 15:30	0	2	0	2
15:30 to 15:45	0	0	0	0
15:45 to 16:00	0	2	1	3
16:00 to 16:15	0	6	4	10
16:15 to 16:30	0	0	0	0
16:30 to 16:45	0	0	0	0
16:45 to 17:00	0	1	0	1
17:00 to 17:15	0	2	0	2
17:15 to 17:30	0	1	0	1
17:30 to 17:45	0	0	0	0
17:45 to 18:00	0	0	2	2
18:00 to 18:15	0	0	0	0
18:15 to 18:30	0	1	0	1

60min Peds

Leg	North	East	South	Total
6:30 to 7:30	0	1	0	1
6:45 to 7:45	0	1	0	1
7:00 to 8:00	0	2	0	2
7:15 to 8:15	0	2	0	2
7:30 to 8:30	0	3	0	3
7:45 to 8:45	0	2	0	2
8:00 to 9:00	0	1	0	1
8:15 to 9:15	0	1	0	1
8:30 to 9:30	0	0	0	0
14:30 to 15:30	0	5	2	7
14:45 to 15:45	0	3	2	5
15:00 to 16:00	0	4	3	7
15:15 to 16:15	0	10	5	15
15:30 to 16:30	0	8	5	13
15:45 to 16:45	0	8	5	13
16:00 to 17:00	0	7	4	11
16:15 to 17:15	0	3	0	3
16:30 to 17:30	0	4	0	4
16:45 to 17:45	0	4	0	4
17:00 to 18:00	0	3	2	5
17:15 to 18:15	0	1	2	3
17:30 to 18:30	0	1	2	3

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix H – SIDRA Base Model Calibration

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Cumberland Hwy/Orange Grove Rd/Cabramatta Rd W Signalised Intersection
Queue (number of vehicles) recorded at start of green light phase for each lane

AM Peak (7:45AM - 8:45AM)

Approach Lane	Direction	Field		SIDRA-base		SIDRA-Calibrated		Comments
		Average	95th	Average	95th	Average	95th	
North 1	left	0.5	2.0					
North 2	thru	9.4	14.7	12.7	20.7	13.2	21.5	
North 3	thru	14.7	18.7	10.8	17.7	10.8	17.7	
North 4	thru	15.1	18.7	10.8	17.7	10.8	17.7	
North 5	right	4.9	11.3	5.5	9	5.5	9	
East 1	left	3.3	6.4	2.9	4.8	2.9	4.8	
East 2	thru	8.9	13.0	8.4	13.7	8.4	13.7	
East 3	thru	8.7	13.7	8.4	13.7	8.4	13.7	
East 4	right	3.7	7.0	3.8	6.2	3.8	6.2	
South 1	left	1.2	4.2					
South 2	thru	6.5	15.0	13.3	21.8	13.3	21.8	
South 3	thru	13.6	23.8	13.3	21.7	13.3	21.7	
South 4	thru	16.9	31.0	13.3	21.7	13.3	21.7	
South 5	right	14.3	25.0	59.6	97.3	12.8	20.9	55% south right turn demand
West 1	left/thru	30+	30+	17.9	29.2	20.5	33.5	Initial queued demand (5 Veh)
West 2	thru	30+	30+	17.2	28	19.7	32.1	Initial queued demand (5 Veh)
West 3	right	5.4	9.7	5.7	9.4	5.7	9.4	
West 4	right	5.3	11.7	5.7	9.4	5.7	9.4	

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Cumberland Hwy/Orange Grove Rd/Cabramatta Rd W Signalised Intersection
Queue (number of vehicles) recorded at start of green light phase for each lane

PM Peak (4:30PM - 5:30PM)

