



# Traffic Engineering

109 Old Peterborough Road, Peterborough  
Proposed Residential Subdivision (57 lots)  
Traffic Impact Assessment



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# 1 Introduction and Scope

TTM Consulting (Vic) Pty Ltd has been engaged by the Applicant to prepare a Traffic Impact Assessment to accompany the Planning Application for the Proposed Residential Subdivision (57 lots) at 109 Old Peterborough Road, Peterborough.

TTM Consulting reviews the traffic implications of the proposal and provides the necessary assessment as required.

TTM Consulting considers the proposal to be appropriate from a traffic engineering perspective and warrants provision of the sought planning permit subject to conditions.

## Record

No.	Author	Reviewed/Approved	Description	Date
1.	████████	████████	TIA: Original Issue	07/03/2024
2.	████████	████████	TIA: Amended Issue	09/04/2024

## 2 Existing Conditions

### 2.1 The Site

The site at 109 Old Peterborough Road, Peterborough is approximately 1km north of B100 (Hamilton Street/Great Ocean Road), 41km south-east of Warrnambool and 12km west of Port Campbell.

The site location in the context of the surrounding road network is shown in Figure 1.

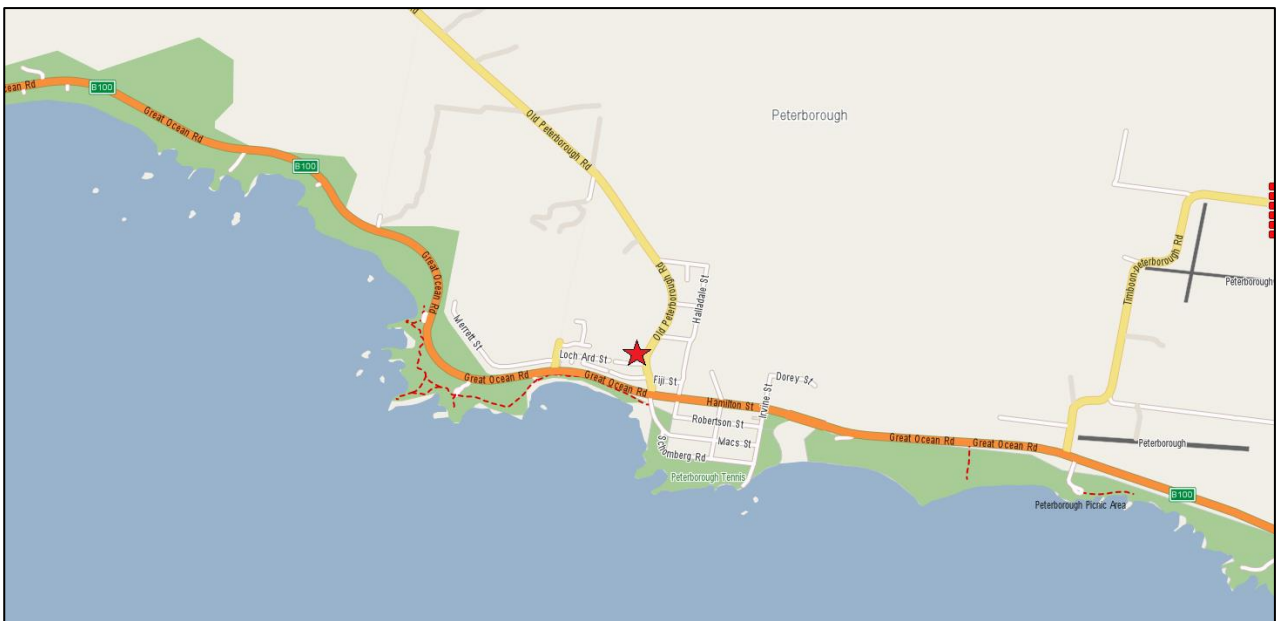


Figure 1: Site Locality Map (Source: Street-Directory)

The site is zoned as a General Residential Zone – Schedule 1 in the Moyne Planning Scheme and is surrounded by General Residential and Farming Zone.



Figure 2: Planning Zone of Site (Source: VicPlan)



The site is currently vacant as shown in the aerial image below.



Figure 3: Aerial Image of Site (Source: NearMap)

## 2.2 Adjacent Road Network

**Old Peterborough Road** is a local road under the jurisdiction of Moyne Shire Council. The road consists of an approximately 6.0 metres wide single, two-way, two-lane carriageway. There is a sealed pedestrian footpath along the eastern side of the road reservation. The posted speed limit is 60 kph directly in front of the site.



Figure 4: Old Peterborough Road (Facing North)



**Great Ocean Road/Hamilton Street (B100)**, 1km south of the site, is a Transport Zone 2 (TRZ2) which is part of the Principal Road Network and is under the jurisdiction of Department of Transport and Planning (DTP). The road consists of an approximately 6.4 metres wide single, two-way, two-lane carriageway. The posted speed limit is 60 kph.



Figure 5: Great Ocean Road (facing west)

The intersection at Old Peterborough Road/Great Ocean Road/Macs Street consists of Auxiliary Right-Turn (AUR) lanes and Basic Left Turn (BAL) lanes on Great Ocean Road in each of the westbound and eastbound directions.



Figure 6: Old Peterborough Road / Great Ocean Road Intersection

### 3 The Proposal

The Applicant proposes a residential subdivision into 57 lots (between 600 square metres and 1,244 square metres per lot).

Vehicle access is proposed as follows:

- Main Access to Lot 3-51 and Lot 52-57.
- Dual vehicle crossing to Lot 1 and 2.
- Single vehicle crossing to Lot 50.

A copy of the proposed subdivision is attached in Appendix A and shown in the following figure.



Figure 7: Proposed Subdivision Plan



## 4 Traffic Generation and Impacts

### 4.1 Traffic Count Methodology

TTM has access to the most modern traffic counting systems available which have been utilised as part of this assessment. Counts conducted for this project were undertaken using high definition cameras to capture all (includes through and turning) movements at the intersections. Software is then used to record the direction of each movement, classify the vehicle (8 classifications are available) and time stamp each movement providing the outputs that are attached in Appendix B.

### 4.2 Existing Traffic at Old Peterborough Road/B100/Macs Street

TTM Consulting (Vic) Pty Ltd has undertaken a PM peak period traffic [count](#) at Old Peterborough Road/Great Ocean Road/Macs Street on Wednesday, February 28th, 2024, from 2:00pm to 6:00pm.



Figure 8: Traffic Count Site #1

The PM peak hour was recorded to be 2:00pm to 3:00pm with the following peak hour traffic volumes. Further details of the traffic counts are available in Appendix B.

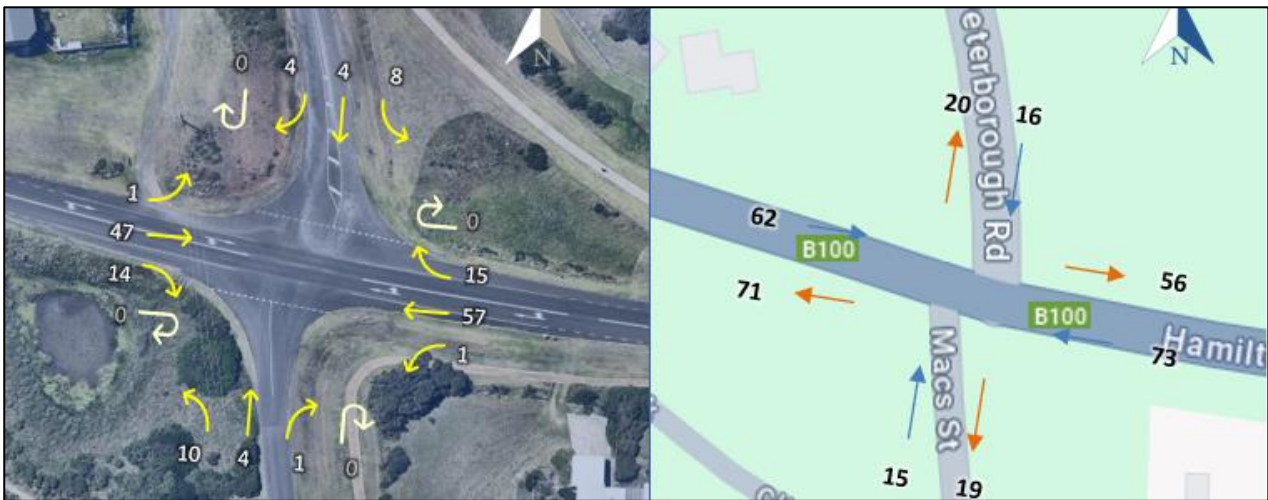


Figure 9: Recorded PM Peak Hour of Old Peterborough Rd / Great Ocean Rd / Macs St - Wednesday, Feb 28th 2024

Old Peterborough Road and Great Ocean Road carried 36 and 133 two-way peak hour movements respectively.

It is anticipated that the AM peak hour would generate similar volumes except in the opposite direction and is presented in the following figure.



Figure 10: Anticipated AM Peak Hour of Old Peterborough Rd / Great Ocean Rd/ Macs St

The existing daily traffic volumes are estimated to be ten times the recorded peak hour traffic. Therefore, it is anticipated that Old Peterborough Road and Great Ocean Road carry 360 and 1,330 two-way daily movements respectively.



### 4.3 Anticipated Traffic Generation of Proposed Subdivision

TTM Consulting has undertaken a PM peak period traffic [count](#) at Macgillivray Road/Great Ocean Road, 500 metres west of Old Peterborough Road, on Wednesday, February 28th, 2024, from 2:00pm to 6:00pm.



Figure 11: Traffic Count Site #2

The PM peak hour was recorded to be 3:30pm to 4:30pm with the following peak hour traffic volumes. Further details of the traffic counts are available in Appendix B.

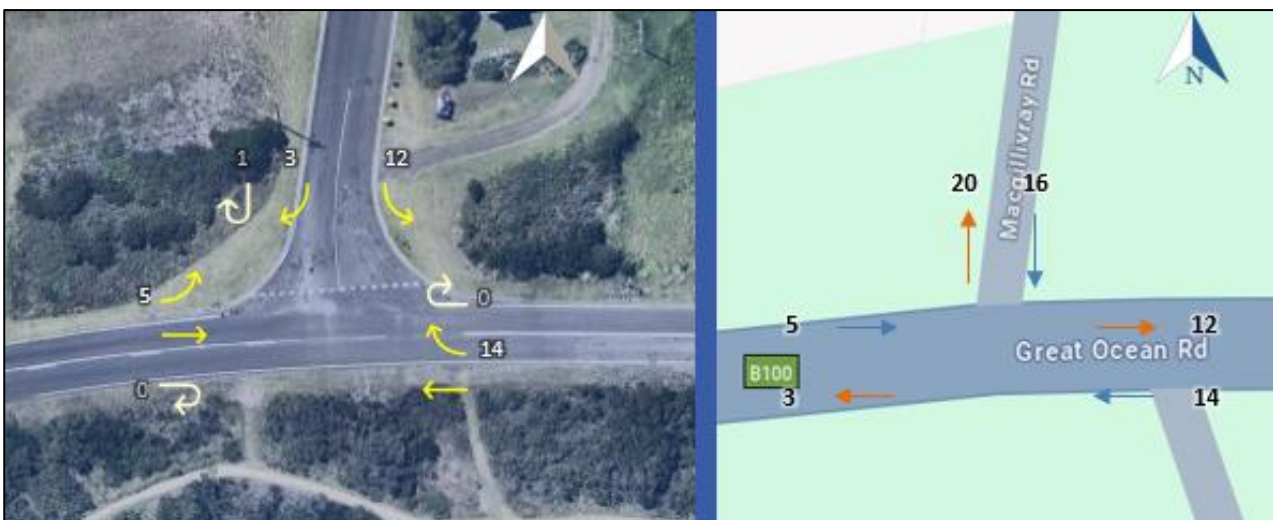


Figure 12: PM Peak Hour of Great Ocean Rd / Macgillivray Rd - Wednesday, Feb 28th, 2024 (3:30pm – 4:30pm)

Macgillivray Road carried 36 peak hour two-way movements.

TTM Consulting inspected Macgillivray Road, noting that it provides access to a total of 113 dwellings, of which there are 30 permanent residential dwellings and 83 holiday dwellings.

Table 1: Residential and Holiday Homes on Macgillivray Road

Street	No. of Dwellings	No. of Permanent Residential Dwellings	No. of Holiday Dwellings
Callaway Ct	19	4	15
Loch Ard St	20	6	14
Sutej Ct	7	2	5
Merrett St (south)	27	6	21
Merrett St (north)	40	12	28
<b>Total</b>	<b>113</b>	<b>30</b>	<b>83</b>

Assuming the traffic generation of the holiday dwellings was zero (0), which is conservative, the peak hour traffic generation rate would be equivalent to 0.83 vehicles per hour per dwelling with 56% inbound and 44% outbound movements. It is anticipated that the AM peak hour would generate similar volumes.

These rates are higher than the RTA publication '*Guide to Traffic Generating Developments – Updated Traffic Surveys*', August 2013 (TDT 2013/03a), which are 0.71-0.78 vehicles per hour per dwelling, and is therefore conservative.

Based on 57 lots and applying the rate of 0.83 vehicles per hour per dwelling, the proposed subdivision is anticipated to generate 47 two-way peak hour movements.

Daily traffic is estimated to be 10 times the peak hour traffic, which is equivalent to 470 daily movements.



## 4.4 Anticipated Peak Hour Traffic Distribution

Traffic distribution is generally 20% inbound and 80% outbound during the AM peak hour. The traffic distribution of 56% inbound and 44% outbound will be used for the PM peak hour as was observed in the TTM traffic count. It is unlikely traffic will be distributed north of the site on Old Peterborough Road, and therefore all traffic is estimated to travel via the Great Ocean Road (south of the site).

TTM Consulting estimates the peak hour traffic generation from the proposal will be distributed as follows.



Figure 13: Estimated AM Peak Hour Traffic Generation

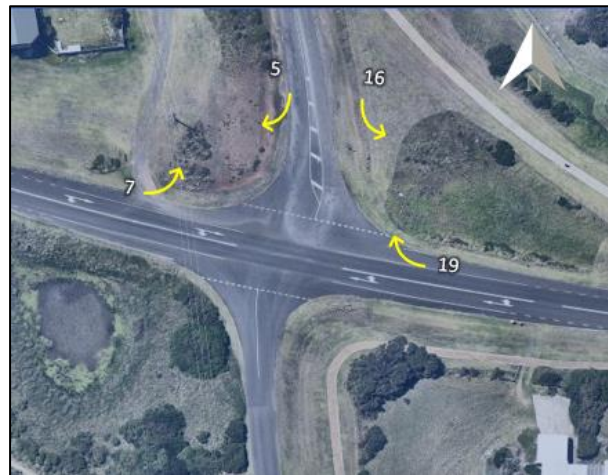


Figure 14: Estimated PM Peak Hour Traffic Generation

In summary the post-development peak hour traffic at Old Peterborough Road/Great Ocean Road/Macs Street intersection is anticipated to be as follows.

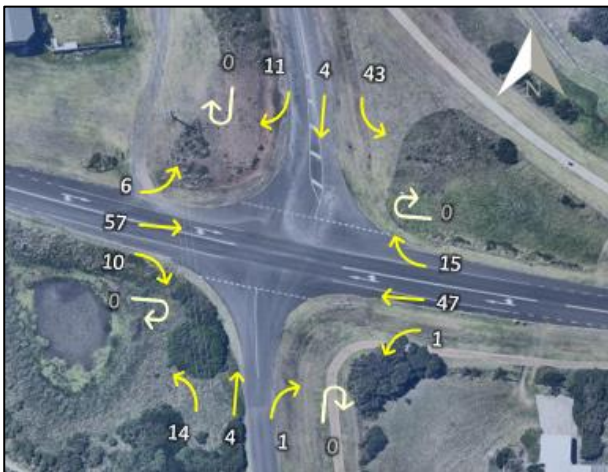


Figure 15: Est. AM Peak Hour Traffic Post-Development



Figure 16: Est. PM Peak Hour Traffic Post-Development



## 4.5 AustRoads Standards (Warrants for Turn Treatments)

Figure 3.25 of AustRoads Guide to Traffic Management: Part 6 (2020) provides warrants for turn treatments.

The critical assessment is the right-turn into Old Peterborough Road during the PM peak hour, which generates the most turning movements. The posted speed limit on Great Ocean Road is 60 kph.

The following chart indicates that only a Basic Left (BAL) and Right Turn (BAR) is warranted for the Great Ocean Road for turning movements into Old Peterborough Road. Great Ocean Road already has BAL and AUR treatments, and therefore the existing turn treatments remain satisfactory post-development. The traffic impacts of the proposal are appropriate from a traffic engineering perspective.

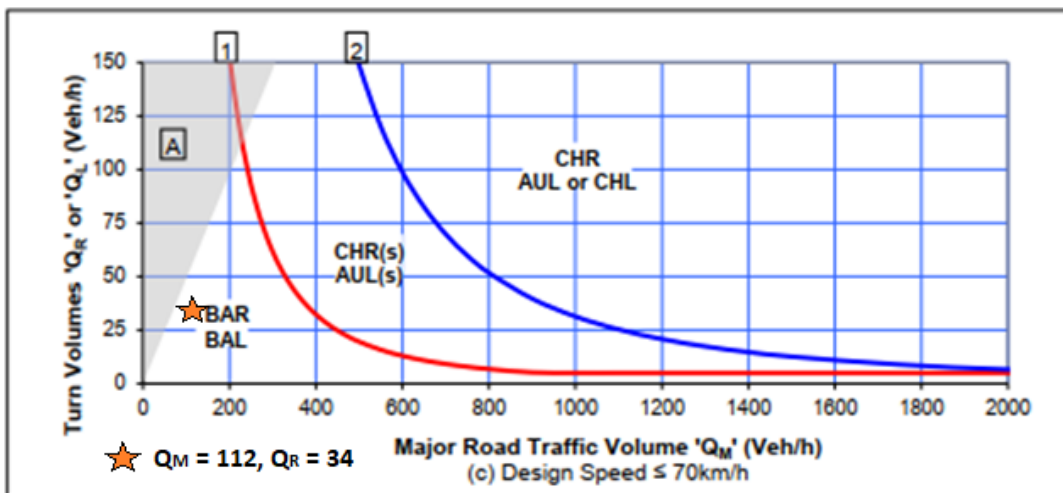


Figure 17: AustRoads Turn Treatment Warrants Chart (Figure 3.25 of AGTM Part 6)

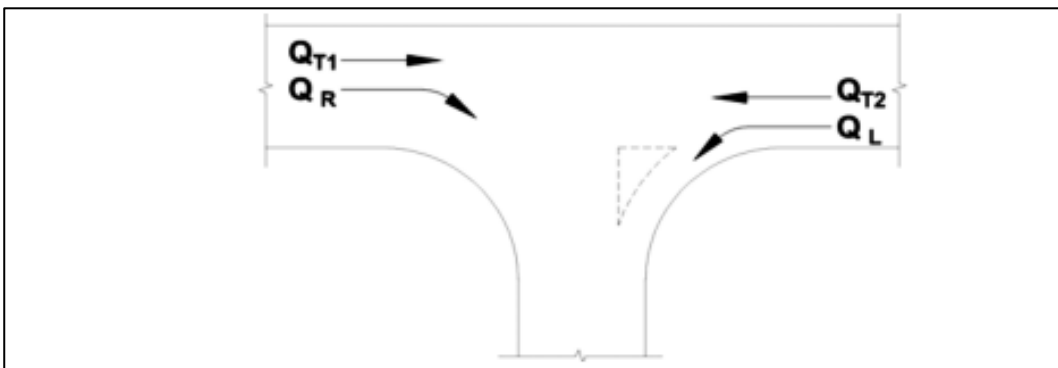


Figure 18: Calculation of the Major Road Traffic Volume ( $Q_M$ )

## 5 Assessment of External Access

### 5.1 Sight Distance Requirements at Access Driveways

Access driveways need to be located so that there is adequate sight distance to traffic along the frontage road in accordance with AS2890.1:2004 requirements.

