

A wide-angle photograph of an equestrian training centre. In the foreground, a grey asphalt path curves from the bottom left towards the right. Beyond the path is a large, green grassy field. In the middle ground, there is a long, dark wooden fence. Behind the fence, several white horse trailers are parked. To the right, there is a blue and white structure, possibly a wash rack or a covered area. In the background, a line of tall, thin light poles stretches across the horizon under a blue sky with scattered white clouds.

**TRAFFIC & PARKING ASSESSMENT**

**EQUESTRIAN TRAINING CENTRE**

**LOT 144 DP 882115  
240 SCOTCH CREEK ROAD, MILLER'S FOREST**

**PREPARED FOR: ELITE EQUESTRIAN**

**AMENDED FEBRUARY 2022**

REF: 19/145

**TRAFFIC & PARKING ASSESSMENT  
ELITE EQUESTRIAN****EQUESTRIAN TRAINING CENTRE  
LOT 144 DP 882115  
240 SCOTCH CREEK ROAD, MILLERS FOREST**

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This document has been prepared, checked and released in accordance with the Quality Control Standards established by Intersect Traffic Pty Ltd.

Issue	Date	Description	By
A	22/10/19	Draft	DD
B	30/10/19	Edit	JG
C	17/02/22	Final Proof / Client comments	JG
D	17/02/22	Approved	JG

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This document has been authorised by

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# CONTENTS

<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. SITE DESCRIPTION</b>	<b>2</b>
<b>3. EXISTING ROAD NETWORK</b>	<b>4</b>
3.1 Raymond Terrace Road	4
3.2 Scotch Creek Road	4
3.3 Martins Wharf Road	5
<b>4. ROAD NETWORK IMPROVEMENTS</b>	<b>6</b>
<b>5. TRAFFIC VOLUMES</b>	<b>6</b>
<b>6. ROAD CAPACITIES</b>	<b>7</b>
<b>7. ALTERNATIVE TRANSPORT MODES</b>	<b>8</b>
7.1 Pedestrians and cycleways	8
7.2 Public Transport	8
<b>8. PROPOSED DEVELOPMENT</b>	<b>9</b>
<b>9. TRAFFIC GENERATION</b>	<b>9</b>
<b>10. PEAK PARKING DEMAND</b>	<b>12</b>
<b>11. TRAFFIC IMPACT ASSESSMENT</b>	<b>13</b>
11.1 Road Network Capacity	13
11.2 Intersection Capacity	13
11.3 Site Access	14
11.4 Sight Distance	14
11.5 Turn Lane Warrants	15
11.6 On-site Parking	15
11.6 Alternative Transport Modes	15
<b>12. CONCLUSIONS</b>	<b>16</b>
<b>13. RECOMMENDATION</b>	<b>16</b>

# APPENDICES

<b>APPENDIX 1</b>	<b>DEVELOPMENT PLANS</b>
<b>APPENDIX 2</b>	<b>TRAFFIC DATA</b>
<b>APPENDIX 3</b>	<b>SIDRA MOVEMENT SUMMARY TABLES</b>

# FIGURES

<i>Figure 1: Site Location</i>	2
<i>Figure 2 - Trip Distribution – Training</i>	11

# PHOTOGRAPHS

<i>Photograph 1 - Existing Site from Scotch Creek Road</i>	3
<i>Photograph 2 - Existing Site from Martins Wharf Road</i>	3
<i>Photograph 3 – Marshall Street adjacent to the site.</i>	4
<i>Photograph 3 – Raymond Terrace Road near the site</i>	4
<i>Photograph 4 – Scotch Creek Road near the site</i>	5
<i>Photograph 5 – Martins Wharf Road adjacent to the site</i>	5
<i>Photograph 6 – Raymond Terrace Road/Scotch Creek Road intersection</i>	8
<i>Photograph 7 – Raymond Terrace Road / Martins Wharf Road intersection</i>	9
<i>Photograph 8 – Existing Stables</i>	10
<i>Photograph 9 – Hardstand and grass parking area adjacent to the Stable</i>	11

# TABLES

<i>Table 1– Peak Hour Traffic Volumes (October 2019)</i>	6
<i>Table 2 – Predicted Peak Hour Traffic Volumes (October 2032)</i>	6
<i>Table 3 – Sidra Results – All Vehicles – Raymond Terrace Road intersections</i>	14



# 1. INTRODUCTION

Intersect Traffic Pty Ltd (Intersect) has been engaged by Wilson Planning on behalf of Elite Equestrian to prepare a traffic and parking assessment report for the use of an existing equestrian ring as an equestrian centre on Lot 144 in DP 882115 – 240 Scotch Creek Road, Millers Forest.

The site contains an existing dwelling, various sheds and an equestrian ring that is used for horse agistment purposes. It is proposed to seek approval for the use of the site as an equestrian centre providing training facilities for elite equestrian competitors as well as the horse agistment service. Development concept plans are provided within **Appendix 1**.

This assessment was carried out in accordance with the guidelines contained within the *RTA's Guide to Traffic Generating Developments* and includes an assessment of the local road networks capacity to cater for the development within a 10 year horizon and compliance with Maitland Council's DCP. This report is required to support a development application to Maitland City Council and presents the findings of the traffic and parking assessment including:

1. An outline of the existing road network in the vicinity of the proposed development;
2. An assessment of the likely traffic impacts of the proposal on the adjacent road network as a result of the development with road, intersection and access capacities/conditions being assessed;
3. An assessment of the development's compliance with Australian Standard *AS2890.1-2004 Parking facilities – Part 1 Off-street car parking* in regard to off-street parking; and
4. Presentation of conclusions and recommendations.