Approach Lane	Direction	Field		SIDRA-base		SIDRA-Calibrated		Comments
		Average	95th	Average	95th	Average	95th	
North	1 left	0.5	1.8					
North	2 thru	8.5	12.7	15.5	25.2	11.9	19.4	80% north through demand
North	3 thru	14.8	17.0	14.3	23.3	11	17.9	80% north through demand
North	4 thru	14.4	17.7	14.3	23.3	11	17.9	80% north through demand
North	5 right	14.7	17.0	24.3	39.6	11.2	18.4	80% north right turn demand
East	1 left	4.8	8.2	3.4	5.6	3.4	5.6	
East	2 thru	29.7	32.0	17.9	29.3	17.9	29.3	
East	3 thru	29.6	32.0	17.9	29.3	17.9	29.3	
East	4 right	4.1	8.7	3.6	5.9	3.6	5.9	
South	1 left	4.0	7.0					
South	2 thru	28.1	40.0	26.9	43.8	26.9	43.8	
South	3 thru	24.2	40.0	22.8	37.2	22.8	37.2	
South	4 thru	27.0	40.0	22.7	37	22.7	37	
South	5 right	15.7	25.0	13.4	21.8	13.4	21.8	
West	1 left/thru	16.0	25.0	13.1	21.4	13.1	21.4	
West	2 thru	15.7	24.4	13	21.2	13	21.2	
West	3 right	4.6	7.0	4.1	6.7	4.1	6.7	
West	4 right	3.6	5.0	4.1	6.7	4.1	6.7	

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Orange Grove Rd/Links Ave/Golf Club Access Signalised Intersection
Queue (number of vehicles) recorded at start of green light phase for each lane

AM Peak (7:45AM - 8:45AM)

Approach	Lane	Direction	Field		SIDRA-base		SIDRA-Calibrated		Comments
			Average	95th	Average	95th	Average	95th	
North	1	left/thru	0.1	0.7	5.6	9.2	1.4	2.3	
North	2	thru	1.2	2.4	5.7	9.2	1.4	2.4	25% north through demand
North	3	thru	0.3	1.4	5.7	9.2	1.4	2.4	25% north through demand
North	5	right	0.0	0.0	0	0.1	0	0.1	
East	4	left/right	2.0	4.0	1.9	3.1	1.9	3.1	
South	1	left/thru	1.2	5.0	6.2	10	4	6.5	
South	2	thru	1.7	6.0	6.2	10.1	4	6.6	65% south through demand
South	3	thru	2.4	7.1	6.2	10.1	4	6.6	65% south through demand
South	4	right	0.0	0.0	0	0.1	0	0.1	
West	1	left/right	1.0	1.0	0.1	0.2	0.1	0.2	

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Orange Grove Rd/Links Ave/Golf Club Access Signalised Intersection
Queue (number of vehicles) recorded at start of green light phase for each lane

PM Peak (4:30PM - 5:30PM)

Approach	Lane	Direction	Field		SIDRA-base		SIDRA-Calibrated		Comments
			Average	95th	Average	95th	Average	95th	
North	1	left/thru	0.2	1.0	6.3	10.2	1.6	2.6	
North	2	thru	1.4	2.4	6.3	10.2	1.6	2.6	25% north thorough demand
North	3	thru	0.6	2.0	6.3	10.2	1.6	2.6	25% north thorough demand
North	5	right	0.0	0.0	0.4	0.6	0.4	0.6	
East	4	left/right	1.4	2.3	0.8	1.4	1.4	2.3	170% west thorough demand
South	1	left/thru	3.7	7.6	21.5	35.1	5.6	9.1	
South	2	thru	4.2	9.3	22.1	36	5.8	9.4	75% south thorough demand
South	3	thru	4.6	10.6	22.2	36.2	5.8	9.5	75% south thorough demand
South	4	right	0.3	1.0	0.4	0.6	0.4	0.6	
West	1	left/right	1.1	2.2	0.6	1	1.2	1.9	200% west thorough demand

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Orange Grove Rd/Viscount Place Signalised Intersection
Queue (number of vehicles) recorded at start of green light phase for each lane

AM Peak (7:45AM - 8:45AM)

