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2 June 2026
Our File Ref: B25176TL001_REVA
Contact: Andrew Green

KDL Property Group Pty Ltd
4/16 Queensland Avenue
Broadbeach QLD 4218

Attention: Nic Mullis

RE: PROPOSED RESIDENTIAL SUBDIVISION
MERINGANDAN ROAD, MERINGANDAN, QLD 4352
TRAFFIC ENGINEERING RESPONSE TO COUNCIL INFORMATION REQUEST

This letter has been prepared in response to Toowoomba Regional Council's (TRC) Information Request dated 13 October 2025 (Ref: RAL/2025/5992). The Information Request is in relation to a Reconfiguring a Lot (ROL) Development Application (DA) for a residential subdivision located along Meringandan Road, Meringandan, QLD 4352. The proposal involves 199 residential lots and two (2) balance lots. The site is formally described as Lot 3 on AG4138 and Lot 1 on RP27298 with a total site area of approximately 36.813ha.

The traffic engineering issues being addressed are presented below in *italics*. TRC's comments are reproduced with the L+R response to each item following.

TRC Item 1.1 – Lot Layout

Issue

The proposed layout does not provide for any safe alternative access, inconsistent with the Reconfiguring a Lot Code. A subdivision of this scale is required to be provided with at least two (2) fully functioning connections to the road network.

Information Required

Provide amended plans which establish a second road connection to the constructed external road network.
Note: Refer also to items 2 and 6 of this Information Request where responding to this item.

L+R Response

Please refer to the response prepared by Saunders Havill. We note due to environmental constraints a secondary connection is not feasible at this stage, however an emergency road connection to Main Street towards the north-east will be maintained as shown in the Structure Plan enclosed within Attachment 1 of this letter.

In our view the single access onto Main Street via the 23m wide Collector Road is sufficient from traffic carrying perspective as demonstrated in Section 4.7.2 of the updated Traffic Report, enclosed within Attachment 3 of this letter.

TRC Item 1.2 – Lot Layout

Issue

The lot layout results in long block lengths particularly along the western side of Stages 2 and 3 and between Stages 1 and 4.

Information Required

Provide amended plans which:

(a) Provide a mid-block road connection to adjoining land to the west; and
(b) Replace the pedestrian connection between Stages 1 and 4 with a road connection.

L+R Response

Please refer to the updated site layout included in Attachment 1. The existing pedestrian connection between Stages 1 and 4 has now been replaced with a road connection.

In our view a mid-block road connection for the western lots is not deemed necessary from a traffic perspective as these lots are within close proximity to Heushle Road towards the south and the 18m wide Access street towards the north, both of which will provide suitable connectivity and capacity for traffic generated by the site to the west.

TRC Item 1.4 – Lot Layout

Issue

It is unclear how Lots 344 and 345 can be serviced by a waste collection vehicle in forward gear as no turnaround has been provided.

Information Required

Provide amended plans which demonstrate how Lots 344 and 345 can be appropriately serviced by a waste collection vehicle.

L+R Response

Please refer to the updated site layout in Attachment 1. Bin pads have been provided adjacent to Lot 344 to facilitate refuse collection for Lot 345. A swept path assessment has been undertaken using Council's refuse collection vehicle and is enclosed within Attachment 2. The swept path demonstrates that the refuse vehicle will be able to reverse into the stub road to service Lots 344 and 345.

2 June 2026
Our File Ref: B25176TL001_REVA
Contact: Andrew Green

TRC Item 2.1 – Infrastructure Network Analysis

Issue

The proposed development is located outside the Priority Infrastructure Area (PIA) meaning that necessary trunk infrastructure has likely not been planned for in Council's LGIP or network planning. Insufficient detail has been provided in relation to the infrastructure networks required to facilitate this development to assist Council in determining and identifying necessary infrastructure to service the growing community.

Information Required

Provide an Infrastructure Network Assessment report (with supporting information, maps and metrics) for four of the infrastructure networks (stormwater, sewer, water and transport) addressing, but not limited to, the following:

- *(a) Identification of the most cost-effective method to extend trunk infrastructure networks from the PIA to and through the development site (including estimation of costs of this infrastructure). Please refer to Part 4.2 of the Toowoomba Regional Planning Scheme 2012 for guidance. This must also include assessment of the cumulative impacts of the full site including balance lots, other approved development, current applications and future development areas outside the PIA;*
- *(b) An assessment of the capacity of existing and future trunk infrastructure identified in the LGIP to determine whether adequate capacity exists to accommodate the development;*
- *(c) Identification of any necessary trunk infrastructure identified in the LGIP and that will be made necessary by the development (including an estimation of costs of this infrastructure);*
- *(d) Identification of any extra trunk infrastructure which will be made necessary by the development (including an estimation of costs of this infrastructure);*
- *(e) Identification of any non-trunk infrastructure which is required to connect the development to trunk infrastructure networks (refer to Planning Scheme Policies for guidance);*
- *(f) Commentary regarding the ability to achieve the desired standards of service for each infrastructure network as identified in the LGIP; and*
- *(g) The timing and sequencing of the infrastructure (noting that the development is proposed to be staged).*

Note:
The Infrastructure Network Assessment must be prepared by an appropriately qualified RPEQ relevant to the network type.

The Infrastructure Network Assessment report may be used to determine if any extra payment should be imposed on the development. It is recommended that the applicant be sufficiently satisfied that they are able to address the above issues and the preceding Information Request item, prior to proceeding to respond to all other items in this Information Request.

An example of the standard of documentation required for the technical reports for each network can be found within the Special Meeting of Council Minutes for RAL/2021/7453 which is available on Development.i.

L+R Response

Please refer to the updated Traffic Impact Assessment enclosed within Attachment 3 of this letter, which shows that traffic associated with surrounding approved developments has now been taken into consideration. Results of the updated assessment indicate that the Main Street / Site Access intersection will theoretically operate below capacity during the year of opening (2029) and 10-year design horizon (2039) in both peak periods with acceptable queues and delays on all approaches.

The existing form of the Highfields Road / Meringandan Road intersection will also theoretically operate below capacity during the year of opening (2029) and 10-year design horizon (2039) in both peak periods with acceptable queues and delays on all approaches, as a result of the development.

Please refer to the updated Traffic Impact Assessment enclosed within Attachment 3 of this letter, we note the nearest identified upgrade in the current LGIP is the Highfields Rd / O'Brien Rd / Kratzke Rd intersection which is proposed to be upgraded to a roundabout. The interim LGIP amendment further includes pavement widening on Highfields Road and Meringandan Road. We have undertaken a capacity threshold review of these roads against TRC's Planning Scheme policy and *Table 4.4.5* of the interim LGIP Amendment, which identified that the surrounding road network does not exceed target capacity with the additional development traffic. Based on the above it is our view that the existing transport infrastructure is adequate to accommodate the proposed development and no future transport infrastructure needs to be identified.

The results of the Highfields Road / Meringandan Road intersection and Main Street / Site Access intersection assessments are also within the Level of Service (Los) thresholds identified in *Table 4.4.6* of the interim LGIP Amendment.

