

M^CLAREN TRAFFIC ENGINEERING

Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
Postal: P.O Box 66 Sutherland NSW 1499

Telephone: +61 2 9521 7199
Web: www.mclaretraffic.com.au
Email: admin@mclaretraffic.com.au

Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

23 July 2024

Reference: 240158.02FA

Greg Boyce
Boycecorp Pty Ltd
c/- DFP Planning
11 Dartford Road, Thornleigh NSW 2120
Attention: Warwick Gosling

PRELIMINARY TRAFFIC AND PARKING ASSESSMENT OF THE PROPOSED MANUFACTURED HOME ESTATE AT 1064 NEW ENGLAND HIGHWAY, LOCHINVAR

Dear Warwick,

Reference is made to your request to provide a preliminary traffic and parking impact assessment for the proposed manufactured home estate at 1064 New England Highway, Lochinvar (proposed plans reproduced in **Annexure A**). The scale of the proposal, as relevant to traffic and parking impacts, is as follows:

- 206 lots with each lot containing a three-bedroom residential dwelling;
- Community Facility with a total 496m² GFA containing:
 - Two (2) function areas with a total 255m² GFA;
 - Gym with 96m² GFA;
 - Ancillary kitchen, toilets and storage facilities;
 - Pool;
 - Four (4) 'pickle ball' courts;
- Gate House and Display Suite with 139m² GFA;
- Vehicular access to the site is proposed via a two-way driveway from New England Highway.

1 Site Location and Access

The location of the site is depicted on an aerial image in **Figure 1**. The characteristics of the site and the surrounding transport network are summarised in **Table 1**.



 Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO

TABLE 1: SITE CONTEXT

<p>Zoning</p>	<p>The subject site includes one (1) lot legally identified as Lot 2 DP261947 which is currently zoned <i>RU2 – Rural Landscape</i> under the Maitland Council Local Environmental Plan 2011.</p>
<p>Roads Fronting Site</p>	<p>The site fronts the following road:</p> <ul style="list-style-type: none"> • New England Highway (TfNSW STATE Classified Highway No. 09). <p>Access is proposed from New England Highway.</p>
<p>State Planning Controls</p>	<p>The subject site classifies as a traffic generating development with relevant size and/or capacity under <i>Clause 2.122</i> of the <i>SEPP (Transport and Infrastructure) 2021</i>, as the proposal provides 50 or more allotments with access to a classified road (New England Highway). Accordingly, formal referral to Transport for NSW (TfNSW) is necessary, and the application will be assessed by Maitland City Council officers in conjunction with TfNSW officers.</p> <p>The proposed development has frontage to a classified road and therefore qualifies as such with reference to <i>Clause 2.119</i> of <i>SEPP (Transport and Infrastructure) 2021</i>.</p>
<p>Public Transport</p>	<p>The subject site has access to the existing bus stops (ID: 232135 and ID: 232134) located approximately 300m walking distance to the east of site on New England Highway. The bus stops service existing bus routes 179 (North Rothbury to Green Hills) and 180 (Singleton Heights to Green Hills) provided by Hunter Valley Buses.</p>

2 Future Road and Infrastructure Upgrades

2.1 Lochinvar Urban Release Area

Reference is made to *Maitland Development Control Plan 2011 – Part F: Urban Release Areas (URA) – Chapter F.9: Lochinvar Urban Release Area* which outlines that Lochinvar has been identified as a regionally significant development within the *Lower Hunter Regional Strategy 2006* by the *Department of Planning*. The Lochinvar URA is expected to comprise of approximately 5,000 residential lots with the URA Staging Plan, extracted from MDCP 2011, shown in **Figure 2**.

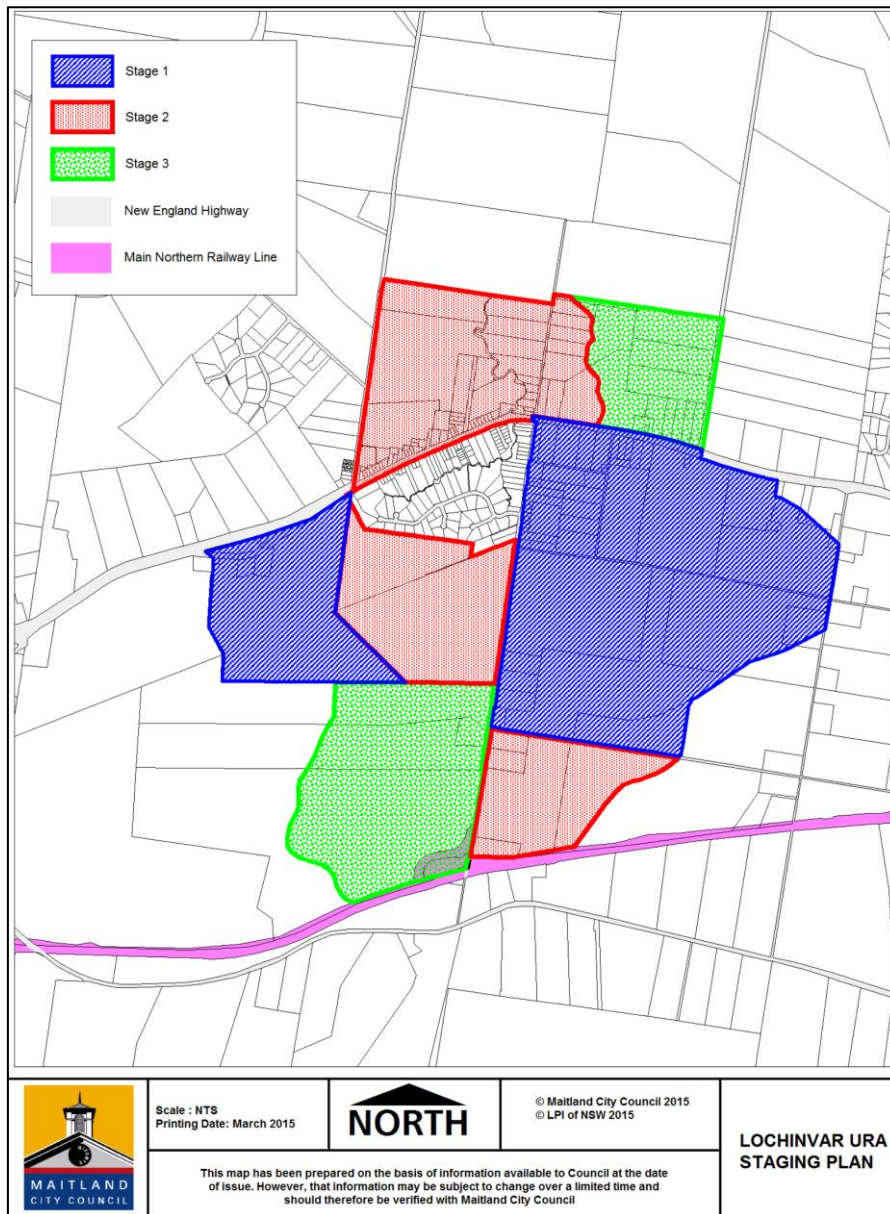


FIGURE 2: LOCHINVAR URA STAGING PLAN EXTRACT

It is expected that traffic volumes along New England Highway will increase over the duration of the Lochinvar URA staging. Under future modelling scenarios of the impact of the proposed development, this growth should be considered as the proposed access to the site is made via New England Highway. It appears that as a part of the Lochinvar URA, road works will be undertaken to widen existing roads and construct new roads and intersections. By providing alternate transport routes, this may further reduce the traffic impacts on New England Highway.

3 Parking and Access Design

The car parking, access and servicing requirements of the site have been assessed, with the relevant details summarised in **Table 2**.

TABLE 2: PARKING ASSESSMENT SUMMARY

Category	Control	Compliance with Control
Car Parking Provision	<p><i>Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021</i></p> <p>23 Visitor parking (1) A manufactured home estate must contain at least the following number of visitor parking spaces –</p> <p style="padding-left: 40px;"><i>(d) for a manufactured home estate containing more than 105 sites – 20 spaces plus 1 additional space for every 7 sites above 140 sites.</i></p> <p>45 Site coverage (2) If there is no carport or garage on the dwelling site, the site must contain an area –</p> <p style="padding-left: 40px;"><i>(a) with minimum dimensions of 6 metres by 3 metres, and</i></p> <p style="padding-left: 40px;"><i>(b) accessible from an access road, and</i></p> <p style="padding-left: 40px;"><i>(c) used for car parking</i></p>	<p>Yes – Local Government Regulation 2021 requires the provision of 1 car parking space per dwelling and 24 visitor car parking spaces. The proposed plans detail the provision of a tandem carport per dwelling and 55 visitor car parking spaces.</p>
	<p><i>Maitland Development Control Plan 2011 (MDCP 2011) and Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021 do not outline requirements for bicycle or motorcycle parking for manufactured home estates.</i></p>	-
Accessible Parking	<p>24 Visitor parking for people with disabilities (1) A manufactured home estate must contain -</p> <p style="padding-left: 40px;"><i>(a) at least 1 visitor parking space for people with a disability (a disabled parking space), or</i></p> <p style="padding-left: 40px;"><i>(b) if the manufactured home estate contains at least 100 sites or more – at least 1 additional disabled parking space for –</i></p> <p style="padding-left: 80px;"><i>(i) the first 100 sites, and</i></p> <p style="padding-left: 80px;"><i>(ii) every further 100 sites, and</i></p>	<p>Yes – Local Government Regulation 2021 requires the provision of two (2) accessible car parking spaces. The proposed plans detail the provision of two (2) car parking spaces.</p>

(ii) a remaining part, if any, of 100 sites.