Approach Lane	Direction	Field		SIDRA-base		SIDRA-Calibrated		Comments
		Average	95th	Average	95th	Average	95th	
North 1	left/thru	1.7	3.0	1.1	1.8	1.5	2.4	Use Calculated PFF 0.699
North 2	thru	11.3	20.5	10	16.2	10.5	17.1	Use Calculated PFF 0.699
North 3	thru	11.3	22.3	10.1	16.4	11.3	18.4	Use Calculated PFF 0.699
East 1	left	2.2	4.0	0.7	1.2	2.1	3.5	Use Calculated PFF 0.742
East 2	right	1.8	3.8	1	1.6	2.4	4	Use Calculated PFF 0.742
East 3	right	2.4	4.8	1	1.6	2.4	4	Use Calculated PFF 0.742
South 1	thru	3.0	7.9	5.1	8.3	6.9	11.2	Use Calculated PFF 0.698
South 2	thru	5.4	12.9	5.1	8.3	6.7	10.9	Use Calculated PFF 0.698
South 3	right	2.7	5.8	1.1	1.7	2.9	4.7	Use Calculated PFF 0.698
South 4	right	2.2	4.8	1.1	1.7	2.9	4.7	Use Calculated PFF 0.698

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Orange Grove Rd/Viscount Place Signalised Intersection
Queue (number of vehicles) recorded at start of green light phase for each lane

PM Peak (4:30PM - 5:30PM)

Approach Lane	Direction	Field			SIDRA-base			SIDRA-Calibrated			Comments
		Average	95th	5.0	Average	95th	5.0	Average	95th	5.0	
North 1	left/thru	2.1	2.1	5.0	1.7	2.8	3	4.9	140% north left turn demand		
North 2	thru	2.3	2.3	5.7	9	14.7	3.7	6.1	35% north through demand		
North 3	thru	1.9	1.9	6.0	9	14.7	3.7	6.1	35% north through demand		
East 1	left	5.0	5.0	8.0	2.3	3.7	4.9	7.9	400% east left turn demand		
East 2	right	6.4	6.4	8.7	3.4	5.5	5	8.1	200% east right turn demand		
East 3	right	6.7	6.7	9.7	3.4	5.5	5	8.1	200% east right turn demand		
South 1	thru	1.4	1.4	3.0	5.6	9.2	2.1	3.5	30% south through demand		
South 2	thru	2.4	2.4	4.7	5.6	9.2	2.1	3.5	30% south through demand		
South 3	right	4.0	4.0	6.7	1.8	2.9	4	6.6	290% south right turn demand		
South 4	right	3.4	3.4	6.7	1.8	2.9	4	6.6	290% south right turn demand		

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix I – SIDRA Intersection Analysis Results

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

MOVEMENT SUMMARY – 7.45am – 8.45am – Base Year 2024 – Cumberland Highway / Cabramatta Road West / Orange Grove Road

Pre-Development

Post-Development

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

MOVEMENT SUMMARY – 7.45am – 8.45am – Base Year 2024 – Orange Grove Road / Links Avenue / Golf Club Access