TRC Item 6.1 – Transport

Issue

The proposed development area is outside the PIA and no transport planning has been done for this area. The Traffic Impact Assessment presented with the application has only considered traffic generation from 199 lots and not the balance of the site and other sites outside the PIA. The Traffic Impact Assessment:

- *(a) Has not followed the methodology within the TMR Guide to Traffic Impact Assessment addressing the road safety, access and frontage, road link capacity and intersection delay impacts of the development;*
- *(b) Has not considered the cumulative impacts of other approved development, current applications and future development areas outside the PIA;*
- *(c) Assumes a year of opening at 2027 which seems unrealistic given this needs to coincide with the last stage of development, likely to be well beyond 2027;*
- *(d) Hasn't considered a street hierarchy especially with respect to access connections to development sites west and south of the subject site;*
- *(e) Assumes 100% of all development traffic will travel to the east which is unrealistic given there is an existing school to the west, existing and approved retail development to the west, and the west provides the most direct access to Western Toowoomba and the employment opportunities in this area;*
- *(f) Has not recognised the constraints of the site with respect to road dedication requirements on Main Street;*
- *(g) Has not demonstrated how maximum speeds on local access streets will be controlled given there are some local access streets up to 280m in length without any curve restraints and*
- *(h) Has not considered walk and cycle connections.*

Information Required

In conjunction with the Infrastructure Network Assessment, provide a Traffic Impact Assessment (TIA) consistent with the methodology outlined in the TMR Guide to Traffic Impact Assessment and addressing the road safety, access and frontage, road link capacity and intersection delay impacts of the development. In particular the TIA should consider:

- *(a) Assessment of the cumulative traffic impacts of development from the Subject Site (including balance lots) plus other approved development, current applications and future development areas outside the PIA;*
- *(b) The spatial extent should include intersections where development traffic exceeds 5% of base traffic for any movement in the design peak period for the final stage of opening;*
- *(c) Traffic growth on the major roads will need to be agreed with Council;*
- *(d) The street hierarchy required for the reconfiguration with connectivity to the surrounding areas (developed and undeveloped);*
- *(e) An assessment of attractors of trips from the Subject Site recognising existing schools, existing and approved retail development to the west, and the west provides the most direct access to Western Toowoomba;*
- *(f) Turn warrants required at Main Street/Development Access including an intersection layout recognising existing services and pedestrian connectivity. The 14.1m proposed road dedication on Main Street is excessive given the constraints of the site;*
- *(g) How to control speeds on local streets; and*
- *(h) Walk and cycle connections both within and external to the Subject Site. Footpaths on internal streets must be provided in accordance with PSP No 2 and this includes footpaths on both sides of local access streets (> 75 lots) and collector streets*

L+R Response

GTIA Methodology and Assessment of Cumulative Traffic Impacts

We note that assessment in accordance with the Guide to Traffic Impact Assessment (GTIA), published by the Department of Transport and Main Roads (DTMR), is required for the assessment of State-controlled roads and we understand this does not form part of Council's Planning Scheme requirements for assessing the Council-controlled network. A net delay assessment for the State-controlled road network has already been undertaken and approved by SARA.

We note that the Council LGIP amendment requires trunk intersections to achieve a level of service based on intersection degree of saturation and delay, therefore we have assessed the surrounding Council-controlled intersections based on these parameters. Results of the updated assessment are presented within the updated Traffic Impact Assessment, enclosed within Attachment 3 of this letter.

The cumulative impacts from several surrounding developments have now been considered as part of the updated assessment.

Opening Year

Please refer to the updated Traffic Impact Assessment enclosed within Attachment 3 of this letter, the opening year for the development has been updated to 2029 instead of 2027 with a 10-year design horizon year of 2039, which in our view is more realistic.

Street Hierarchy Consideration

Please refer to the updated Traffic Impact Assessment enclosed within Attachment 3 of this letter, the street hierarchy of the internal road network is suitable to cater for the proposed developments anticipated traffic. We note development of the surrounding balance lots will be subject to separate future applications however, as stated in the updated Traffic Impact Assessment, the 23m wide Collector has sufficient capacity to accommodate an additional 101 lots on this road alone. We also note in the ultimate development scenario traffic will be further split across multiple accesses, therefore in our view the current proposed hierarchy is suitable.

Distribution of Trips to The West

Please refer to the updated Traffic Impact Assessment enclosed within Attachment 3 of this letter, the distribution of traffic has been updated with 10% travelling to and from the west and 90% travelling to and from the east along Main Street.

Proposed road dedication on Main Street

Please refer to the updated Traffic Impact Assessment and functional layout plan enclosed within Attachment 3 of this letter, the road dedication has now been reduced to 3.1m to provide a 17.0m road reserve across the frontage, which better aligns with the available road reserve to the west.

Speed Control on Local Access Streets

Speed control measures such as intersection priority change, modified t-intersections, raised platforms or diamond slow ways can be conditioned by Council within the proposed Access Streets as required.

Walk And Cycle Connections Both Within and External to the Subject Site

Please refer to the updated Site Layout and Structure Plan enclosed within Attachment 1 of this letter, which shows that pedestrian footpaths will be provided on the internal road network in accordance with TRC's typical cross section drawings. Internal Pedestrian / Green Links are also proposed within the development site. We note there are no existing pedestrian connections external to the development site along Main Street, however the road dedication will provide sufficient verge width for pedestrian pathways to be provided in the future. If required, Council can condition the delivery of a pathway along the site frontage connecting to the west.

In our view, there are no further traffic engineering issues that should preclude approval of the proposed development.

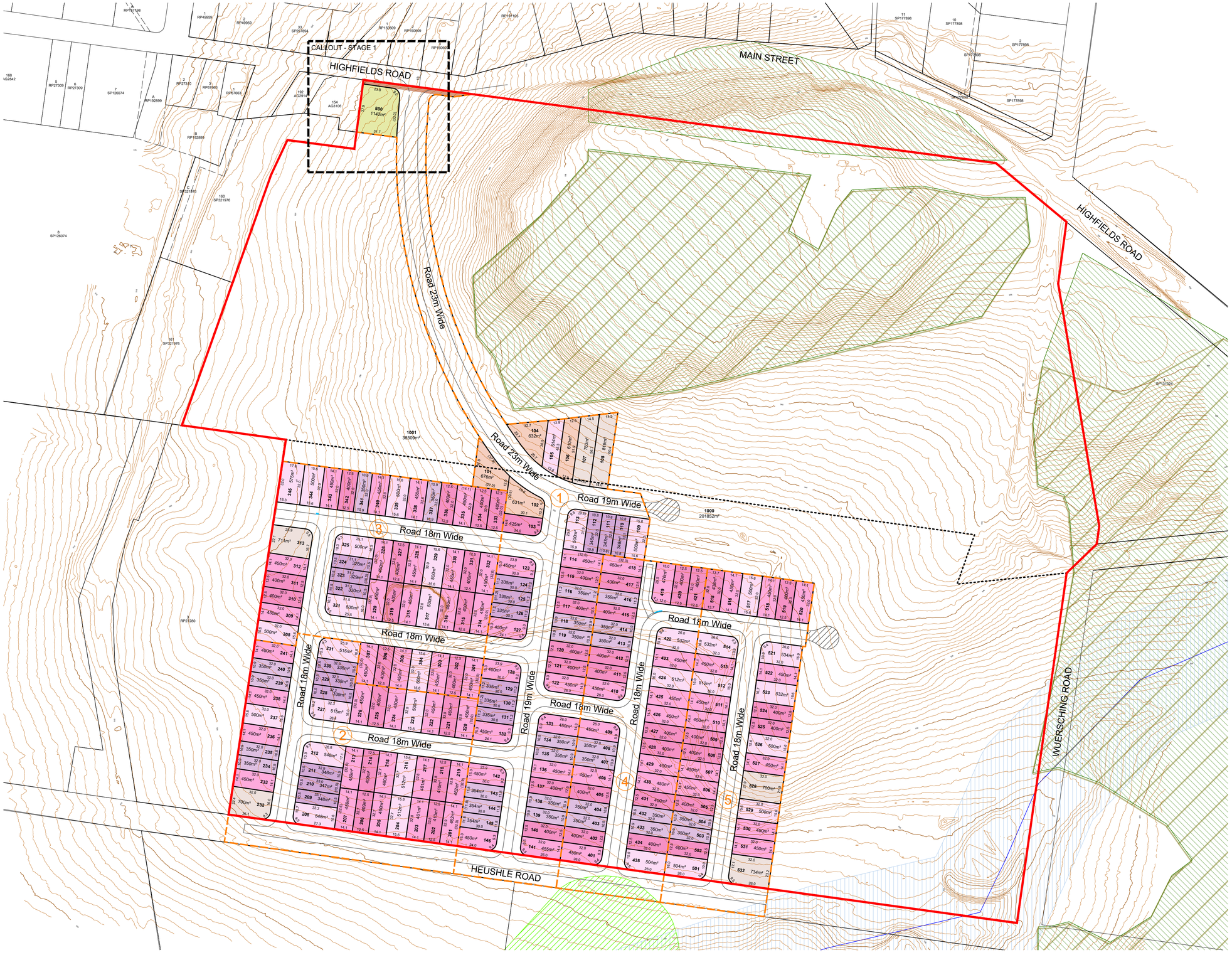
2 June 2026
Our File Ref: B25176TL001_REVA
Contact: Andrew Green