<p>Loading and Servicing Facilities</p>	<p><i>Maitland Development Control Plan 2011 (MDCP 2011) and Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021 do not outline specific servicing and loading requirements for manufactured home estates.</i></p>	<p>Yes – Waste collection will be undertaken by a private waste contractor utilising vehicles up to and including an 8.8m length MRV. Swept path tests have been undertaken demonstrating successful MRV circulation of the internal roadways with results presented in Annexure B.</p>
<p>Car Parking Design</p>	<p>Assessed against the requirements of:</p> <ul style="list-style-type: none"> - AS2890.1-2004 - AS2890.2-2018 - AS2890.6-2022 - <i>Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021</i> 	<p>Yes – All car parking provided meets the requirements of the relevant standard. Relevant swept path testing has been undertaken with the results provided in Annexure B.</p> <p>Any recommended or required changes are detailed in Annexure C.</p>

4 Subdivision Street Design

Reference is made to *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* which outlines the following requirements regarding subdivision roads for manufactured home estates:

Subdivision 3 Roads

20 *Entrance and exit roads*

- (1) *A road forming an entrance to or exit from a manufactured home estate must be at least 8 metres wide.*
- (2) *For a divided road, the width of the sealed portion of the road on either side of the median strip must be at least 4 metres.*
- (3) *The council may specify, in an approval, the way in which an entrance or exit road must meet the sealed portion of other access roads.*

21 *Width of roads*

- (1) *The width of the road reserve must be at least –*
 - (a) *8.5 metres for a major access road, and*
 - (b) *6 metres for a minor access road.*
- (2) *The width of the sealed portion of an access road must be at least –*
 - (a) *6 metres for a major access road, and*
 - (b) *4 metres for a minor access road.*
- (3) *If a minor access road exceeds 80 metres in length, a passing bay must be provided within the road reserve.*
- (4) *Passing bays must be provided at intervals of no more than 100m.*
- (5) *The width of the sealed portion of an access road at a passing or parking bay must be at least –*
 - (a) *8.5 metres for a major access road, and*
 - (b) *6 metres for a minor access road.*

22 *Speed restrictions as part of road design*

Access roads must be designed to limit the speed at which vehicles may travel on the roads to -

- (a) *30 kilometres per hour for major access roads; and*
- (b) *15 kilometres per hour for minor access roads.*

The proposed internal roads have been constructed in accordance with the guidelines outlined above. Swept paths have been undertaken demonstrating successful 8.8m length Medium Rigid Vehicle (MRV) circulation of the site, with the results present in **Annexure B**.

5 Warrant Assessment – Access Requirements

5.1 Warrant Assessment Guidelines

Reference is made to *AUSTROADS Guide to Traffic Management Part 6: Intersection, Interchanges and Crossings Management – Figure 3.25: Warrant for turn treatments on major roads at unsignalised intersections (April, 2020)* which provides the following requirements with the relevant extracts reproduced in **Figure 3** and **Figure 4**.

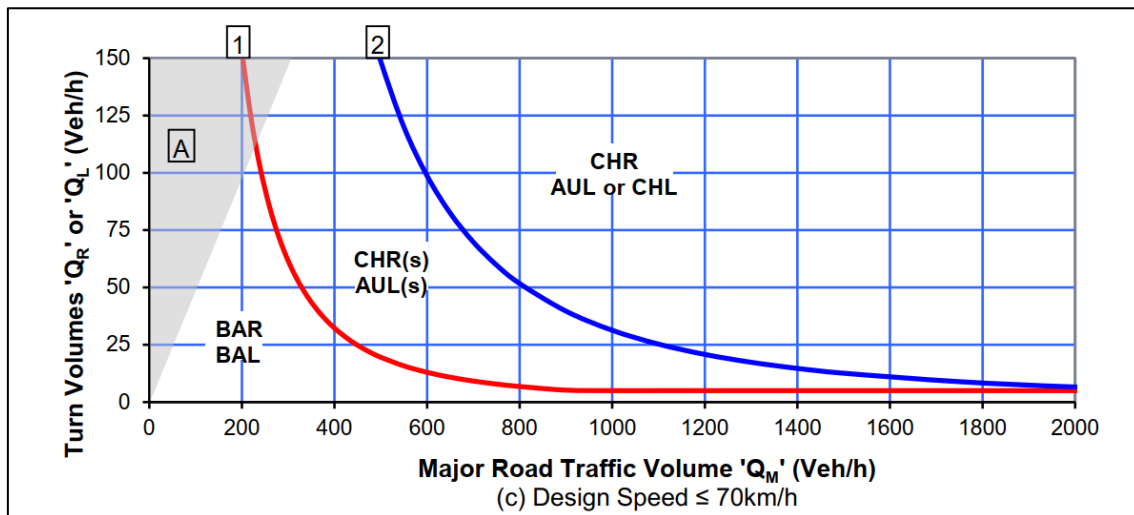


FIGURE 3: WARRANT ASSESSMENT – AUSTROADS EXTRACT

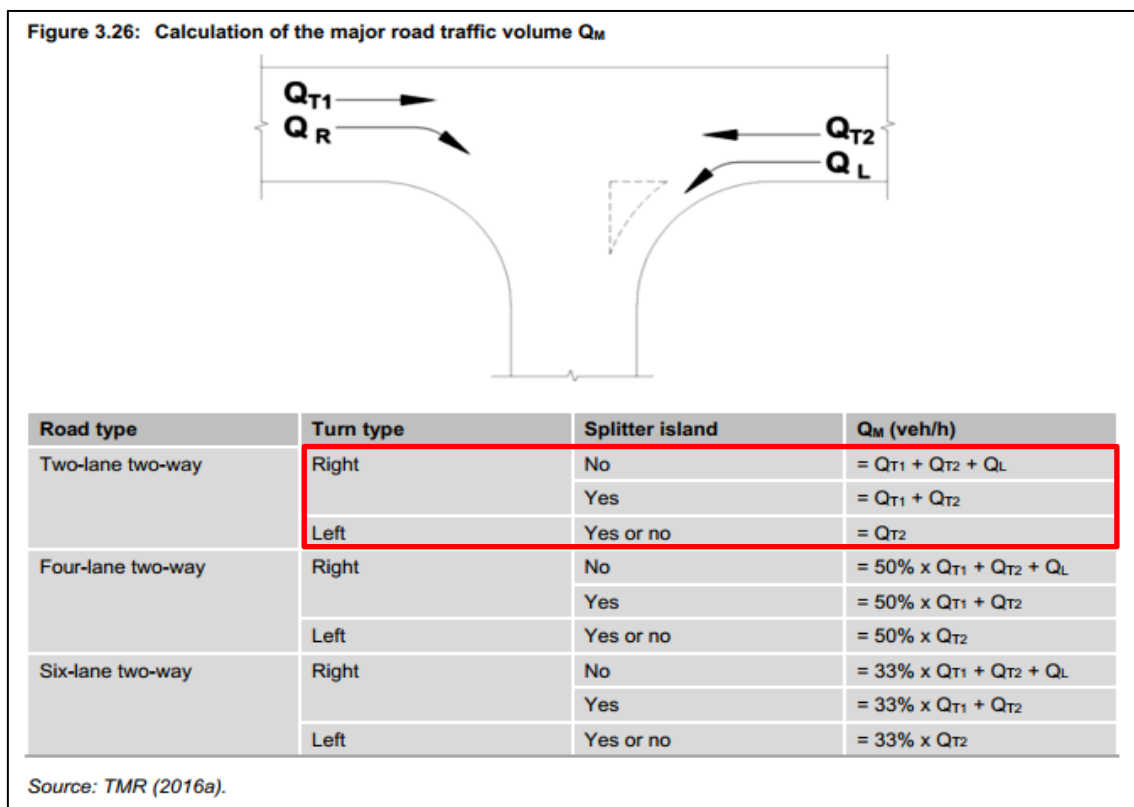
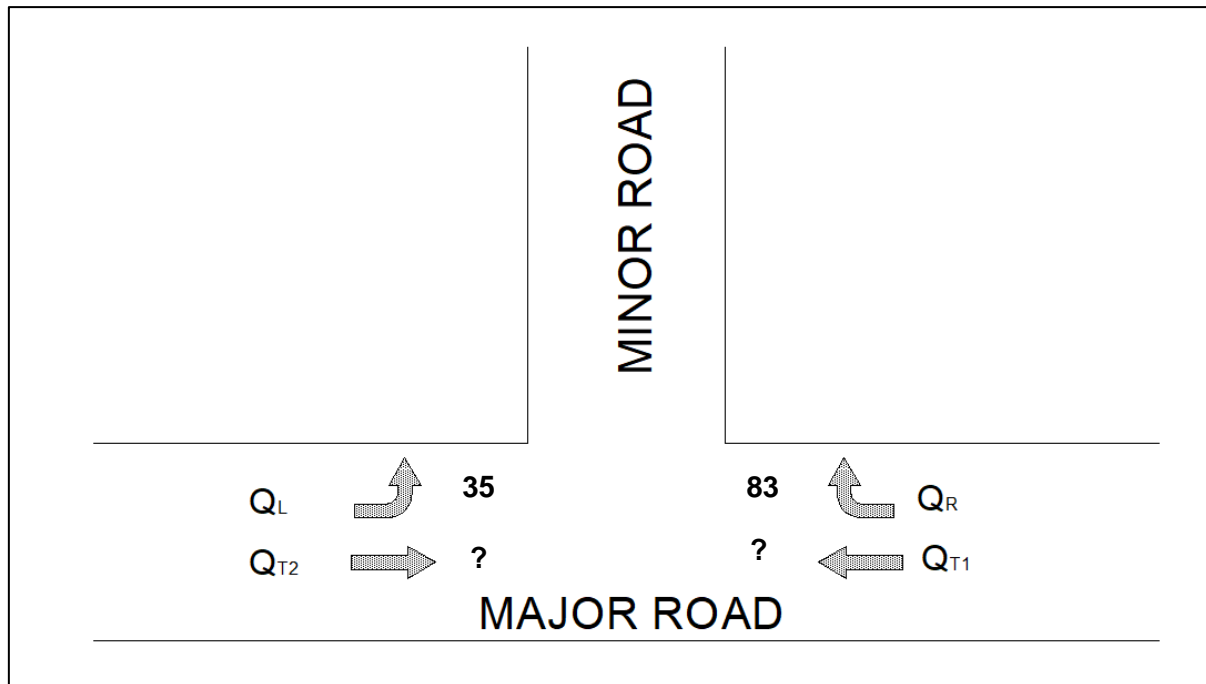