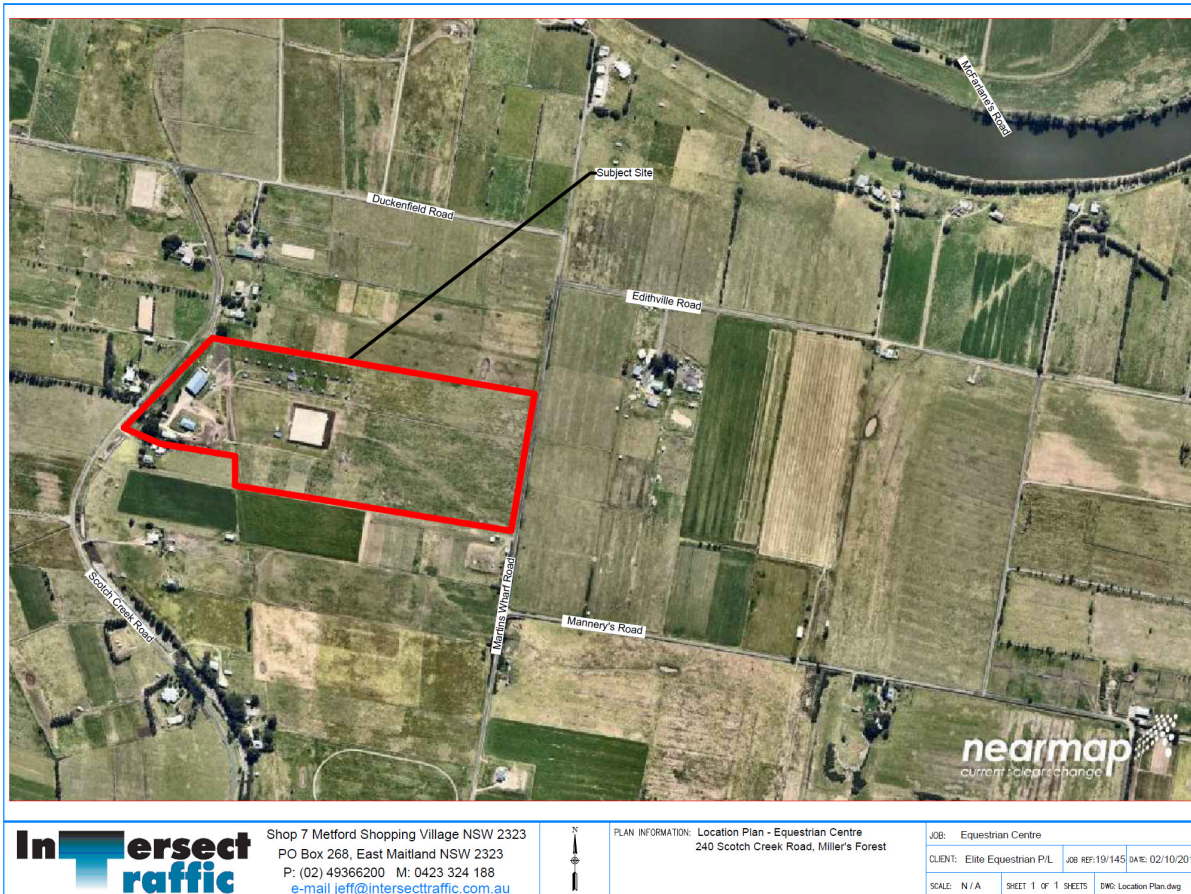
## 2. SITE DESCRIPTION

The subject site is located between Scotch Creek Road and Martin’s Wharf Road Millers Forest approximately 350 metres south of Duckenfield Road and 2.1 kms north of Raymond Terrace Road. The site is approximately 7 kms east of historic Morpeth village. The site is within a rural area surrounded by agricultural land adjacent to the Hunter River as shown in the location plan provided as **Figure 1** below.

The site contains the following property descriptors:

- ◆ Formal land title of Lot 144 in DP 882115;
- ◆ Postal address of 240 Scotch Creek Road, Millers Forest;
- ◆ Site area of approximately 2,000 m<sup>2</sup>; and
- ◆ Land zoning of RU1 – Primary Production in accordance with Maitland LEP (2011).

The site has road frontage to Scotch Creek Road and rear frontage to Martins Warf Road with formal access to the lot available from both Scotch Creek Road and Martins Wharf Road. **Photograph 1** and **2** shows the existing development on the site from both Scotch Creek Road and Martins Wharf Road.



**Figure 1: Site Location**



*Photograph 1 - Existing Site from Scotch Creek Road*



*Photograph 2 - Existing Site from Martins Wharf Road*

## 3. EXISTING ROAD NETWORK

### 3.1 Raymond Terrace Road

Raymond Terrace Road is a classified state road (MR 104) which provides a single travel lane in each direction with sealed shoulders in both directions. It is a sub-arterial road connecting Maitland to Raymond Terrace and is under the care and control of the RMS. In the vicinity of the site Raymond Terrace Road is covered by an 80 km/h speed limit and at the time of inspection it was found to be in good condition. **Photograph 3** below shows the road surface standard of Raymond Terrace Road in the vicinity of Scotch Creek Road.