Yours faithfully,
For and on behalf of
Lambert & Rehbein (SEQ) PTY LTD

A.W.GREEN BE(Civil & Construction) (Hons), RPEQ #31707, CPEng
DIVISION MANAGER – TRAFFIC AND TRANSPORT

Enc: Attachment 1 – Updated Site Layout and Structure Plan
Attachment 2 – Swept Path Assessment
Attachment 3 – Updated Traffic Impact Assessment

CONCEPT PLAN - OVERALL



LEGEND

- Site Boundary
- Major Contour (5.0m interval)
- Major Contour (0.5m interval)
- Environmental Significance - High
- Environmental Significance - General
- Koala Habitat Area
- Waterways and Wetlands Buffer
- Waterways and Wetlands
- Stage Boundary
- (3) Stage No.
- Indicative Bin Pad location
- Temporary Turn Around Easement

DEVELOPMENT STATISTICS - Overall			
RESIDENTIAL ALLOTMENTS	**No. Lots**	**%**	**Net Area**
300m² - < 350m²	18	9.0%	0.609 ha
350m² - < 400m²	27	13.6%	0.948 ha
400m² - < 450m²	45	22.6%	1.811 ha
450m² - < 500m²	68	34.2%	3.073 ha
500m² - < 600m²	31	15.6%	1.591 ha
> 600m²	4	2.0%	0.255 ha
Duplex	6	3.0%	0.442 ha
Total Residential Allotments	**199**	**100.0%**	**8.729 ha**

Land Budget	**Area (Ha)**	**%**	
Area of Subject Site / Stage	36.813 ha	—	
Net Residential Area (no roads)	8.729 ha	23.7%	
Detention / Drainage	0.114 ha	0.3%	
Road Widening	0.029 ha	0.1%	
Road Areas	3.905 ha	10.6%	
Balance (Lot 1000 & 1001)	24.036 ha	65.3%	
Total	**36.813 ha**	**100.0%**	

SCALE @A1 1:1500 @A3 1:3000 - LENGTHS ARE IN METRES

20 0 20 40 60 80 100 120 140 160 180

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744 | saundershavill.com

SOURCE
PROJECTION: SURVEY COORDINATES
SUBJECT BOUNDARIES: SURVEY FROM SAUNDERS HAVILL DATED 04/06/2025
CONTOURS: ELVIS - SURVEY BY SAUNDERS HAVILL DATED 04/06/2025
STATE OVERLAYS: QUEENSLAND GOVERNMENT
LOCAL OVERLAYS: TOOWOOMBA REGIONAL COUNCIL

N

CLIENT
KDL PROPERTY GROUP PTY LTD

SITE ADDRESS
MERINGANDAN ROAD, MERINGANDAN

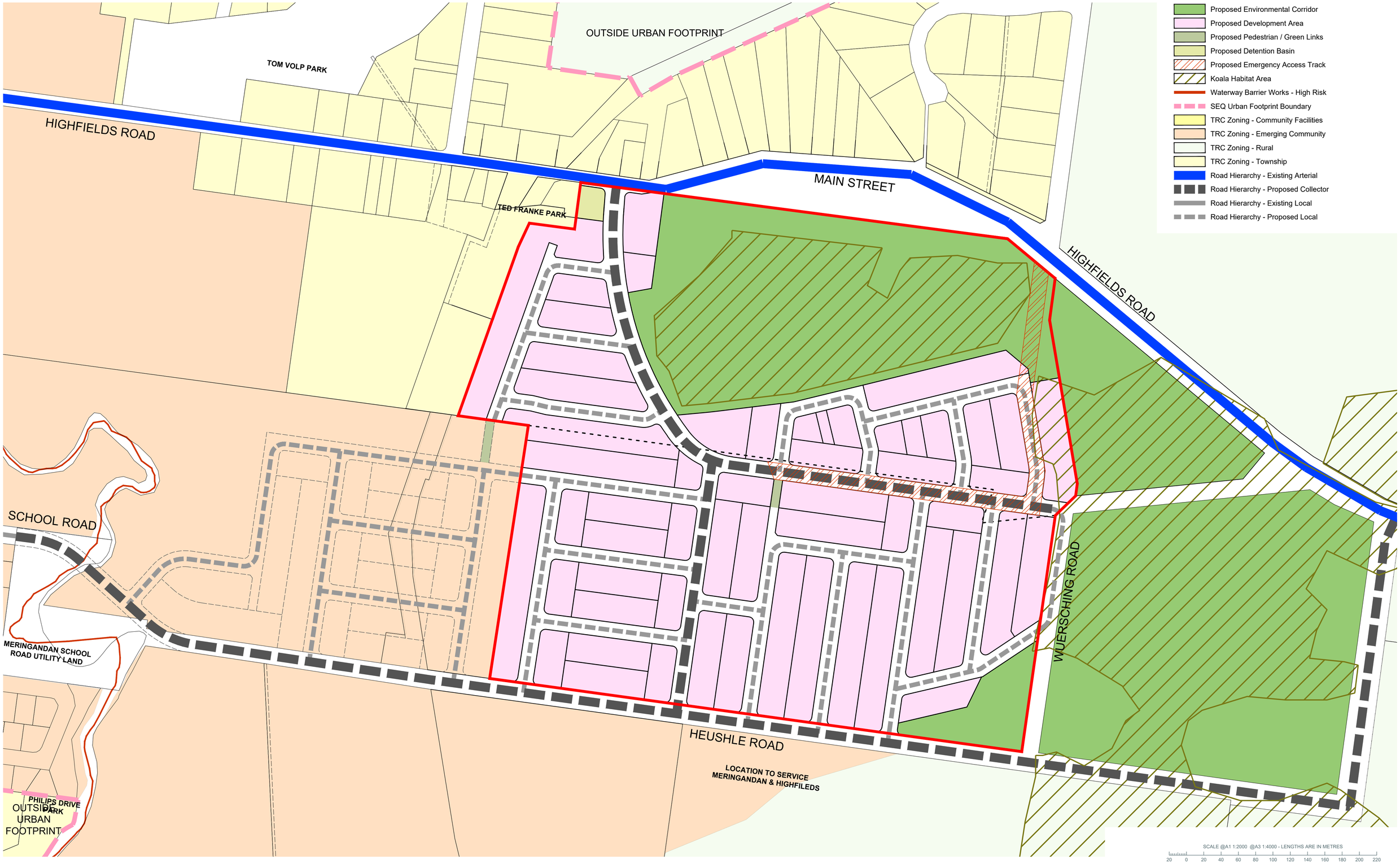
RP DESCRIPTION
Lot 3 on AG4138 & Lot 1 on RP27298

DRAWN
JC

DATE
26/05/2026

DRAWING NO.
12459 P 12 Rev I - CON 01

STRUCTURE PLAN



LEGEND

- Site Boundary
- Proposed Environmental Corridor
- Proposed Development Area
- Proposed Pedestrian / Green Links
- Proposed Detention Basin
- Proposed Emergency Access Track
- Koala Habitat Area
- Waterway Barrier Works - High Risk
- SEQ Urban Footprint Boundary
- TRC Zoning - Community Facilities
- TRC Zoning - Emerging Community
- TRC Zoning - Rural
- TRC Zoning - Township
- Road Hierarchy - Existing Arterial
- Road Hierarchy - Proposed Collector
- Road Hierarchy - Existing Local
- Road Hierarchy - Proposed Local

SCALE @A1 1:2000 @A3 1:4000 - LENGTHS ARE IN METRES

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Saunders Havill
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SOURCE
PROJECTION: SURVEY COORDINATES
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CONTOURS: ELVIS - SURVEY BY SAUNDERS HAVILL DATED 04/06/2025
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LOCAL OVERLAYS: TOOWOOMBA REGIONAL COUNCIL