FIGURE 4: CALCULATION OF Q_M

5.2 Warrant Assessment

The volumes applicable to the scenarios are shown in **Figure 5 & Table 3**. The worst-case scenario occurs in the PM peak, therefore the volumes represented below are for the PM peak volumes.



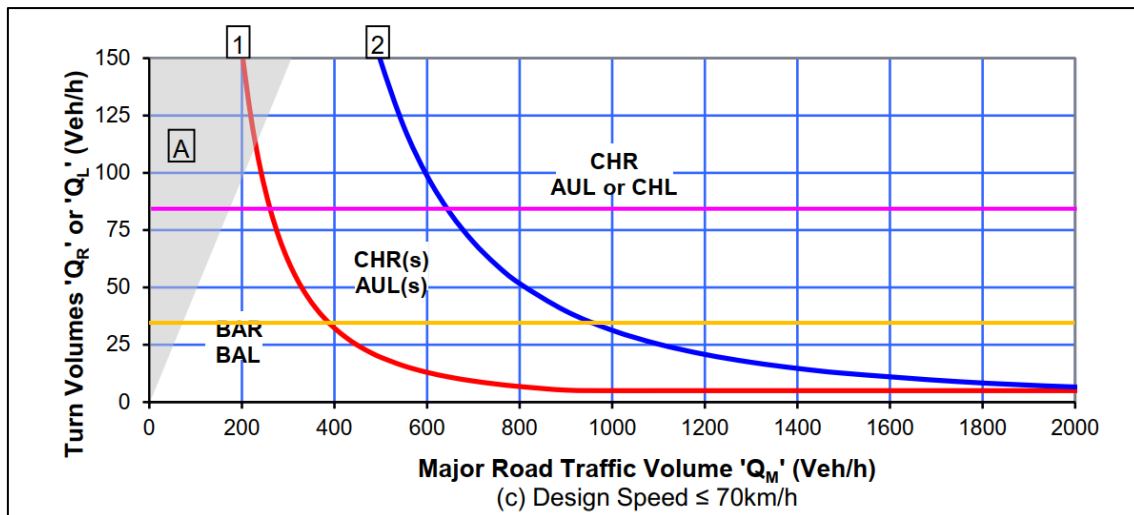
Note: (1) Traffic volumes obtained from **Section 6**.

FIGURE 5: SCENARIO 1 – TRAFFIC VOLUMES

The resulting right and left turn treatment options are summarised in **Table 3**.

TABLE 3: MAJOR ROAD / MINOR ROAD TURNING TREATMENT INPUTS

Road Type	Turn Type	Q _M (veh/h)	Q _L or Q _R	Treatment Requirement
Scenario 1				
Two-lane two-way with splitter island	Left	0-390	35	BAL
	Right	0-270	83	BAR
Scenario 2				
Four-lane two-way with splitter island	Left	390-950	35	AUL (s)
	Right	270-650	83	CHR (s)
Scenario 3				
Four-lane two-way with splitter island	Left	950+	35	AUL or CHL
	Right	650+	83	CHR



————— Right Turn Treatment
 ————— Left Turn Treatment

FIGURE 6: WARRANT ASSESSMENT TREATMENT REQUIREMENTS

As shown, the treatment requirement will depend on the value of Q_M , which is the kerbside lane peak hour volume as per the following:

- Left Turn Treatments:
 - 0-390 vehicles – BAL Treatment
 - 390-950 vehicles – AUL(s) Treatment
 - 950+ vehicles - AUL Treatment
- Right Turn Treatments:
 - 0-270 vehicles – BAL Treatment
 - 270-650 vehicles – AUL(s) Treatment
 - 650+ vehicles - AUL Treatment

Automatic Traffic Count (ATC) surveys should be undertaken to determine the bi-directional traffic volumes along New England Highway. From this, the appropriate turn treatments can be determined for the proposed development. In any case, the proposal includes the construction of an auxiliary left turn lane (AUL or AUL(s)) and a channelised right turn lane (CHR or CHR(s)) with the preliminary turn treatment concept plan presented in **Annexure D**.

5.3 Future Growth Projections

The ATC count data will advise the current volumes, and in turn, the turning treatments necessary for the current volumes. As discussed, there is expected to be a large increase in traffic along the New England Highway due to the ongoing development within the Lochinvar Urban Release Area. Therefore, designing for the current volumes may result in a substandard design in the near future. The traffic modelling and the turn treatment should be future-proofed. As such, it is important to estimate and include the projected future traffic volumes in modelling.

As an applicant for this individual site, we would not be privy to the relevant information to inform growth rates or design years. Therefore, the following information would be required from the Council to inform the modelling and turning treatment analysis for this site access:

- Design year
- Bi-direction traffic growth rates each year between the present and the design year
- Compound or linear growth rates

The applicant can complete an adequate future-proofed modelling scenario as a supplementary report if provided with the above information from Council.

6 Traffic Generation and Impact

Traffic generation rates for the relevant land uses are provided in the *RTA Guide to Traffic Generating Developments (2002)*, *TDT 2013/04a* and recent supplements as adopted by Transport for NSW (TfNSW) and are as follows:

TDT 2013/04a

Low density residential dwellings

Weekday average evening peak hour vehicle trips = 0.99 per dwelling in Sydney (maximum 1.39), 0.78 per dwelling in regional areas (maximum 0.90).

Weekday average morning peak hour vehicle trips = 0.95 per dwelling in Sydney (maximum 1.32), 0.71 per dwelling in regional areas (maximum 0.85).

*(The above rates to **not** include trips made internal to the subdivision, which may add up to an additional 25%).*

There are no traffic generation rates within the RTA Guide which apply to showroom developments. As such, a first principles assessment has been applied to the showroom development, with the following assumptions used:

- Two (2) staff members each generating one (1) vehicle trip in the AM and PM peak periods;
- Four (4) visitors will arrive and depart the showroom within the AM and PM peak hour, generating eight (8) vehicle trips.

The community facility is expected to serve the residents within the development and is considered ancillary. The resulting AM and PM peak hourly traffic generation is summarised in **Table 4**.