Pre-Development															Post-Development														
Vehicle Movement Performance															Vehicle Movement Performance														
Mov ID	Turn	Mov	Class	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Mov ID	Turn	Mov	Class	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Flows	Flows		
South Cumberland Hwy (500m)															South Cumberland Hwy (500m)														
1	L2	AT MCs	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	L2	AT MCs	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2	T1	AT MCs	1252	5.8	1252	5.8	0.304	5.0	0.304	5.0	0.304	5.0	0.304	5.0	2	T1	AT MCs	1252	5.8	1252	5.8	0.312	5.0	0.312	5.0	0.312			
3	R2	AT MCs	3	0.0	3	0.0	0.014	77.7	0.014	77.7	0.014	77.7	0.014	77.7	3	R2	AT MCs	3	0.0	3	0.0	0.042	79.1	0.042	79.1	0.042			
Approach															Approach														
East Links Ave (200m)															East Links Ave (200m)														
4	L2	AT MCs	19	0.0	19	0.0	0.346	64.9	0.346	64.9	0.346	64.9	0.346	64.9	4	L2	AT MCs	19	0.0	19	0.0	0.620	66.4	0.620	66.4	0.620			
5	T1	AT MCs	1	0.0	1	0.0	0.346	69.4	0.346	69.4	0.346	69.4	0.346	69.4	5	T1	AT MCs	1	0.0	1	0.0	0.520	69.4	0.520	69.4	0.520			
6	R2	AT MCs	30	5.6	30	5.6	0.346	73.9	0.346	73.9	0.346	73.9	0.346	73.9	6	R2	AT MCs	30	5.6	30	5.6	0.620	74.5	0.620	74.5	0.620			
Approach															Approach														
North Cumberland Hwy (200m)															North Cumberland Hwy (200m)														
7	L2	AT MCs	15	4.3	15	4.3	0.107	11.3	0.107	11.3	0.107	11.3	0.107	11.3	7	L2	AT MCs	15	4.3	15	4.3	0.111	11.2	0.111	11.2	0.111			
8	T1	AT MCs	437	8.1	437	8.1	0.107	4.5	0.107	4.5	0.107	4.5	0.107	4.5	8	T1	AT MCs	437	8.1	437	8.1	0.107	4.5	0.107	4.5	0.107			
9	R2	AT MCs	1	0.0	1	0.0	0.013	77.5	0.013	77.5	0.013	77.5	0.013	77.5	9	R2	AT MCs	1	0.0	1	0.0	0.013	78.6	0.013	78.6	0.013			
Approach															Approach														
West Parking Access (200m)															West Parking Access (200m)														
10	L2	AT MCs	1	0.0	1	0.0	0.023	61.8	0.023	61.8	0.023	61.8	0.023	61.8	10	L2	AT MCs	1	0.0	1	0.0	0.000	144.1	0.000	144.1	0.000			
11	T1	AT MCs	1	0.0	1	0.0	0.023	66.1	0.023	66.1	0.023	66.1	0.023	66.1	11	T1	AT MCs	1	0.0	1	0.0	0.000	161.3	0.000	161.3	0.000			
12	R2	AT MCs	1	0.0	1	0.0	0.023	72.9	0.023	72.9	0.023	72.9	0.023	72.9	12	R2	AT MCs	1	0.0	1	0.0	0.000	170.6	0.000	170.6	0.000			
Approach															Approach														
All Vehicles															All Vehicles														
1754 6.5 1754 6.5 0.346 7.2 LOSA 8.6 63.1 0.34 0.30 55.6															1824 6.3 1824 6.3 0.520 9.7 LOSA 9.2 67.3 0.00 0.00 0.00 0.0														