**Photograph 3 – Raymond Terrace Road near the site**

### 3.2 Scotch Creek Road

Scotch Creek Road is a local road connecting to Davis Road in the north and Raymond Terrace Road in the south. As a local rural road Scotch Creek Road is under the care and control of Maitland City Council.

In the vicinity of the site Scotch Creek Road is a two-lane two-way sealed local road with gravel/grass shoulders and longitudinal drainage. An 80 km/h speed limit applies to this section of Scotch Creek Road and at the time of inspection Scotch Creek Road was observed to be in acceptable condition. **Photograph 4** below shows the standard of Scotch Creek Road in the vicinity of the site.



*Photograph 4 – Scotch Creek Road near the site*

### **3.3 Martins Wharf Road**

Martins Wharf Road is a local road in the township of Millers Forest connecting to Davis Road in the north and Raymond Terrace Road in the south. As a local rural road Martins Wharf Road is under the care and control of Maitland City Council.

In the vicinity of the site Martins Wharf Road is a two-lane two-way sealed local road with gravel/grass shoulders and longitudinal drainage. A 70 km/h speed limit applies to this section of Martins Wharf Road and at the time of inspection Martins Wharf Road was observed to be in good condition. **Photograph 5** below shows the standard of Martins Wharf Road in the vicinity of the site.



*Photograph 5 – Martins Wharf Road adjacent to the site*



## 4. ROAD NETWORK IMPROVEMENTS

There are no known immediate road network improvements that will impact on the proposed development or will result in an increase in the road network capacity.

## 5. TRAFFIC VOLUMES

Intersect Traffic completed manual traffic counts at the Raymond Terrace Road / Scotch Creek Road 'T' intersection on Sunday 20<sup>th</sup> October 2019 from 8:00am to 9:00am. The peak hour traffic count tally sheets are shown in **Appendix 2**.

These counts determined the following peak hour traffic volumes on the relevant roads as shown in **Table 1** below.

**Table 1– Peak Hour Traffic Volumes (October 2019)**

Road	Section	Peak 2019 (vtpH)
Raymond Terrace Rd	East of Scotch Creek Rd (Friday)	1,314
Scotch Creek Rd	North of Raymond Terrace Rd (Sunday)	8
Raymond Terrace Rd	West of Scotch Creek Rd (Friday)	1,326

In terms of the background traffic growth rates, TfNSW have been using an average rate of 1.5% per annum for the Lower Hunter area, however, for this assessment a growth rate of 2% has been adopted and is considered relevant for the area and used to calculate predicted 2032 traffic volumes on the local road network. These predicted traffic volumes are shown in **Table 2** below:

**Table 2 – Predicted Peak Hour Traffic Volumes (October 2032)**

Road	Section	Peak 2029 (vtpH)
Raymond Terrace Rd	East of Scotch Creek Rd (Friday)	1,700
Scotch Creek Rd	North of Raymond Terrace Rd (Sunday)	11
Raymond Terrace Rd	West of Scotch Creek Rd (Friday)	1,715

# 6. ROAD CAPACITIES

The capacity of roads is generally determined by the capacity of intersections. However, Table 4.5 of the RTA’s *Guide to Traffic Generating Developments* provides some guidance on mid-block capacities for rural roads. This table is reproduced below.

**Table 4.5**  
peak hour flow on two-lane rural roads (veh/hr)  
(Design speed of 100km/hr)

Terrain	Level of Service	Percent of Heavy Vehicles			
		0	5	10	15
Level	B	630	590	560	530
	C	1030	970	920	870
	D	1630	1550	1480	1410
	E	2630	2500	2390	2290
Rolling	B	500	420	360	310
	C	920	760	650	570
	D	1370	1140	970	700
	E	2420	2000	1720	1510
Mountainous	B	340	230	180	150
	C	600	410	320	260
	D	1050	680	500	400
	E	2160	1400	1040	820

The data for Table 4.5 assumes the following criteria:

- terrain level with 20% no overtaking.
- rolling with 40% no overtaking.
- mountainous with 60% no overtaking.
- 3.7 m traffic lane width with side clearances of at least 2m.
- 60/40 directional split of traffic.

Source: - RTA *Guide to Traffic Generating Developments*(2002)

Based on this table and noting that Raymond Terrace Road and Scotch Creek Road are two-lane two-way rural roads with speed limits less than 100 km/h i.e. 90 % reduction of table rates, level terrain and 5 % heavy vehicles the two-way mid-block capacities of these roads is in the order of 1,400 vtp for a LoS C. However as a sub-arterial road it is considered acceptable that Raymond Terrace Road operates with a LoS D and its two-way mid-block capacity would increase to 2,250 vtp.

From the traffic data sourced in **Section 5** and noting the likely technical two-way mid-block road capacity of Raymond Terrace Road and Scotch Creek Road is well in excess of the 2019 traffic volumes and predicted 2032 traffic volumes on the road network it is concluded that the adjacent road network is operating well within its technical capacity and has scope to cater for additional traffic generated by new developments.

It is also noted that traffic volumes post development through to 2032 on Scotch Creek Road are less than the environmental capacity of the road (300 vtp) as designated in **Table 4.6** of the *RMS Guide to Traffic Generating Developments (2002)* shown below.

**Environmental capacity performance standards on residential streets**

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal 300 maximum
Collector	Street	50	300 environmental goal 500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

Source: - RTA Guide to Traffic Generating Developments (2002)



*Photograph 6 – Raymond Terrace Road/Scotch Creek Road intersection*

## 7. ALTERNATIVE TRANSPORT MODES

### 7.1 Pedestrians and cycleways

There was no existing pedestrian or cycleway infrastructure in the near vicinity of the development site.

