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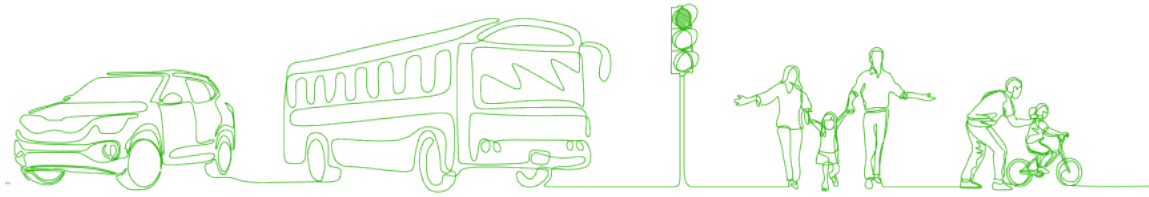
Traffic Impact Assessment

476 Macleay Valley Way, South Kempsey NSW 2440

July 2024, Issue 1



Type of Report: Traffic Impact Assessment

Site Location: 476 Macleay Valley Way, South Kempsey NSW 2440

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Prepared by: Fernway Engineering Pty Ltd

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Document Control

Version	Author	Qualifications	Release Date
1.0	Dr. Supun Perera (Principal Transportation Engineer)	BE (Hons), MS, PhD, NER (EA ID: 4787402)	26th July 2024

Disclaimer

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1. Introduction

Fernway Engineering has been engaged by David Griffin to provide a Traffic Impact Assessment in relation to the proposed industrial subdivision development at 476 Macleay Valley Way in South Kempsey ('subject site').

This report is structured as follows:

- **Section 2** Describes the existing transport conditions in the site locality and provides an overview of the proposed development;
- **Section 3** Provides an estimate of the additional traffic volumes likely to be generated by the proposal;
- **Section 4** Outlines the details of the required turn treatments for the proposed new intersection off Macleay Valley Way;
- **Section 5** Reviews the layouts of the proposed access treatments, including swept path tests of the design vehicle;
- **Section 6** Provides the summary and conclusions of the study.

2. Background

The subject site is located at 476 Macleay Valley Way in South Kempsey. It is a land that includes approx. 7.5 ha of land area and is located approximately 4.7 km south of Kempsey. The subject site is zoned part RU2 (Rural Landscape) and park E4 (General Industrial), under Kempsey Local Environmental Plan 2013. The land on the opposite side of Macleay Valley Way is zoned E3 (Productivity Support).

At the site frontage, Macleay Valley Way has a ~11 m wide sealed carriageway that provides one travel lane in each direction (each travel lane is approx. 3.5 m wide with a minimum 2m wide shoulder). A speed limit of 80 km/h applies to all traffic on Macleay Valley Way, at the site frontage. The site currently has one vehicular access point off Macleay Valley Way.

Figure 1 illustrates the location of the subject site in an aerial view.
Figure 2 shows the local zoning map for the site and surrounds.
Figure 3 shows the street view of Macleay Valley Way at the site frontage.

The crash history for the section of Macleay Valley Way at the site frontage was investigated using the crash data made available on the TfNSW's Centre for Road Safety website which provides 5-year crash data for the period between 2016 to 2020. **Figure 4** shows the crash map for the site locality. As can be seen from this map, there doesn't appear to be any history of crashes for this section of Macleay Valley Way.

Figure 1: Location of the subject site

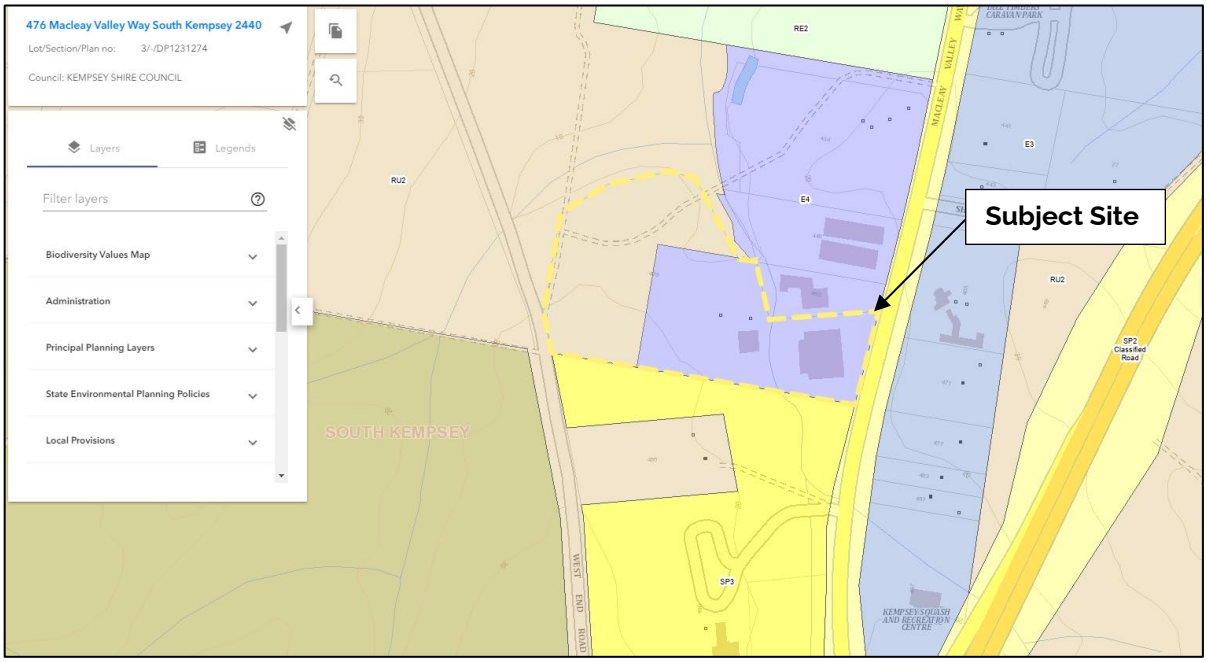


Figure 2: Local zoning map

Figure 3: Macleay Valley Way at the site frontage

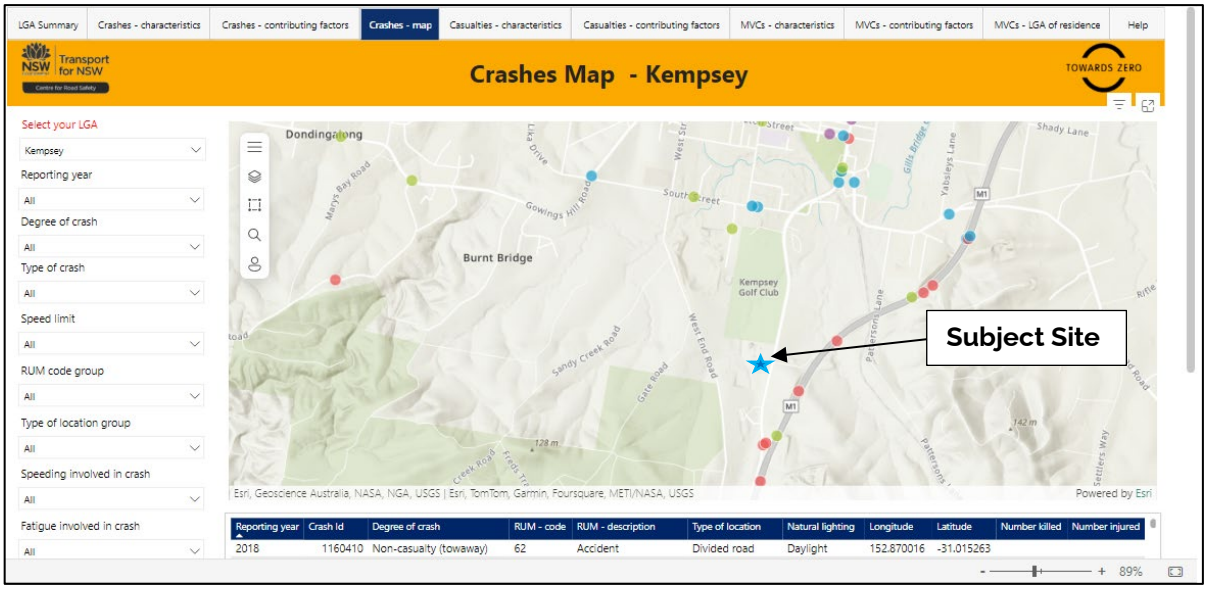


Figure 4: Local crash map

2.1 Proposed Development

The current proposal seeks to subdivide the subject site to provide 4 future industrial use lots and an access easement that connects with Macleay Valley Way along the existing vehicular driveway at the site. The proposed lot and easement layout plan for the subject site is shown in **Figure 5**.