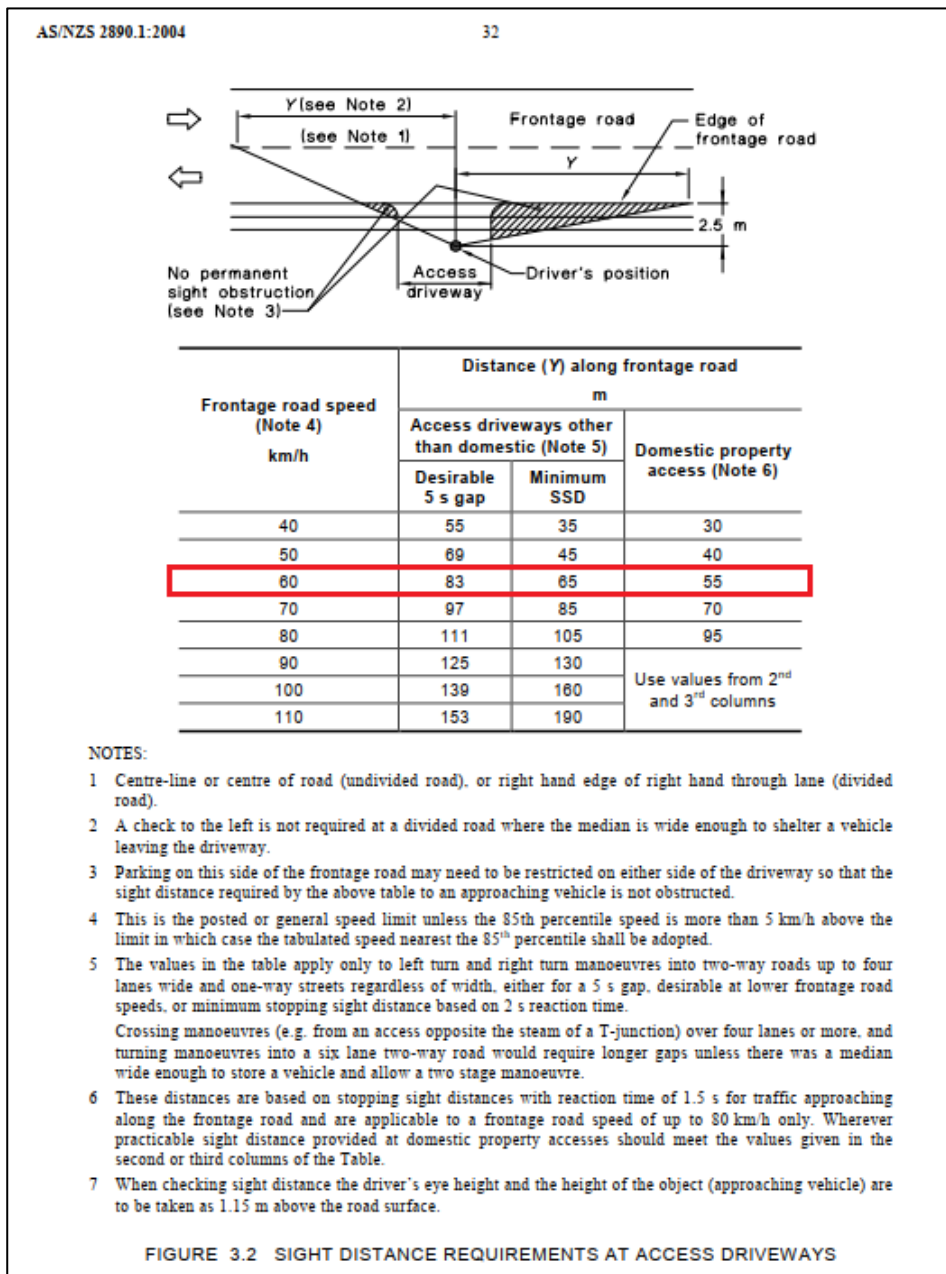


Figure 19: AS2890.1:2004 Sight Distance Requirements for Access Driveways

### 5.1.1 Main Access

TTM Consulting has recorded the following sight distances for the main access and is satisfactory.

- Facing South 175 metres (Satisfied)
- Facing North 260 metres (Satisfied)



Figure 20: Old Peterborough Road (Facing South – 175 metres)



Figure 21: Old Peterborough Road (Facing North – 260 metres)



### 5.1.2 Access to Lot 50

TTM Consulting has recorded the following sight distances for Lot 50 access and is satisfactory.

- Facing South 210 metres (Satisfied)
- Facing North 83 metres (Satisfied)



Figure 22: Lot 50 Sight Distance (Facing North)



Figure 23: Lot 50 Access Sight Distance (Facing South)



### 5.1.3 Access to Lot 1 & 2

TTM Consulting has recorded the following sight distances for Lot 1 & 2 access and is satisfactory.

- Facing South 145 metres (Satisfied)
- Facing North 290 metres (Satisfied)



Figure 24: Lot 1 & 2 Access Sight Distance (Facing South)



Figure 25: Lot 1 & 2 Access Sight Distance (Facing North)

## 5.2 Pedestrian Access to Site

TTM Consulting recommends pedestrian connection between the site and the existing pedestrian footpath on the eastern side of Old Peterborough Road. TTM Consulting has prepared a concept layout plan and is attached in Appendix C showing the recommended pedestrian facilities to be satisfactory from a traffic engineering perspective. This can be conditioned on the Planning Permit.

## 5.3 Vehicle Access to Site

TTM Consulting has prepared a concept layout plan and is attached in Appendix C showing the recommended design of the vehicle crossings to be satisfactory from the a traffic engineering perspective. This can be conditioned on the Planning Permit.

The swept path diagrams prepared by TTM Consulting and attached in Appendix D demonstrate that a 'B99 vehicle' from AS2890.1:2004 and 'Medium Rigid Vehicle' from AS2890.2:2018 successfully enter and exit the site access points with adequate manoeuvring space. Vehicle access to the site is satisfactory from a traffic engineering perspective.

## 6 Assessment of Internal Access

### 6.1 Proposed Street Form

The Applicant has provision for the following street form for the internal roads, which includes a 7.3 metres wide carriageway (invert to invert), 1.5 metres wide pedestrian footpath and 4.3 metres wide verges (invert to boundary).

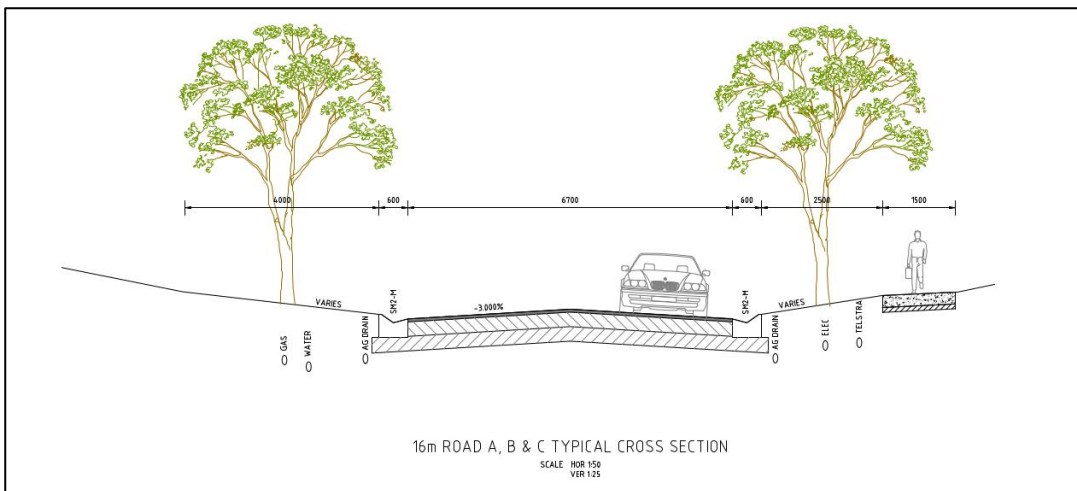


Figure 26: Proposed Street Form

The street form complies with or exceeds the minimum requirements outlined for an ‘Access Place’ under Clause 56.06 of the Planning Scheme.

<b>Access Place</b>	
A minor street providing local residential access with shared traffic, pedestrian and recreation use, but with pedestrian priority.	
▪ <b>Traffic volume<sup>1</sup></b>	300vpd to 1000vpd
▪ <b>Target speed<sup>2</sup></b>	15kph
▪ <b>Carriageway width<sup>3</sup> &amp; parking provision within street reservation</b>	5.5m wide with 1 hard standing verge parking space per 2 lots. or 5.5m wide with parking on carriageway - one side. Appropriately signed.
▪ <b>Verge width<sup>4</sup></b>	7.5m minimum total width. For services provide a minimum of 3.5m on one side and a minimum of 2.5m on the other.
▪ <b>Kerbing<sup>5</sup></b>	Semi-mountable rollover or flush and swale or other water sensitive urban design treatment area.
▪ <b>Footpath provision</b>	Not required if serving 5 dwellings or less and the carriageway is designed as a shared zone and appropriately signed. or 1.5m wide footpath offset a minimum distance of 1m from the kerb.
▪ <b>Cycle path provision</b>	None

Figure 27: Clause 56.06 Requirements for an Access Place

## 6.2 Vehicle Circulation

The cul-de-sacs measure 20.6 metres in diameter (kerb to kerb) which is suitable for passenger cars and service vehicles. Service vehicles can perform a three-point turn within the cul-de-sacs to turnaround whereas passenger cars will be able to turnaround in a single manoeuvre.

The swept path diagrams prepared by TTM Consulting and attached in Appendix D demonstrate that a 'B99 vehicle' from AS2890.1:2004 and 'Medium Rigid Vehicle' from AS2890.2:2018 successfully circulate the internal road network with adequate manoeuvring space. Vehicle circulation is satisfactory from a traffic engineering perspective.



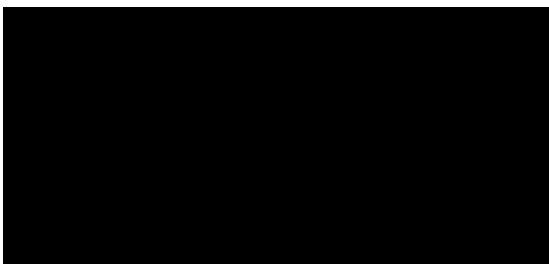
## 7 Summary and Conclusions

The proposed residential subdivision of 57 lots at 109 Old Peterborough Road, Peterborough is summarised as follows from a traffic engineering perspective:

- Based on 57 lots and applying the rate of 0.83 vehicles per hour per dwelling, the proposed subdivision is anticipated to generate 47 two-way peak hour movements. Daily traffic is estimated to be 10 times the peak hour traffic, which is equivalent to 470 daily movements.
- Only a Basic Left (BAL) and Right Turn (BAR) is warranted for the Great Ocean Road to enter Old Peterborough Road under AustRoads requirements. Great Ocean Road already has BAL and AUR treatments, and therefore the existing turn treatments remain satisfactory post-development. The traffic impacts of the proposal are appropriate from a traffic engineering perspective.
- The access driveways provide adequate sight distance to traffic along Old Peterborough Road in accordance with AS2890.1:2004 requirements.
- TTM Consulting has prepared a concept layout plan and is attached in Appendix C showing the recommended pedestrian connection between the site and existing footpath on Old Peterborough Road and design of the vehicle crossings to be satisfactory from a traffic engineering perspective. This can be conditioned on the Planning Permit.
- The swept path diagrams attached in Appendix D confirm the 'B99 vehicle' and 'Medium Rigid Vehicle' successfully enter and exit the site access points and circulate the internal road network with adequate manoeuvring space. The vehicle access and circulation are satisfactory from a traffic engineering perspective.
- The street form complies with or exceeds the minimum requirements outlined for an 'Access Place' under Clause 56.06 of the Planning Scheme.

TTM Consulting are satisfied that the proposal warrants provision of the sought planning permit from a traffic engineering perspective subject to conditions.

TTM Consulting (Vic) Pty Ltd



## Appendix A: Proposed Subdivision Plan





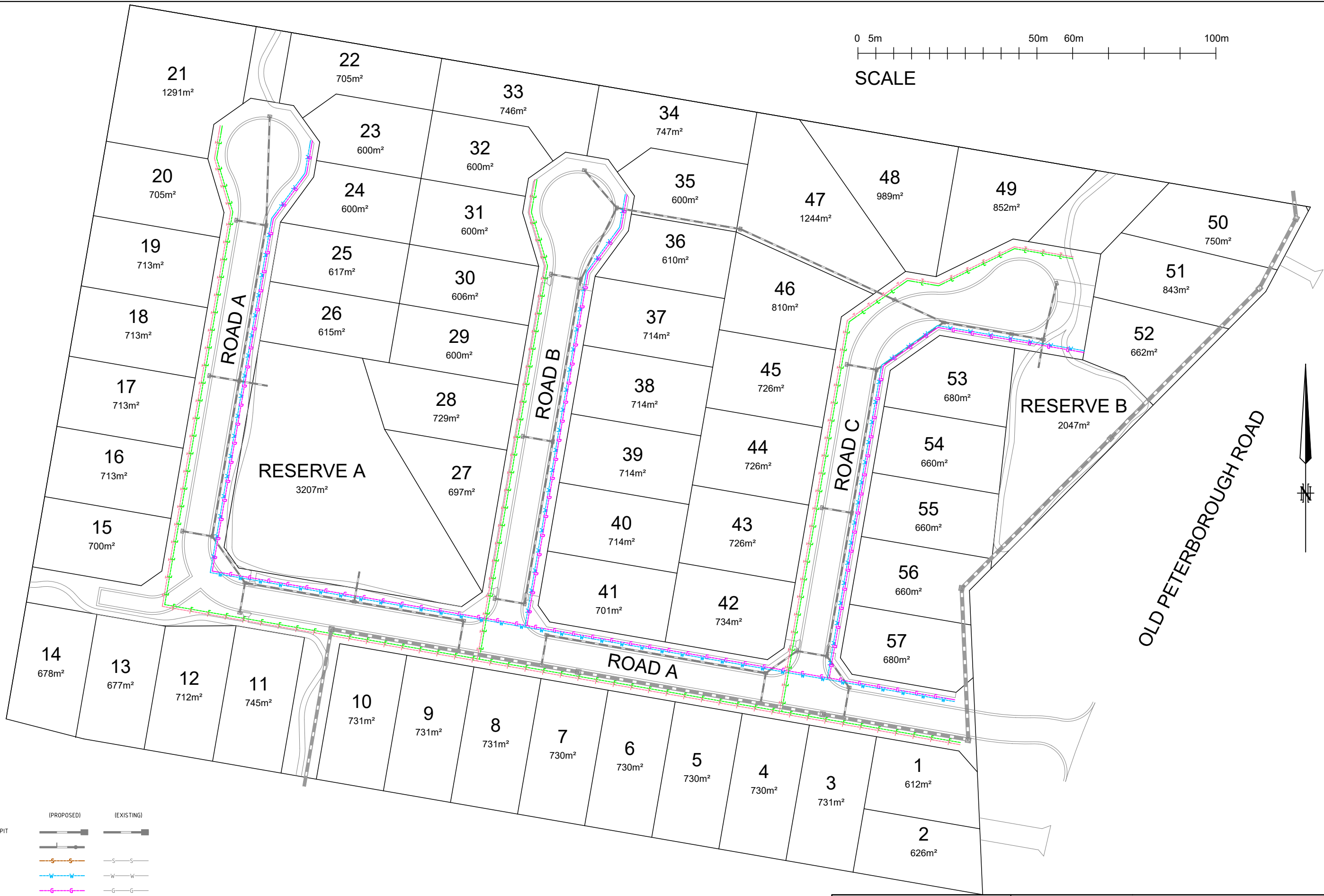
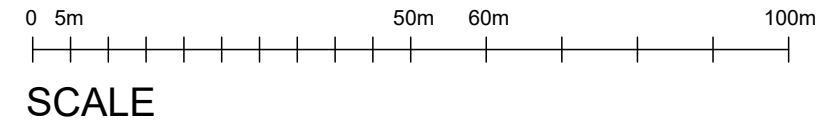
LOT DIMENSIONS AND AREAS SHOWN ARE APPROXIMATE ONLY, AND WILL BE SUBJECT TO TITLE ESTABLISHMENT & FINALISATION BY LICENSED SURVEYOR.

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**PETERBOROUGH SURF  
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**LEGEND**

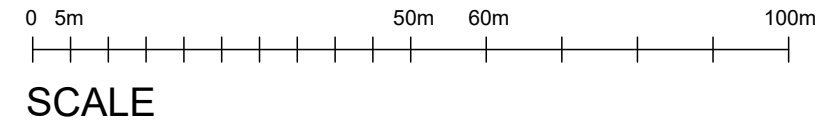
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STORMWATER DRAIN / PIT		
HOUSE BRANCH/RISER		
SEWER		
WATER		
GAS		
TELSTRA		
ELECTRICITY		
KERB & CHANNEL		
WATER CONDUIT		
LOT CORNER LEVEL		

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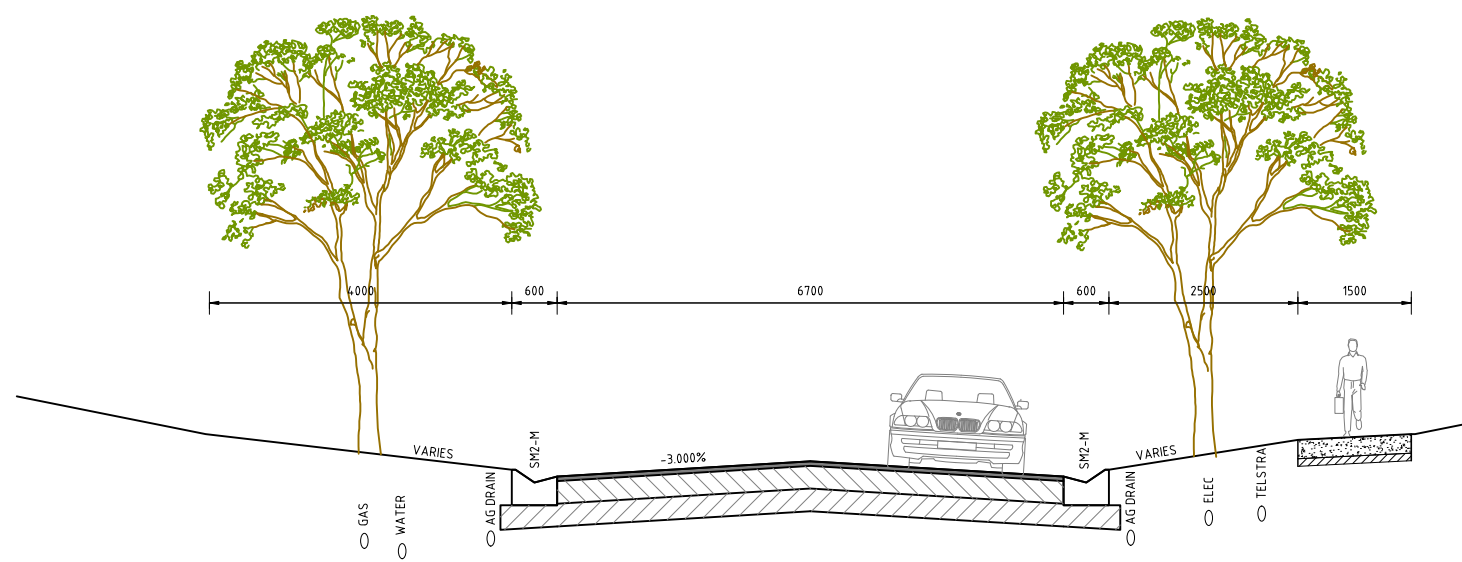


LOT DIMENSIONS AND AREAS SHOWN ARE APPROXIMATE ONLY, AND WILL BE SUBJECT TO TITLE ESTABLISHMENT & FINALISATION BY LICENSED SURVEYOR.