### 7.2 Public Transport

Hunter Valley Buses service the Millers Forest/Thornton area however no service bus routes run past the development site with the nearest bus service operating along Raymond Terrace Road some 2 km’s north of the site.



*Photograph 7 – Raymond Terrace Road / Martins Wharf Road intersection*

## 8. PROPOSED DEVELOPMENT

The development involves approval of the use of the existing facilities on the site including the equestrian ring as an equestrian centre for training for elite equestrian competitors as well as for horse agistment. The development plans are shown in **Appendix 1**. Specifically, the development involves:

- ◆ Use of the existing equestrian ring for training and competition;
- ◆ Provision of suitable on-site car parking areas and internal driveway connection to the site access to service the expected peak parking demand from training within the equestrian ring; and
- ◆ Landscaping and drainage as required by Maitland City Council.

## 9. TRAFFIC GENERATION

General guidelines on traffic generation are provided within the *RTA's Guide to Traffic Generating Developments*. However the proposed use of the site is not considered to be covered within the guide and a 'first principles' assessment of traffic generation based on attendees, vehicle occupancy, agistment operations and advice supplied by the proponent is more relevant and used in this assessment:

The Equestrian centre, during its normal weekday agistment operations, has sufficient parking available adjacent to the stable (see **Photographs 8 and 9** below). Therefore the main period for assessment is the normal weekday and weekend training period; and

**The normal weekend** activities which would include training / practice; adjustment and small events attracting local participants is estimated to cater for up to a maximum of 50 horses / participants over a normal weekday / weekend period. Participants for these activities will be local people living in the Maitland and Newcastle surrounds who would float their horses to the site on the day or agist them at the property.

For the purpose of this assessment it is assumed that there will be 50 arrivals and departures each Saturday and Sunday and they will arrive equally from each direction from Raymond Terrace Road. This would be considered a worst case scenario in terms of the traffic impacts of the site usage.

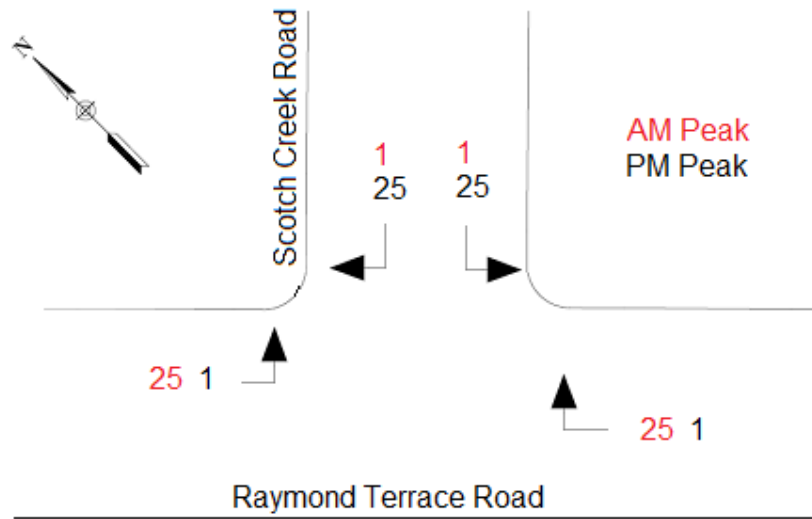


*Photograph 8 – Existing Stables*



**Photograph 9 – Hardstand and grass parking area adjacent to the Stable**

**Figure 2** below shows the proposed development traffic movements during arrival and departure periods from Raymond Terrace Road at the Scotch Creek Road intersection for the normal training periods based on the traffic generation and trip distribution assumptions adopted in this assessment.



**Figure 2 - Trip Distribution – Training**

## 10. PEAK PARKING DEMAND

*Part C Design Guidelines Appendix A Car Parking Requirements for Specific Land Uses in Maitland City Council DCP 2011* sets out the off-street parking requirements for new developments and additions in the Maitland City Council area.

There are no relevant rates for equestrian centres within the DCP therefore an equivalent rate is considered. In terms of the operation and peak parking demand the use of the equestrian ring would equate to the use of 1 vehicle per participant. Therefore the relevant rates contained within the Maitland City Council DCP for use would be as follows:

- ◆ *1 space per participant in training.*

Based on the attendee numbers provided by the applicant the car parking requirements would be;

- ◆ Scotch Creek Road access = 50 participant car parks.

There is sufficient hardstand and grassed areas already available to cater for this parking demand from the Scotch Creek Road entry. Further detail may be required at Construction Certificate stage however given the size of the property Council should be comfortable conditioning this on the consent rather than requiring the applicant to provide more detail and cost prior to approval.

# 11. TRAFFIC IMPACT ASSESSMENT

## 11.1 Road Network Capacity

**Section 5** of this assessment has determined that the existing road network along Scotch Creek Road during the AM & PM peak hour would carry 11 vph in 2032 and Raymond Terrace Road during the AM & PM peak hour would carry up to 1,715 vph in 2032. **Section 6** of this report determined that the likely mid-block two-way capacity of each road is in the order of 1,395 vph, with an environmental capacity of 300 vph, for Scotch Creek Road and 2,250 vph on Raymond Terrace Road therefore the road network is currently operating within its technical capacity and with satisfactory levels of service (LoS).