The proposed areas allocated for each lot are:

- Lot 1 – 3.558 ha
- Lot 2 – 1.023 ha
- Lot 3 – 1.177 ha
- Lot 4 – 1.181 ha
- Total lot areas = 6.939 ha

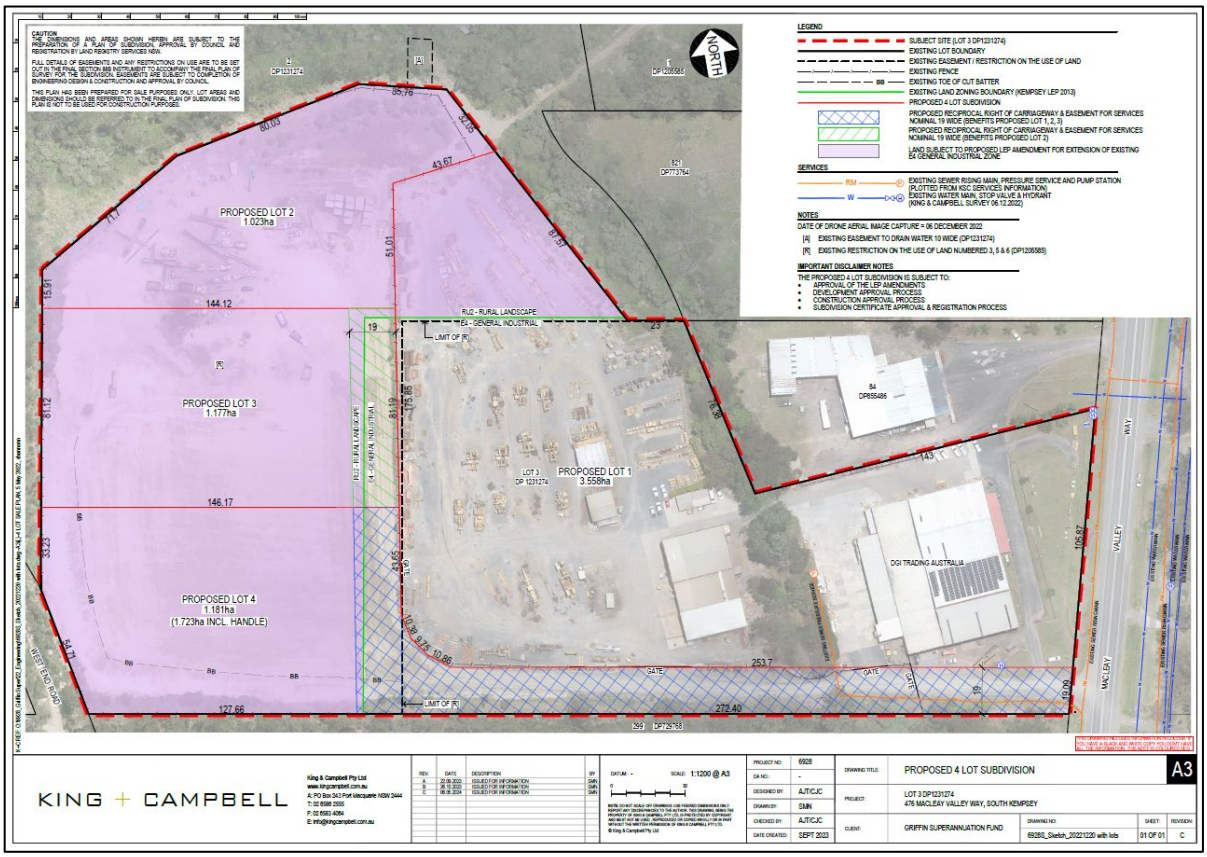


Figure 5: Proposed subdivision layout plan

3. Traffic Impact

3.1 Traffic Generation

Given the current application is only for a subdivision of the site and the ultimate specific land use types or the floor areas for each lot are unavailable at this stage, use of the overall site land area is the most appropriate way to holistically forecast the trip generation potential of this proposal.

In particular, the traffic generation potential of the proposed development was forecast with the trip rates from the Guide to Traffic Generating Developments – Updated traffic surveys (TDT 2013/04a, Transport for NSW). It provides trip rate observations for business parks and industrial estates (the relevant section is extracted in **Appendix A**).

The above Guide provides site-level trip survey data for business parks and industrial estates. For forecasting the trip generation potential of the proposal, the survey results from the Johnson Street Business Park, Dubbo (Site 11) were used.

This was due to the size of this site being generally smaller than the rest of the sample sites (this site is 6.3 ha) and comparable to the proposed development site which has a total land area of 6.939 ha across 4 future lots.

Based on the survey results for the sample site, a peak hour vehicle trip rate of 18.4 trips/ha can be adopted in this instance. On this basis, the proposed site with a total land area of 6.939 ha is expected to generate some 128 trips during the peak hour period. The peak hour period, based on the sample site, is expected to be between 3-4pm on weekdays.

3.2 Traffic Distribution

The above-determined peak hour vehicle trips will likely have a distribution of 50%/50% into and out of the site (as is the case for similar industrial sites). Therefore, there are expected to be 64 entry trips and 64 exit trips during the peak hour. These trips can be assumed to have an 80%/20% split in north and south directions (biased towards north

due to the proximity of Kempsey to the site). As such, the following directional traffic distribution (**Table 1**) can be expected during the peak hour.

Table 1: Directional distribution of additional traffic generated by the proposal

		Peak hour (3-4pm)
From	**North**	51
	South	13
To	**North**	51
	South	13

4. Turn Treatments

The turn treatment requirements for the proposed intersection of the new cul-de-sac road and Macleay Valley Way have been determined with reference to the following Austroads Guides:

- Austroads Guide to Traffic Management Part 6 (Intersections, Interchanges and Crossings Management, 2020)
- Austroads Guide to Road Design Part 4A (Unsignalised and Signalised Intersections).

The Part 6 Guide provides the following warrants (**Figure 6**) for turn treatments on major roads at unsignalized intersections.

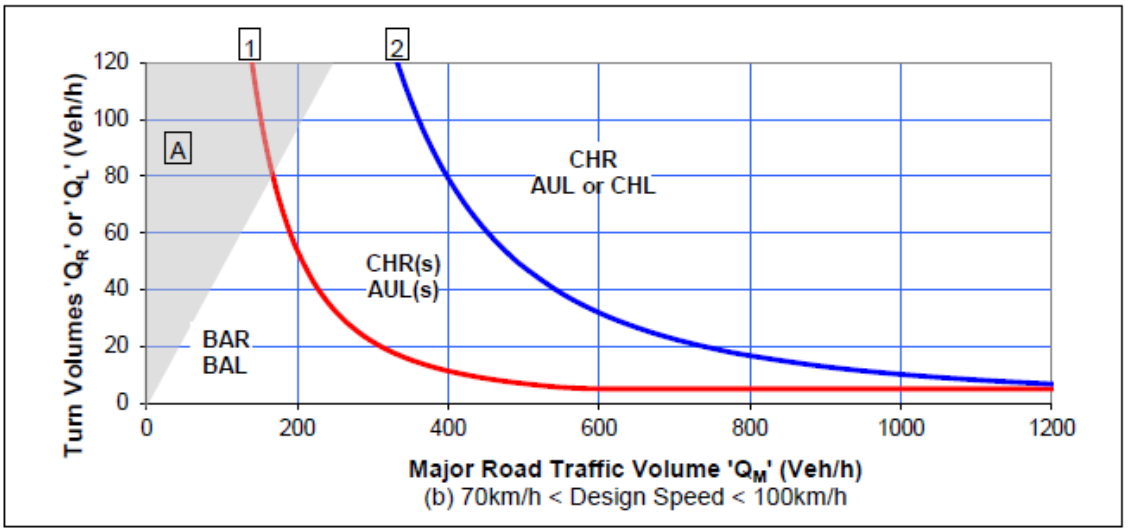


Figure 6: Turn treatment warrants

Based on the posted speed limit of 80 km/h on Macleay Valley Way, a design speed of 90 km/h can be adopted for the major road traffic in the above figure.