N

CLIENT
KDL PROPERTY GROUP PTY LTD

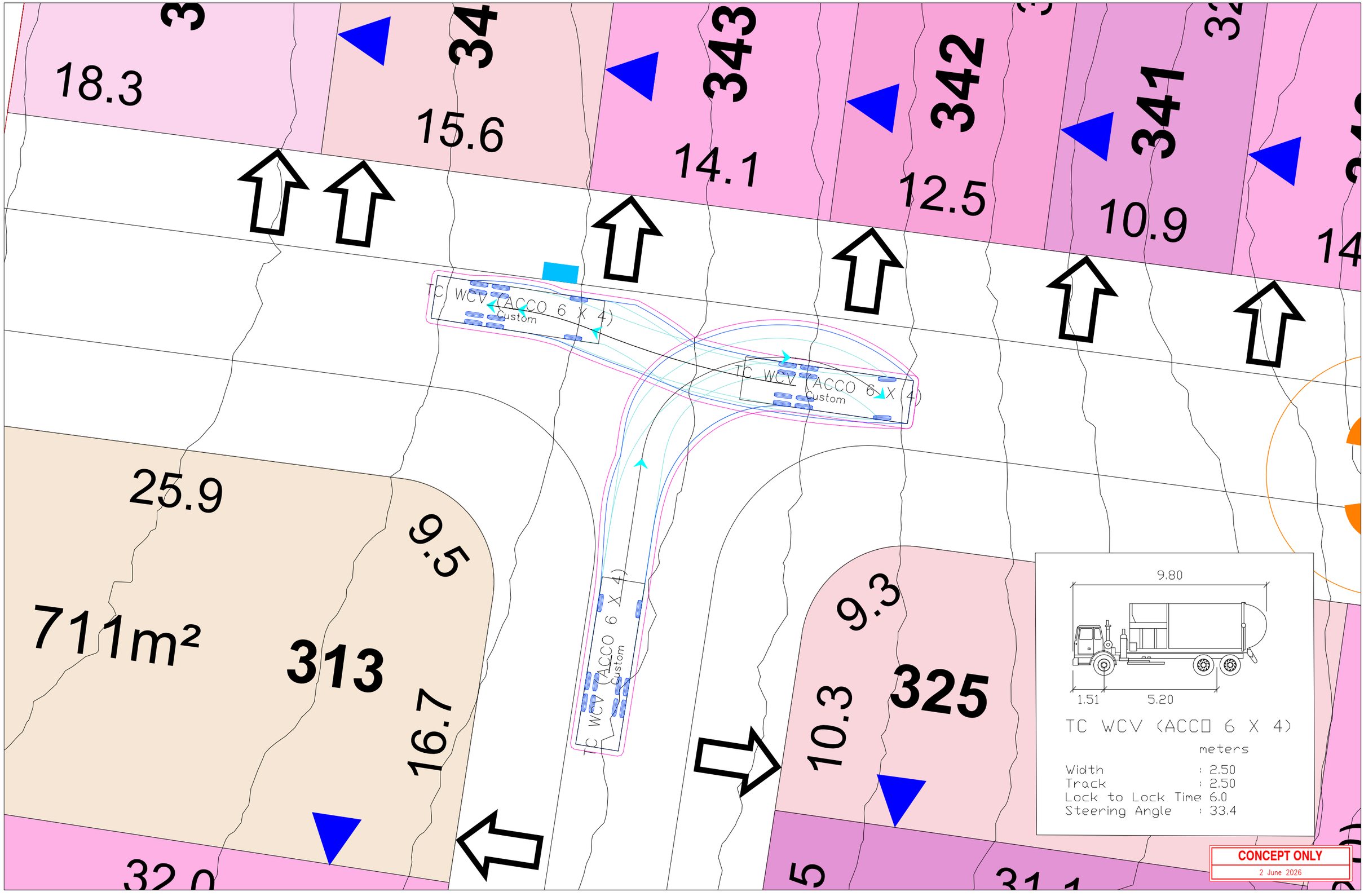
SITE ADDRESS
MERINGANDAN ROAD, MERINGANDAN

RP DESCRIPTION
Lot 3 on AG4138 & Lot 1 on RP27298

DRAWN
JC

DATE
27/05/2026

DRAWING NO.
12459 P 13 Rev G - STR 01



Project:
PROPOSED DEVELOPMENT
MERINGANDAN ROAD, MERINGANDAN QLD 4352

Client:
KDL Property Group Pty Ltd

Title:
TRC WCV
SWEPT PATH ASSESSMENT

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Drawn:	Checked:	Approved:	Rev.	Date
ZN	AG	AG	A	02/06/26

Figure No: B25176-SK-002
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Sheet Size: A1

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PROPOSED RESIDENTIAL SUBDIVISION

Meringandan Road, Meringandan QLD 4352

Traffic Impact Assessment

For KDL Property Group Pty Ltd

L+R ENGINEERS MANAGERS SCIENTISTS

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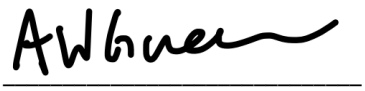
Revision	Date	Description	Author	Verifier	Approver
Draft	31/07/2025	Draft	KC		
RevA	20/08/2025	Final	KC	KC	KC
RevB	01/06/2026	Final	ZN/KC	AG	AG

Authorised by:



Andrew Green
Division Manager – Traffic and Transport
RPEQ No. 31707

1. Introduction

Lambert & Rehbein (SEQ) Pty Ltd have been commissioned by KDL Property Group Pty Ltd to prepare a Traffic Impact Assessment report in support of the proposed Development Application (DA) for a residential subdivision located along Meringandan Road, Meringandan QLD 4352. The development site is formally described as Lot 3 on AG4138 and Lot 1 on RP27298, with total site area of approximately 36.813ha.

The proposal involves the development of 199 residential lots and two (2) balance lots. Access to the proposed development will be via a new access intersection that connects to Main Street along the site's northern frontage. The proposed site layout, prepared by Saunders Havill has been included in **Appendix A.**

This report has been undertaken to assess the potential impact that the proposed development could have on the external road network surrounding the site and compliance with Council expectations and is set out as follows:

Section 2 discusses the existing land use and traffic arrangements in the vicinity of the proposed development site.

Section 3 provides details of the proposed development, including an assessment of the site layout, access, and servicing arrangements.

Section 4 displays the calculations and assumptions used to establish the forecast generation of the proposed development traffic.

Section 5 summarises the key outcomes of the traffic investigations.

A response to State Code 6 has been included in **Appendix E.**

Lambert & Rehbein has derived the data in this report primarily from the data provided by the Client, and site investigations undertaken in May and June 2025.

This report has been prepared on behalf of and for the exclusive use of the Client and is subject to and issued in connection with the provisions of the agreement between Lambert & Rehbein and the Client. Lambert & Rehbein accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

2. Context of the Development Site

This section of the report describes the context of the proposed development and includes a description of the existing road network, adjacent land uses, and existing public transport facilities servicing the site.

2.1. Development Site

The development site is located along Meringandan Road, Meringandan QLD 4352 and is formally described as Lot 3 on AG4138 and Lot 1 on RP27298, with total site area of approximately 36.813ha.

The development site is current unoccupied and is zoned as 'Emerging Community' as per Toowoomba Regional Councils (TRC's) Planning Scheme v28. The site is generally surrounded by 'Rural' zoning and 'Township' zoning towards the north. The site is also within the Highfields, Meringandan and Meringandan West Local Area Plan.

Figure 2-1 shows the proposed development site in the context of the surrounding road network and the linkages to the broader network.

Figure 2-1 Development Site (Source: Nearmap, 2025)

2.2. Adjacent Road Network

Inspection of the land use, road condition, intersection characteristics, public transport facilities, pedestrian access, and cyclist provisions surrounding the proposed development site have been undertaken in preparation of this traffic assessment. This was completed to collect information about the road network operation, safety characteristics, public transport network and specific network / land-use factors potentially of influence on the proposed development.

The road hierarchy of the surrounding road network, as per TRC's Planning Scheme v28, is shown in **Figure 2-2**.