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

MOVEMENT SUMMARY – 7.45am – 8.45am – Base Year 2024 – Orange Grove Road / Viscount Place

Pre-Development															Post-Development														
Vehicle Movement Performance															Vehicle Movement Performance														
Mov ID	Turn Mov	Demand Cans	Arrival Flows	% veh	% v/c	Delay sec	Level of Service	95% Back Of Queue Prop. m	Stop Rate Cycles	Aver No. of Speed	km/h	Mov ID	Turn Mov	Demand Cans	Arrival Flows	% veh	% v/c	Delay sec	Level of Service	95% Back Of Queue Prop. m	Stop Rate Cycles	Aver No. of Speed	km/h						
South Orange Grove Road															South Orange Grove Road														
2	T1 All MCs	2434	6.1	2434	6.1	0.786	5.8	LOS A	32.6	225.9	0.54	0.49	0.54	45.9	2	T1 All MCs	2436	6.1	2436	6.1	0.787	5.8	LOS A	32.1	226.5	0.54	0.49	0.54	45.9
3	R2 All MCs	166	1.7	166	1.7	+0.635	70.7	LOS F	5.0	35.6	1.00	0.92	1.37	23.4	3	R2 All MCs	166	1.7	166	1.7	+0.636	70.7	LOS F	5.0	36.0	1.00	0.92	1.37	23.4
Approach															Approach														
2600 5.8 2600 5.8 0.635 10.0 LOS A 32.0 225.9 0.57 0.52 0.69 38.4															2602 5.8 2602 5.8 0.636 10.0 LOS A 32.1 226.5 0.57 0.52 0.59 38.4														
East Viscount Place															East Viscount Place														
4	L2 All MCs	77	3.5	77	3.5	0.245	48.6	LOS D	3.6	26.1	0.90	0.76	0.90	28.2	4	L2 All MCs	77	3.5	77	3.5	0.245	48.6	LOS D	3.6	26.1	0.90	0.76	0.90	28.2
6	R2 All MCs	147	3.7	147	3.7	+0.644	64.5	LOS E	4.2	30.1	1.00	0.81	1.10	19.7	6	R2 All MCs	147	3.7	147	3.7	+0.644	64.5	LOS E	4.2	30.1	1.00	0.81	1.10	19.7
Approach															Approach														
224 3.6 224 3.6 0.644 59.0 LOS E 4.2 30.1 0.97 0.80 1.03 22.6															224 3.6 224 3.6 0.644 59.0 LOS E 4.2 30.1 0.97 0.80 1.03 22.6														
North Orange Grove Road															North Orange Grove Road														
7	L2 All MCs	283	1.0	283	1.0	0.185	11.9	LOS A	2.9	20.2	0.21	0.64	0.21	52.5	7	L2 All MCs	283	1.0	283	1.0	0.185	12.0	LOS A	2.9	20.2	0.21	0.64	0.21	52.5
8	T1 All MCs	2152	9.2	2152	9.2	+0.892	17.7	LOS B	47.4	358.2	0.81	0.77	0.84	47.0	8	T1 All MCs	2161	9.1	2161	9.1	+0.898	18.3	LOS B	48.4	365.5	0.82	0.78	0.85	46.6
Approach															Approach														
2435 8.2 2435 8.2 0.894 17.0 LOS B 47.4 358.2 0.74 0.75 0.77 46.2															2444 8.2 2444 8.2 0.888 17.6 LOS B 48.4 365.5 0.75 0.76 0.79 45.9														
All Vehicles															All Vehicles														
5259 6.8 5259 6.8 0.864 15.3 LOS B 47.4 358.2 0.67 0.64 0.69 42.3															5270 6.8 5270 6.8 0.868 15.6 LOS B 48.4 365.5 0.67 0.64 0.70 42.1														