To determine the traffic volumes, the TfNSW Traffic Volume Viewer was used. A permanent classifier (Station Id: 6124) is located on Macleay Valley Way approx. 1.1 km north of the subject site (as shown in **Figure 7**). This classifier provides average vehicle

traffic volume data for the year 2024, for each direction on Macleay Valley Way on weekdays between 3-4pm. These results are shown in **Figure 8**.

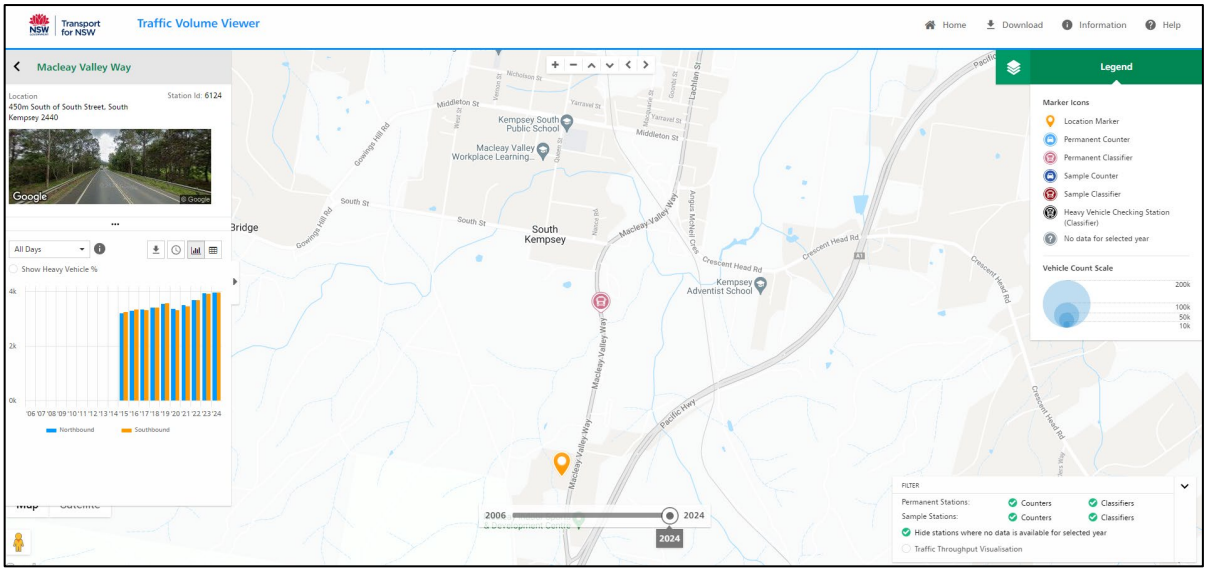


Figure 7: Location of the permanent traffic classifier

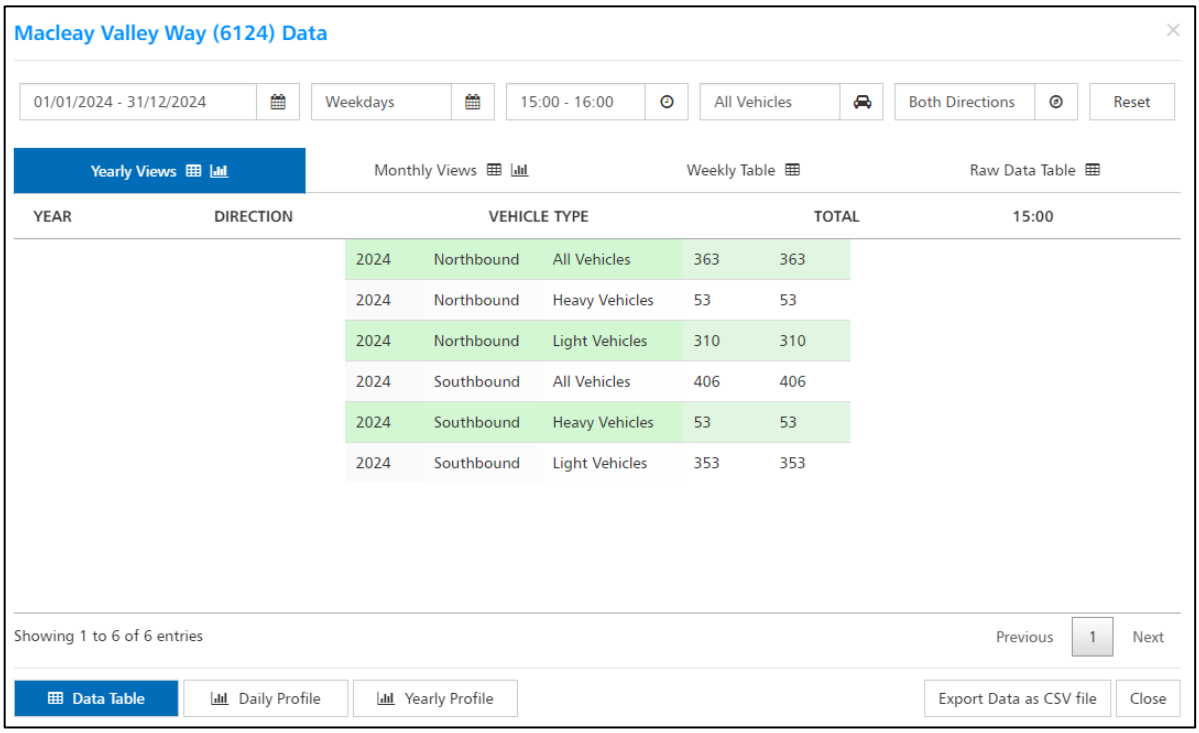


Figure 8: Traffic volumes on Macleay Valley Way within the site locality

Based on the above information and the forecast peak hour traffic generation volumes for the proposed development, the following flow values have been calculated (see **Figure 9**).