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**PETERBOROUGH SURF  
PTY LTD**



16m ROAD A, B & C TYPICAL CROSS SECTION  
SCALE HOR 1:50  
VER 1:25

**SITEC**  
CONSULTING ENGINEERS

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## Appendix B: TTM Traffic Counts

# ttm

 Data

Traffic and Transport Data Collection

 Acoustics

 Data

 Design

 Transport

 Waste







# Data

is foundational in delivering projects at small and large scale

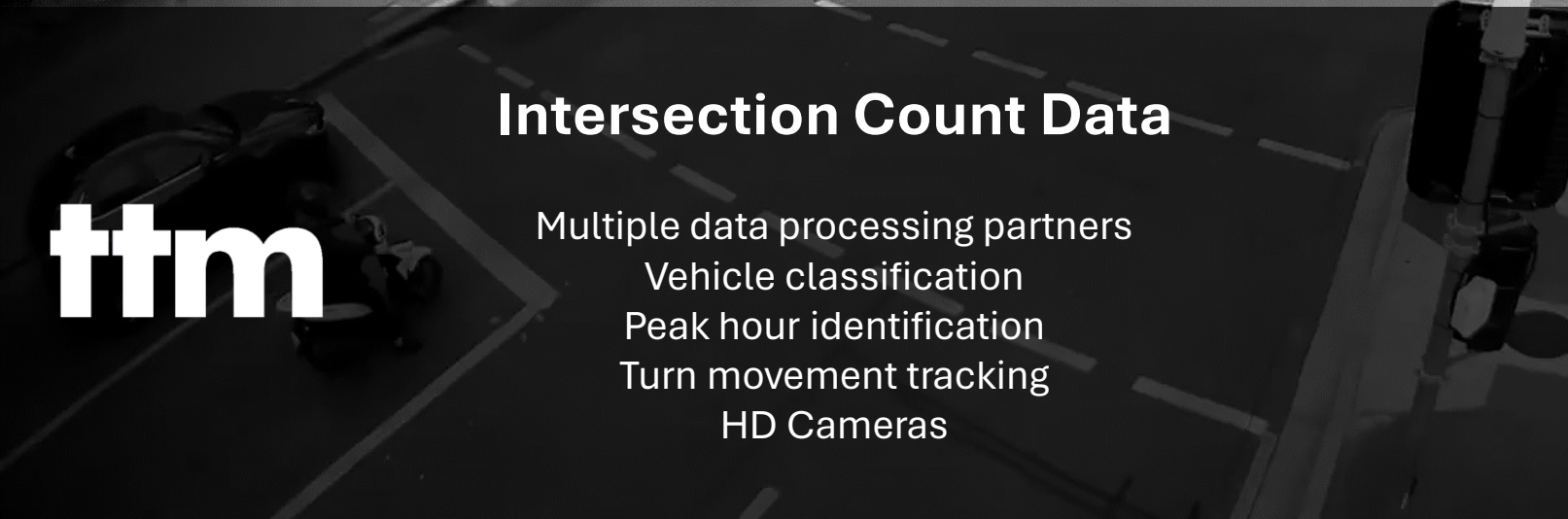
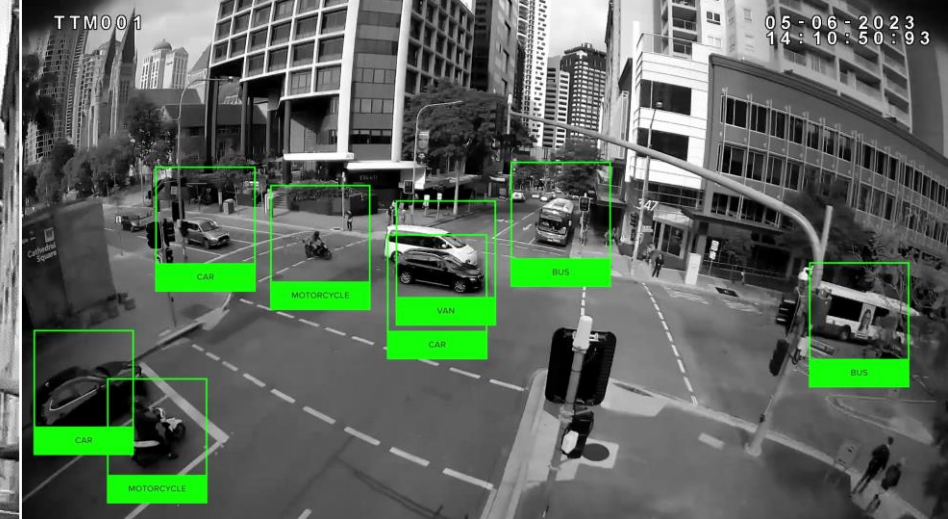
## TTM Data Services Include

- Intersection Count Data Collection
  - Gap Acceptance Studies
  - Active Transport Studies
  - Parking Surveys
  - Lane Utilisation
  - Speed Data
  - Origin & Destination Surveys
  - Queue Length Data
  - Pedestrian Hotspots
- + more

TTM Data operates as a specialised division within TTM Consulting. With over two decades of experience and its strategic collaborations with Traffic, Acoustics, and Waste engineering teams, TTM Data delivers accurate, detailed and valuable insights using state-of-the-art technology.







## Intersection Count Data



- Multiple data processing partners
- Vehicle classification
- Peak hour identification
- Turn movement tracking
- HD Cameras







## Survey Details

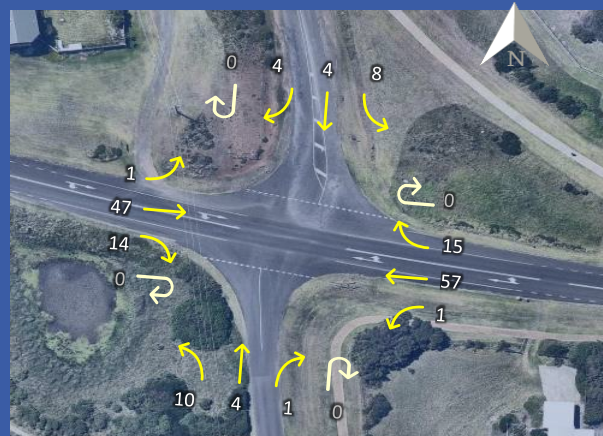
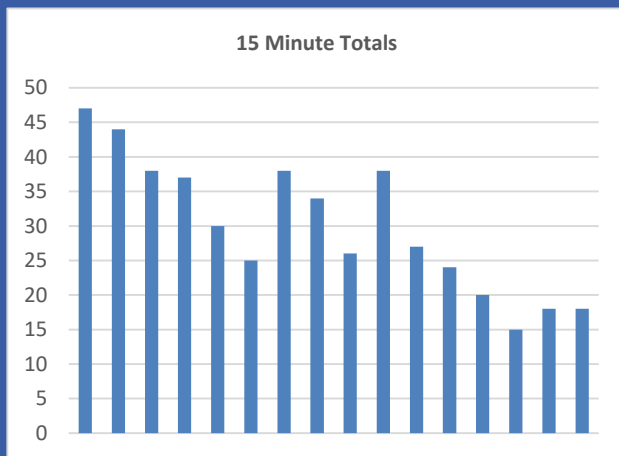
TTM Reference: **24MED0002**  
 Location: **Old Peterborough Rd / Great Ocean Rd / Macs St**  
 Suburb: **Peterborough**  
 Date: **Wednesday, 28 February 2024**  
 Duration: **14:00 - 18:00**  
 Weather: **Fine**

PM Peak: **14:00-15:00**  
 Notes: **All Movements**



### Quick display - Summaries

Survey Period:  to

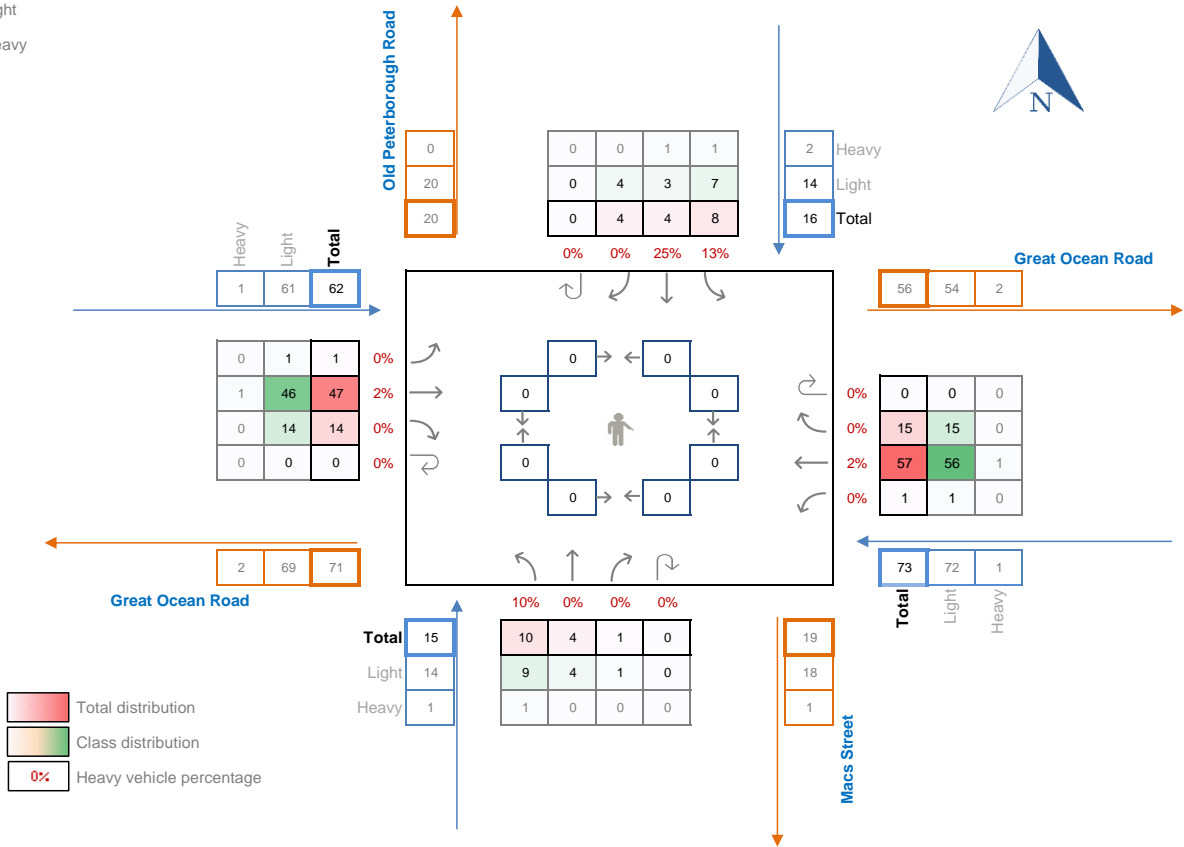




Location: Old Peterborough Rd / Great Ocean Rd / Macs St  
 Date: Wednesday, 28 February 2024  
 Survey Duration: 14:00 - 18:00  
 Survey Period: PM Peak to Select End time  
 Notes: All Movements

AM Peak: 0  
 PM Peak: 14:00-15:00

Class 1: Light  
 Class 2: Heavy





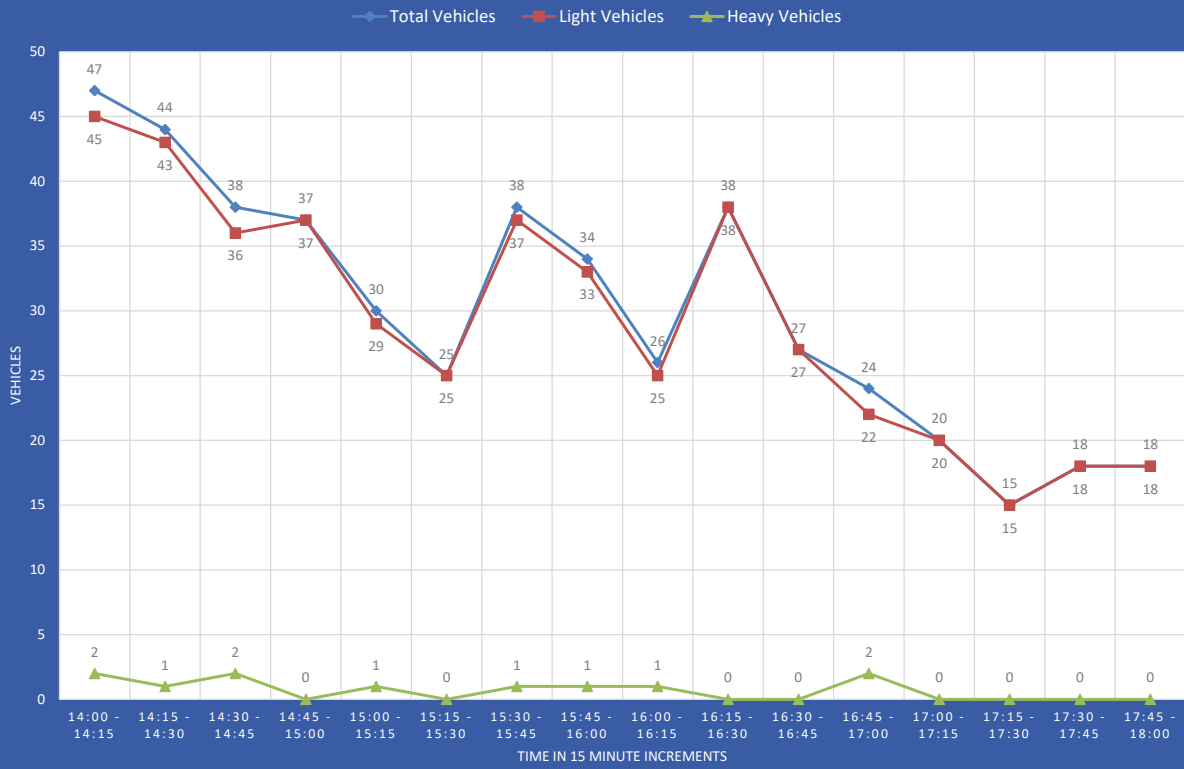
Movement Time	Nth App - Left			Nth App - Straight			Nth App - Right			Nth App - U Turn			Nth Total Vehicles	Peds		
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		EB	WB	
14:00 - 14:15	0	3	3	0	1	1	0	1	1	0	0	0	0	5	0	0
14:15 - 14:30	3	1	4	0	2	2	0	2	2	0	0	0	6	0	0	
14:30 - 14:45	1	1	2	0	1	1	0	1	1	0	0	0	2	0	0	
14:45 - 15:00	3	3	6	0	0	0	0	0	0	0	0	0	3	0	0	
15:00 - 15:15	1	0	1	1	1	2	1	0	1	0	0	0	4	0	0	
15:15 - 15:30	4	0	4	1	0	1	0	0	0	0	0	0	5	0	0	
15:30 - 15:45	4	0	4	0	0	0	3	0	3	0	0	0	7	0	0	
15:45 - 16:00	4	0	4	1	0	1	0	0	0	0	0	0	5	0	0	
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16:15 - 16:30	2	0	2	0	0	0	1	0	1	0	0	0	3	0	0	
16:30 - 16:45	4	0	4	0	0	0	0	0	0	0	0	0	4	0	0	
16:45 - 17:00	3	0	3	0	0	0	1	0	1	0	0	0	4	0	0	
17:00 - 17:15	3	0	3	1	0	1	1	0	1	0	0	0	5	0	0	
17:15 - 17:30	1	0	1	1	0	1	0	0	0	0	0	0	2	0	0	
17:30 - 17:45	1	0	1	1	0	1	0	0	0	0	0	0	2	0	0	
17:45 - 18:00	3	0	3	0	0	0	0	0	0	0	0	0	3	0	0	
PM TOTAL	38	1	39	9	2	11	12	0	12	0	0	0	62	0	0	
PM Peak	7	1	8	3	1	4	4	0	4	0	0	0	16	0	0	

Movement Time	Sth App - Left			Sth App - Straight			Sth App - Right			Sth App - U Turn			Sth Total Vehicles	Peds	
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		EB	WB
14:00 - 14:15	3	0	3	0	0	0	0	0	0	0	0	0	3	0	0
14:15 - 14:30	0	0	0	2	0	2	1	0	1	0	0	0	3	0	0
14:30 - 14:45	2	1	3	1	0	1	0	0	0	0	0	0	4	0	0
14:45 - 15:00	4	0	4	1	0	1	0	0	0	0	0	0	5	0	0
15:00 - 15:15	2	0	2	1	0	1	0	0	0	0	0	0	3	0	0
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15:30 - 15:45	3	0	3	1	1	2	0	0	0	0	0	0	5	0	0
15:45 - 16:00	5	1	6	1	0	1	2	0	2	0	0	0	9	0	0
16:00 - 16:15	1	0	1	0	1	1	1	0	1	0	0	0	3	0	0
16:15 - 16:30	2	0	2	1	0	1	2	0	2	0	0	0	5	0	0
16:30 - 16:45	1	0	1	1	0	1	1	0	1	0	0	0	3	0	0
16:45 - 17:00	1	0	1	1	0	1	0	0	0	0	0	0	2	0	0
17:00 - 17:15	1	0	1	1	0	1	0	0	0	0	0	0	2	0	0
17:15 - 17:30	0	0	0	2	0	2	0	0	0	0	0	0	2	0	0
17:30 - 17:45	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0
17:45 - 18:00	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0
PM TOTAL	32	2	34	14	2	16	7	0	7	0	0	0	57	0	0
PM Peak	9	1	10	4	0	4	1	0	1	0	0	0	15	0	0