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

MOVEMENT SUMMARY – 4.30pm – 5.30pm – Base Year 2024 – Cumberland Highway / Cabramatta Road West / Orange Grove Road

Pre-Development													Post-Development												
Vehicle Movement Performance													Vehicle Movement Performance												
Mov ID	Turn Mov Class	Demand [Total HV] (veh/h)	Arrival [Total HV] (veh/h)	Dep. Sat. (veh/h)	Level of Service	95% Queue Prob. (m)	Prep. Queue Prob. (m)	FF Ratio	Aver. Delay (sec)	Aver. Stop Time (sec)	Aver. Speed (km/h)	Mov ID	Turn Mov Class	Demand [Total HV] (veh/h)	Arrival [Total HV] (veh/h)	Dep. Sat. (veh/h)	Level of Service	95% Queue Prob. (m)	Prep. Queue Prob. (m)	FF Ratio	Aver. Delay (sec)	Aver. Stop Time (sec)	Aver. Speed (km/h)		
South: Cumberland Hwy (240m)													South: Cumberland Hwy (240m)												
1	L2 All MCs	640 3.3	640 3.3	0.992	LOS D	54.2	391.7	1.00	1.16	1.33	14.6	1	L2 All MCs	642 3.3	642 3.3	0.995	LOS D	54.2	391.7	1.00	1.17	1.34	14.4		
2	T1 All MCs	1285 5.7	1285 5.7	+0.992	LOS F	54.2	391.7	1.00	1.24	1.38	21.0	2	T1 All MCs	1288 5.7	1288 5.7	+0.995	LOS F	54.2	391.7	1.00	1.25	1.39	20.7		
3	R2 All MCs	315 0.7	315 0.7	+0.992	LOS F	26.9	189.1	1.00	1.07	1.29	19.4	3	R2 All MCs	321 0.7	321 0.7	+0.978	LOS F	26.9	189.1	1.00	1.09	1.43	18.9		
Approach													Approach												
East: Cabramatta Rd W (600m)													East: Cabramatta Rd W (600m)												
4	L2 All MCs	241 1.7	241 1.6	0.207	LOS A	5.5	39.3	0.40	0.67	0.40	42.5	4	L2 All MCs	241 1.6	241 1.6	0.227	LOS A	6.1	43.6	0.41	0.67	0.41	42.5		
5	T1 All MCs	241 1.4	241 1.3	0.209	LOS F	39.2	260.1	1.00	1.17	1.31	21.0	5	T1 All MCs	241 1.4	241 1.3	0.165	LOS F	39.2	260.1	1.00	1.17	1.31	21.0		
6	R2 All MCs	91 2.3	91 2.3	0.584	LOS F	8.2	44.3	1.00	0.79	1.01	27.3	6	R2 All MCs	91 2.3	91 2.3	0.694	LOS F	6.2	44.3	1.00	0.79	1.01	27.3		
Approach													Approach												
North: Cumberland Hwy (600m)													North: Cumberland Hwy (600m)												
7	L2 All MCs	54 6.3	54 6.3	0.663	LOS B	22.1	160.6	0.91	0.89	0.92	33.3	7	L2 All MCs	54 6.3	54 6.3	0.663	LOS B	22.1	162.7	0.92	0.89	0.92	33.3		
8	T1 All MCs	1106 4.4	1106 4.4	0.663	LOS D	22.5	163.2	0.92	0.83	0.92	25.6	8	T1 All MCs	1117 4.4	1117 4.4	0.663	LOS D	22.7	165.2	0.93	0.84	0.93	25.6		
9	R2 All MCs	292 2.0	292 2.0	0.699	LOS F	22.4	159.2	1.00	0.99	1.25	21.4	9	R2 All MCs	292 2.0	292 2.0	0.699	LOS F	22.4	159.2	1.00	0.99	1.25	21.4		
Approach													Approach												
West: Cabramatta Rd W (600m)													West: Cabramatta Rd W (600m)												
10	L2 All MCs	94 2.2	94 2.2	0.025	LOS C	27.9	199.2	1.00	0.93	1.08	26.1	10	L2 All MCs	94 2.2	94 2.2	0.025	LOS C	27.9	199.2	1.00	0.94	1.08	26.1		
11	T1 All MCs	716 2.5	716 2.5	0.025	LOS E	27.9	199.2	1.00	0.93	1.08	25.9	11	T1 All MCs	716 2.5	716 2.5	0.025	LOS E	27.9	198.2	1.00	0.94	1.08	25.9		
12	R2 All MCs	204 2.6	204 2.6	+0.600	LOS F	7.1	50.9	1.00	0.83	1.06	9.1	12	R2 All MCs	213 2.6	213 2.6	+0.607	LOS F	7.5	63.3	1.00	0.84	1.08	9.1		
Approach													Approach												
All Vehicles													All Vehicles												
		5974 3.5	5974 3.5	0.992	72.7	54.2	391.7	0.96	1.04	1.17	21.9			6024 3.5	6024 3.5	0.995	73.4	54.2	391.7	0.96	1.04	1.18	21.4		

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

MOVEMENT SUMMARY – 4.30pm – 5.30pm – Base Year 2024 – Orange Grove Road / Links Avenue / Golf Club Access

Pre-Development																												Post-Development																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Vehicle Movement Performance														Vehicle Movement Performance														Vehicle Movement Performance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Mov ID	Turn	Mov	Class	Demand	Flows	Arrival	Dep	Avail	Level of	95% Back Of Queue	Pop	Dist	Wait	Rate	Mov ID	Turn	Mov	Class	Demand	Flows	Arrival	Dep	Avail	Level of	95% Back Of Queue	Pop	Dist	Wait	Rate	Mov ID	Turn	Mov	Class	Demand	Flows	Arrival	Dep	Avail	Level of	95% Back Of Queue	Pop	Dist	Wait	Rate	Stop	No of Cycles	Rate	Stop	No of Cycles	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
[Total HV] [Total HV]														[Total HV] [Total HV]														[Total HV] [Total HV]																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
South Cumberland Hwy (200m)														South Cumberland Hwy (200m)														South Cumberland Hwy (200m)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
1	L2	AMC's	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	L2	AMC's	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	L2	AMC's	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

MOVEMENT SUMMARY – 4.30pm – 5.30pm – Base Year 2024 – Orange Grove Road / Viscount Place

Pre-Development

Post-Development

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix J – Proposed On-Street ‘No Stopping’ Signage & Line-Markings Plan