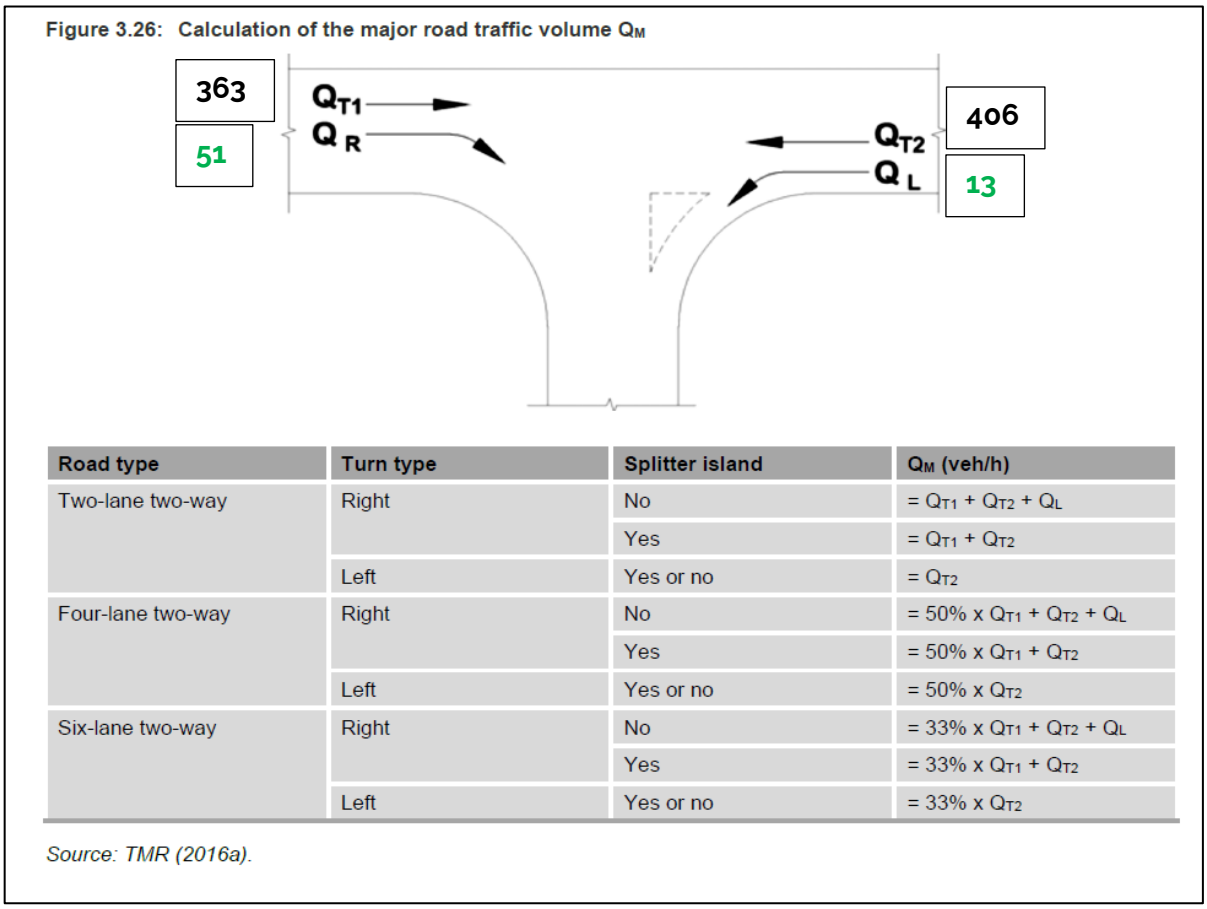


Figure 3.26: Calculation of the major road traffic volume Q_M

Road type	Turn type	Splitter island	Q_M (veh/h)
Two-lane two-way	Right	No	= Q_{T1} + Q_{T2} + Q_L
		Yes	= Q_{T1} + Q_{T2}
	Left	Yes or no	= Q_{T2}
Four-lane two-way	Right	No	= 50% x Q_{T1} + Q_{T2} + Q_L
		Yes	= 50% x Q_{T1} + Q_{T2}
	Left	Yes or no	= 50% x Q_{T2}
Six-lane two-way	Right	No	= 33% x Q_{T1} + Q_{T2} + Q_L
		Yes	= 33% x Q_{T1} + Q_{T2}
	Left	Yes or no	= 33% x Q_{T2}

Source: TMR (2016a).

Figure 9: Traffic volumes forecast on Macleay Valley Way with the proposed development

Based on the above, the following left/right Q_M, Q_R, and Q_L values can be derived:

- Q_R = 51 veh / h
- Q_L = 13 veh / h
- Right Q_M = 782 veh/h
- Left Q_M = 406 veh/h

The turn treatment requirements based on the above traffic volumes are shown in **Figure 10**.

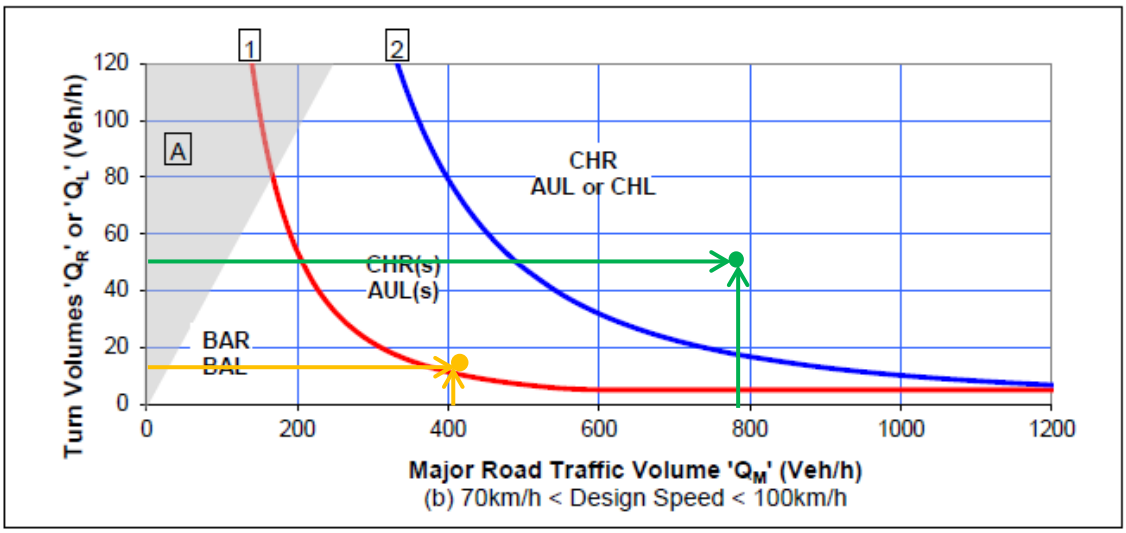
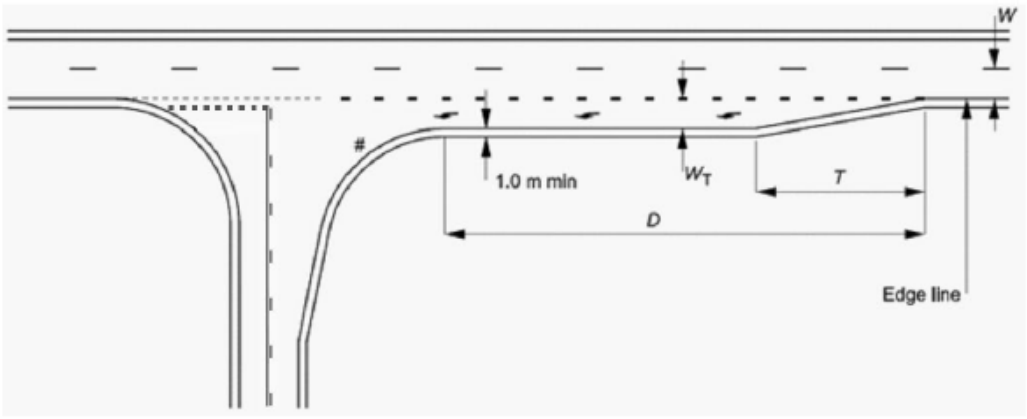


Figure 10: Turn treatment requirements

As per **Figure 10**, the proposed intersection with Macleay Valley Way would be required to have the following turn treatments:

- An AUL(S) - Rural Auxiliary Left-turn Treatment – Short Turn Lane AUL(S) on the Major Road (see **Figure 11**)
- A CHR – a Rural Channelised Right-turn Treatment CHR (see **Figure 12**)

Figure 8.3: Rural AUL(S) treatment with a short left-turn lane



Notes:

- *# For setting out details of the left-turn geometry, use vehicle turning path templates and/or Table 8.2.*
- *Approaches to left-turn slip lanes can create hazardous situations between cyclists and left-turning motor vehicles. Treatments to reduce the number of potential conflicts at left-turn slip lanes are given in AGRD Part 4.*
- *The holding line is typically placed in prolongation of the kerb line or edge line, however, it may be set back if there is a problem with the design vehicle over-running the holding line, or if it is desired to hold vehicles back some distance from the intersecting roadway (AS 1742.2 - 2009). The setback needs to be balanced such that sight distance is not negatively impacted to create a safety issue and the needs of pedestrians is met.*
- *The dimensions of the treatment are defined as follows. Values of D and T are provided in Table 8.2.*

  W = Nominal through lane width (m) (including widening for curves). For a new intersection on an existing road, the width is to be in accordance with the current link strategy.