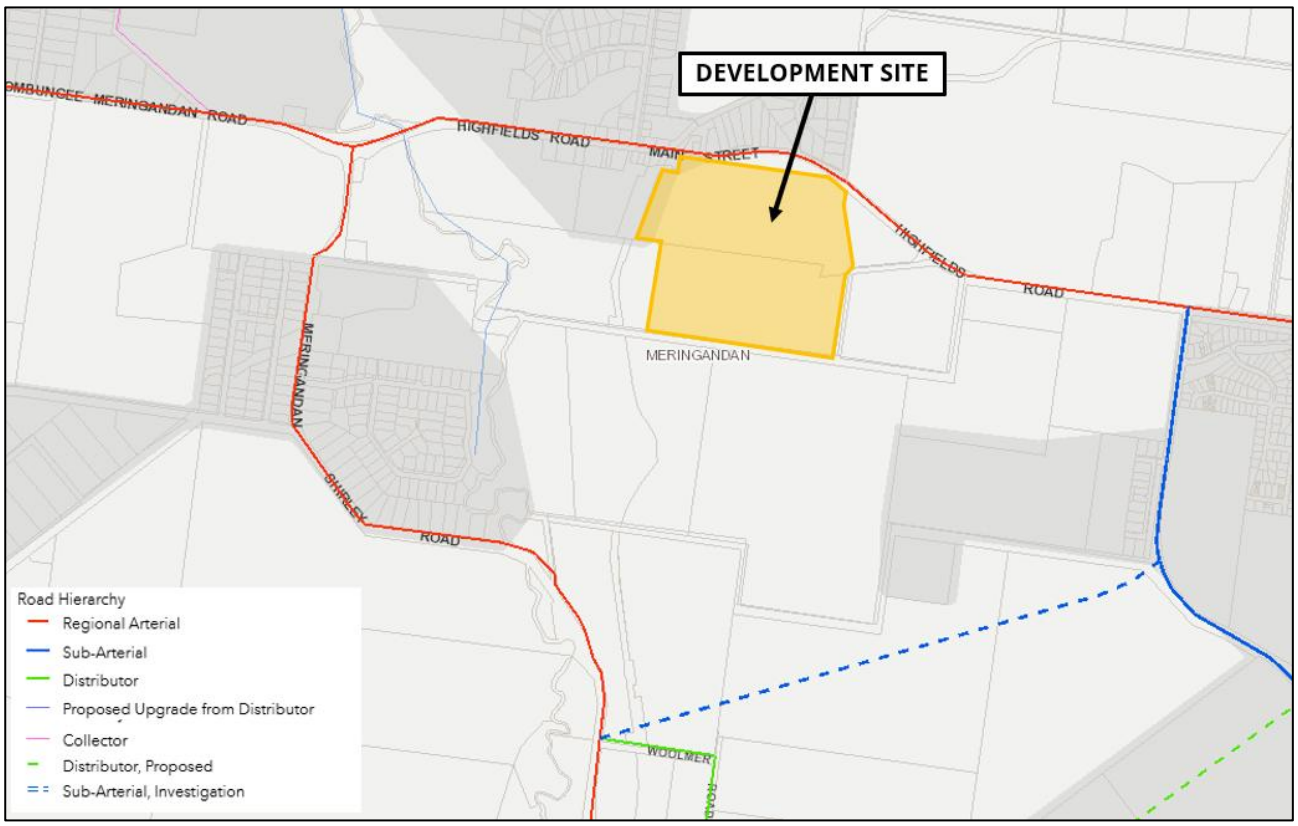


Figure 2-2 Road Hierarchy (Source: TRC Planning Scheme)

2.2.1. Main Street

Main Street runs east-west along the site's northern frontage providing primary access to the development site. Main Street is classified as a 'Regional Arterial Road' under the jurisdiction of TRC. The general form of Main Street can be seen in **Figure 2-3** and was observed to have the following characteristics at the site frontage:

- Two-way, two-lane road;
- Pavement width approximately 8m at the site's frontage;
- Kerb and channel typically provided on one (1) side of the road;
- No parking provided on either side of the road;
- No dedicated cycle lanes provided;
- No pedestrian footpaths on either side of the road; and
- Posted speed limit of 60km/h.

Figure 2-3 Main Street Facing West at the Site's Frontage (Source: Site Visit, 2025)

It should be noted that Main Street currently provides a 13.0m wide road reserve at the site's access location (further discussed in **Section 3.2**). A 3.1m wide road dedication has been allowed to accommodate a 17m Regional Arterial Road inclusive of a dedicated left turn lane into the site (further discussed in **Section 4.7.2**). The road widening is also shown in the site layout plans in **Appendix A**.

2.3. Public Transport

The development is reasonably well connected to the existing public transport network, with two (2) paired Translink hail 'n' ride stops located within a typical five (5) minute walking catchment (400 metres) from the development site, as shown in **Figure 2-4**. The bus routes that service these on-street bus stops are summarised in **Table 2-1**.

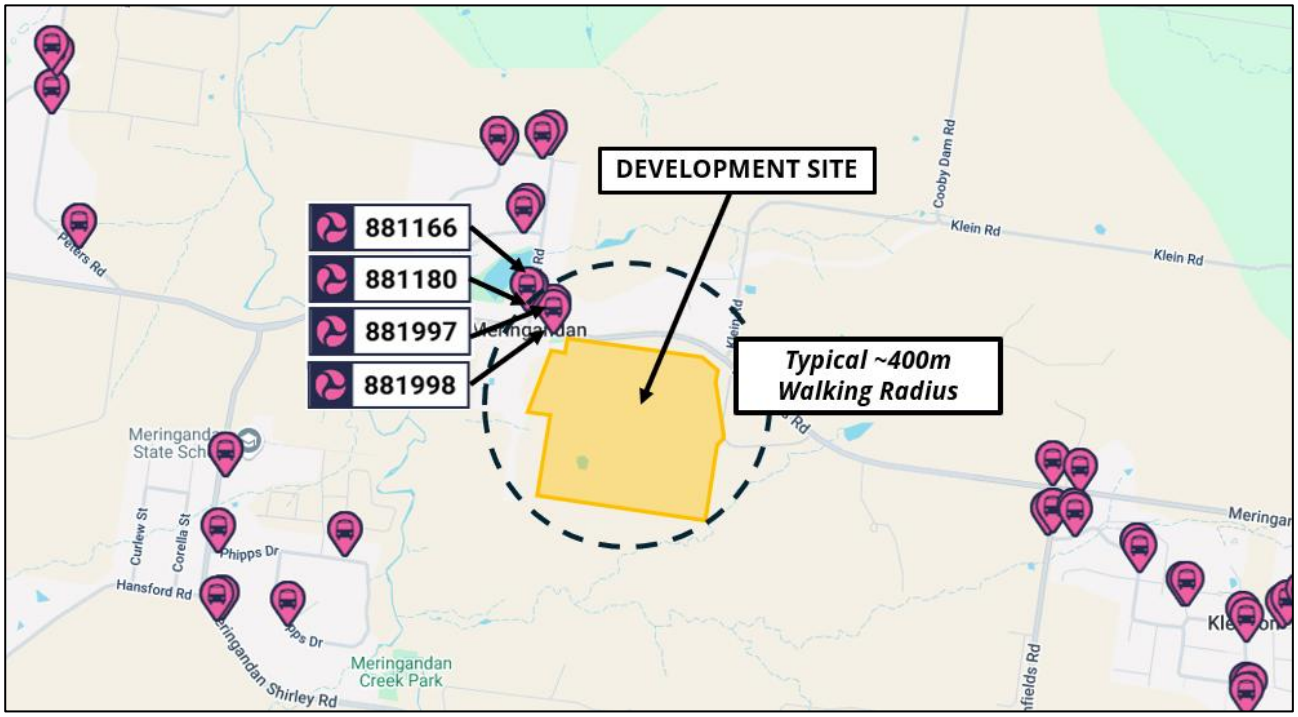


Figure 2-4 Public Transport Facilities (Source: Translink)

Table 2-1 Bus Stop Services

# Translink ID	Route ID	Route Description
Main St near Garrett Rd hail 'n' ride, Meringandan #881998 & #881997	983	Meringandan West to Highfield Schools Inbound Pick up only
	986	Meringandan State School – Meringandan Outbound Drop-off only
Garrett Rd near Main St hail 'n' ride, Meringandan # #881180 & #881166	979	Meringandan West - Glennie School Inbound Pick up only
	983	Mt Kynoch - Meringandan State School Inbound Pick up only
	986	Meringandan West to Highfield Schools Inbound Pick up only

2.4. Future Infrastructure Upgrades

The following resources were reviewed to determine if there are any future infrastructure upgrades within close proximity of the development site:

- TRC Local Government Infrastructure Plan (LGIP)
- Queensland Transport and Roads Investment Program (QTRIP); and
- Queensland Government's Development Assessment Mapping System (DAMS).