TABLE 4: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak	Generation Rate	Trips
Showroom	139m ² GFA	AM	<i>First Principles</i>	10 trips (6 in, 4 out)
		PM	<i>First Principles</i>	10 trips (4 in, 6 out)
Manufactured Homes ⁽¹⁾	206 dwellings	AM	0.78 trips per dwelling	161 trips (32 in, 129 out)
		PM	0.71 trips per dwelling	146 trips (117 in, 29 out)
TOTAL	-	AM	-	171 trips (38 in, 133 out)
		PM	-	156 trips (121 in, 35 out)

Notes:

- (1) Assumes 20% inbound & 80% outbound during AM peak and vice versa for PM.

As shown, the expected traffic generation associated with the proposed development is in the order of **171** vehicle trips in the AM peak period (38 in, 133 out) and **156** vehicle trips in the PM peak period (121 in, 35 out). Under *AUSTROADS Guide to Traffic Management Part 12* guidelines, a complete traffic impact assessment is required. This will be provided within a supplementary report after liaison with Council regarding growth rates and design years.

7 Conclusions

The following findings were formed as a part of this preliminary traffic and parking impact assessment:

- The proposed plans detail the provision of a tandem carport for each dwelling and **55** visitor car parking spaces, satisfying *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* car parking requirements.
- The proposed internal circulation roadways have been designed in accordance with *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* road width requirements.
- The proposed internal roadways have been designed to accommodate vehicles up to and including an 8.8m length Medium Rigid Vehicle. Swept paths demonstrating successful MRV circulation is presented in **Annexure B**.
- The proposed car parking areas for the display suite and commercial facility have been found to satisfy *AS2890.1:2004* and *AS2890.6:2022* with any required or recommended changes presented in **Annexure C**.
- The proposed development is expected to generate **171** vehicle trips in the AM peak period (38 in, 133 out) and **156** vehicle trips in the PM peak period (121 in, 35 out). Under *AUSTROADS Guide to Traffic Management Part 12* guidelines, a complete traffic impact assessment is required.
- It is expected that right and left turn treatments (AUL(s), AUL, CHR(s), CHR) will be required as a part of the proposal with a preliminary concept of the turn treatment provided in **Annexure D**. Automatic Traffic Count (ATC) surveys of New England Highway should be undertaken to determine the appropriate turn treatments required. This is to be further detailed within the supplementary traffic report once liaison with Council is made regarding the future traffic modelling.
- The Lochinvar Urban Release Area should be taken into consideration when assessing the future traffic impacts. Maitland Council should provide information regarding appropriate background traffic growth rates on New England Highway and relevant traffic distributions within the road network.

Please contact Mr Stanley Indraya or the undersigned should you require further information or assistance.

Yours faithfully

M^cLaren Traffic Engineering



Daniel Fonken

Senior Traffic Engineer

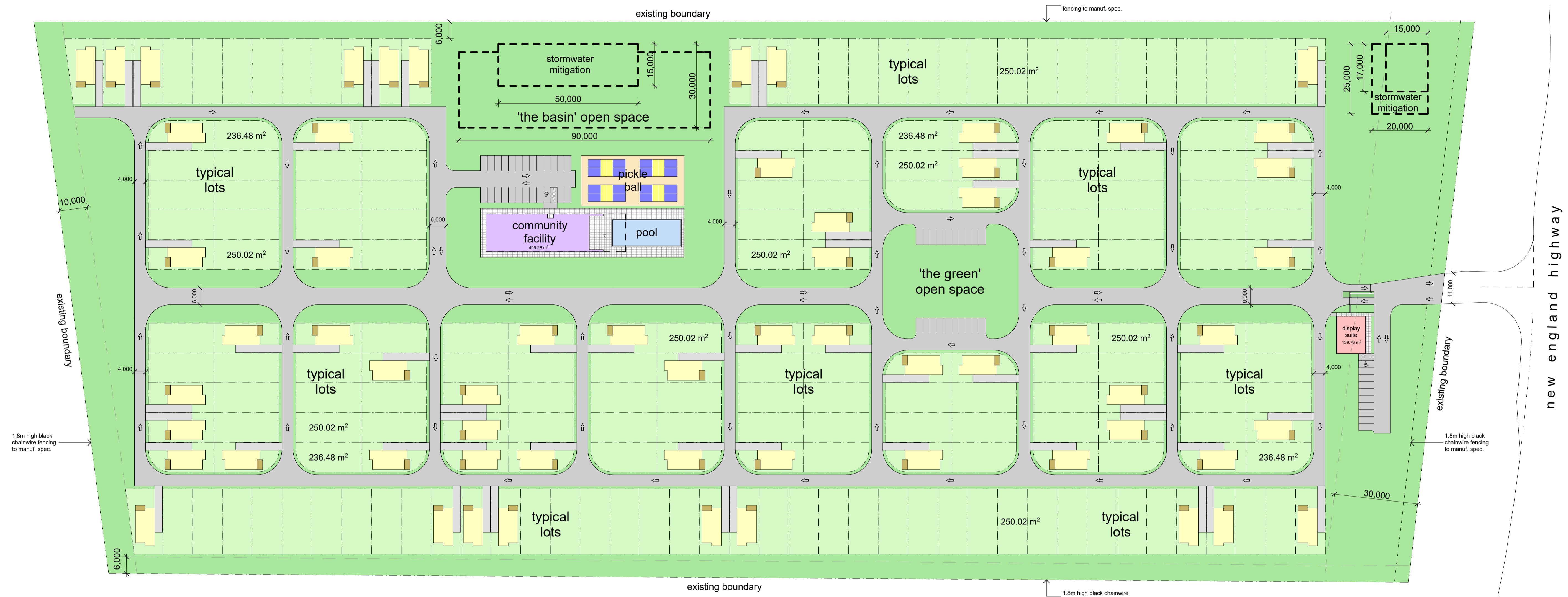
Bachelor of Science Civil Engineering

SafeWork NSW Prepare a Work Zone Traffic Management Plan (TCT0016942)

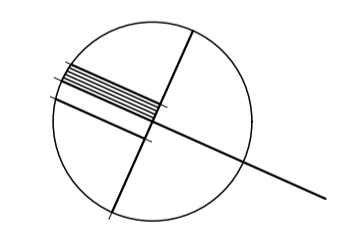
Road Safety Auditor (Level 1)



**ANNEXURE A: PROPOSED PLANS
(3 SHEETS)**



Site Plan
1:750



- this drawing is copyright and the property of the author, and must not be retained, copied or used without the authority of atj architects
- larger scale drawings and written dimensions take preference.
- do not scale from drawing
- all dimensions to be checked on site before commencement of work.
- all discrepancies to be brought to the attention of the author.

Notes

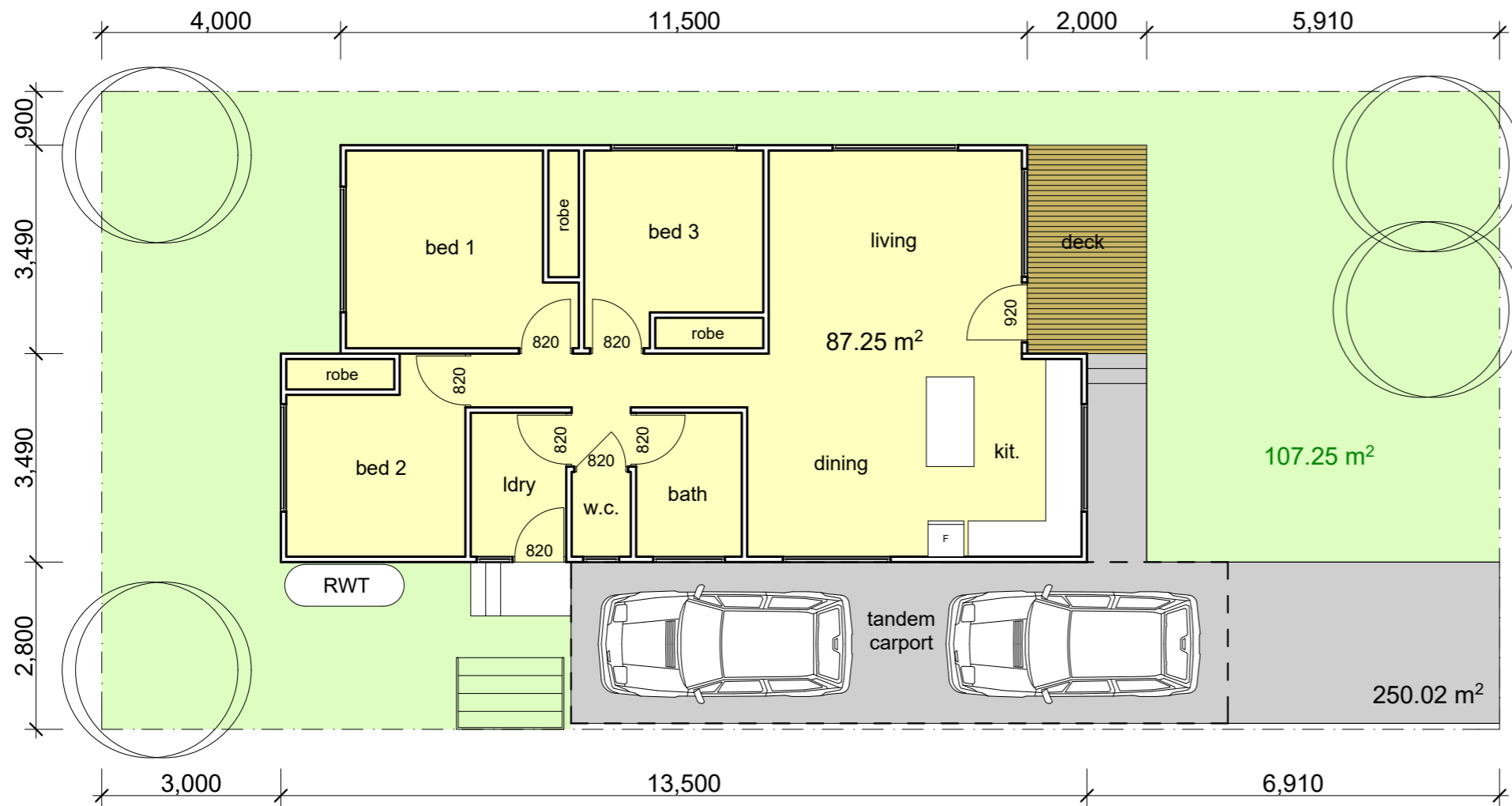
B	amend as req.	bL	may,24
A	issue to client	bL	nov,23
issue	details	by	date
amendments			