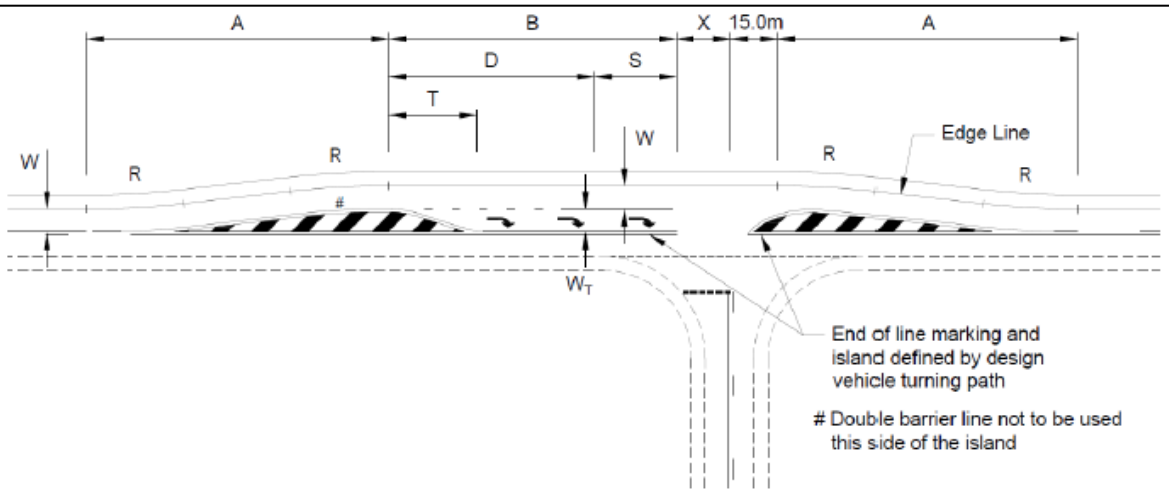
  W_T = Nominal width of the turn lane (m), including widening for curves based on the design turning vehicle = 3.0 m minimum.

  T = Physical taper length (m) given by Equation 5 being: $T = \frac{0.33VW_T}{3.6}$

  V = Design speed of major road approach (km/h).

Source: Department of Main Roads (2006).

Figure 11: Austroads Guide template for a Rural Auxiliary Left-turn Treatment



Notes:
An alternative to the double white line on the offside edge of the right-turn slot is a 1.0 m painted median. The 1.0 m median is particularly useful when the major road is on a tight horizontal curve and oncoming vehicles track across the centreline. Provision of this median will require the dimension 'A' to be increased.
A raised concrete median on the minor road may be used with this treatment to minimise 'corner cutting', particularly for higher turning volumes.
The holding line is typically placed in prolongation of the kerb line or edge line, however, it may be set back if there is a problem with the design vehicle over-running the holding line, or if it is desired to hold vehicles back some distance from the intersecting roadway (AS 1742.2 - 2009). The setback needs to be balanced such that sight distance is not negatively impacted to create a safety issue and the needs of pedestrians is met.
The dimensions of the treatment are defined below and values of A and R are shown in Table 7.2:

- W = *Nominal through lane width (m) (including widening for curves). For a new intersection on an existing road, the width is to be in accordance with the current link strategy*
- W_T = *Nominal width of turn lane (m), including widening for curves based on the design turning vehicle. Desirable minimum = W, absolute minimum = 3.0 m*
- B = *Total length of auxiliary lane including taper, diverge/deceleration and storage (m)*
- D = *Diverge/deceleration length including taper. Adjust for grade using the 'correction to grade' factor (Section 5)*
- T = *Physical taper length (m) and is given by:*

$$T = \frac{0.33VW_T}{3.6}$$

- S = *Storage length (m) should be the greater of:*
  1. *the length of one design turning vehicle or*
  2. *(calculated car spaces – 1) x 8 m (AGTM Part 3 (Austroads 2017), or use computer program e.g. aaSIDRA)*
- V = *Design speed of major road approach (km/h)*
- X = *Distance based on design vehicle turning path, typically 10–15 m*

Source: Based on Department of Main Roads (2006).

Figure 12: Austroads Guide template for a Rural Channelised Right-turn Treatment

Table 2 outlines the dimensions adopted in each turn treatment design and their justifications. **Appendix A** shows the proposed concept designs for each turn treatment.

Table 2: Key dimensions used in turn treatment design

Dimension		Measurement (m)	Description
Left-turn Treatment	D	55 m	From Table 8.2 of the Guide, based on a design speed of 90 km/h for Macleay Valley Way
	T	25 m	
	W	3.5 m	Width of the existing adjacent through lane on Macleay Valley Way
	WT	3.5 m	Width of the proposed left turn lane (typical)
Right-turn Treatment	W	3.5 m	Width of the existing adjacent through lane on Macleay Valley Way
	E	45 m	2 * A/WT
	WT	3.5 m	Width of the proposed right turn bay (typical)
	A	80 m	From Table 7.1 of the Guide, based on a design speed of 90 km/h for Macleay Valley Way
	D	55 m	
	R	350 m	
	T	25 m	
	S	26 m	26 m B- double as the design vehicle (storage length taken as the design vehicle length)
	B	81 m	D+S=81 m
	X	15 m	15 m based on the design vehicle swept path

5. Access Design Review

The proposed intersection of the vehicle access easement with Macleay Valley Way will be facilitated through the provision of left and right turn treatments on the Macleay Valley Way carriageway.

Vehicles turning left into the proposed new road can use the 55 m long left turn bay to slow down and turn. Vehicles turning right into the site can use the right turn bay that is 26 m long (to accommodate the 26 m long B-Double design vehicle) to prop into and wait to turn right into the new road. Both these operations will minimise any impacts on the through traffic on Macleay Valley Way from the additional traffic turning into the site.

Appendix C illustrates the turn movements of the design vehicle (a 26 m long B-Double) at the proposed intersection. As can be seen, the required manoeuvres by the design vehicle can be sufficiently accommodated within the proposed design constraints.

6. Conclusions

Based on this traffic impact assessment, the following can be concluded:

- At the site frontage, Macleay Valley Way has a ~11 m wide sealed carriageway that provides one travel lane in each direction (each travel lane is approx. 3.5 m wide with a minimum 2m wide shoulder).
- A speed limit of 80 km/h applies to all traffic on Macleay Valley Way, at the site frontage. There doesn't appear to be any recent history of crashes for this section of Macleay Valley Way.
- The site currently has one vehicular access point off Macleay Valley Way.
- The current proposal seeks to subdivide the subject site to provide 4 future industrial use lots and an access road easement (along the southern boundary of the site) that connects with Macleay Valley Way.
- The traffic generation potential of the proposed development was forecast with sample survey data from a similar business park / industrial estate site from the Guide to Traffic Generating Developments – Updated traffic surveys (TDT 2013/04a, Transport for NSW).
- The proposed site with a total land area of 6.939 ha is expected to generate some 128 trips during the peak hour period. The peak hour period, based on the sample site, is expected to be between 3-4pm on weekdays.
- A TfNSW permanent classifier (Station Id: 6124) is located on Macleay Valley Way approx. 1.1 km north of the subject site. This classifier provides average vehicle traffic volume data for the year 2024, for each direction on Macleay Valley Way on weekdays between 3-4pm.
- Using the above information, based on the Austraods Guide, the proposed intersection with Macleay Valley Way would be required to have the following turn treatments – (1) An AUL(S) - Rural Auxiliary Left-turn Treatment – Short Turn Lane AUL(S) on the Major Road, and (2) A CHR – a Rural Channelised Right-turn Treatment.