A review of the Queensland Government's DAMS and the Department of Transport and Main Roads QTRIP found no future road infrastructure upgrades in close proximity of the development site.

Review of TRC's Local Government Infrastructure Plan (LGIP) found three (3) future intersection upgrades towards the southeast of the development site as shown in **Figure 2-5**. The schedule of works for this LGIP item is summarised in **Table 2-2**.

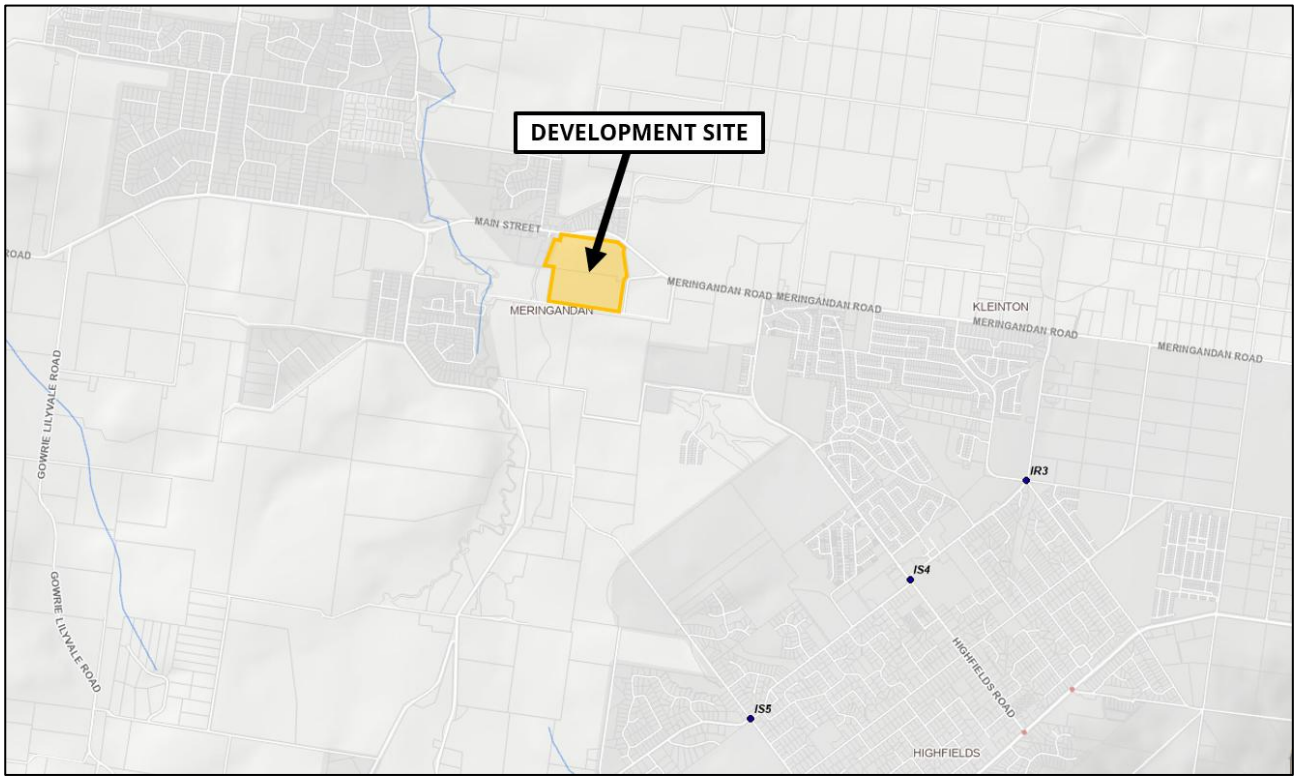


Figure 2-5 Local Government Infrastructure Plan

Table 2-2 LGIP Schedule of Works

LGIP ID	Project description	Estimated Timing	Establishment cost ($)
IR3	Intersection (Signal) Upgrade (including Active Transport facilities) (O'Brien Rd / Reis Rd / Wirraglen Rd), Highfields	2021 - 2026	12,050,000
IS4	Intersection (Roundabout) Upgrade (Highfields Rd / O'Brien Rd / Kratzke Rd), Highfields	2021-2026	7,800,000
IS5	Intersection (Signal) Upgrade (Kratzke Rd / Cawdor Rd), Highfields	2026-2031	3,000,000

We also note TRC's interim LGIP amendment includes further mapped works as shown in **Figure 2-6**. The schedule of works for the draft amendment LGIP items are summarised in **Table 2-3**.

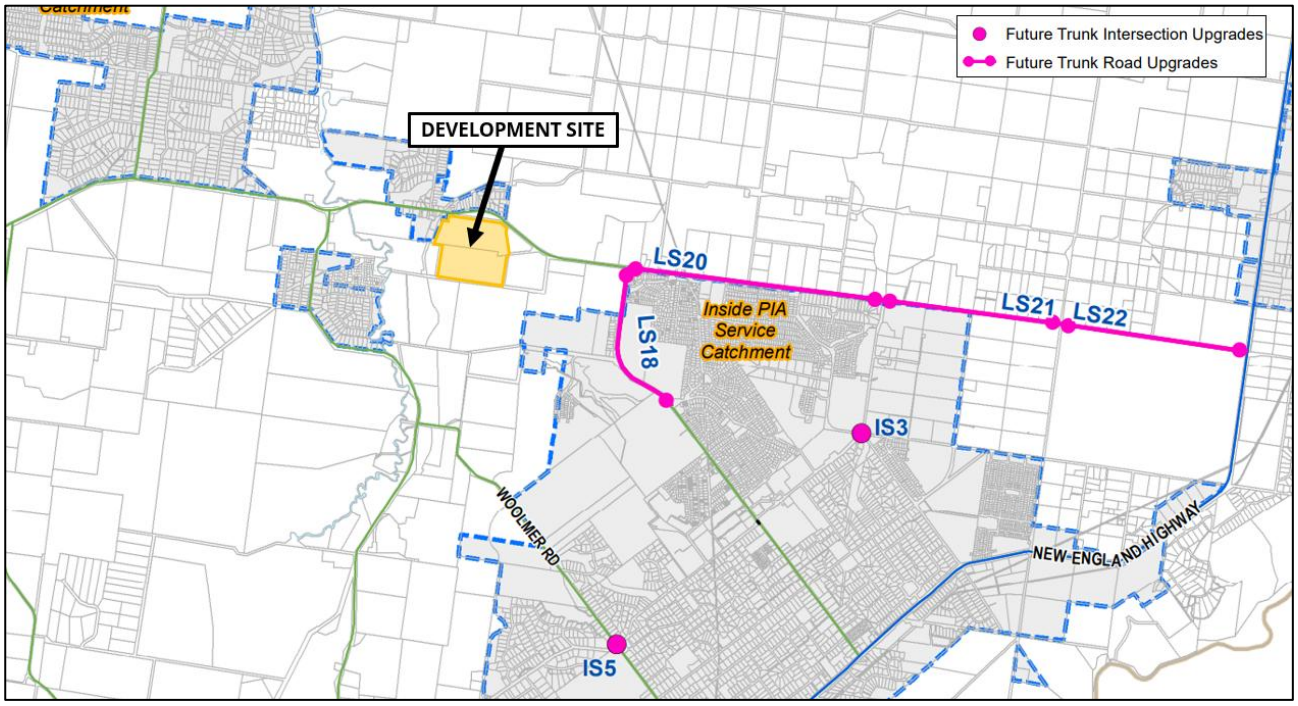


Figure 2-6 TRC's interim LGIP Amendment

Table 2-3 Interim LGIP Amendment Schedule of Works

LGIP ID	Project description	Estimated Timing	Establishment cost ($)
IS3	Intersection Upgrade – Roundabout - O'Brien Road / Reis Road / Wirraglen Road	2021 - 2026	895,518
IS5	Intersection Upgrade – Roundabout - Kratzke Road / Cawdor Road	2026-2031	1,278,235
LS18	Pavement widening on Highfields Road between Meringandan Road and Polzin Road - Highfields Road	2026-2031	3,157,795
LS20	Pavement widening works between Highfields Road and Wirraglen Road - Meringandan Road	2026-2031	4,636,176
LS21	Pavement widening works between Wirraglen Road and Cronin Road - Meringandan Road	2026-2031	3,185,587
LS22	Pavement widening works between Cronin Road and New England Highway - Meringandan Road	2026-2031	3,319,295

2.5. Crash History

An investigation of the road crash history in the immediate vicinity of the subject site was undertaken using publicly available crash data from the Queensland Government's mapping service Queensland Globe. A review of crash history data found no reported Fatal or Seriously Injured (FSI) crashes within close proximity of the development site within last five (5) years of available data, therefore no crash trend has been identified.