location
1064 New England Highway
LOCHINVAR
client
Boycecorp Pty Ltd
drawing title
Site Plan

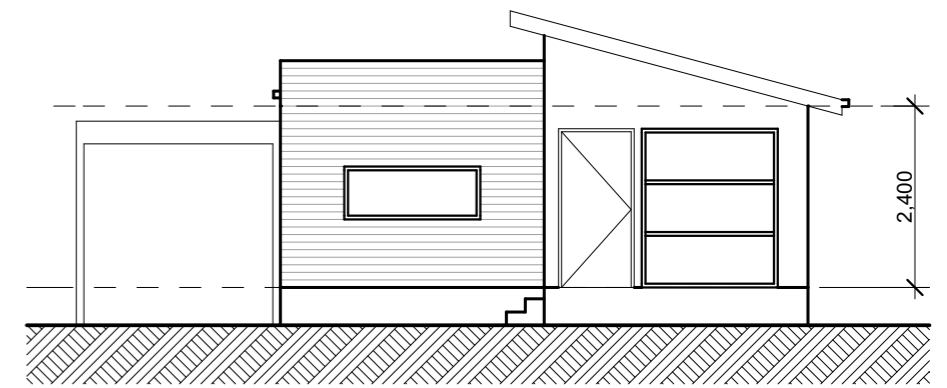
project
Proposed Residential Development

date 01.11.23	checked no	project arch. A01	drawn bL
scale as shown	no 2324	A01	issue B





○ Typical 250sqm Lot & Floor Plan
1:100



○ Concept Front Elevation
1:100

- this drawing is copyright and the property of the author, and must not be retained, copied or used without the authority of atj architects
- larger scale drawings and written dimensions take preference.
- do not scale from drawing
- all dimensions to be checked on site before commencement of work.
- all discrepancies to be brought to the attention of the author.

Notes

B	amend as req.	bL	may,24
A	issue to client	bL	nov,23
	issue details	by	date
	amendments		

location
1064 New England Highway

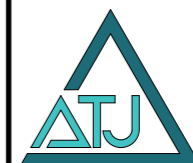
LOCHINVAR

client
Boycecorp Pty Ltd

drawing title
Site Plan- Typical 250sqm

Lot

project
Proposed Residential Development

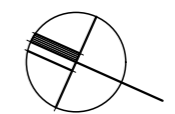


date 01.11.23	checked no 2324	project arch. bl. A02	drawn bl. B
scale as shown			issue B

ATJ Architects
0414 774 116 atjarchitects@outlook.com
52 Woodgrove Ave, Harrington Park NSW 2567



Ground Floor Plan
1:200



- this drawing is copyright and the property of the author, and must not be retained, copied or used without the authority of atj architects
- larger scale drawings and written dimensions take preference.
- do not scale from drawing
- all dimensions to be checked on site before commencement of work.
- all discrepancies to be brought to the attention of the author.

Notes

B	amend as req.	bL	may,24
A	issue to client	bL	nov,23
	issue details	by	date
amendments			

location
1064 New England Highway
LOCHINVAR
client
Boycecorp Pty Ltd
drawing title
**Community Facility Floor
Plan**

project
**Proposed
Residential
Development**

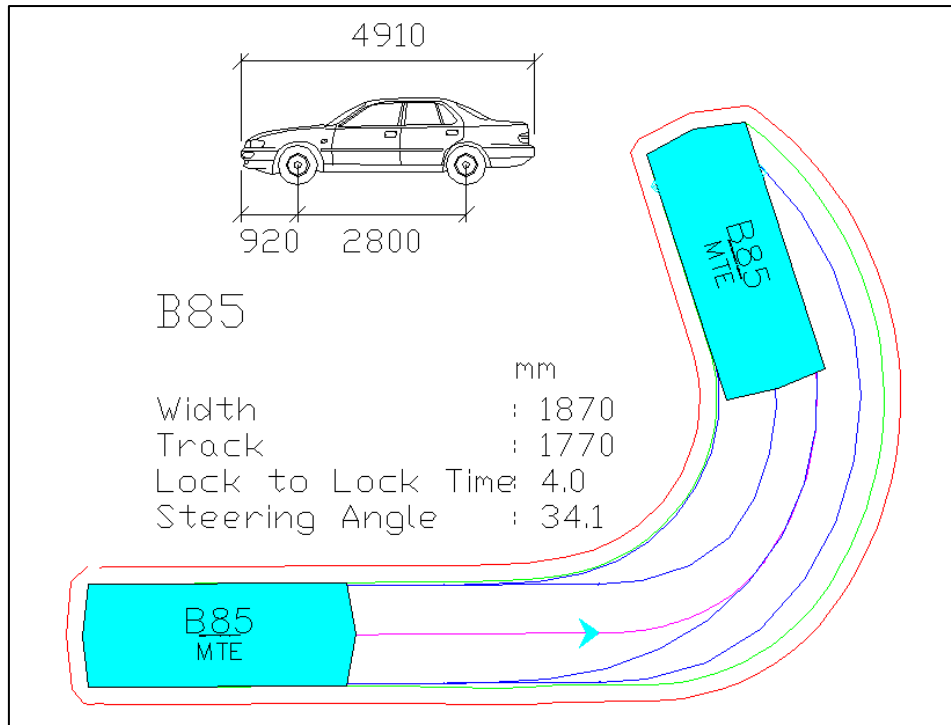


date 01.11.23	checked no 2324	project arch. bl. A03	drawn bl. B
scale as shown			issue B

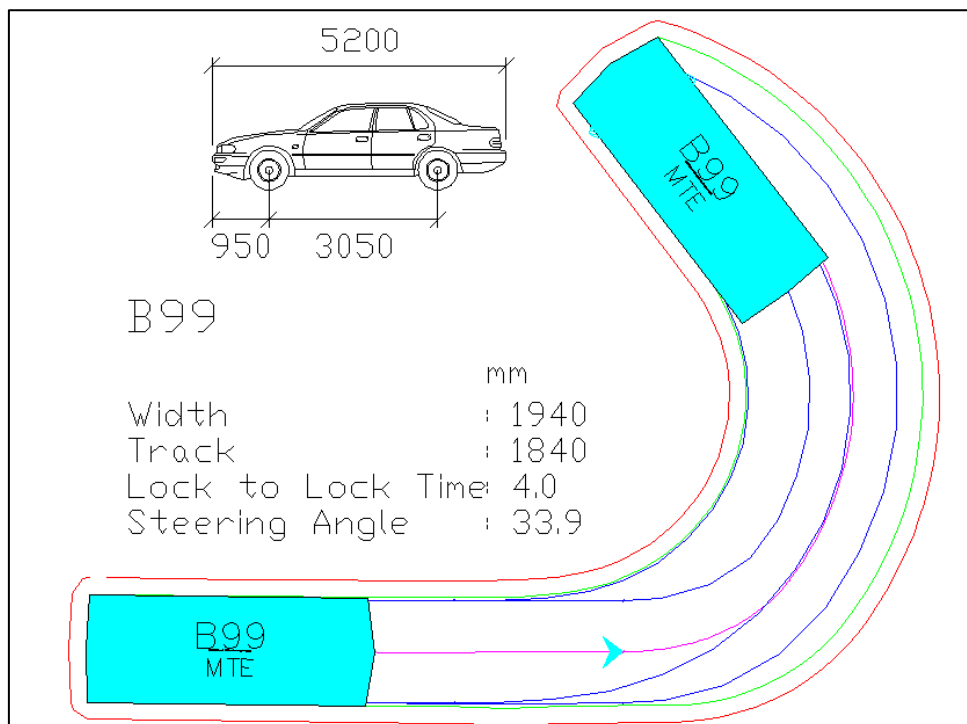
ATJ Architects
0414 774 116 atjarchitects@outlook.com
52 Woodgrove Ave, Harrington Park NSW 2567