**Section 9** of this report determined that the proposed development would only generate a maximum of 50 vph during the AM and PM peak traffic periods at the Raymond Terrace Road/Scotch Creek Road intersection. Even the addition of this additional traffic onto each road would not result in either the technical two-way mid-block capacity or the environmental capacity of the local and state road network to be reached even through to 2032.

The road network capacity surrounding the development site is therefore sufficient to cater for the requirements of the proposed development without experiencing delay and no upgrading of the road network is required.

## 11.2 Intersection Capacity

The main intersection impacted by the development is the Raymond Terrace Road / Scotch Creek Road intersection which is currently a 'Give Way' controlled 'T' intersections.

The intersection was observed to operate under uninterrupted flow conditions during peak periods and this would not be expected to change significantly with the additional traffic loading generated by the proposed development. To demonstrate the intersection was modelled using the Sidra intersection modelling program. This software package predicts likely delays, queue lengths and thus LoS that will occur at intersections. Assessment is then based on the LoS requirements of TfNSW shown below (Table 4.2 of the Guide to Traffic Generating Developments).

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

Source: - RTA Guide to Traffic Generating Developments (2002)

In undertaking this modelling, the following assumptions were made:

- ◆ The intersection would remain a Give Way 'T' intersections;
- ◆ A background traffic growth rate of 2% per annum;



- ◆ 2019 and 2032 post development models were established;
- ◆ Trip distribution for development traffic at these intersections were as per **Figure 2**; and
- ◆ All traffic associated with the development will arrive and depart in the same peak hour with the likely peak use of the development occurring on weekends.

The results of the Sidra modelling for the *All Vehicles* case with the worst movement LoS is shown in **Table 3** below while the Sidra Movement Summary Tables are provided in **Attachment C**.

**Table 3 – Sidra Results – All Vehicles – Raymond Terrace Road intersections**

Scenario	Deg. Satn. (v/c)	Worst LoS	Worst Delay (seconds)	95 % Back of Queue Length (veh)
2019 AM Raymond Terrace Rd / Scotch Creek Rd weekend	0.084	A	7.2	0
2019 AM + development Raymond Terrace Rd / Scotch Creek Rd weekend	0.102	A	7.4	0.2
2032 AM + development Raymond Terrace Rd / Scotch Creek Rd weekend	0.127	A	7.6	0.2

The Sidra modelling shows:

- ◆ That the intersection continues to operate satisfactorily post development with all delays, LoS and back of queue lengths being within the acceptable operation criteria set by TfNSW;

From this information it is reasonable to conclude that the development will not have an adverse impact on the operation of the Raymond Terrace Road / Scotch Creek Road intersection.

### 11.3 Site Access

This section determines the required site access in accordance with Australian Standard *AS2890.1-2004 Parking facilities - Off-street car parking*:

Post development the site access will service approximately 50 car spaces. Under Table 3.1 of Australian Standard AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking a car park with up to 25 to 100 car parking spaces accessed via a local road providing long term parking, Class 1, is required to have a Category 1 access facility. A Category 1 access facility is a combined entry / exit driveway between 3.0 metres and 5.5 metres wide. The existing access off Scotch Creek Road already complies with this requirement. The largest vehicle entering the site will be a rigid truck for the transport of horses and the existing access is already capable of handling this size of vehicle.

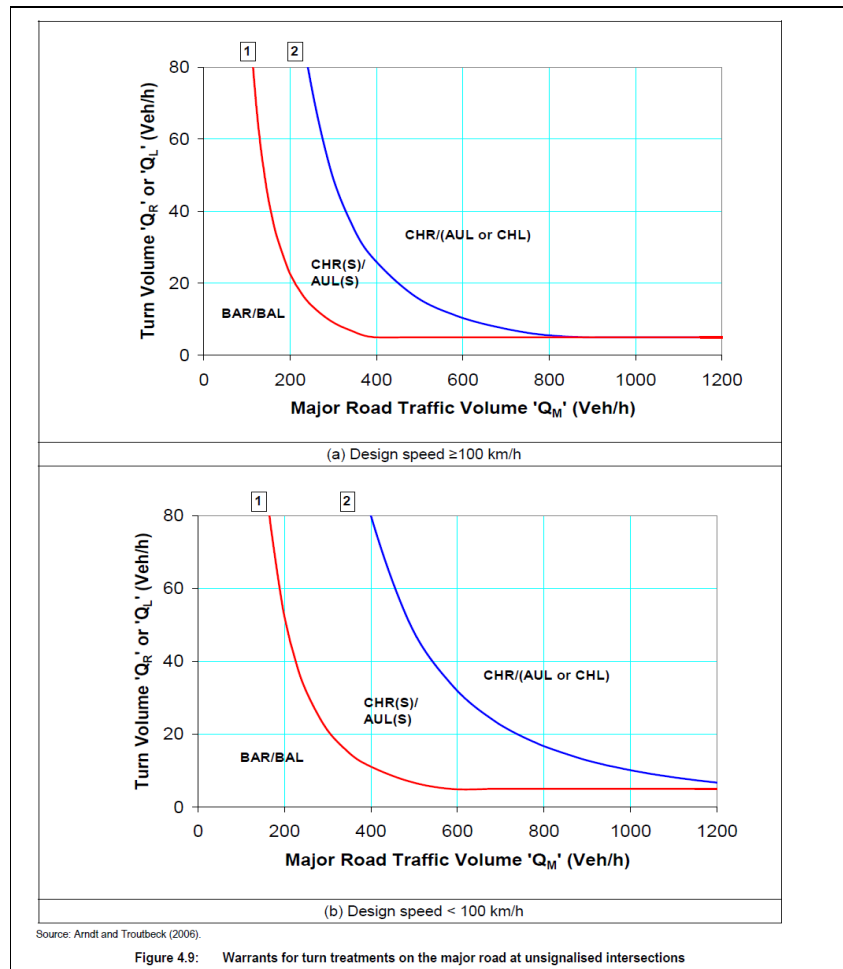
Therefore it is concluded that the existing access off Scotch Creek Road is suitable for the development.