3. Details of the Proposed Development

This section of the report describes the nature of the proposed development, the proposed access arrangements, servicing arrangements and on-site manoeuvrability.

3.1. Proposed Development

The proposed residential subdivision is located along Meringandan Road, Meringandan QLD 4352 and involves the development of 199 residential lots and two (2) balance lots. The development site is formally described as Lot 3 on AG4138 and Lot 1 on RP27298, with total site area of approximately 36.813ha. The proposed site layout, prepared by Saunders Havill Group has been included in **Appendix A.**

3.2. Access Arrangements

The proposed development will gain access to the external road network via Main Street at the site's northern frontage. The form of this intersection will be a priority-controlled T-intersection and will provide all-movements access in and out of the development site. A functional layout plan of this intersection can be found in **Appendix D** and is further discussed in **Section 4.7.2**.

3.2.1. Sight Distance Assessment

A sight distance assessment has been undertaken at the proposed site access location along Main Street based on the requirements of Austroads *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (AGRD Part 4A). We note Main Street has a posted speed limit of 60km/hr towards the site's frontage with upward and downward grades in both directions, as shown in **Figure 3-1**. The site distance assessment is presented in **Table 3-1** which is based on measurements obtained at the site in June 2025.

Figure 3-1 Main Street Facing West at the Site's Access (Source: Site Visit, 2025)

Table 3-1 Sight Distance Assessment

Location	Available Sight Distance	Austroads (AGRD Part 4A) Minimum Stopping Sight Distance (SISD)[1]
Main Street Access Intersection	West (Facing left) – Exceeds 166m East (Facing right) – Achieves 166m	166m

[1]Based on a 60km/hr posted speed limit (70km/hr design speed) with a reaction time of 2 seconds and an 8% downward grade correction.

As outlined in **Table 3-1**, the proposed access intersection on Main Street meets the minimum sight distance requirements as per Austroads. It should be noted that there are several trees/overgrown grass located along the Main Street frontage, which if removed, would further improve available sight distance at this location for all road users. **Table 3-2** includes photos taken during the site visit in June 2025.

Table 3-2 Sight Distance – Main Street (Site Visit Photos June 2025)

Proposed Access West (Facing left)	Proposed Access West (Facing right)
	

3.3. Internal Road Network

The proposed internal road network has been designed in accordance with TRC's *Engineering Standards Roads and Drainage Infrastructure Planning Scheme Policy*. The typology of roads within the site will include a combination of the following:

- 23.0m wide collector road that connects to Main Street to the north;
- 19.0m local access roads that connect to the 23.0m wide collector road; and
- 18.0m local access roads that provide internal connections to the broader subdivision.

The individual road network is legible, interconnected and will provide pathways and facilities to encourage active transport use.

It is noted that frontage works to Heuschle Road (towards the south of the development site) will also be constructed as per TRC's *Engineering Standards Roads and Drainage Infrastructure Planning Scheme Policy.* This includes one (1) half of the full carriageway width plus one (1) 3.5m wide traffic lane and 0.5m of pavement for a shoulder. This will provide two-way functionality for the access street and will facilitate connectivity within the subdivision.

3.4. Servicing Requirements

The proposed internal road carriageway has been designed generally in accordance with TRC's *Engineering Standards Roads and Drainage Infrastructure Planning Scheme Policy* and will therefore accommodate the spatial requirements of a side loading Refuse Collection Vehicle (RCV), as per TRC's technical guideline for *New Developments – General Waste and Recyclable Waste Storage and Collections*. We note that temporary turnaround bays will be provided at the end of each stub road to facilitate turnaround of the RCV. Bin pads will also be provided adjacent to Lot 419 to facilitate refuse collection for Lots 416 to 418 and adjacent to lot 344 to facilitate refuse collection for lot 345. A swept path assessment has been included in **Appendix F** to demonstrate that the RCV is able to reverse into the stub road and service Lots 344 and 345.

4. Impact Assessment

This section of the report provides details of the potential impact that the development generated traffic could have on the operation of the surrounding road network.

4.1. Background Traffic

Background traffic on Main Street has been obtained from the traffic surveys undertaken on Thursday 21st October 2021 at the Highfields Road / Meringandan Road intersection which have been obtained via TRC's PD Online (Approved Development RAL/2021/7547). The intersection count data was collected from 6:00 AM to 9:00 AM & 2:30 PM to 6:00 PM and collated in 15-minute periods to capture peak periods.

The peak hours for the intersection were found to be as follows:

- Weekday AM Peak– 7:30 AM to 8:00 AM; and
- Weekday PM Peak– 3:00 PM to 4:00 PM.

A summary of the traffic survey data is displayed in **Figure B1** attached in **Appendix B**.

For the purpose of this assessment, the opening year for the residential development is assumed to be 2029 with 2039 as the 10-year design horizon.

To assess the future background traffic, a linear growth rate of 1% per annum has been applied to all movements along Main Street and turning movements into/out Highfields Road (south). We have also assumed 5% of heavy vehicle traffic along Main Street and Highfields Road (south), consistent with the traffic survey data. The background traffic forecast in 2029 and at the 10-year design horizon (2039) has been presented in **Figure B2** and **Figure B3**, attached in **Appendix B**.

4.2. Adjacent Approved Development Traffic

To assess the cumulative traffic impacts on the surrounding road network, traffic associated with surrounding approved developments has also been taken into consideration. This includes the following approvals located within close proximity to the proposed development site as illustrated in **Figure 4-1**:

A. RAL/2021/7453/C (204 lots)
B. RAL/2024/4460 (46 lots)
C. RAL/2024/6670, RAL/2021/7547 & MCUC/2024/7128 (504 lots)
D. RAL/2023/3261 (131 lots)
E. RAL/2021/7077 (55 lots plus town centre)