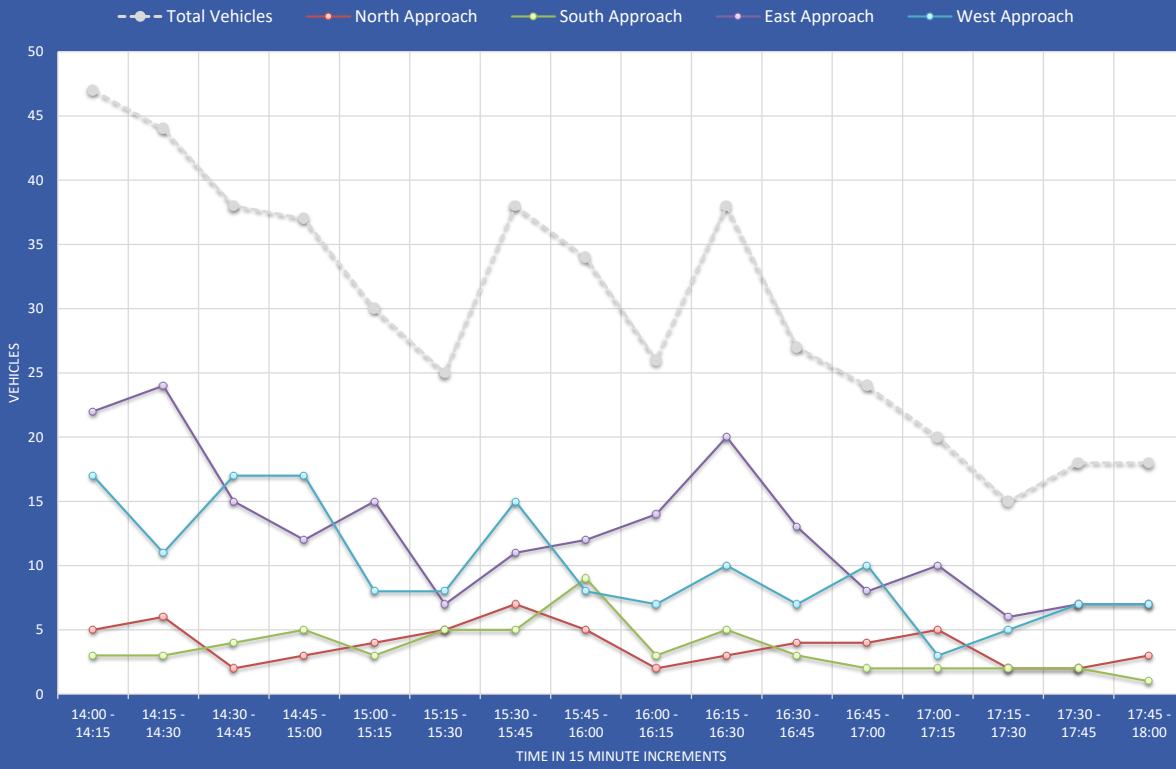
Movement Time	Est App - Left			Est App - Straight			Est App - Right			Est App - U Turn			Est Total Vehicles	Peds	
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		NB	SB
14:00 - 14:15	1	0	1	17	0	17	4	0	4	0	0	0	22	0	0
14:15 - 14:30	0	0	0	20	0	20	4	0	4	0	0	0	24	0	0
14:30 - 14:45	0	0	0	10	1	11	4	0	4	0	0	0	15	0	0
14:45 - 15:00	0	0	0	9	0	9	3	0	3	0	0	0	12	0	0
15:00 - 15:15	0	0	0	13	0	13	2	0	2	0	0	0	15	0	0
15:15 - 15:30	1	0	1	5	0	5	1	0	1	0	0	0	7	0	0
15:30 - 15:45	0	0	0	9	0	9	2	0	2	0	0	0	11	0	0
15:45 - 16:00	0	0	0	9	0	9	3	0	3	0	0	0	12	0	0
16:00 - 16:15	0	0	0	10	0	10	4	0	4	0	0	0	14	0	0
16:15 - 16:30	1	0	1	10	0	10	9	0	9	0	0	0	20	0	0
16:30 - 16:45	0	0	0	10	0	10	3	0	3	0	0	0	13	0	0
16:45 - 17:00	0	0	0	4	1	5	3	0	3	0	0	0	8	0	0
17:00 - 17:15	1	0	1	8	0	8	1	0	1	0	0	0	10	0	0
17:15 - 17:30	0	0	0	6	0	6	0	0	0	0	0	0	6	0	0
17:30 - 17:45	0	0	0	5	0	5	2	0	2	0	0	0	7	0	0
17:45 - 18:00	0	0	0	5	0	5	2	0	2	0	0	0	7	0	0
PM TOTAL	4	0	4	150	2	152	47	0	47	0	0	0	203	0	0
PM Peak	1	0	1	56	1	57	15	0	15	0	0	0	73	0	0

Movement Time	Wst App - Left			Wst App - Straight			Wst App - Right			Wst App - U Turn			Wst Total Vehicles	Peds	
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		NB	SB
14:00 - 14:15	0	0	0	13	1	14	3	0	3	0	0	0	17	0	0
14:15 - 14:30	0	0	0	7	0	7	4	0	4	0	0	0	11	0	0
14:30 - 14:45	1	0	1	12	0	12	4	0	4	0	0	0	17	0	0
14:45 - 15:00	0	0	0	14	0	14	3	0	3	0	0	0	17	0	0
15:00 - 15:15	0	0	0	6	0	6	2	0	2	0	0	0	8	0	1
15:15 - 15:30	1	0	1	6	0	6	1	0	1	0	0	0	8	0	0
15:30 - 15:45	1	0	1	8	0	8	6	0	6	0	0	0	15	1	0
15:45 - 16:00	0	0	0	6	0	6	2	0	2	0	0	0	8	0	0
16:00 - 16:15	0	0	0	4	0	4	3	0	3	0	0	0	7	0	0
16:15 - 16:30	1	0	1	7	0	7	2	0	2	0	0	0	10	0	0
16:30 - 16:45	1	0	1	5	0	5	1	0	1	0	0	0	7	0	1
16:45 - 17:00	0	0	0	8	1	9	1	0	1	0	0	0	10	0	0
17:00 - 17:15	0	0	0	2	0	2	1	0	1	0	0	0	3	0	0
17:15 - 17:30	1	0	1	4	0	4	0	0	0	0	0	0	5	0	0
17:30 - 17:45	0	0	0	7	0	7	0	0	0	0	0	0	7	0	0
17:45 - 18:00	0	0	0	7	0	7	0	0	0	0	0	0	7	0	0
PM TOTAL	6	0	6	116	2	118	33	0	33	0	0	0	157	1	2
PM Peak	1	0	1	46	1	47	14	0	14	0	0	0	62	0	0

### Vehicle Totals - by Classification (Total / Light / Heavy)



### Vehicle Totals - by Approach







## Survey Details

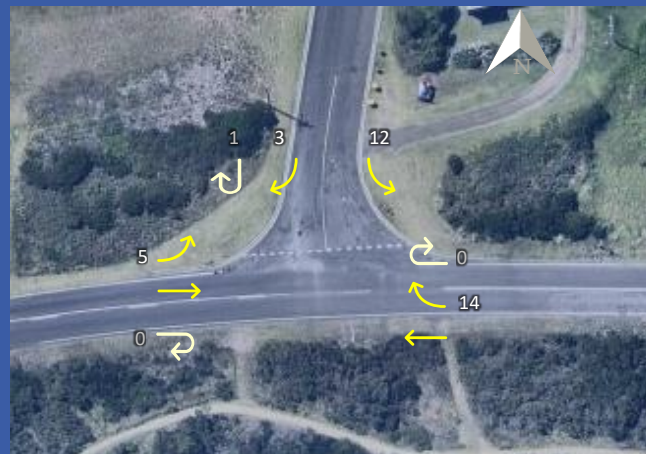
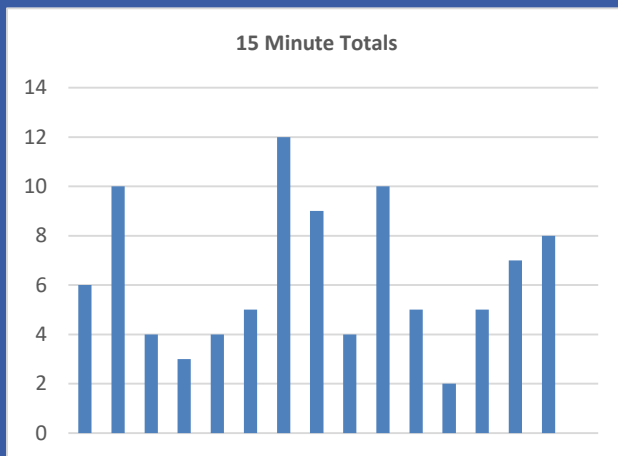
TTM Reference: **24MED0002**  
 Location: **Macgillivray Rd / Great Ocean Rd**  
 Suburb: **Peterborough**  
 Date: **Wednesday, 28 February 2024**  
 Duration: **14:00 - 18:00**  
 Weather: **Fine**

PM Peak: **15:30-16:30**  
 Notes: **Turning Movements Only**



### Quick display - Summaries

Survey Period:  to

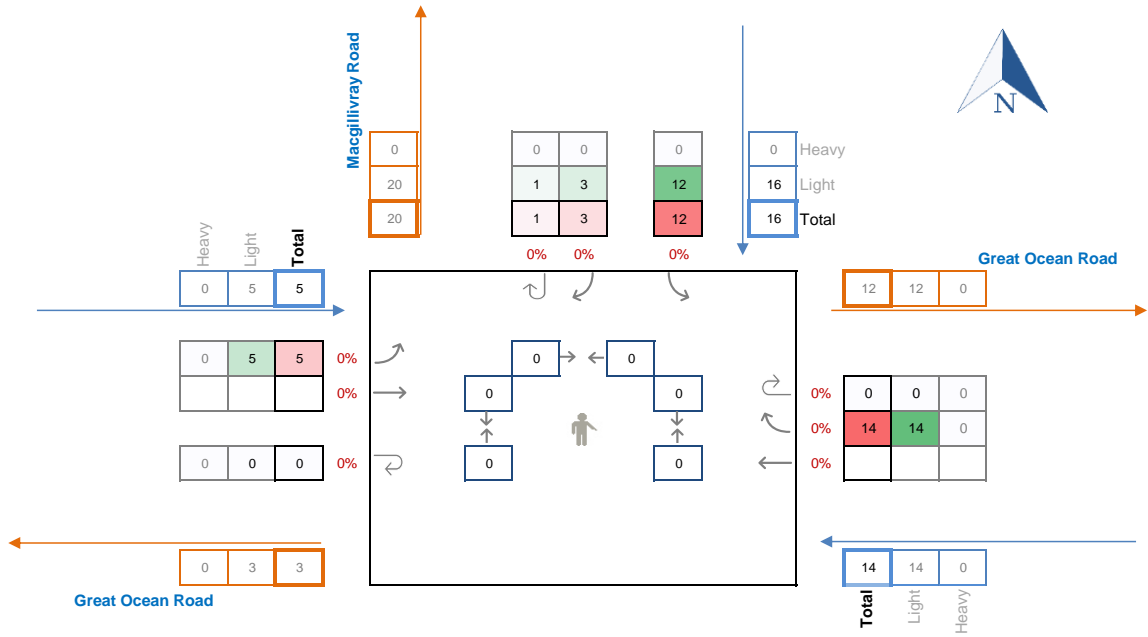




**Location:** Macgillivray Rd / Great Ocean Rd  
**Date:** Wednesday, 28 February 2024  
**Survey Duration:** 14:00 - 18:00  
**Survey Period:** PM Peak to Select End time  
**Notes:** Turning Movements Only

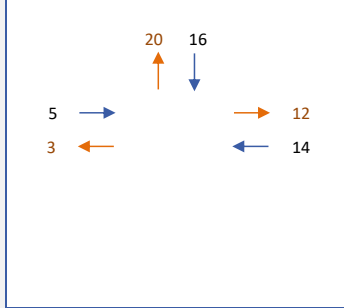
**AM Peak:** 0  
**PM Peak:** 15:30-16:30

Class 1: Light  
 Class 2: Heavy

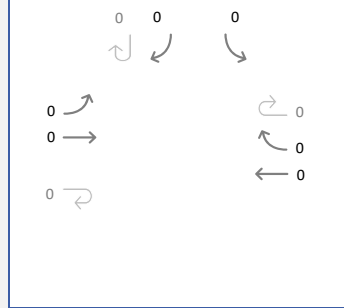


- Total distribution
- Class distribution
- Heavy vehicle percentage

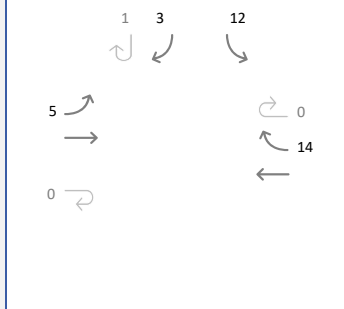
Approach & Departures (adjustable)



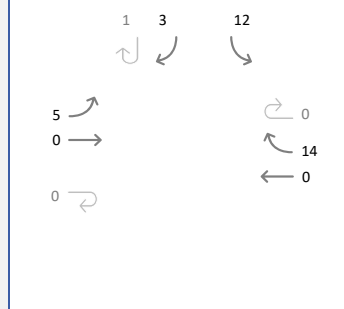
AM Peak Totals: 0



Turning Movements (adjustable)



PM Peak Totals: 15:30-16:30



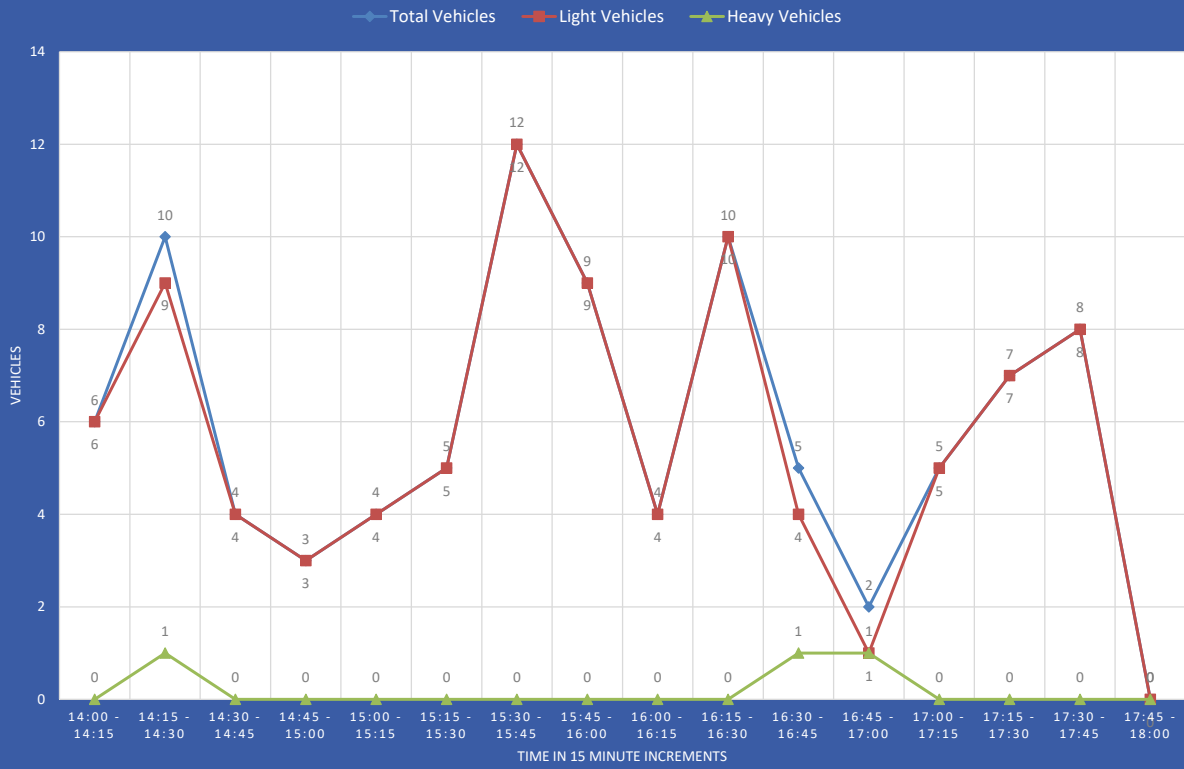


Movement Time	Nth App - Left			Nth App - Right			Nth App - U Turn			Nth Total Vehicles	Peds		
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		EB	WB	
14:00 - 14:15	3	0	3	0	0	0	0	0	0	3	1	0	
14:15 - 14:30	3	0	3	3	1	4	0	0	0	7	0	0	
14:30 - 14:45	3	0	3	0	0	0	0	0	0	3	0	0	
14:45 - 15:00	1	0	1	0	0	0	0	0	0	1	0	0	
15:00 - 15:15	1	0	1	0	0	0	0	0	0	1	0	0	
15:15 - 15:30	2	0	2	0	0	0	0	0	0	2	0	0	
15:30 - 15:45	3	0	3	2	0	2	0	0	0	5	0	0	
15:45 - 16:00	3	0	3	0	0	0	1	0	1	4	0	0	
16:00 - 16:15	2	0	2	0	0	0	0	0	0	2	0	0	
16:15 - 16:30	4	0	4	1	0	1	0	0	0	5	0	0	
16:30 - 16:45	1	0	1	0	0	0	0	0	0	1	0	0	
16:45 - 17:00	0	1	1	0	0	0	0	0	0	1	0	0	
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	
17:15 - 17:30	3	0	3	1	0	1	0	0	0	4	0	0	
17:30 - 17:45	2	0	2	0	0	0	0	0	0	2	0	0	
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	
<b>PM TOTAL</b>	<b>31</b>	<b>1</b>	<b>32</b>	<b>7</b>	<b>1</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>41</b>	<b>1</b>	<b>0</b>	
PM Peak:	12	0	12	3	0	3	1	0	1	16	0	0	

Movement Time	Est App - Straight			Est App - Right			Est App - U Turn			Est Total Vehicles	Peds		
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		NB	SB	
14:00 - 14:15	0	0	0	2	0	2	0	0	0	2	0	0	
14:15 - 14:30	0	0	0	3	0	3	0	0	0	3	0	0	
14:30 - 14:45	0	0	0	1	0	1	0	0	0	1	0	0	
14:45 - 15:00	0	0	0	2	0	2	0	0	0	2	0	0	
15:00 - 15:15	0	0	0	1	0	1	0	0	0	1	0	0	
15:15 - 15:30	0	0	0	2	0	2	0	0	0	2	0	0	
15:30 - 15:45	0	0	0	4	0	4	0	0	0	4	0	0	
15:45 - 16:00	0	0	0	4	0	4	0	0	0	4	0	0	
16:00 - 16:15	0	0	0	1	0	1	0	0	0	1	0	0	
16:15 - 16:30	0	0	0	5	0	5	0	0	0	5	0	0	
16:30 - 16:45	0	0	0	3	0	3	0	0	0	3	0	0	
16:45 - 17:00	0	0	0	1	0	1	0	0	0	1	0	0	
17:00 - 17:15	0	0	0	5	0	5	0	0	0	5	0	0	
17:15 - 17:30	0	0	0	2	0	2	0	0	0	2	0	0	
17:30 - 17:45	0	0	0	5	0	5	0	0	0	5	0	0	
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	
<b>PM TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>0</b>	
PM Peak:	0	0	0	14	0	14	0	0	0	14	0	0	