**ANNEXURE B: SWEEP PATH TESTING RESULTS
(5 SHEETS)**



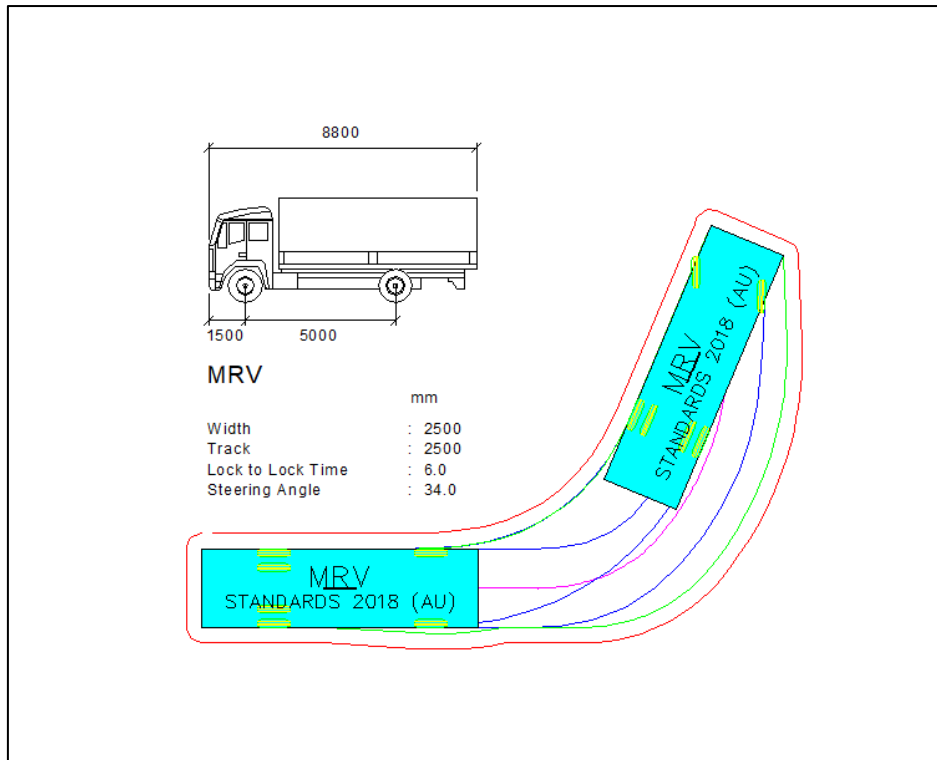
AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)



AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

Blue – Tyre Path
 Green – Vehicle Body
 Red – 300mm Clearance

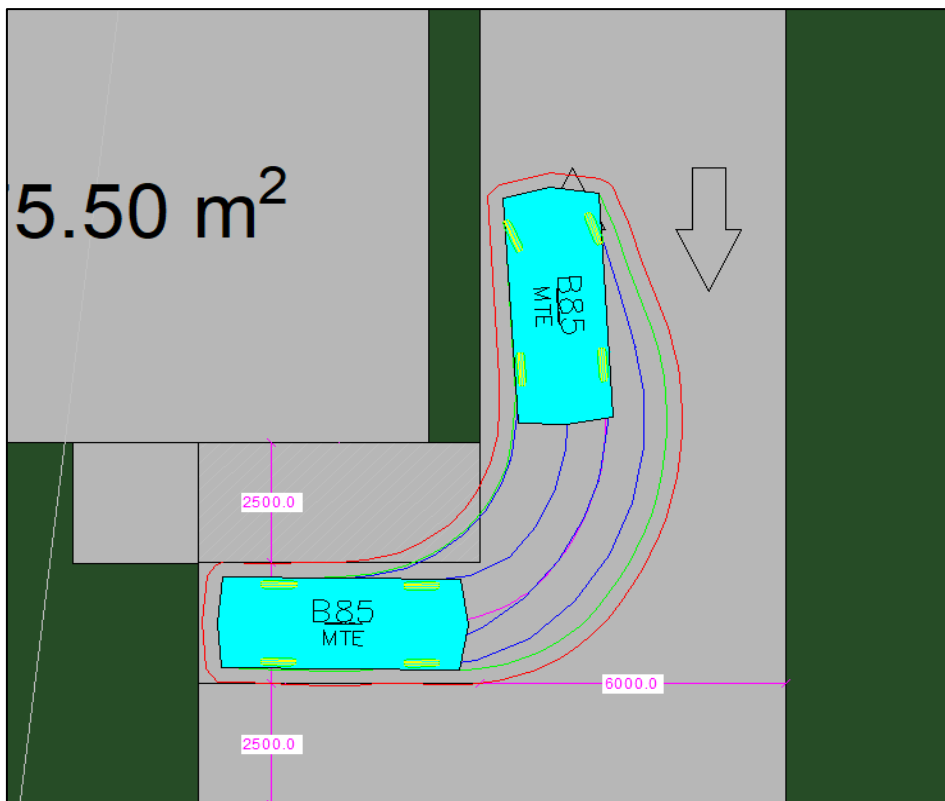
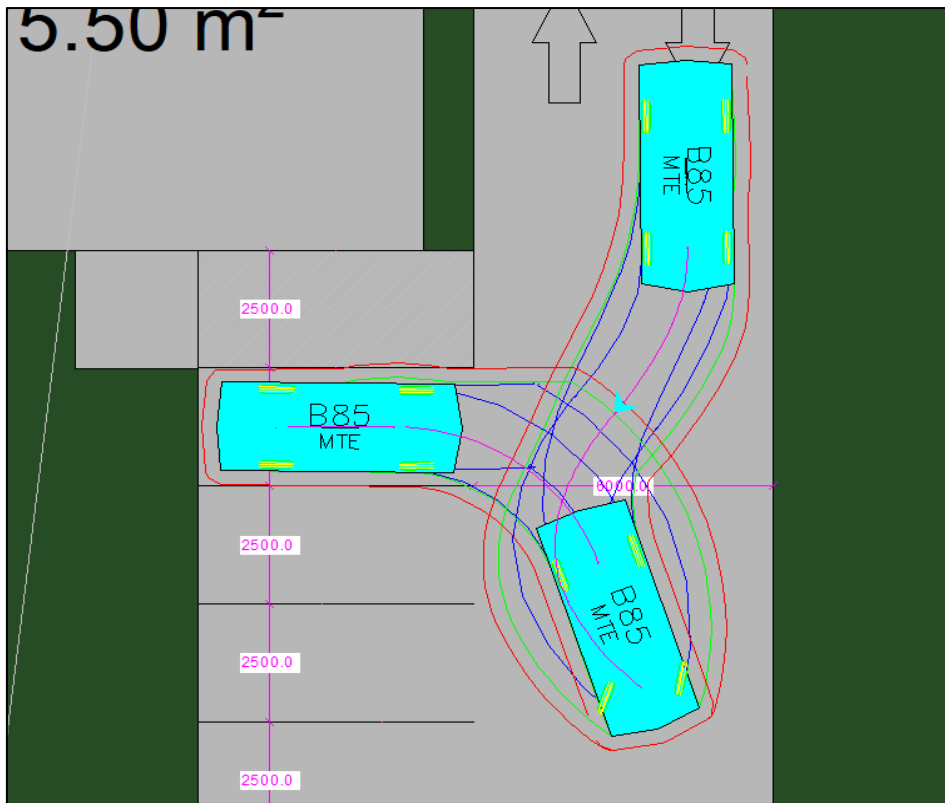
Tested at 5km/h.