- Concept designs for the required left and right turn treatments on Macleay Valley Way at its intersection with the proposed internal road are provided within this report.
- Based on the proposed designs, vehicles turning left into the proposed new road can use the 55 m long left turn bay to slow down and turn. Vehicles turning right into the site can use the right turn bay that is 26 m long (to accommodate the 26 m long B-Double design vehicle) to prop into and wait to turn right into the new road. Both these operations will minimise any impacts on the through traffic on Macleay Valley Way from the additional traffic turning into the site.
- Based on the swept path results presented in this report, the turn movements of the design vehicle (a 26 m long B-Double) can be sufficiently accommodated within the proposed design constraints of the new intersection.

Appendix A: Survey Samples for Trip Rates

APPENDIX E – BUSINESS PARKS AND INDUSTRIAL ESTATES – SITE DETAILS AND TRIP GENERATION

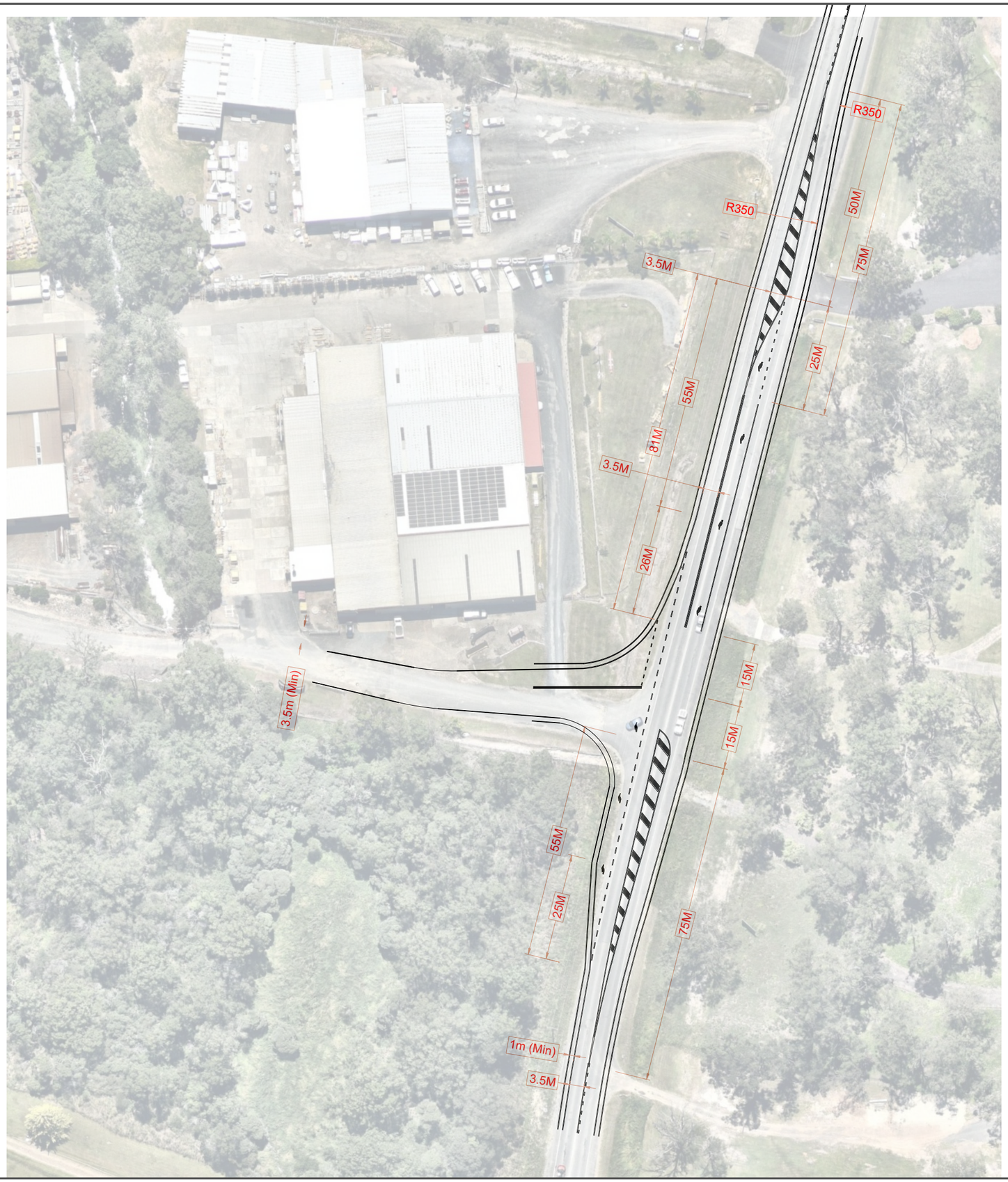
Traffic results summary

	Sydney areas				Non-Sydney areas						
Survey area ID	Site 1 Erskine Park Industrial Estate, Erskine	Site 2 Helensburgh Business Park, Helensburgh	Site 3 Wonderland Business Park, Eastern Creek	Site 4 Riverwood Business Park, Riverwood	Site 5 Tuggerah Business Park, Tuggerah	Site 6 Central Business Park, Albion Park Rail	Site 7 Anambah Business Park, Rutherford	Site 8 Freeway Business Park, Beresfield	Site 9 Shearwater Business Park, Taylors Beach	Site 10 Port Stephens Industrial Estate, Taylors	Site 11 Johnson Street Business Park, Dubbo
Date of survey	29/03/2012	28/03/2012	27/03/2012	28/03/2012	1/05/2012	8/05/2012	2/05/2012	1/05/2012	2/05/2012	2/05/2012	10/05/2012
Day of survey	Thursday	Wednesday	Tuesday	Wednesday	Tuesday	Tuesday	Wednesday	Tuesday	Wednesday	Wednesday	Thursday
Duration of survey	06:00-19:00	07:00-19:00	07:00-19:00	07:00-19:00	07:00-19:00	07:00-19:00	06:00-19:00	07:00-19:00	08:00-19:00	08:00-19:00	06:00-19:00
Surrounding area characteristics:											
Surrounding landuse (eg residential, commercial, open space, etc)	Commercial	Residential	Residential	Residential	Commercial	Residential	Open space	Commercial	Open space	Open space	Residential
Indicative Public Transport Accessibility Score	2	2	4	8	46	10	0	0.5	0.5	0.5	0
Principal adjacent road- AM peak period (weekday)	8.00 to 9.00 am	8.30 to 9.30 am	7.30 to 8.30 am	8.15 to 9.15 am	8.00 to 9.00 am	8.00 to 9.00 am	8.00 to 9.00 am	7.00 to 8.00 am	8.00 to 9.00 am	8.00 to 9.00 am	8.00 to 9.00 am
Principal adjacent road - PM peak period (weekday)	3.30 to 4.30pm	4.30 to 5.30pm	4.15 to 5.15pm	5.00 to 6.00pm	3.00 to 4.00pm	4.00 to 5.00pm	4.00 to 5.00pm	5.00 to 6.00pm	4.00 to 5.00pm	4.00 to 5.00pm	3.00 to 4.00pm
Principal adjacent road – daily peak period (weekday)	1.00 to 2.00 pm	11.00 am to 12.00 pm	12.15 to 1.15 pm	1.15 to 2.15 pm	11.00 am to 12.00 pm	11.00 am to 12.00 pm	2.00 to 3.00 pm	12.00 to 1.00 pm	11.00 am to 12.00 pm	11.00 am to 12.00 pm	10.0 to 11.00 am
Estate characteristics:											
Year opened	2003	2011	2007	2002	2006	2000-2005	2006-2010	2005	2003-2005	2001-2005	Late 1980s
Total site area (hectares)	326.9	0.6	114.6	4.7	52.2	14.6	17.5	32.5	10.3	5.9	6.1
No. of units/lots (including vacant units/lots)	38	21	26	16	229	79	18	58	93	42	14
No. of occupied units/lots	36	13	22	16	184	66	18	52	44	27	14
Predominant business types within estate:											
no. of factories	5	0	0	0	6	0	1	5	0	0	0
no. of factories/warehouses	2	0	0	0	2	0	0	2	0	0	0
no. of warehouses	27	0	20	15	41	13	5	23	5	3	11
no. of offices	1	9	0	1	93	4	3	7	7	1	
no of retailers	0	0	0	0	16	25	1	2	12	6	0
no. of workshops	1	0	0	0	0	9	3	7	8	1	0
no. of manufacturers	0	3	2	0	2	0	0	2	2	10	0
no. of others commercial businesses	0	1	0	0	23	15	5	2	12	5	0
Gross Floor Area in estate m² (occupied)	693,605	1,605	406,600	29,983	136,737	42,899	29,766	89,291	16,022	19,881	14,419
No. of employees	incomplete data from businesses			233	incomplete data from businesses		182		incomplete data from businesses		