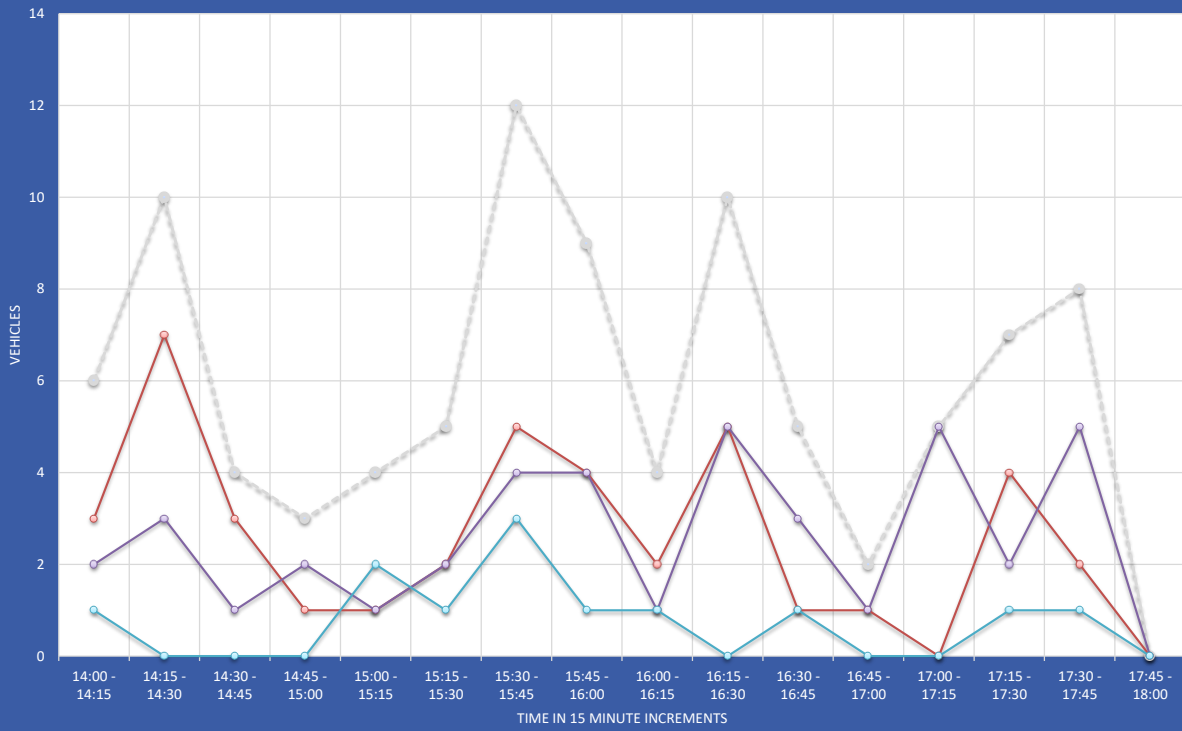
Movement Time	Wst App - Left			Wst App - Straight			Wst App - U Turn			Wst Total Vehicles	Peds		
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		NB	SB	
14:00 - 14:15	1	0	1	0	0	0	0	0	0	1	0	0	
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	
15:00 - 15:15	2	0	2	0	0	0	0	0	0	2	0	0	
15:15 - 15:30	1	0	1	0	0	0	0	0	0	1	0	0	
15:30 - 15:45	3	0	3	0	0	0	0	0	0	3	0	0	
15:45 - 16:00	1	0	1	0	0	0	0	0	0	1	0	0	
16:00 - 16:15	1	0	1	0	0	0	0	0	0	1	0	0	
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	
16:30 - 16:45	0	1	1	0	0	0	0	0	0	1	0	0	
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	
17:15 - 17:30	1	0	1	0	0	0	0	0	0	1	0	0	
17:30 - 17:45	1	0	1	0	0	0	0	0	0	1	0	0	
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	
<b>PM TOTAL</b>	<b>11</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	
PM Peak:	5	0	5	0	0	0	0	0	0	5	0	0	

### Vehicle Totals - by Classification (Total / Light / Heavy)



### Vehicle Totals - by Approach

---●--- Total Vehicles    -●- North Approach    -●- East Approach    -●- West Approach





## Appendix C: TTM Concept Layout Plan



Issue/Appd	Date	Comments
A	PJM 06/03/24	Original Issue



**ttm**  
 Acoustics Data Traffic Waste  
 TTM Consulting (Vic) Pty Ltd  
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 E : ttmvic@ttmgroup.com.au  
 W : www.ttmgroup.com.au

**PROPOSED RESIDENTIAL SUBDIVISION**  
**109 OLD PETERBOROUGH RD,**  
**PETERBOROUGH**  
**CONCEPT LAYOUT PLAN**

Scale 1:1,000 @ A3

Drawing No : 1248501  
 Sheet No : 1 Issue : A

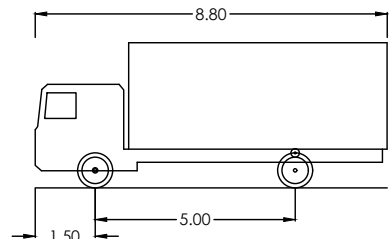
## Appendix D: Swept Path Diagrams





- Wheel path
- Vehicle Overhang
- Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using AutoDesk Vehicle Tracking v23



MRV - Medium Rigid Vehicle (See note ...)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	10.000m



Acoustics Data Traffic Waste

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**PROPOSED  
RESIDENTIAL SUBDIVISION  
109 OLD PETERBOROUGH RD,  
PETERBOROUGH  
SWEPT PATH DIAGRAMS**

Scale 1:750 @ A3

Drawing No : 1248502

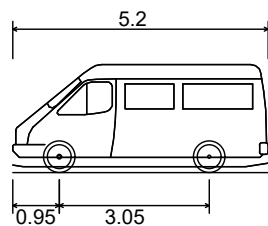
Sheet No : 1 Issue : A

Issue/Appd	Date	Comments
A	PJM 06/03/24	Original Issue



Swept Path Diagram Prepared using AutoDesk Vehicle Tracking v23

- Wheel path
- Vehicle Overhang
- Vehicle Overhang + 300mm Clearance



B99 Vehicle (Realistic min radius) (2004)

- Overall Length 5.200m
- Overall Width 1.940m
- Overall Body Height 1.527m
- Min Body Ground Clearance 0.120m
- Track Width 1.840m
- Lock to Lock Time 4.00sec
- Curb to Curb Turning Radius 6.250m



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**PROPOSED  
RESIDENTIAL SUBDIVISION  
109 OLD PETERBOROUGH RD,  
PETERBOROUGH  
SWEPT PATH DIAGRAMS**

Scale 1:750 @ A3

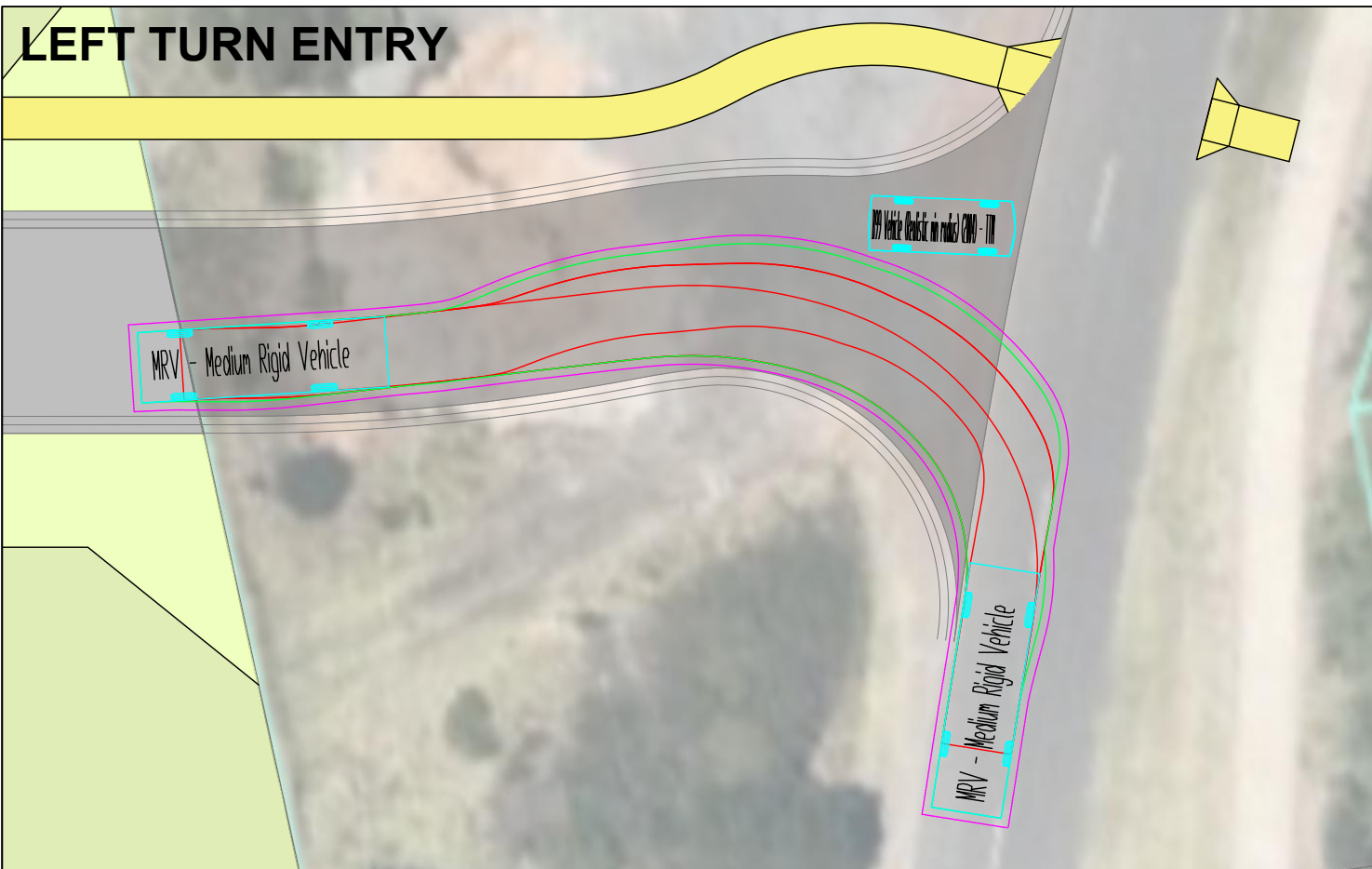
Drawing No : 1248502

Sheet No : 2 Issue : A

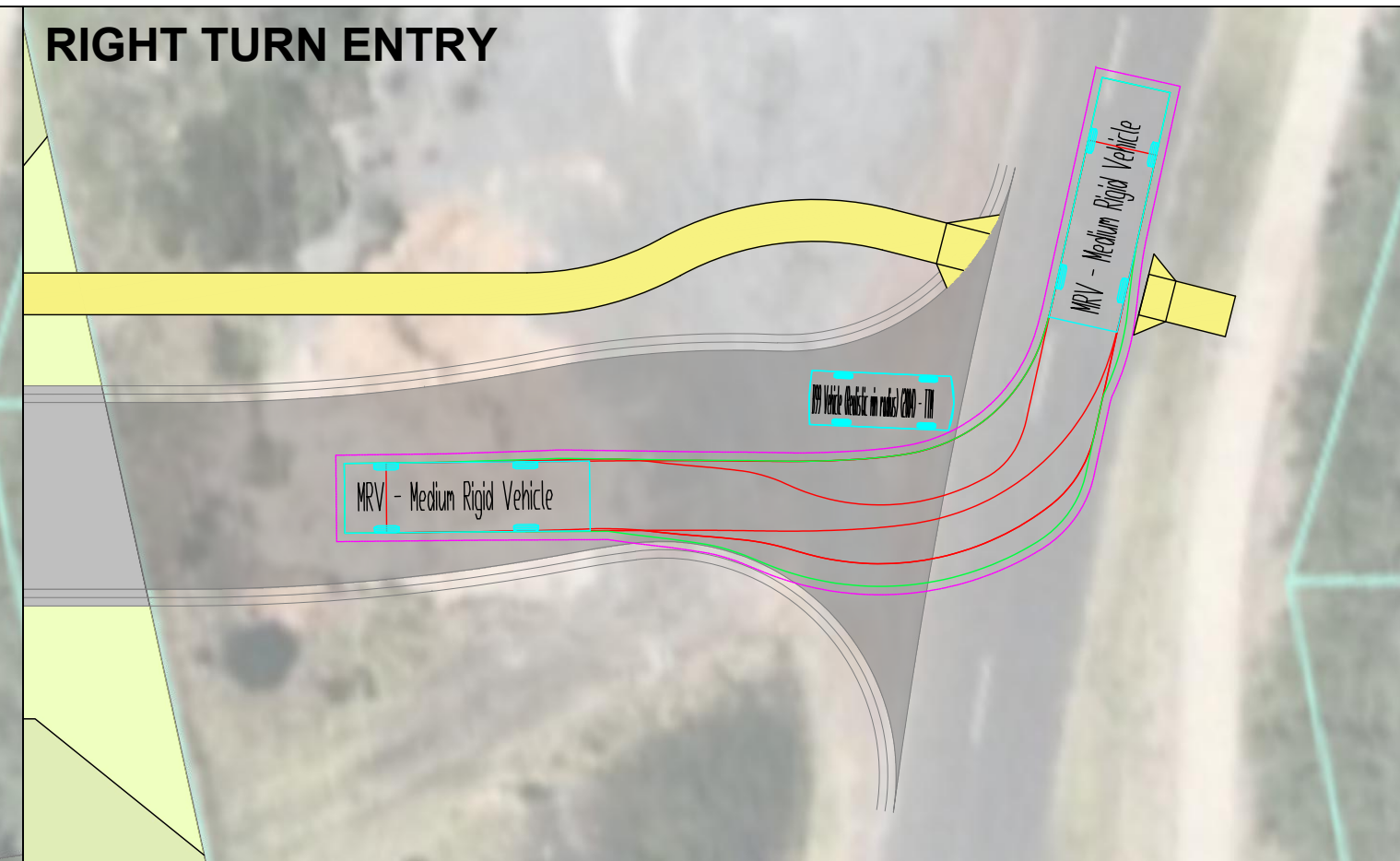
Issue/Appd	Date	Comments
A	PJM 06/03/24	Original Issue