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



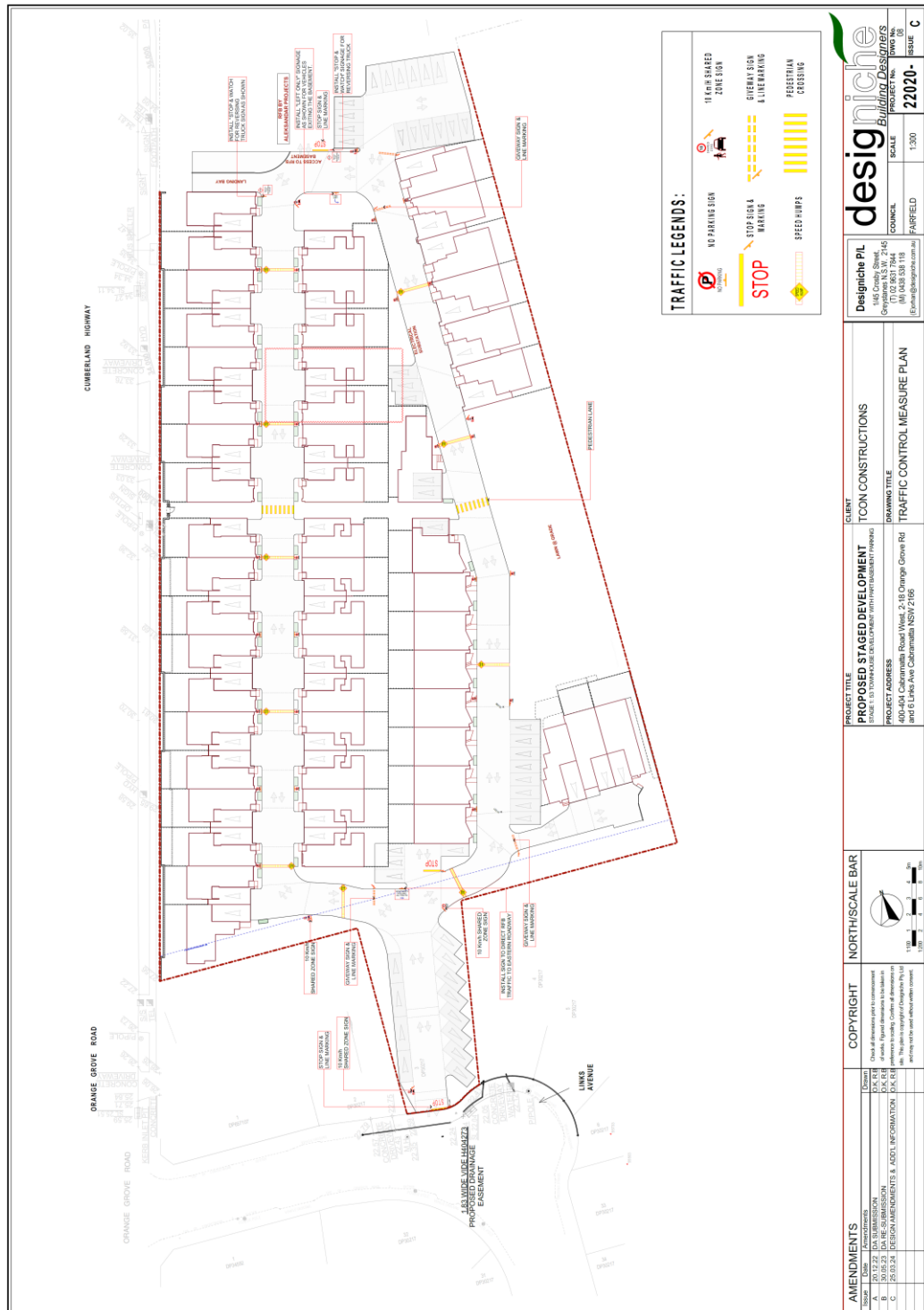
Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au

Appendix K – Proposed On-Site Signage Plan (Traffic management measures)

Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au



Hemanote Consultants Pty Ltd
ABN 94 606 345 117

PO Box 743
MOOREBANK NSW 1875
P 0414 251 845
E projects@hemanote.com.au
W hemanote.com.au