### 11.4 Sight Distance

The site access off Scotch Creek Road, as a private access should be required to provide minimum sight distance as per *Figure 3.2 Sight Distance Requirements at Access Driveways of Australian Standard AS2890.1-2004 Parking facilities – Part 1 Off-street car parking*. An 80 km/h speed zoning would apply to Scotch Creek Road requiring a minimum SSD of 105 metres. By observation at the site the minimum available sight distance is compliant. This access is therefore considered suitable for the likely speed environment at the access and low traffic volumes on Scotch Creek Road.

### 11.5 Turn Lane Warrants

Warrants for turning lanes at the rural intersections (or main entry locations) are contained within Figure 4.9 of *Austrroads Guide to Road Design (2010) Part 4A – Signalised and Unsignalised intersections* which is reproduced below.



Source: - *Austrroads Guide to Road Design (2010) Part 4A – Signalised and Unsignalised intersections*

Scotch Creek Road - for the site accesses using diagram (b) above for speeds  $< 100$  km/h and with a major road flow of approximately 50 vph turning right into the property, as well as 10 vehicles passing the property a BAR / BAL intersection is considered satisfactory therefore a simple rural site access in accordance with Maitland City Council requirements is assessed as suitable.

### 11.6 On-site Parking

On-site parking in the parking area accessed from Scotch Creek Road will be mostly for regular users of the facility and there is already ample hard stand area and grassed area to cater for on-site parking compliant with AS2890.1-2004.

### 11.6 Alternative Transport Modes

This development will not generate any significant additional public transport demand or pedestrian / cycleway traffic therefore there is no nexus for the provision of additional services or public transport infrastructure, cycleways and footpaths to the site or near the site.

## 12. CONCLUSIONS

This traffic and parking assessment for the use of an existing equestrian ring as an equestrian training centre on Lot 144 in DP 882115 – 240 Scotch Creek Road, Millers Forest has concluded the following:

- ◆ As existing traffic volumes on the surrounding road network are less than the two-way mid-block capacity (technical and environmental) of the local road network there is spare capacity within the local road network to cater for additional development traffic;
- ◆ The proposed development would generate up to 50 vph during the normal peak operating period for training and would occur on weekends;
- ◆ Post development the road network from 2019 to 2032 will not reach its technical or environmental two-way mid-block capacity as a result of this development and it is reasonable to conclude the development will not adversely impact on the two-way mid-block capacity of Scotch Creek Road or Raymond Terrace Road;
- ◆ The Raymond Terrace Road / Scotch Creek Road intersection adjacent to the development was observed to operate under uninterrupted flow conditions, therefore the development would not adversely impact on the operation of the intersections;
- ◆ Sidra modelling of the Raymond Terrace Road / Scotch Creek Road intersection during likely peak development traffic periods demonstrated the proposed development would not adversely impact on the efficiency and effectiveness of the local and state road network.
- ◆ There is sufficient area on site to cater for the likely off-street parking demand generated by the development with the existing hardstand areas catering for the frequent everyday traffic generated by the development (up to 50 vehicles);
- ◆ The development will not generate any demand for public transport services; therefore no additional public transport infrastructure will be needed as a result of the development; and
- ◆ The development will not generate any significant additional pedestrian or cycleway traffic therefore there is no nexus for the provision of cycleways or footpaths to the site or near the site.

## 13. RECOMMENDATION

Having carried out this traffic and parking assessment for the use of an existing equestrian ring as an equestrian training centre on Lot 144 in DP 882115 – 240 Scotch Creek Road, Millers Forest it is recommended that the proposal can be supported from a traffic impact perspective as the surrounding road network has sufficient capacity to cater for the additional demand generated by the development and the development would comply with all relevant Maitland City Council, Australian Standards and NSW Roads and Maritime Services requirements in regard to traffic and parking impacts.



**JR Garry BE (Civil), Masters of Traffic**  
**Director**  
**Intersect Traffic Pty Ltd**

# APPENDIX 1

## DEVELOPMENT PLANS

**Elite Equestrian Pty Ltd**

**Red** – Small Event and Agistment Parking. Gravel and grassed areas.

New double gated entry and exit points & fence line off Martin's Wharf Road, 30m x 30m gravel area off Martin's Wharf Road to allow free flow of traffic and 10kph once on property, signs to be installed.