Person Trips:											
Peak 1-hour person-trips	1294	29	927	173	1458	519	204	575	285	97	149
Time of peak 1-hour person-trips	14:45-15:45	14:45-15:45	14:00-15:00	08:15-09:15	16:30-17:30	16:15-17:15	15:00-16:00	07:00-08:00	16:15-17:15	15:00-16:00	16:15-17:15
Peak person-trips per business	35.9	2.2	42.1	10.8	8	7.9	11.3	11.1	6.5	3.6	10.6
Peak person-trips per hectare	4	49.4	8.1	37.1	28	35.6	11.6	17.7	27.7	16.5	23.9
Peak person-trips per 100 m² of GFA	0.187	1.807	0.228	0.577	1.066	1.210	0.685	0.644	1.779	0.488	1.033
Peak person-trips per employee	incomplete data from businesses			0.749	incomplete data from businesses		1.121		incomplete data from businesses		
Total daily person-trips	14056	188	9929	1410	12066	4205	2064	6399	2389	975	1316
Total daily person-trips per business	390.4	13.0	451.3	88	65.6	63.7	114.6	123.1	54.3	36.1	94.0
Total daily person-trips per hectare	43.0	287.0	86.6	301.5	231.4	288.7	117.6	197.1	232.0	165.5	208.8
Total daily person-trips per 100 m² of GFA	2.026	10.492	2.442	4.703	8.824	9.802	6.933	7.167	14.910	4.904	9.129
Total daily person-trips per employee	incomplete data from businesses			6.105	incomplete data from businesses		11.339		incomplete data from businesses		
Person-trips during adjacent road AM peak	976	24	789	173	1408	270	123	575	176	93	120
Person-trips during adjacent road PM peak	1073	7	858	94	1060	478	160	396	258	54	136
Vehicle Trips:											
Peak 1-hour vehicle-trips	1128	24	820	139	1256	416	173	504	209	78	110
Time of peak 1-hour vehicle-trips	14:45-15:45	14:45-15:45	08:00-09:00	08:15-09:15	08:00-09:00	16:15-17:15	15:00-16:00	07:15-08:15	16:15-17:15	15:00-16:00	15:00-16:00
Peak vehicle-trips per business	31	1.8	37.3	8.1	6.8	6.3	9.6	9.7	4.8	2.9	8.3
Peak vehicle-trips per hectare	3.5	40.9	7.2	27.6	24.1	28.7	9.9	15.5	20.3	13.2	18.4
Peak vehicle-trips per 100 m² of GFA	0.163	1.495	0.202	0.430	0.919	0.974	0.581	0.564	1.304	0.392	0.805
Peak vehicle-trips per employee	incomplete data from businesses			0.558	incomplete data from businesses		0.951		incomplete data from businesses		
Total daily vehicle-trips	13125	168	9384	1116	10383	4619	1793	5876	1921	751	1249
Total daily vehicle-trips per business	364.6	12.9	426.5	69.75	56.4	70.0	99.6	113.0	43.7	27.8	89.3
Total daily vehicle-trips per hectare	40.1	286.3	81.9	238.6	199.1	317.2	102.2	181.0	186.5	127.5	197.7
Total daily vehicle-trips per 100 m² of GFA	1.892	10.467	2.308	3.722	7.593	10.767	6.024	6.581	11.990	3.777	8.642
Total daily vehicle-trips per employee	incomplete data from businesses			4.83	incomplete data from businesses		9.85		incomplete data from businesses		
Vehicle-trips in adjacent road AM peak (Average)	1165	126	2749	1608	2594	1131	112	1645	670	670	315
Vehicle-trips in adjacent road PM peak (Average)	972	149	2593	1613	2844	1281	150	1789	805	805	341
Vehicle-trips during adjacent road AM peak	929	19	724	129	1256	246	111	495	147	64	108
Vehicle-trips during adjacent road PM peak	965	5	714	89	794	382	127	354	187	42	118
Average vehicle occupancy	1.10	1.10	1.12	1.16	1.17	1.16	1.17	1.17	1.26	1.19	1.19
% of total trips by principal mode:											
% Car (as driver)	82.5%	81.9%	83.2%	68.8%	79.1%	78.5%	70.0%	69.1%	74.3%	71.1%	66.1%
% Car (as passenger)	8.0%	8.3%	8.3%	12.3%	11.2%	13.4%	13.4%	9.6%	19.5%	14.1%	10.9%
% Commercial Vehicles	28.3%	4.2%	25.9%	12.6%	4.9%	6.2%	15.5%	18.3%	4.3%	8.9%	21.8%
% Bus	0.8%	0.0%	2.1%	0.5%	3.2%	0.0%	0.0%	2.2%	0.0%	0.0%	0.2%
% Cycle	0.1%	0.0%	0.3%	0.1%	0.3%	0.8%	0.2%	0.4%	0.8%	1.3%	0.1%
% Motorbike	0.1%	0.0%	0.0%	0.0%	0.3%	0.4%	0.0%	0.3%	0.9%	3.8%	0.2%
% On foot	0.1%	5.6%	0.2%	5.7%	1.1%	0.8%	0.6%	0.0%	0.3%	0.9%	0.4%
% Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.4%

Source: Trip Generation Surveys, Business Parks and Industrial Estates, TEF Consulting, in consultation with Gennaoui Consulting Pty Ltd, for the NSW RMS, December 2012, p5

Appendix B: Concept Turn Treatment Designs

N



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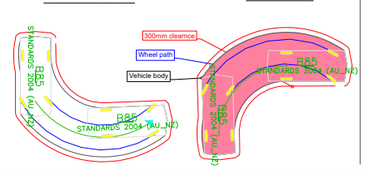


REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

fernway engineering

CLIENT:
Momaca Investments

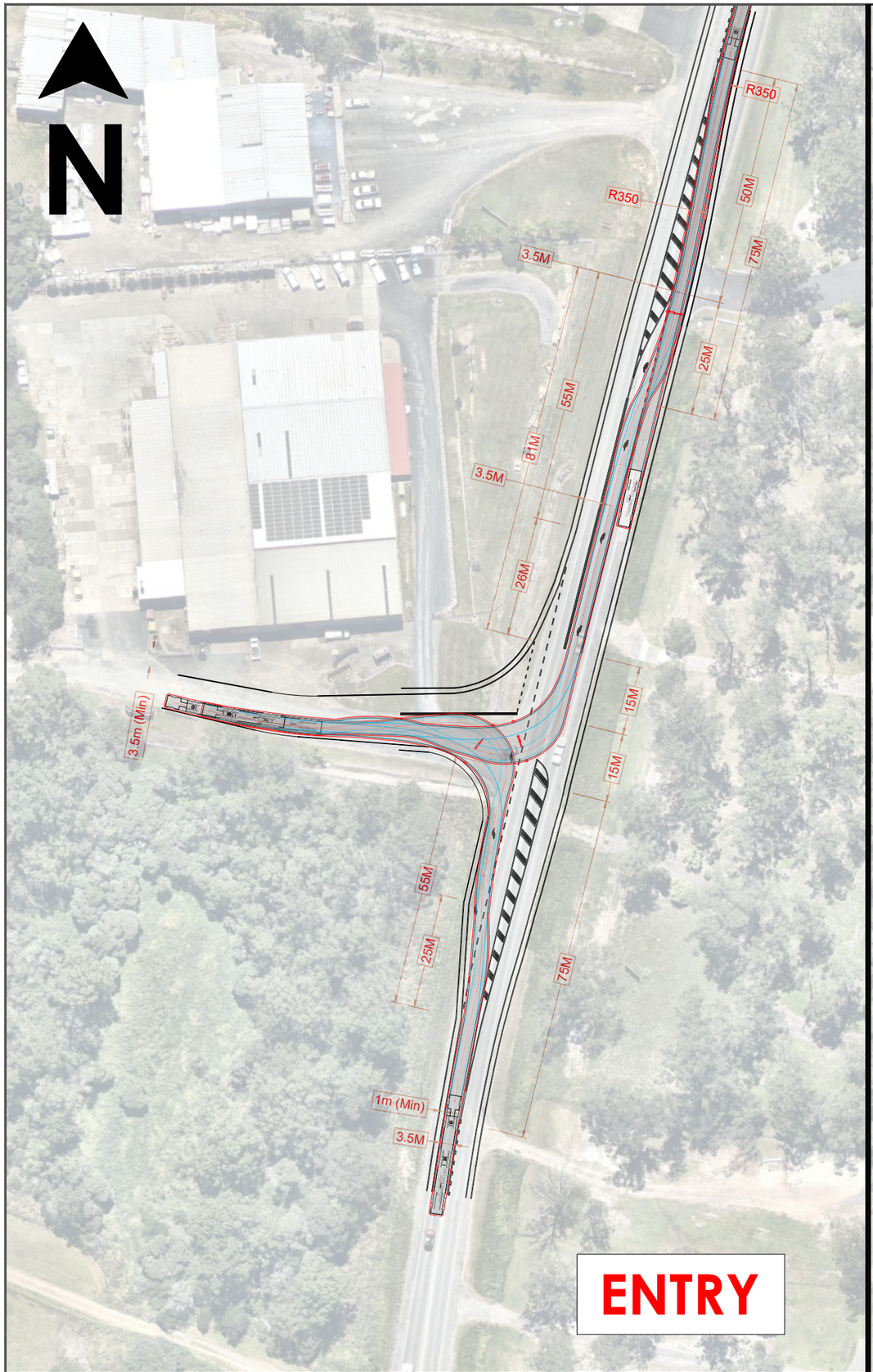
SITE:
476 Macleay Valley Way, Kempsey NSW

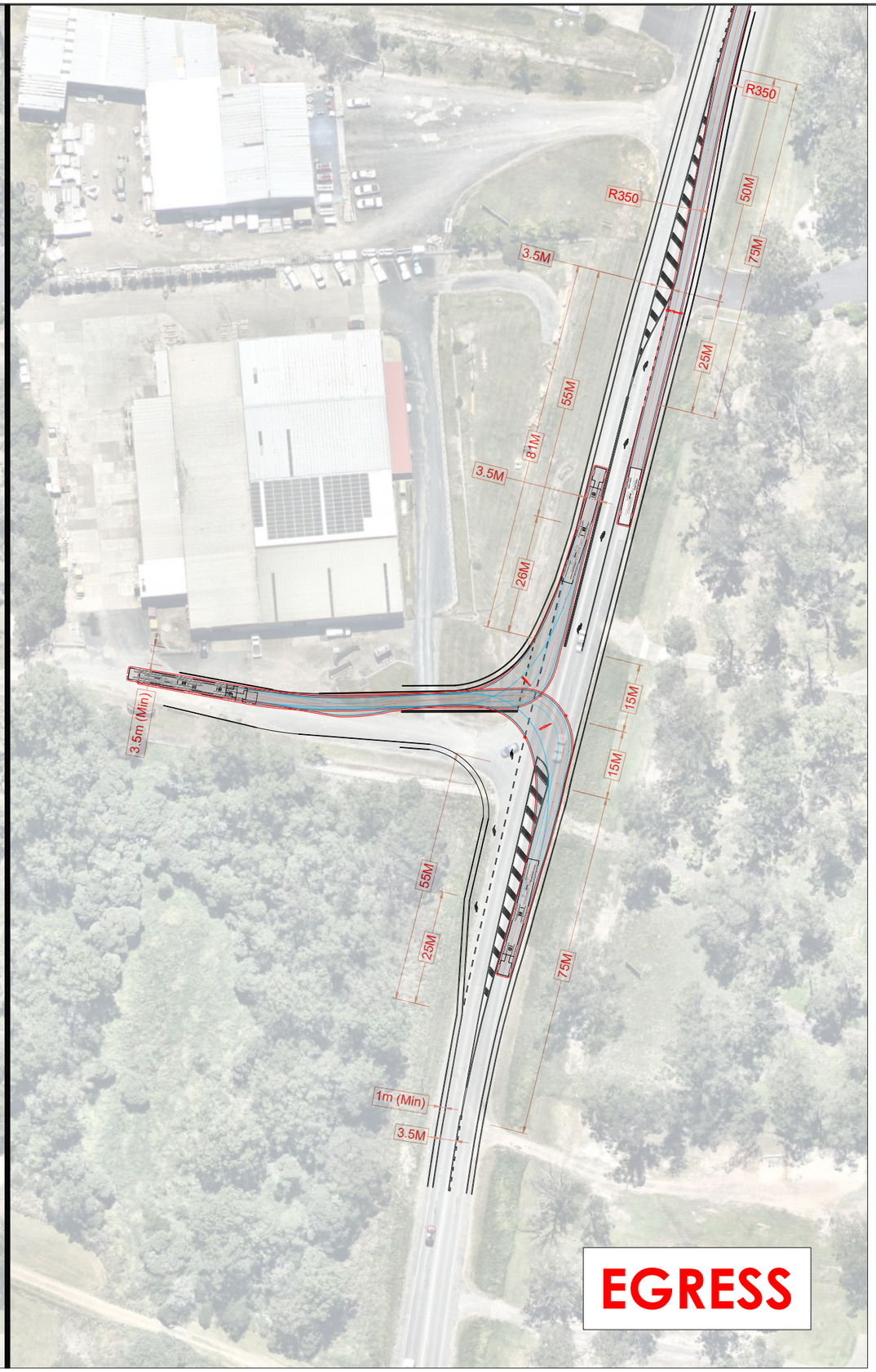
TITLE:
CHR (S) + AUL Treatment Concept

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:1000 @ A3	25.7.2024	SP	CS

PROJECT NO:	DRAWING NO:	REVISION:
025-009	TR-001	A

Appendix C: Design Vehicle Swept Path Tests





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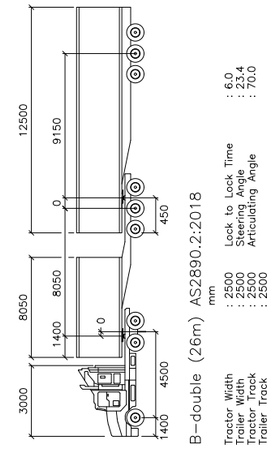
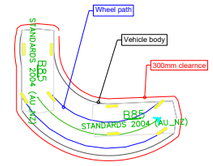


B-double (26m) AS2890.2:2018
mm

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 23.4
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		

FORWARDS



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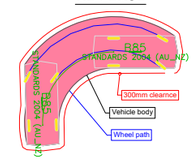

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STATUS:			

fernway engineering

CLIENT:
Momaca Investments

SITE:
476 Macleay Valley Way, Kempsey NSW

TITLE:
Swept Path Analysis, B-Double (26m)

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