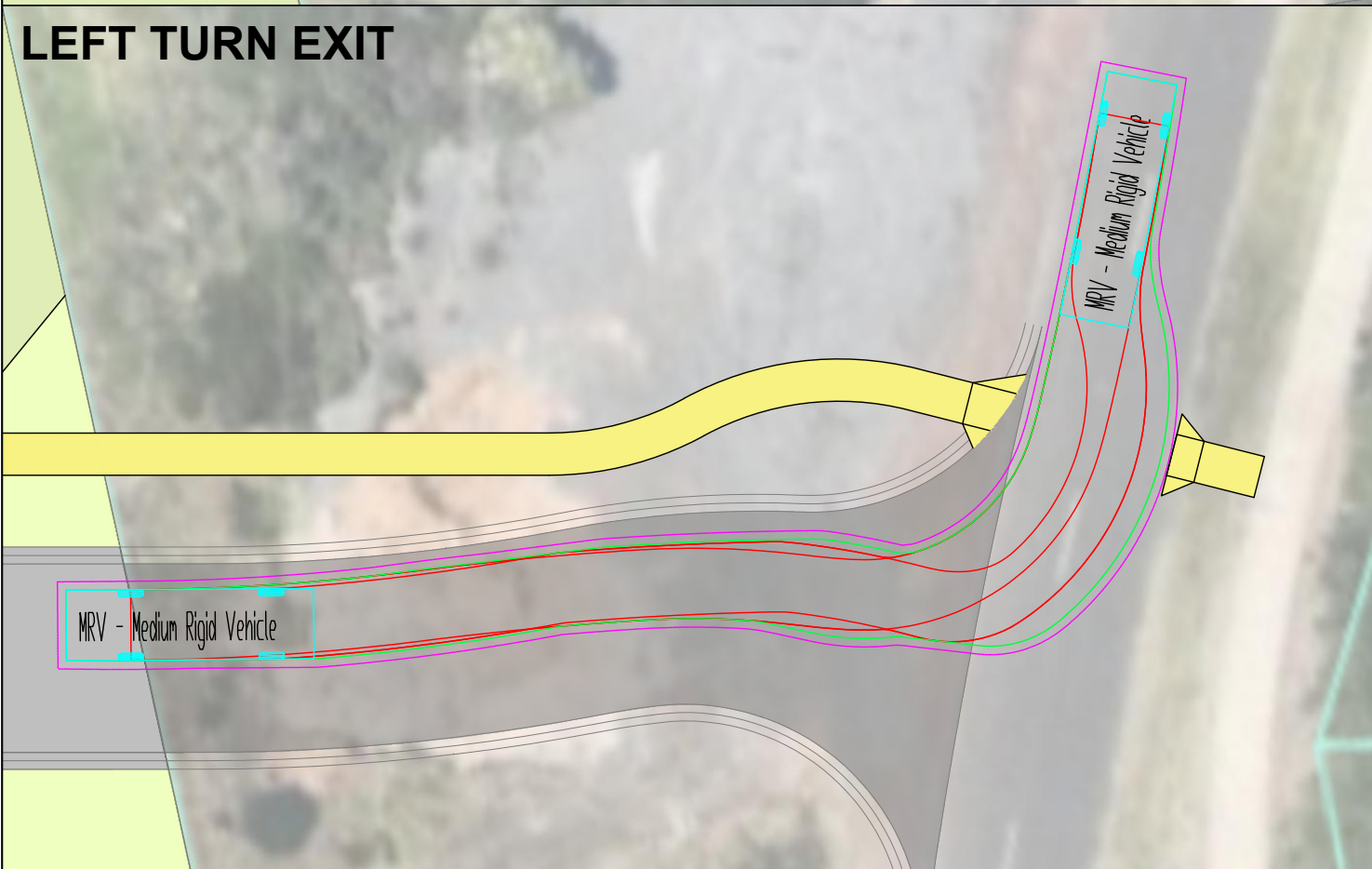
### LEFT TURN ENTRY



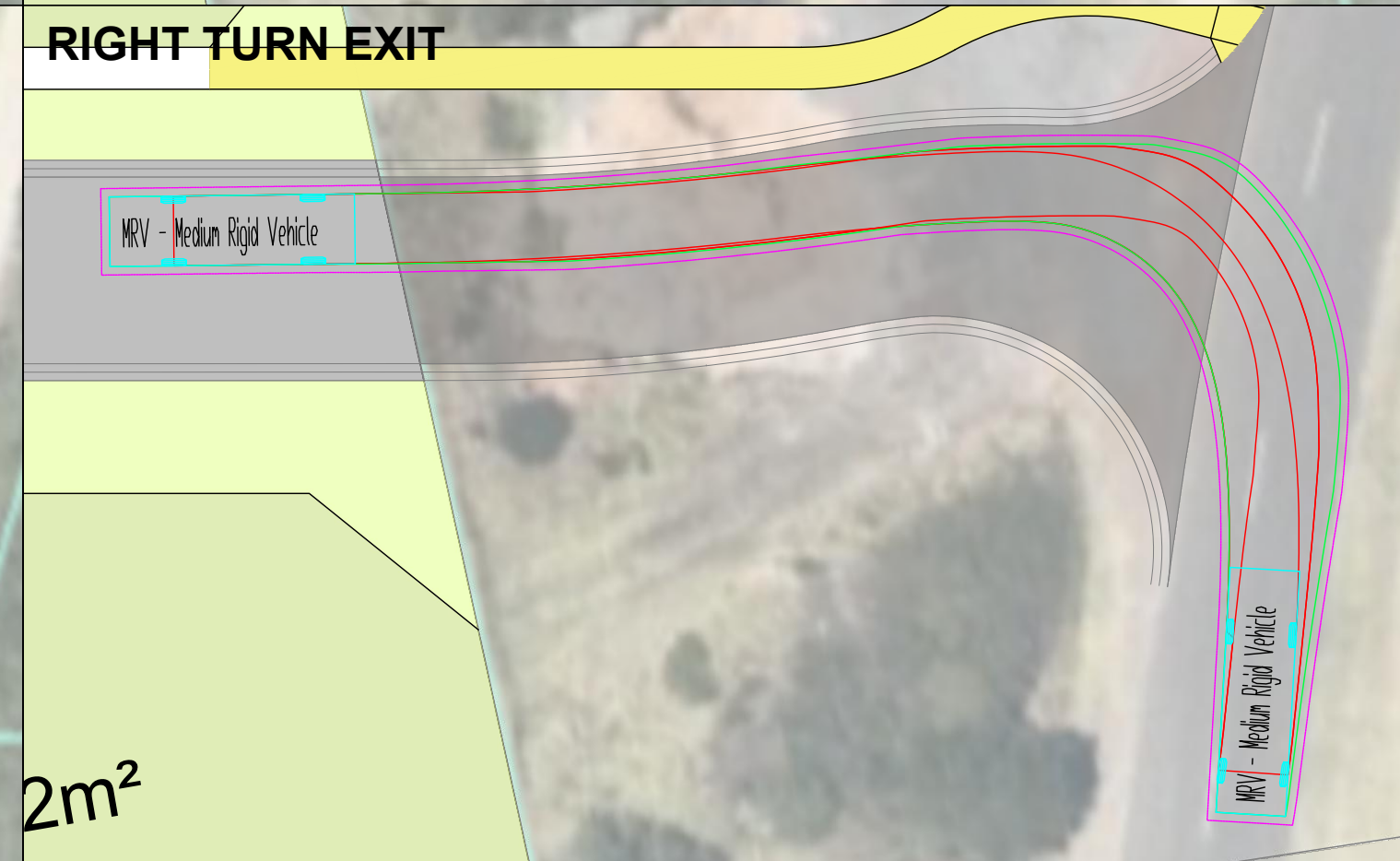
### RIGHT TURN ENTRY



### LEFT TURN EXIT



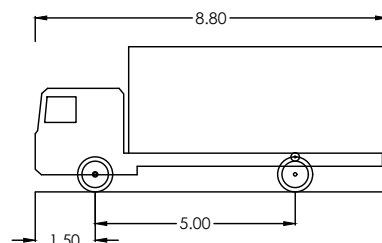
### RIGHT TURN EXIT



2m<sup>2</sup>

- Wheel path
- Vehicle Overhang
- Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using AutoDesk Vehicle Tracking v23



MRV - Medium Rigid Vehicle (See note ...)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	10.000m



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**PROPOSED  
RESIDENTIAL SUBDIVISION  
109 OLD PETERBOROUGH RD,  
PETERBOROUGH  
SWEPT PATH DIAGRAMS**

Scale 1:250 @ A3

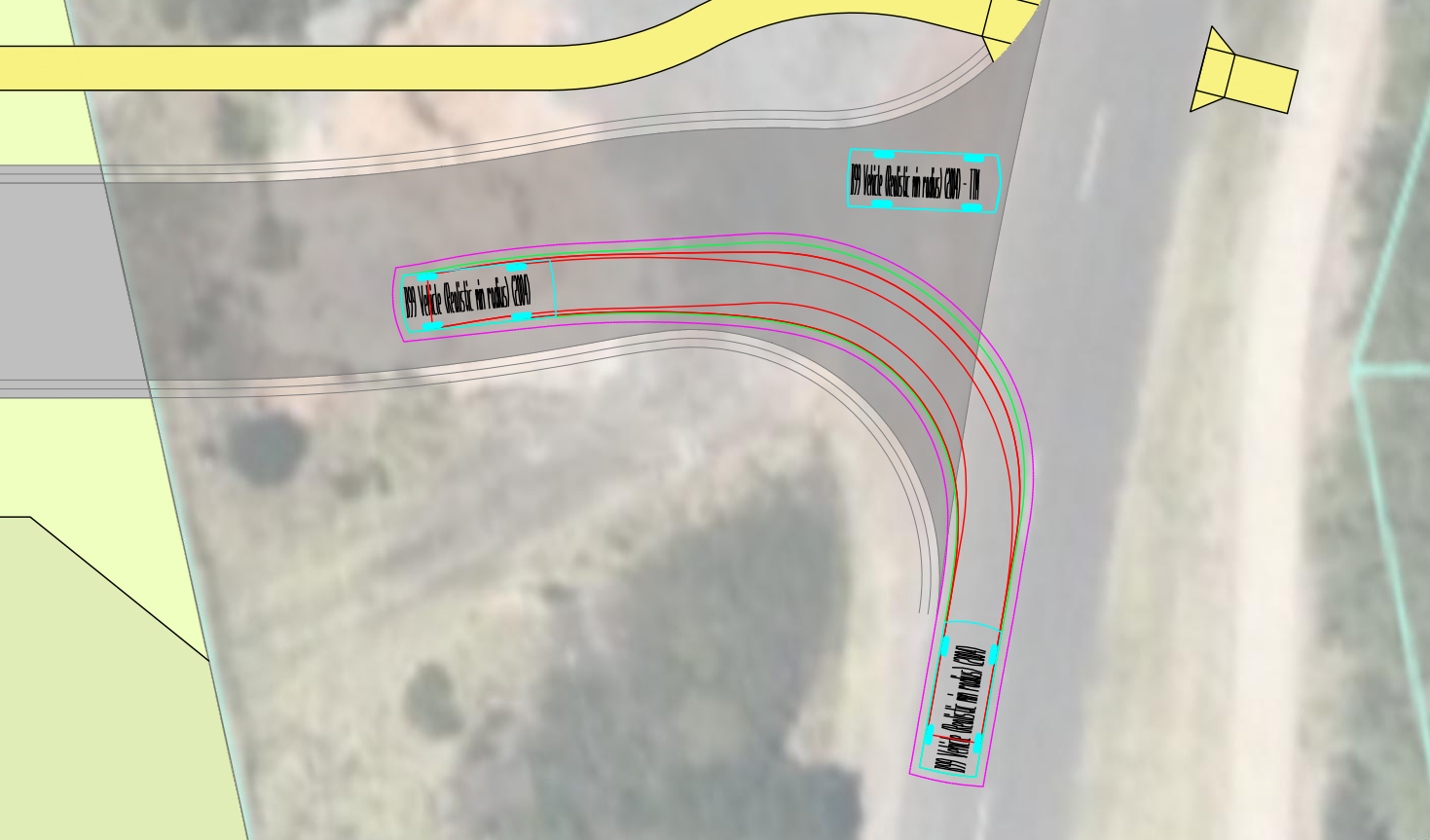
Drawing No : 1248503

Sheet No : 1 Issue : A

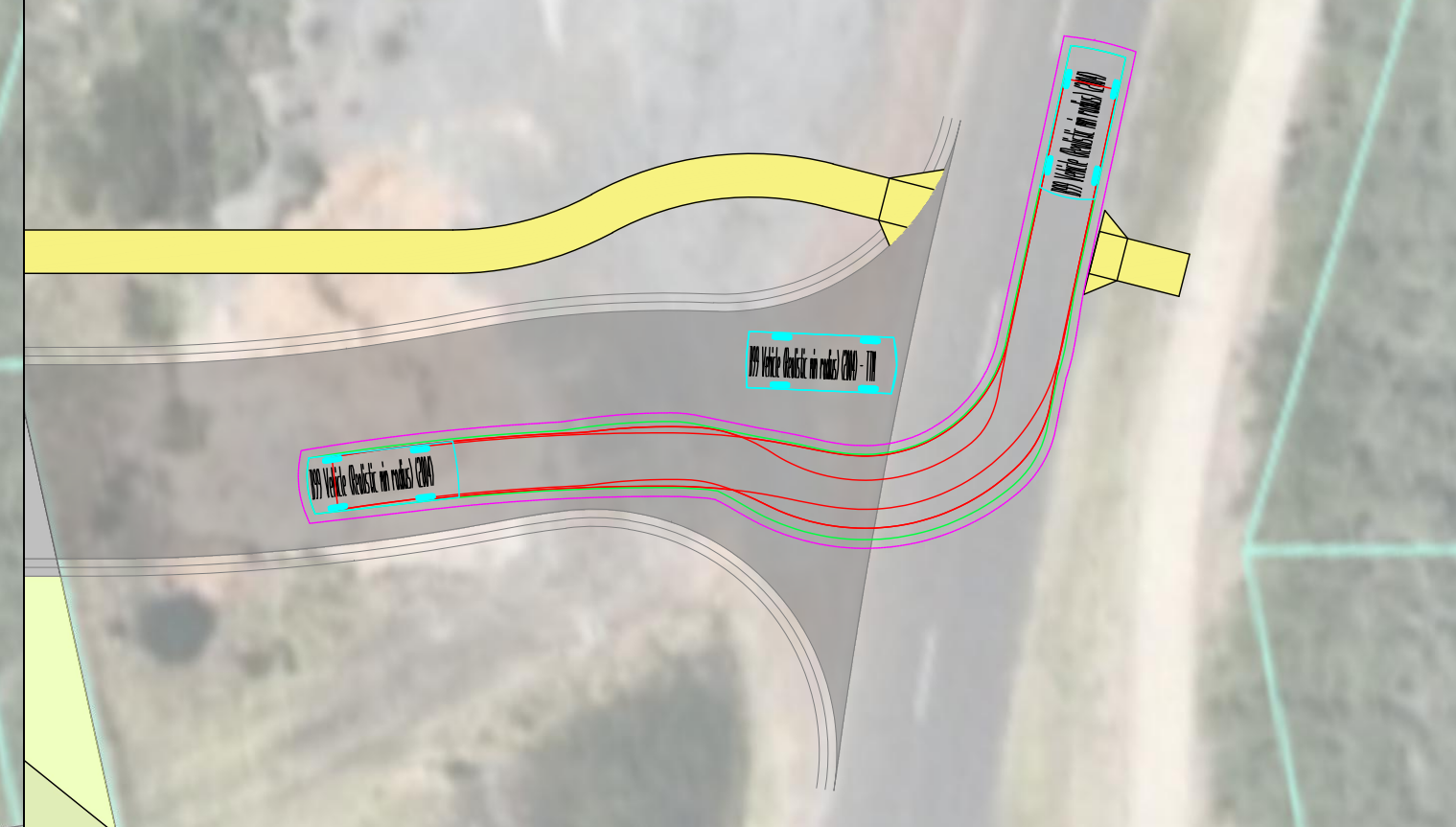
Issue/Appd	Date	Comments
A	PJM 06/03/24	Original Issue



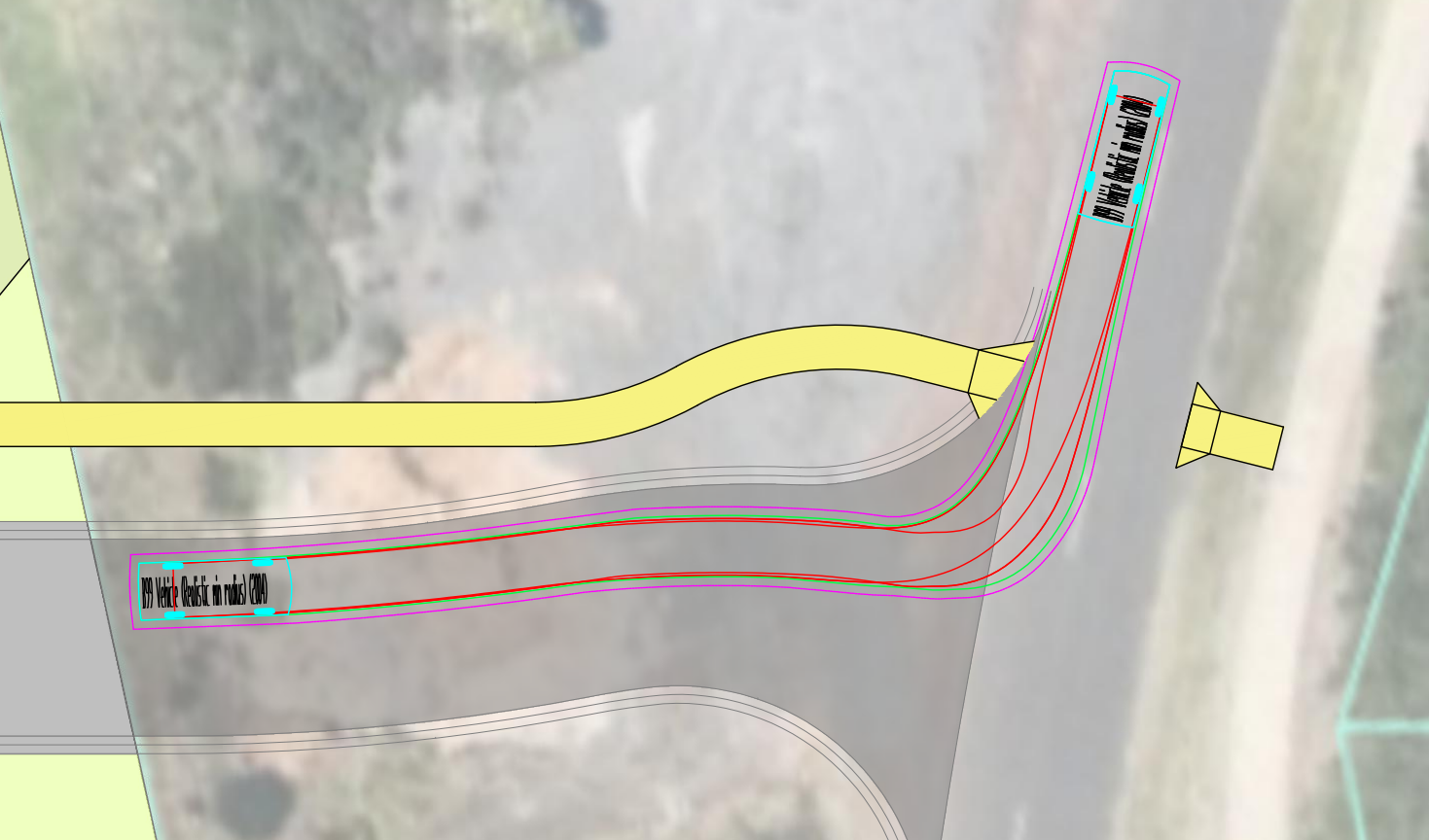
### LEFT TURN ENTRY



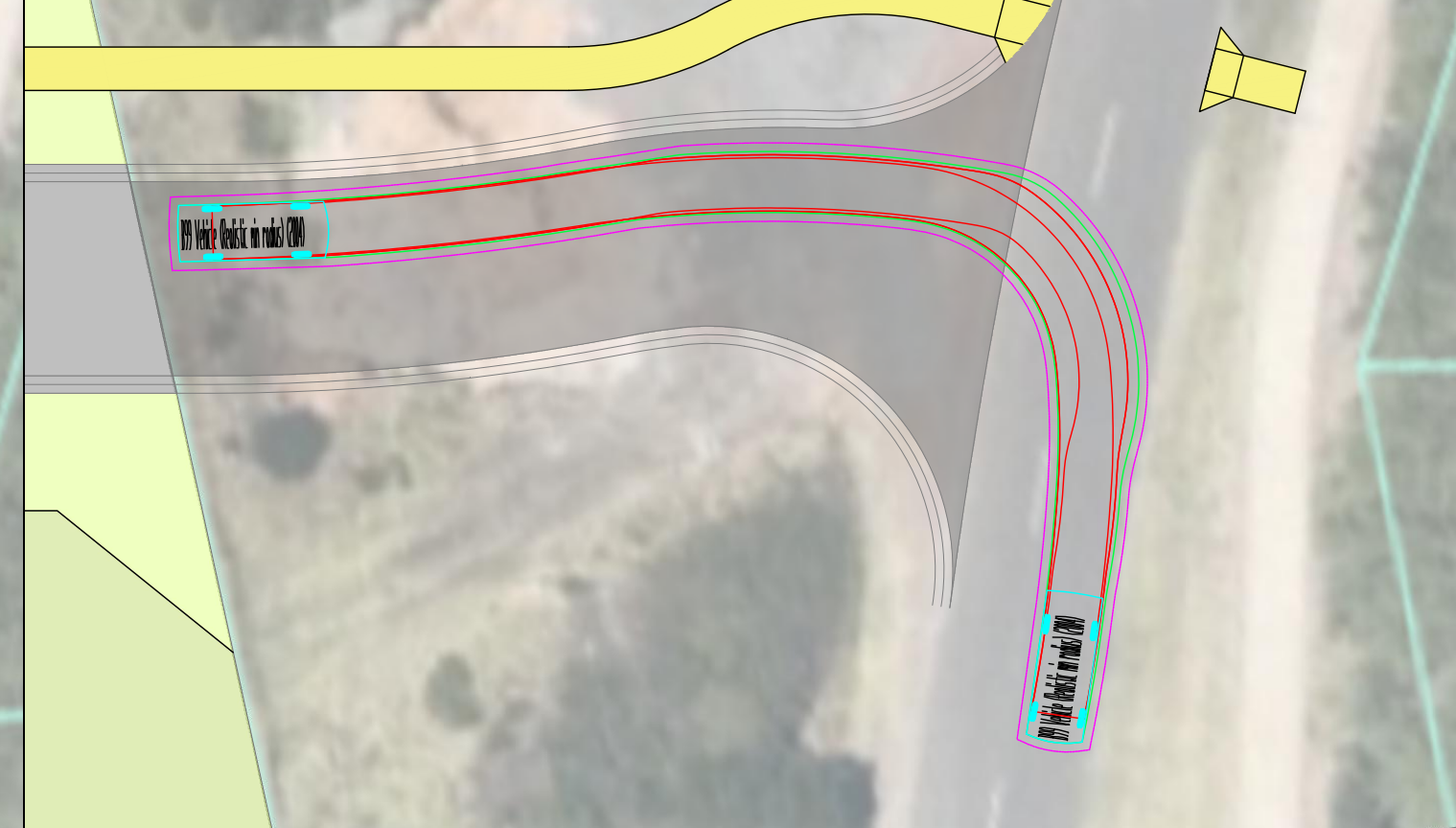
### RIGHT TURN ENTRY



### LEFT TURN EXIT

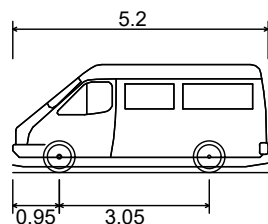


### RIGHT TURN EXIT



- Wheel path
- Vehicle Overhang
- Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using AutoDesk Vehicle Tracking v23