**Blue** – Medium to large events and new entry 30m entry and exit double gates to be installed.

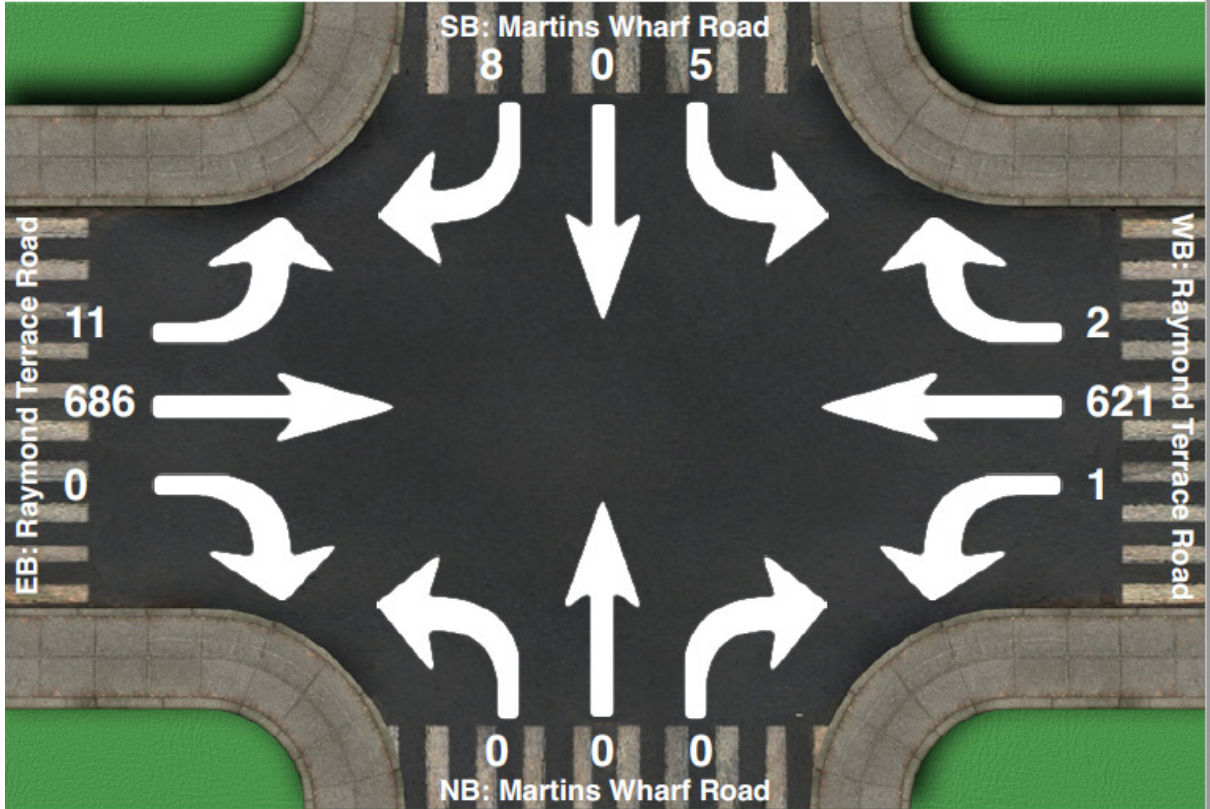


# APPENDIX 2

## TRAFFIC DATA

## Intersection Peak Hour

**Location:** Martins Wharf Road at Raymond Terrace Road, Millers Forest  
**GPS Coordinates:** Lat=-32.769989, Lon=151.585174  
**Date:** 2019-10-18  
**Day of week:** Friday  
**Weather:** Sunny  
**Analyst:** Dale



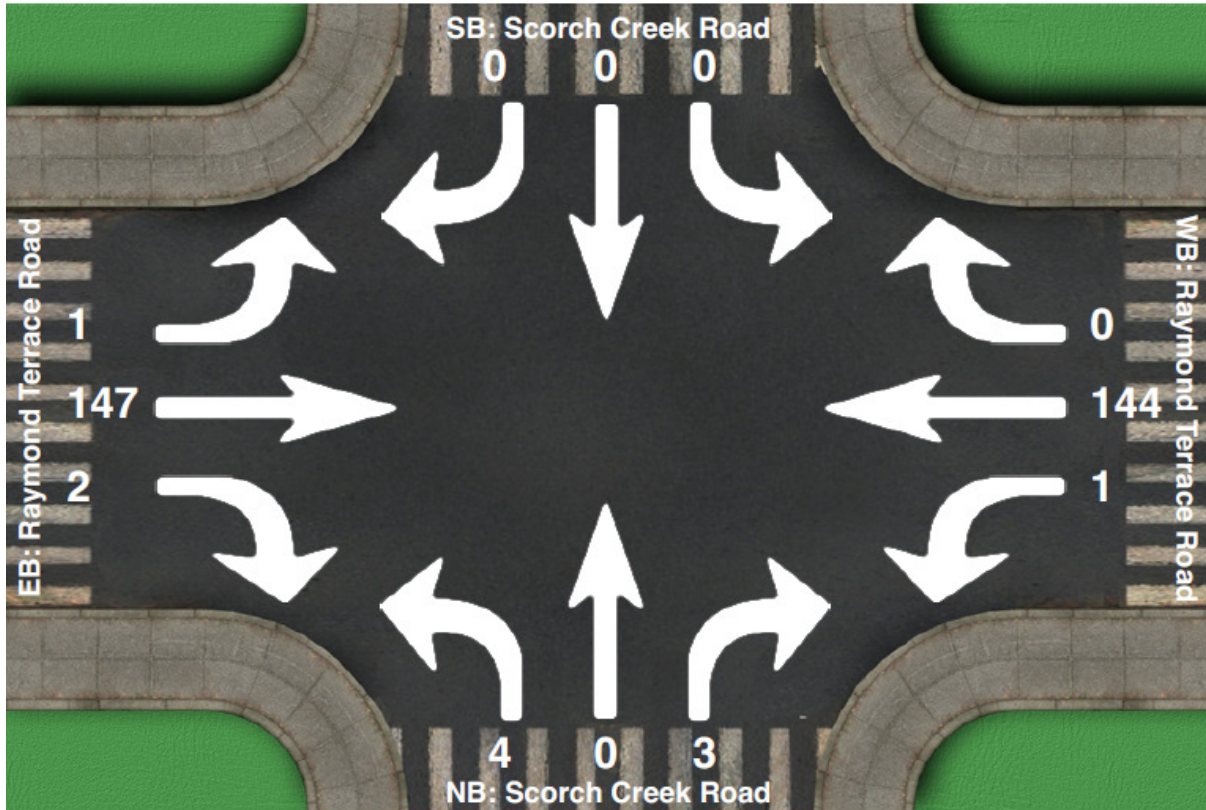
### Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	5	0	8	1	621	2	0	0	0	11	686	0	1334
Factor	0.42	0.00	0.50	0.25	0.80	0.25	0.00	0.00	0.00	0.69	0.99	0.00	0.90
Approach Factor	0.46			0.80			0.00			0.99			