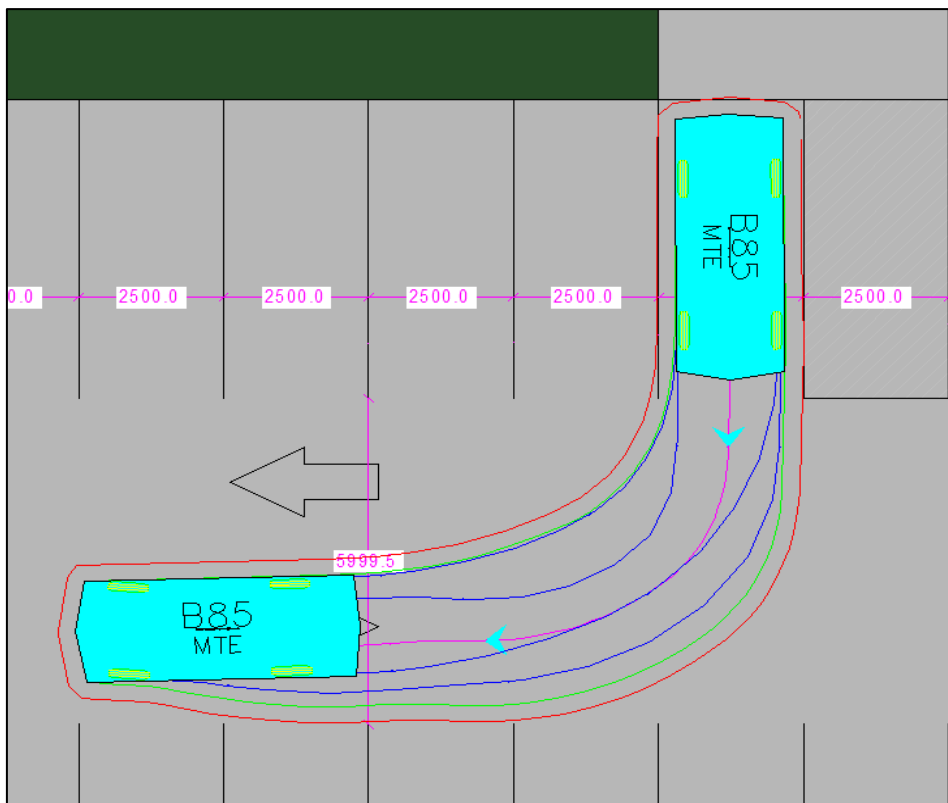
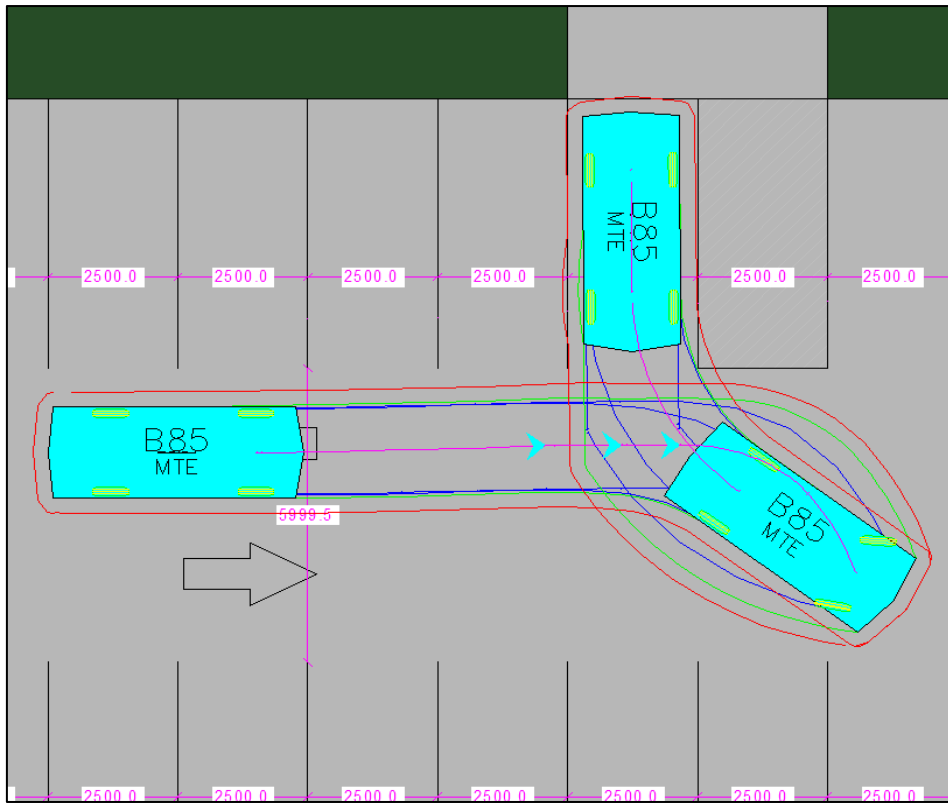
AUSTRALIAN STANDARD 8.8M LENGTH MEDIUM RIGID VEHICLE (MRV)

Blue – Tyre Path
 Green – Vehicle Body
 Red – 500mm Clearance

Tested at 5km/h.



DISPLAY SUITE CAR PARKING – ACCESSIBLE CAR PARKING SPACE – B85 PARKING SUCCESSFUL – 2 Manoeuvres Reverse IN, 1 Manoeuvre Forward OUT

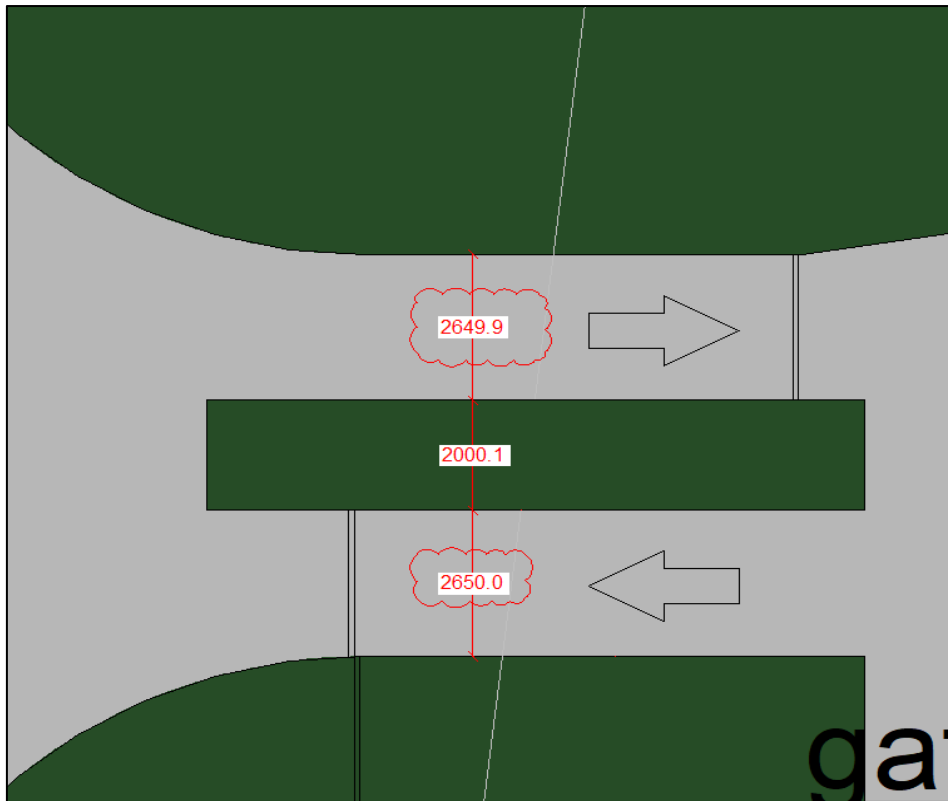


COMMUNITY FACILITY CAR PARKING – ACCESSIBLE CAR PARKING SPACE – B85 PARKING

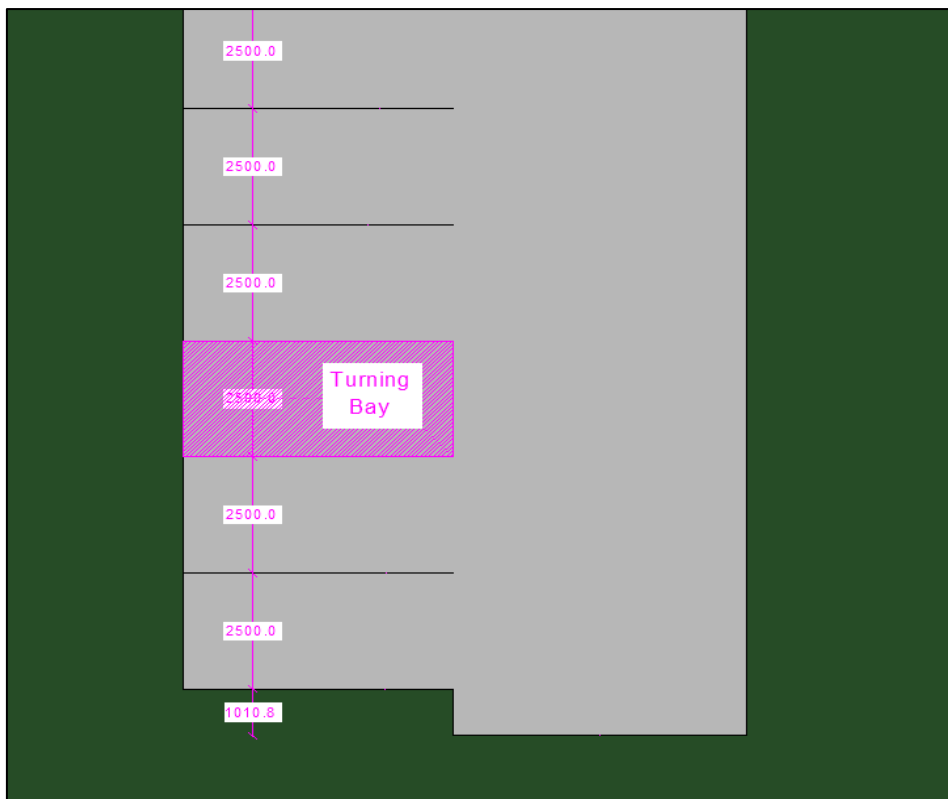
SUCCESSFUL – 2 Manoeuvres Reverse IN, 1 Manoeuvre Forward OUT