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.527m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	6.250m



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**PROPOSED  
RESIDENTIAL SUBDIVISION  
109 OLD PETERBOROUGH RD,  
PETERBOROUGH  
SWEPT PATH DIAGRAMS**

Scale 1:250 @ A3

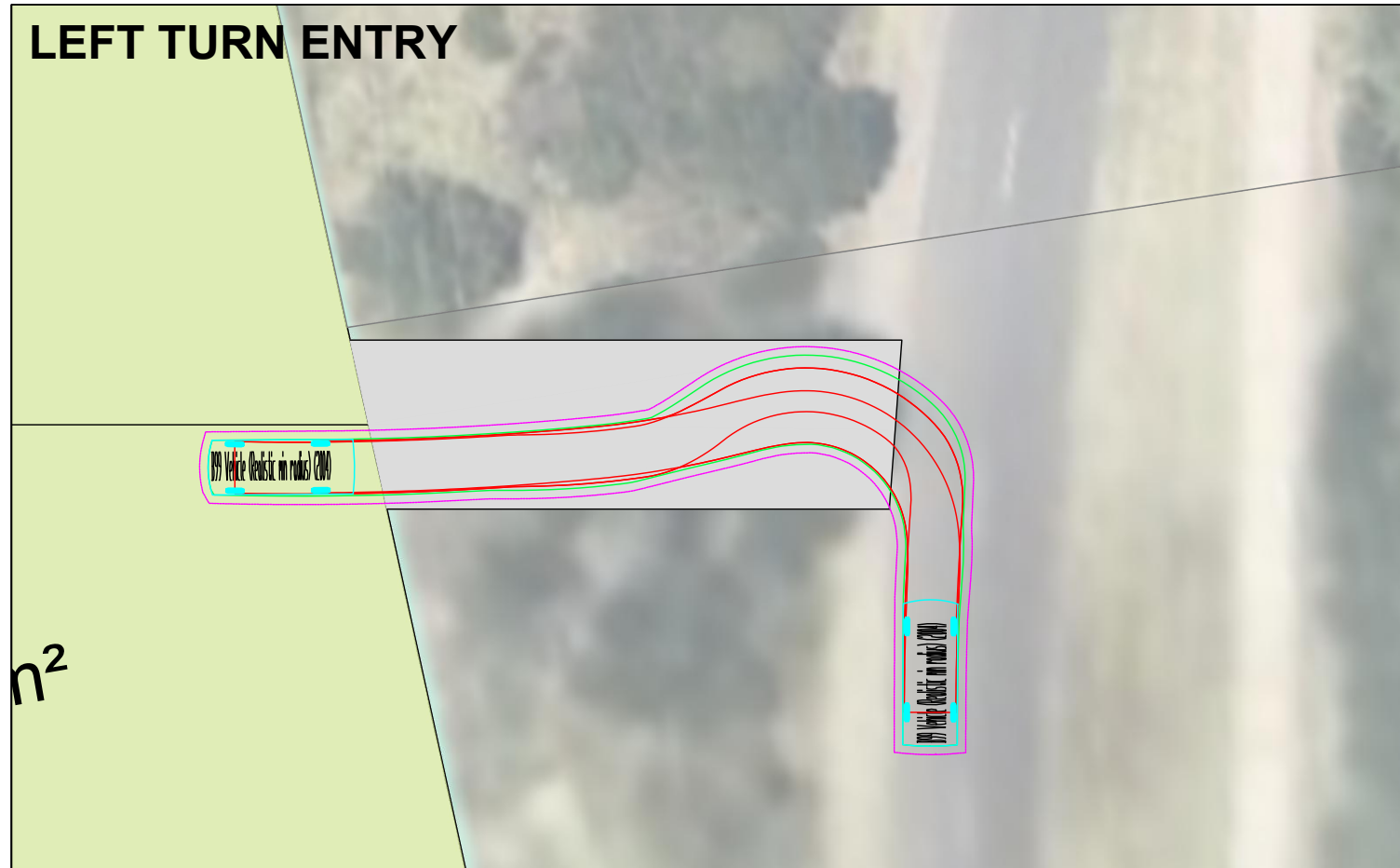
Drawing No : 1248503

Sheet No : 2 Issue : A

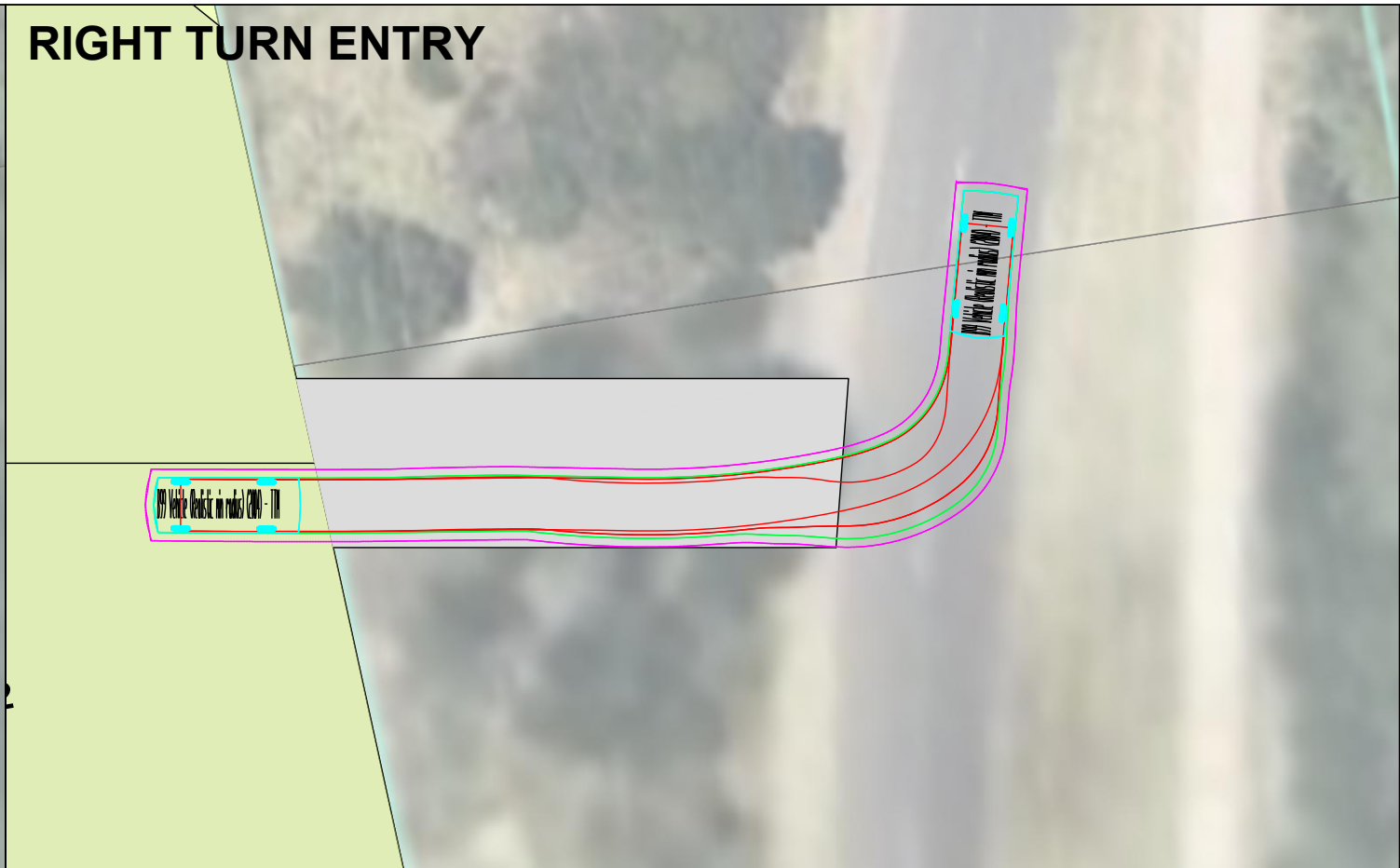
Issue/Appd	Date	Comments
A	PJM 06/03/24	Original Issue



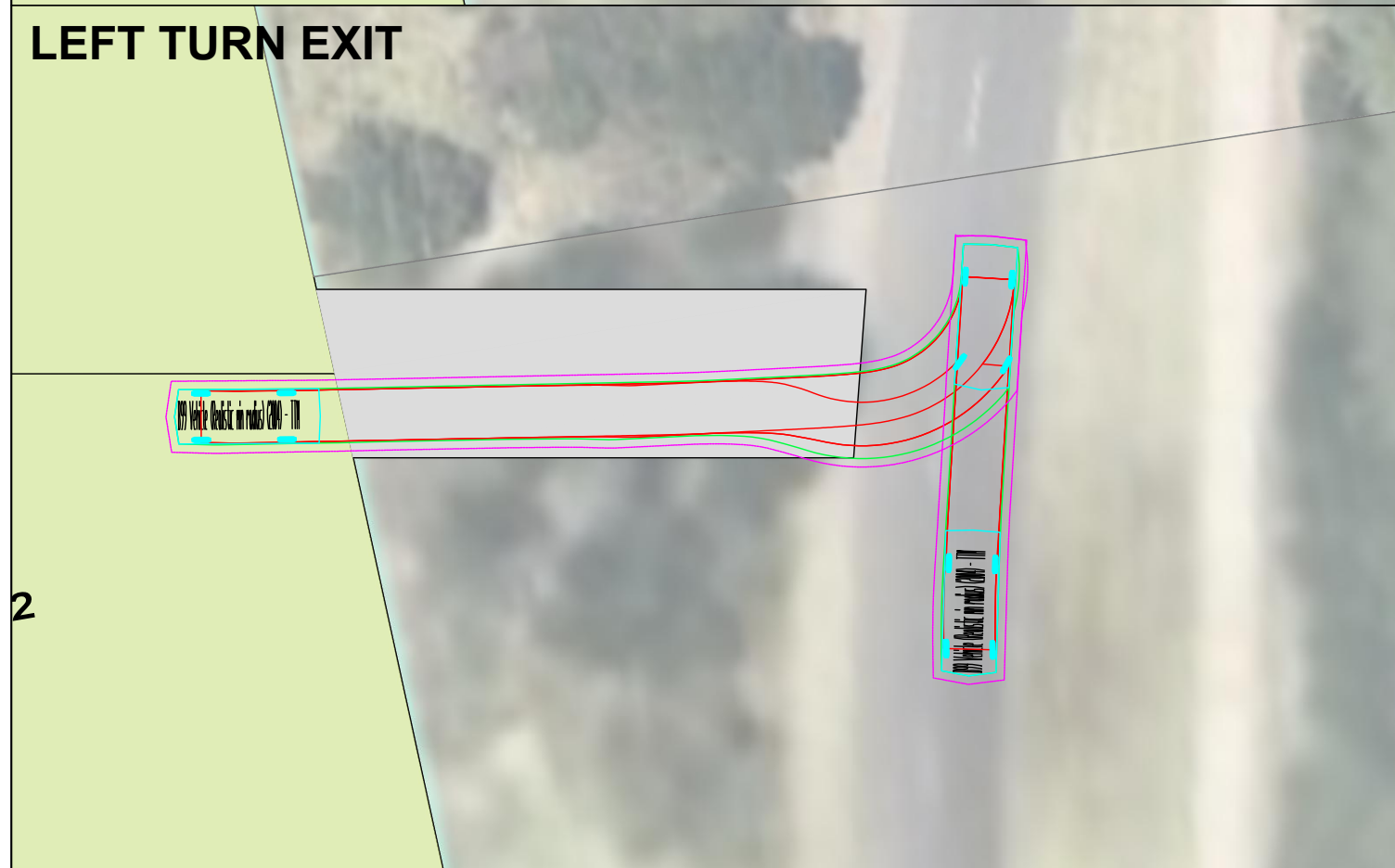
### LEFT TURN ENTRY



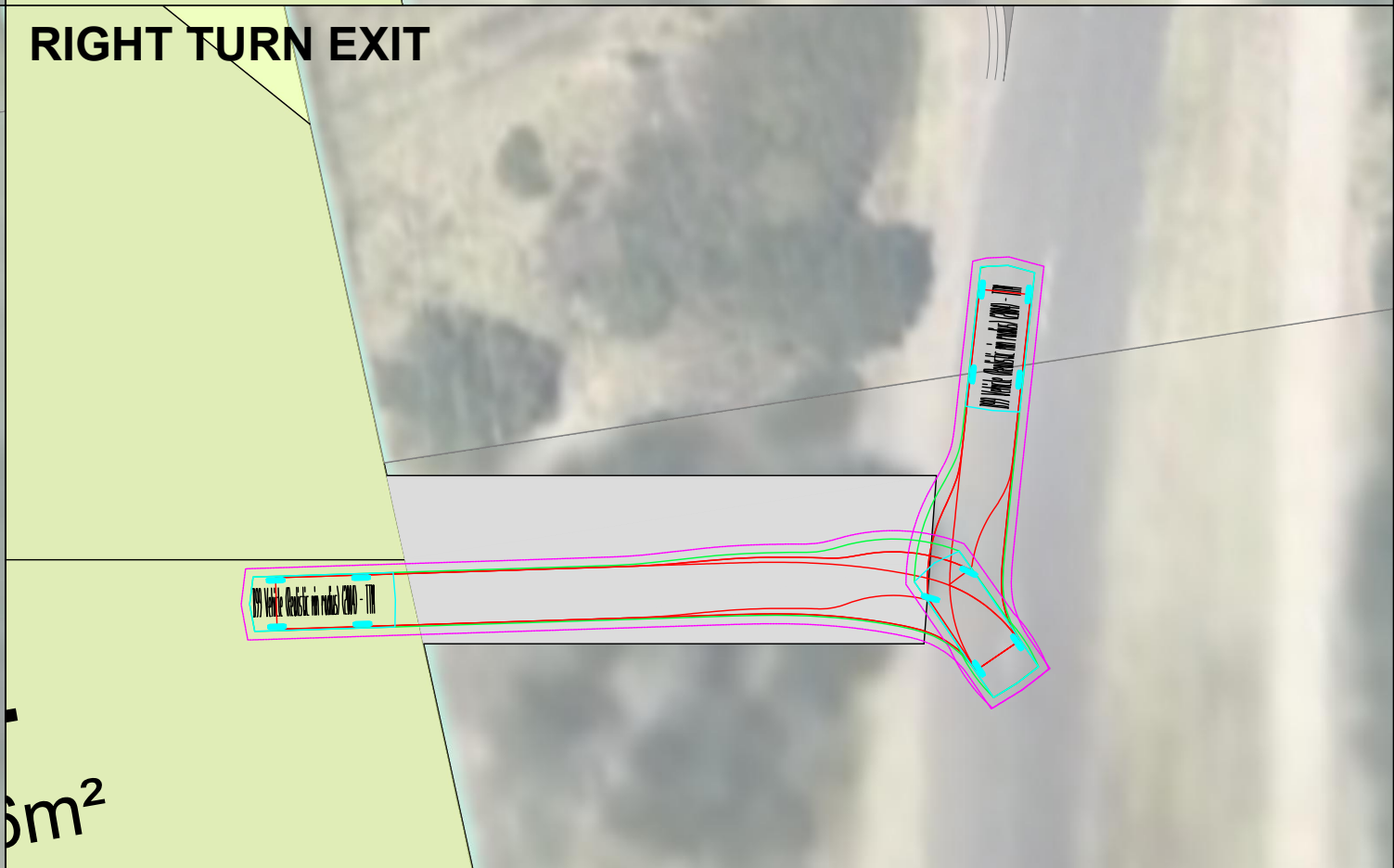
### RIGHT TURN ENTRY



### LEFT TURN EXIT

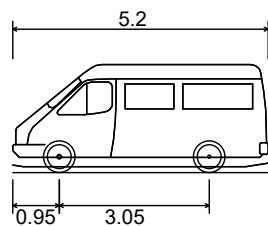


### RIGHT TURN EXIT



Swept Path Diagram Prepared using AutoDesk Vehicle Tracking v23

- Wheel path
- Vehicle Overhang
- Vehicle Overhang + 300mm Clearance



B99 Vehicle (Realistic min radius) (2004)

- Overall Length 5.200m
- Overall Width 1.940m
- Overall Body Height 1.527m
- Min Body Ground Clearance 0.120m
- Track Width 1.840m
- Lock to Lock Time 4.00sec
- Curb to Curb Turning Radius 6.250m



Acoustics Data Traffic Waste

TTM Consulting (Vic) Pty Ltd

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Collingwood VIC 3066  
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**PROPOSED  
RESIDENTIAL SUBDIVISION  
109 OLD PETERBOROUGH RD,  
PETERBOROUGH  
SWEPT PATH DIAGRAMS**