**Location:** Scorch Creek Road at Raymond Terrace Road, Millers Forest  
**GPS Coordinates:** Lat=-32.769962, Lon=151.585222  
**Date:** 2019-10-20  
**Day of week:** Sunday  
**Weather:** Sunny  
**Analyst:** Dale

**Location:** Scorch Creek Road at Raymond Terrace Road, Millers Forest  
**GPS Coordinates:** Lat=-32.769962, Lon=151.585222  
**Date:** 2019-10-20  
**Day of week:** Sunday  
**Weather:** Sunny  
**Analyst:** Dale





# APPENDIX 3

## SIDRA MOVEMENT SUMMARY TABLES

## MOVEMENT SUMMARY

### Site: 101 [Scotch Creek Road 2019 AM]

Raymond Terrace Rd / Scotch Creek Road T  
weekend AM  
Site Category: (None)  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		Total veh/h	HV %	v/c	sec		veh	m				km/h	
East: Raymond Terrace Road													
5	T1	156	5.0	0.084	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	79.8	
6	R2	2	5.0	0.084	7.2	LOS A	0.0	0.1	0.01	0.01	0.01	71.6	
Approach		158	5.0	0.084	0.1	NA	0.0	0.1	0.01	0.01	0.01	79.6	
North: Scotch Creek Road													
7	L2	4	5.0	0.006	6.0	LOS A	0.0	0.2	0.26	0.55	0.26	52.7	
9	R2	3	5.0	0.006	6.7	LOS A	0.0	0.2	0.26	0.55	0.26	52.1	
Approach		7	5.0	0.006	6.3	LOS A	0.0	0.2	0.26	0.55	0.26	52.4	
West: Raymond Terrace Road													
10	L2	1	5.0	0.081	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	58.1	
11	T1	152	5.0	0.081	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9	
Approach		153	5.0	0.081	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9	
All Vehicles		318	5.0	0.084	0.2	NA	0.0	0.2	0.01	0.02	0.01	68.1	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▽ Site: 101 [Scotch Creek Road 2019 AM + dev]

Raymond Terrace Rd / Scotch Creek Road T  
weekend AM  
Site Category: (None)  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Raymond Terrace Road												
5	T1	156	5.0	0.102	0.1	LOS A	0.2	1.5	0.11	0.10	0.11	77.4
6	R2	28	5.0	0.102	7.4	LOS A	0.2	1.5	0.11	0.10	0.11	69.7
Approach		184	5.0	0.102	1.3	NA	0.2	1.5	0.11	0.10	0.11	76.1
North: Scotch Creek Road												
7	L2	5	5.0	0.008	6.0	LOS A	0.0	0.2	0.27	0.56	0.27	52.6
9	R2	4	5.0	0.008	6.9	LOS A	0.0	0.2	0.27	0.56	0.27	52.1
Approach		9	5.0	0.008	6.4	LOS A	0.0	0.2	0.27	0.56	0.27	52.4
West: Raymond Terrace Road												
10	L2	28	5.0	0.096	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	57.3
11	T1	152	5.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	59.1
Approach		180	5.0	0.096	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.8
All Vehicles		374	5.0	0.102	1.2	NA	0.2	1.5	0.06	0.11	0.06	66.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▽ Site: 101 [Scotch Creek Road 2032 AM + dev]

Raymond Terrace Rd / Scotch Creek Road T  
weekend AM

Site Category: (None)

Giveaway / Yield (Two-Way)

Design Life Analysis (Practical Capacity): Results for 3 years

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m			km/h	
East: Raymond Terrace Road												
5	T1	199	5.0	0.127	0.2	LOS A	0.2	1.7	0.11	0.09	0.11	77.6
6	R2	30	5.0	0.127	7.6	LOS A	0.2	1.7	0.11	0.09	0.11	69.9
Approach		229	5.0	0.127	1.1	NA	0.2	1.7	0.11	0.09	0.11	76.5
North: Scotch Creek Road												
7	L2	7	5.0	0.012	6.2	LOS A	0.0	0.3	0.31	0.58	0.31	52.5
9	R2	6	5.0	0.012	7.3	LOS A	0.0	0.3	0.31	0.58	0.31	52.0
Approach		12	5.0	0.012	6.7	LOS A	0.0	0.3	0.31	0.58	0.31	52.3
West: Raymond Terrace Road												
10	L2	30	5.0	0.119	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	57.4
11	T1	193	5.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.2
Approach		223	5.0	0.119	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		465	5.0	0.127	1.1	NA	0.2	1.7	0.06	0.10	0.06	66.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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