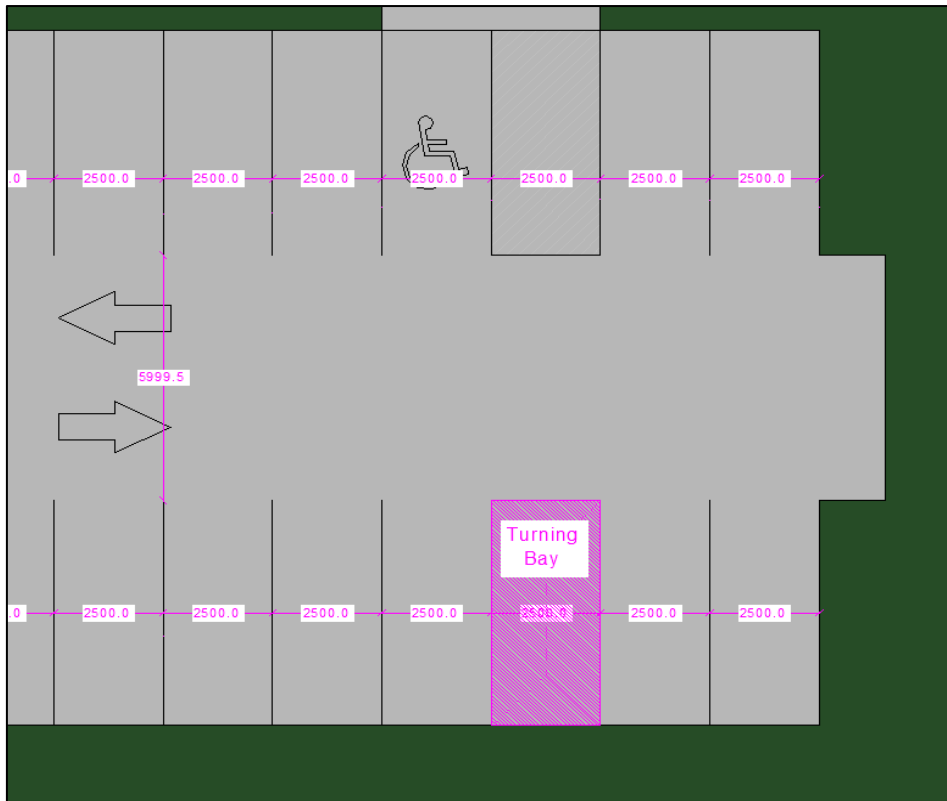
**ANNEXURE C: RECOMMENDED AND REQUIRED CHANGES
(3 SHEETS)**



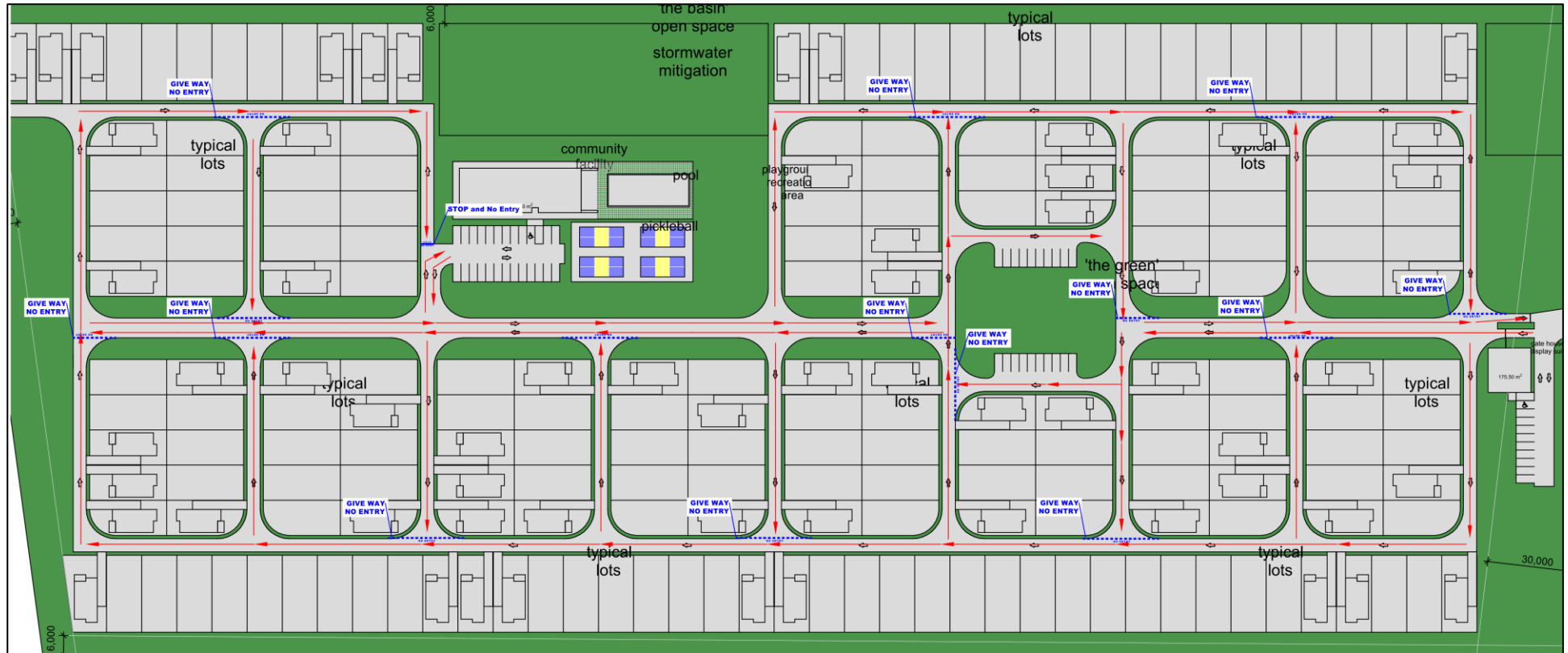
Minimum 3.5m circulation roadway required for MRV manoeuvring.



A turning bay is required for the 'Display Suite' car park. It is recommended that the space shown above is converted to a turning bay.



A turning bay is required for the Community Facility car park. It is recommended that the space shown above is converted to a turning bay.



It is recommended that the internal circulation roadways adopt the proposed traffic flow. Further, it is recommended that linemarking is provided to discourage drivers from driving in the wrong direction.



**ANNEXURE D: PRELIMINARY TURN TREATMENT CONCEPTS
(2 SHEETS)**



MCLAREN TRAFFIC ENGINEERING
 A division of RAMTRANS Australia Pty. Ltd.
 Shop 7, 716-720 Old Princes Hwy, Sutherland NSW 2232
 P : (02) 9521 - 7199
 E : admin@mclarentraffic.com.au
 www.mclarentraffic.com.au

CLIENT / Project:
 Boycecorp Pty Ltd

Project Address:
 1064 New England Highway, Lochinvar

Notes:
 CONCEPT PLAN ONLY.
 NOT FOR CONSTRUCTION.

Tested Using:
 *AutoTURN 10
 *ZWCAD 2019

SCALE - 1:800

Drawing Title:
 AUL(s) and CHR(s) Concept

Project No: 2024/158

Drawing No: 2024-158-02A

Revision	Date	Details
A	14/03/2024	





MCLAREN TRAFFIC ENGINEERING
 A division of RAMTRANS Australia Pty. Ltd.
 Shop 7, 716-720 Old Princes Hwy, Sutherland NSW 2232
 P : (02) 9521 - 7199
 E : admin@mclarentraffic.com.au
 www.mclarentraffic.com.au

CLIENT / Project:
 Boycecorp Pty Ltd

Project Address:
 1064 New England Highway, Lochinvar

Notes:
 CONCEPT PLAN ONLY.
 NOT FOR CONSTRUCTION.

Tested Using:
 *AutoTURN 10
 *ZWCAD 2019

SCALE - 1:800

Drawing Title:
 AUL and CHR Concept

Project No:	Drawing No:
2024/158	2024-158-03A

Revision	Date	Details
A	14/03/2024	