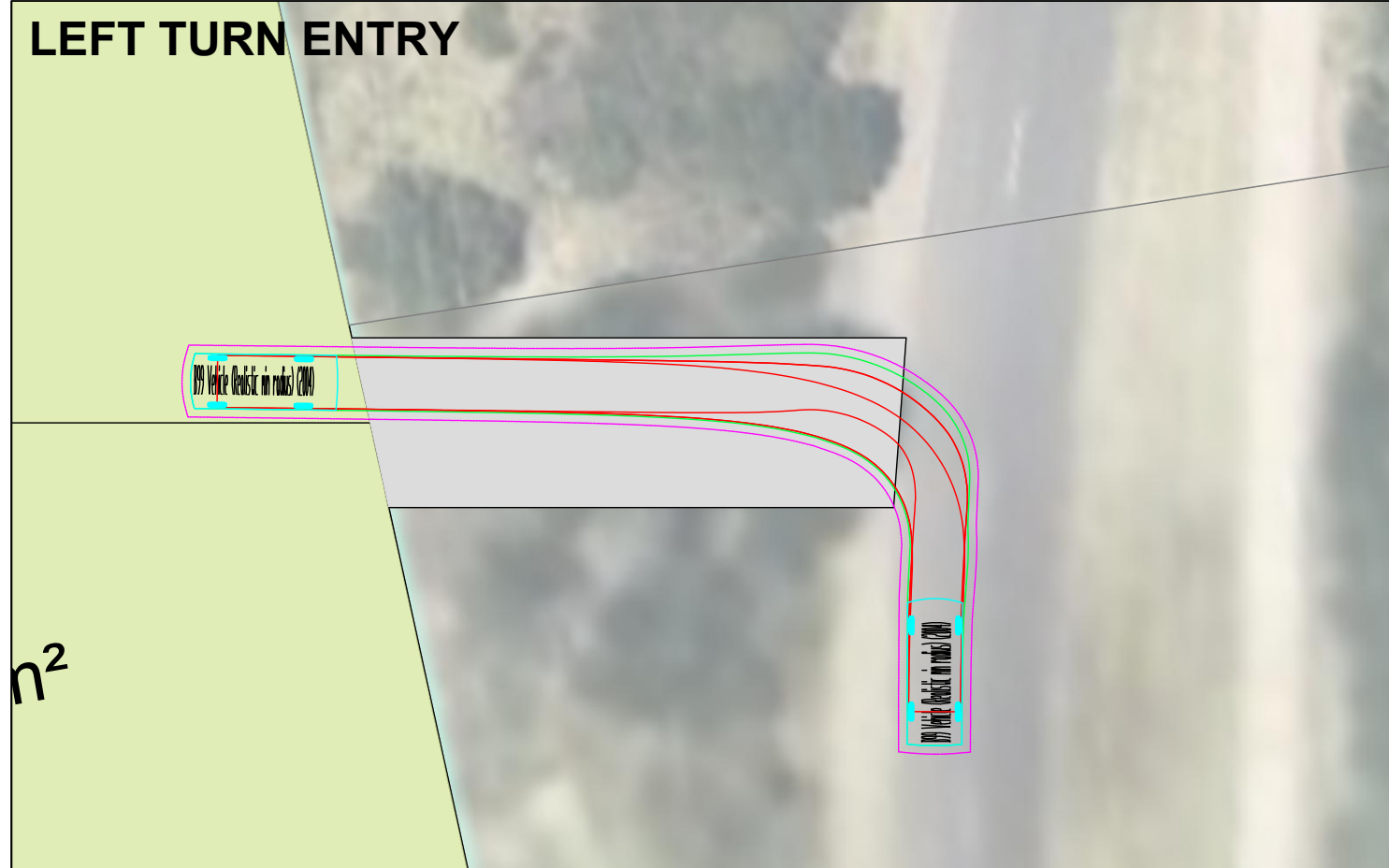
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Drawing No : 1248503

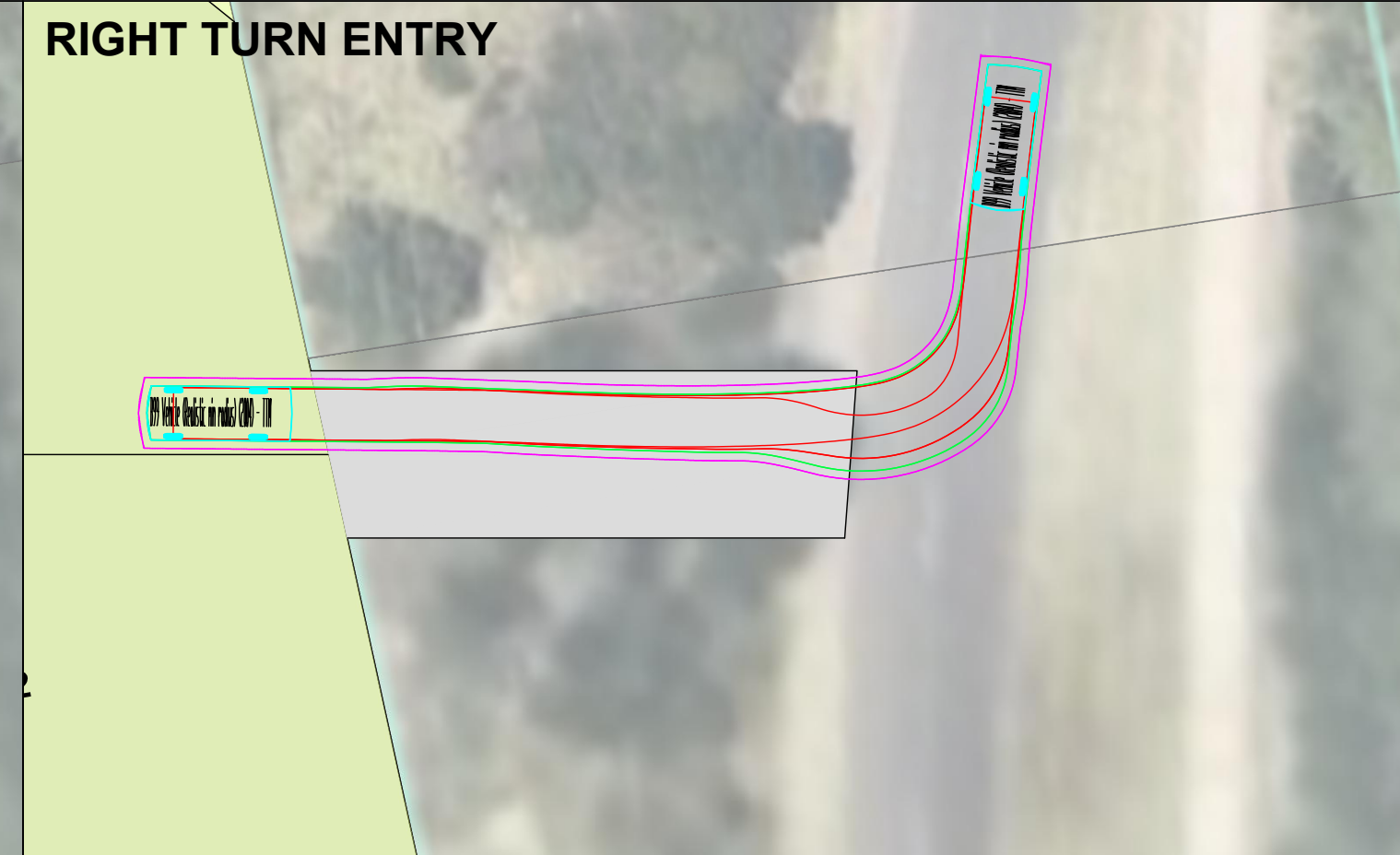
Sheet No : 3 Issue : A

Issue/Appd	Date	Comments
A PJM	06/03/24	Original Issue

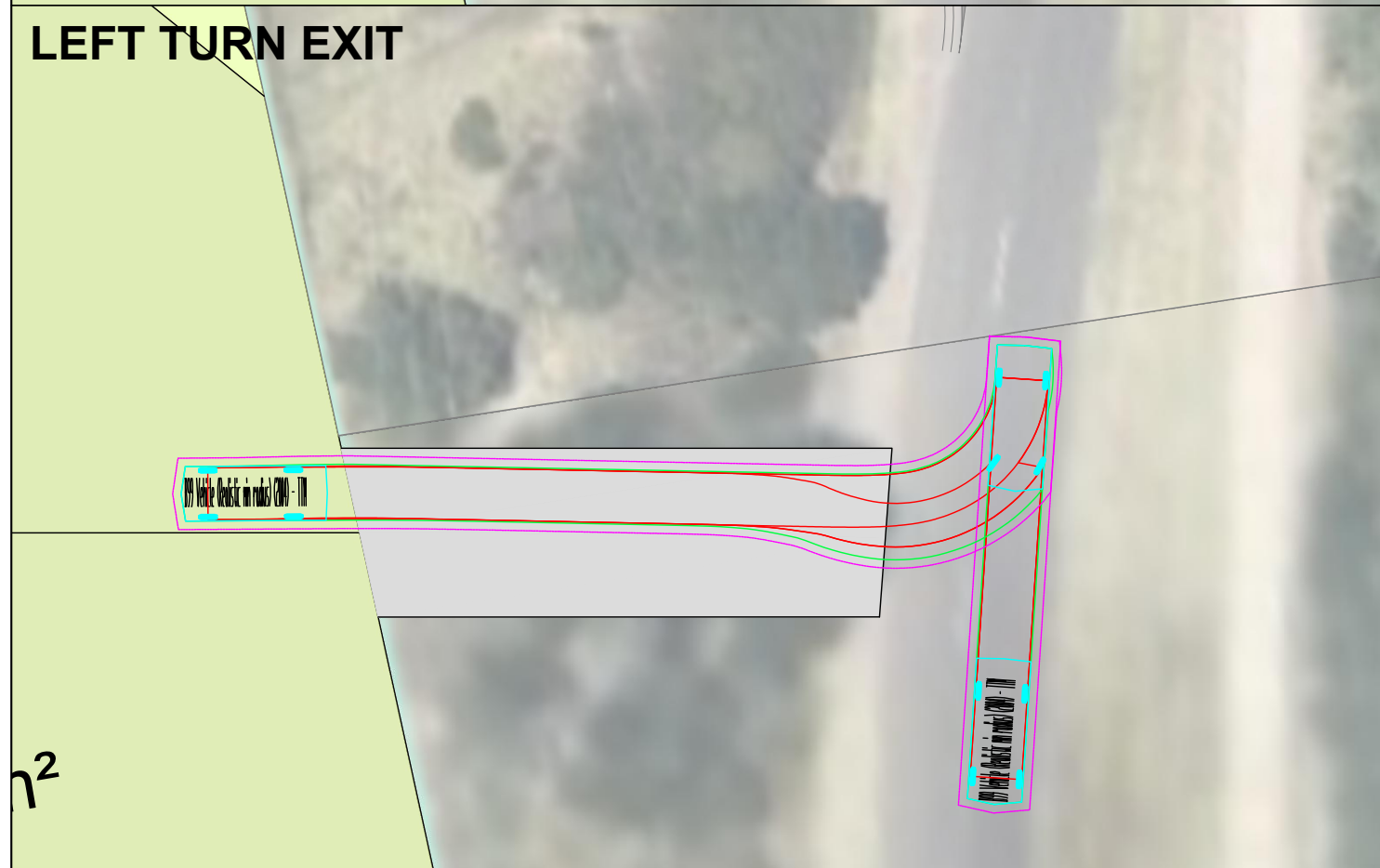
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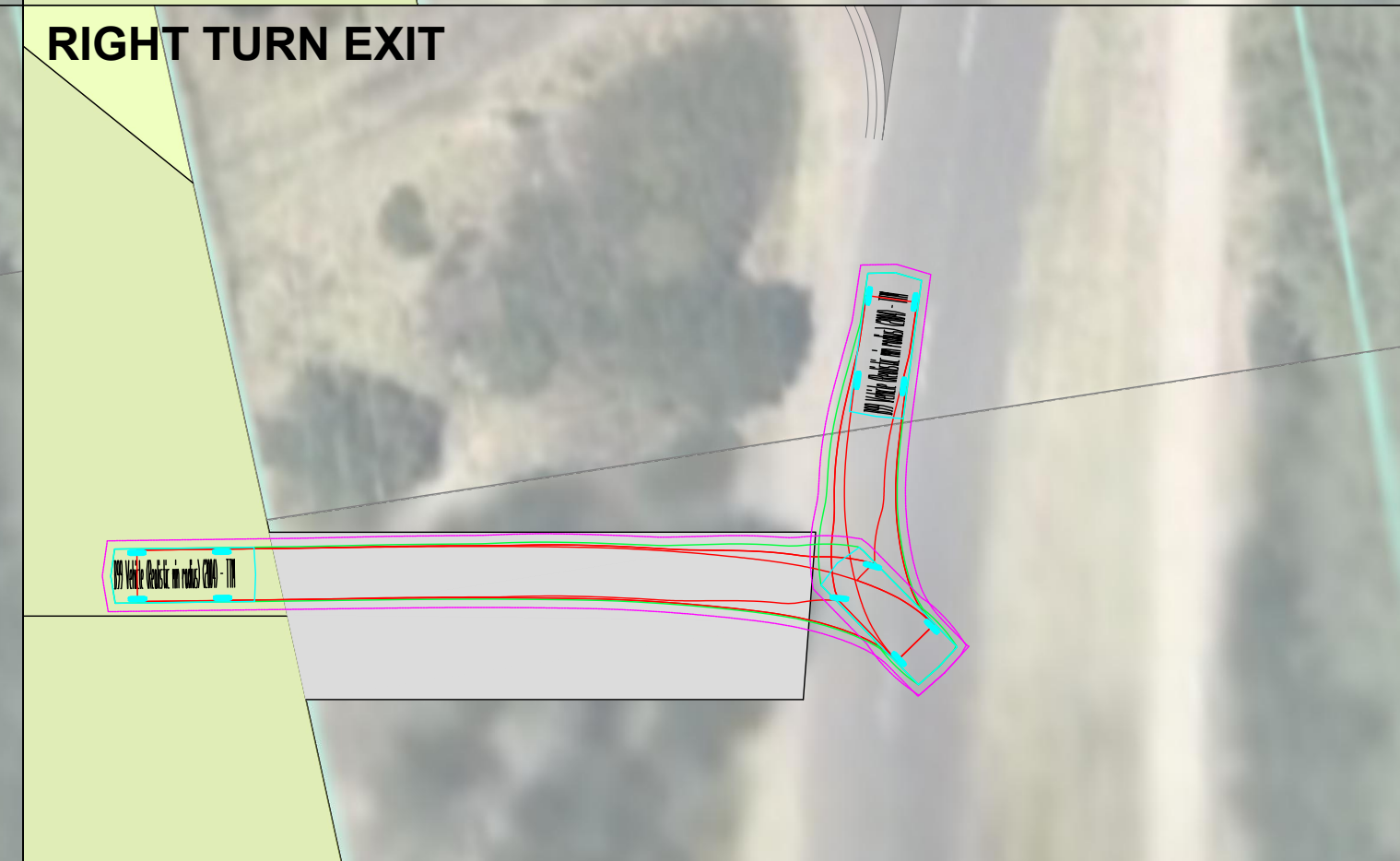
# RIGHT TURN ENTRY



# LEFT TURN EXIT

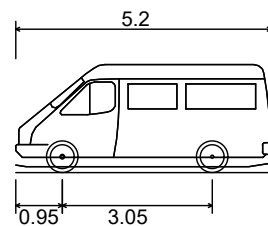


# RIGHT TURN EXIT



- Wheel path
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Scale 1:250 @ A3

Drawing No : 1248503

Sheet No : 4 Issue : A

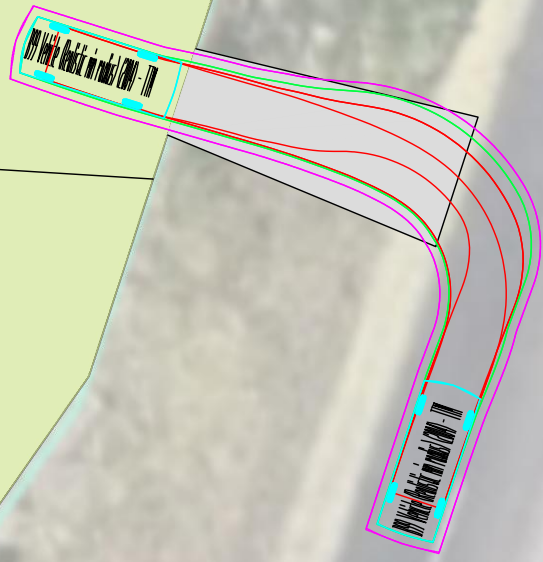
Issue/Appd	Date	Comments
A PJM	06/03/24	Original Issue



LEFT TURN ENTRY

50

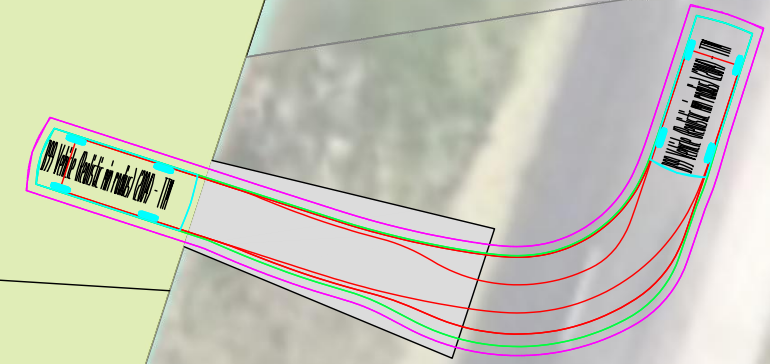
750m<sup>2</sup>



RIGHT TURN ENTRY

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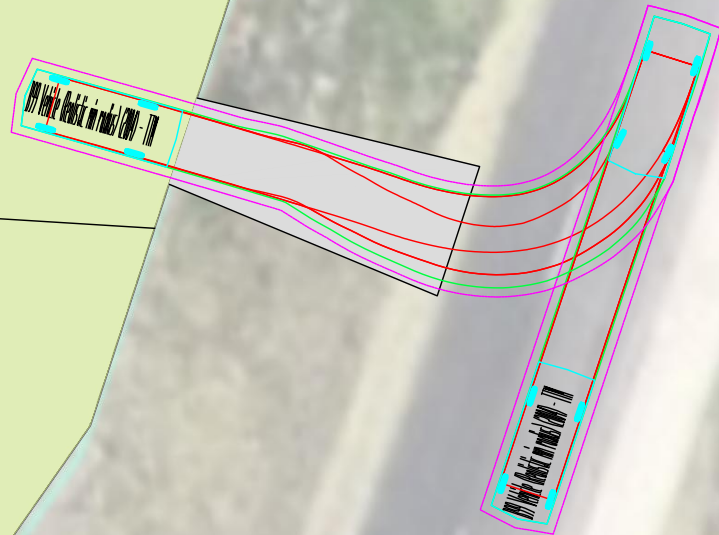
750m<sup>2</sup>



LEFT TURN EXIT

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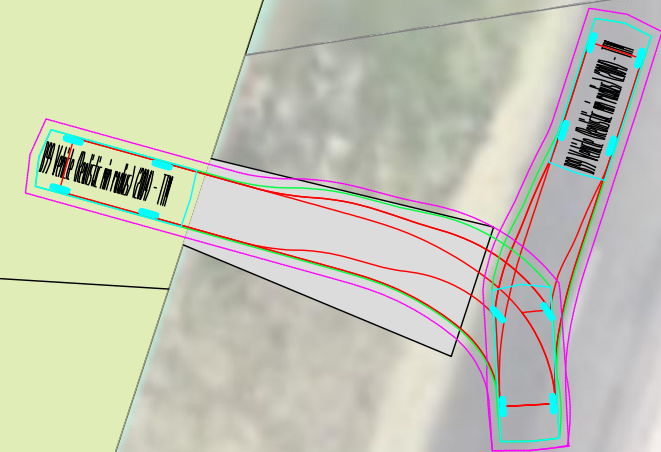
750m<sup>2</sup>



RIGHT TURN EXIT

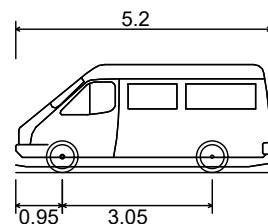
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750m<sup>2</sup>



- Wheel path
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Swept Path Diagram Prepared using AutoDesk Vehicle Tracking v23



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Scale 1:250 @ A3

Drawing No : 1248503

Sheet No : 5 Issue : A

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A PJM	06/03/24	Original Issue