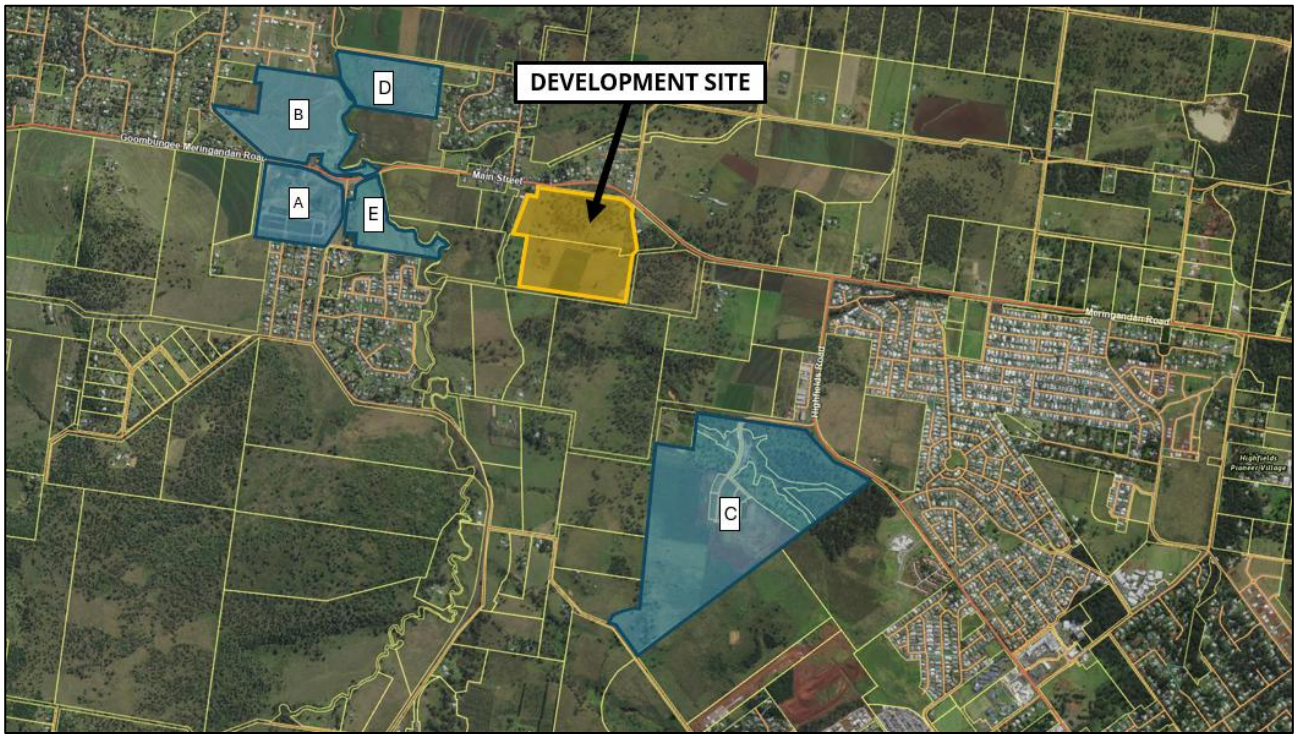


Figure 4-1 Surrounding Approved Developments

Traffic associated with the above approved developments has been taken from Traffic Impact Assessment reports available on TRC's PD Online as displayed in **Figure B4** attached in **Appendix B**.

We have excluded traffic from the future balance lots given that their development will be subject to separate future applications. As outlined in **Section 4.8**, the proposed 23m wide Collector has sufficient capacity to accommodate an additional 101 lots on this road alone. We also note in the ultimate development scenario traffic will be further split across multiple accesses therefore in our view the current proposed hierarchy is suitable.

4.3. Trip Generation

Traffic associated with the proposed development has been forecasted using the Transport for New South Wales (TfNSW) *Guide to Transport Impact Assessment* for regional low density residential dwellings. The traffic generation rates, and in/out directionality splits adopted for the analysis have been documented in **Table 4-1**.

Table 4-1 Traffic Generation Rates

Land Use	Generation Rate			Directionality (% In / % Out)	
	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Low Density Residential Dwellings	0.83 trips / dwelling	0.84 trips / dwelling	7.53 trips / dwelling	20% IN / 80% OUT	70% IN / 30% OUT

Based on the above guidelines and assumptions, the estimated traffic generated by the proposed development, is documented below in **Table 4-2**.

Table 4-2 Trip Generation – Total Trips

Land Use	Yield	AM Peak (In)	AM Peak (Out)	PM Peak (In)	PM Peak (Out)	Estimated Vehicles per day (VPD)
Low Density Residential Dwellings	199 Dwellings	33	132	117	50	**1,498**
Total Trips		165		167		

As shown in **Table 4-2**, the development site is anticipated to generate a total of 165 trips in the AM Peak (combined in and out) and 167 trips in the PM peak (combined in and out).

4.4. Trip Distribution

It has been assumed that 100% of trips will be new trips with 10% travelling to and from the west and 90% travelling to and from the east along main street. Of the 90% travelling to and from east, it is assumed that 5% of these trips will travel further East on Meringandan Road and 85% south to and from Highfields Road. For the 85% of trips travelling south to and from Highfields Road, these trips are assumed to distribute between the existing local catchment at Highfields and travel further south to Toowoomba via the New England Highway. This distribution is illustrated in **Figure 4-2** below and presented in **Figure B5**, attached in **Appendix B**.

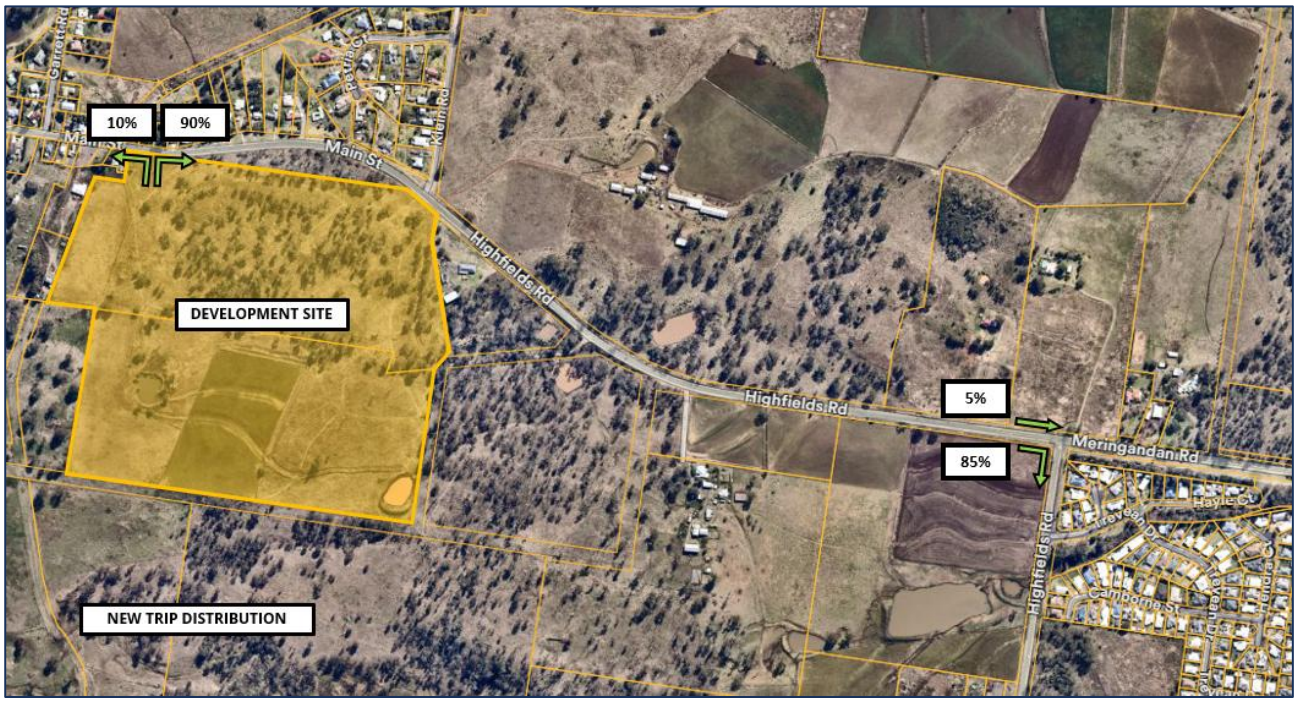


Figure 4-2 New Trip Distribution – Trips Out

4.5. Development Traffic

Based on the trip distribution outlined in **Section 4.4**, the total development traffic in and out of the site is displayed in **Figure B5**, attached in **Appendix B**.

4.6. Design Traffic

The design traffic scenario (background plus development generated traffic) in 2029 and 2039 is displayed in **Figure B6** and **Figure B7**, attached in **Appendix B**.

4.7. Intersection Analysis

SIDRA Intersection software has been used to assess the performance of the following intersections in in the 2029 (opening year) and 2039 design scenario (10-year design horizon):

- Highfields Road / Meringandan Road priority-controlled intersection; and
- Main Street / Site Access priority-controlled intersection.

A turn lane warrant assessment has been undertaken at the site access intersection to determine the required intersection form to use in the SIDRA assessment.

4.7.1. SIDRA Model Assumptions

The following parameters have been applied to the SIDRA model:

- A Saturation Flow of 1,950 through car units per hour;
- A Peak Flow Period of 30 minutes, with a conservative Peak Flow Factor of 95%;
- Existing Intersection geometry based on measurements of aerial imagery; and
- SIDRA default gap acceptance parameters.

We note that all intersections have been analysed using conservative values for both peak flow factors and peak flow periods. These values effectively inflate the design traffic volumes, producing a more conservative assessment of each intersection.

Considering the values noted above, we believe that the assessment presented herein should be considered highly conservative and the results should represent a worst-case scenario for the impacts of the proposed development.

4.7.2. Main Street / Site Access Intersection

A turn lane warrant assessment has been undertaken at the proposed site access intersection on Main Street, in accordance with DTMR's Road Planning and Design Manual (RPDM). The posted speed of Main Street is 60km/h and therefore the assessment has been based on the less than or equal to 70km/h design speed graph. The results of the 2029 and 2039 design scenario assessments are shown in **Figure 4-3** and **Figure 4-4** respectively.

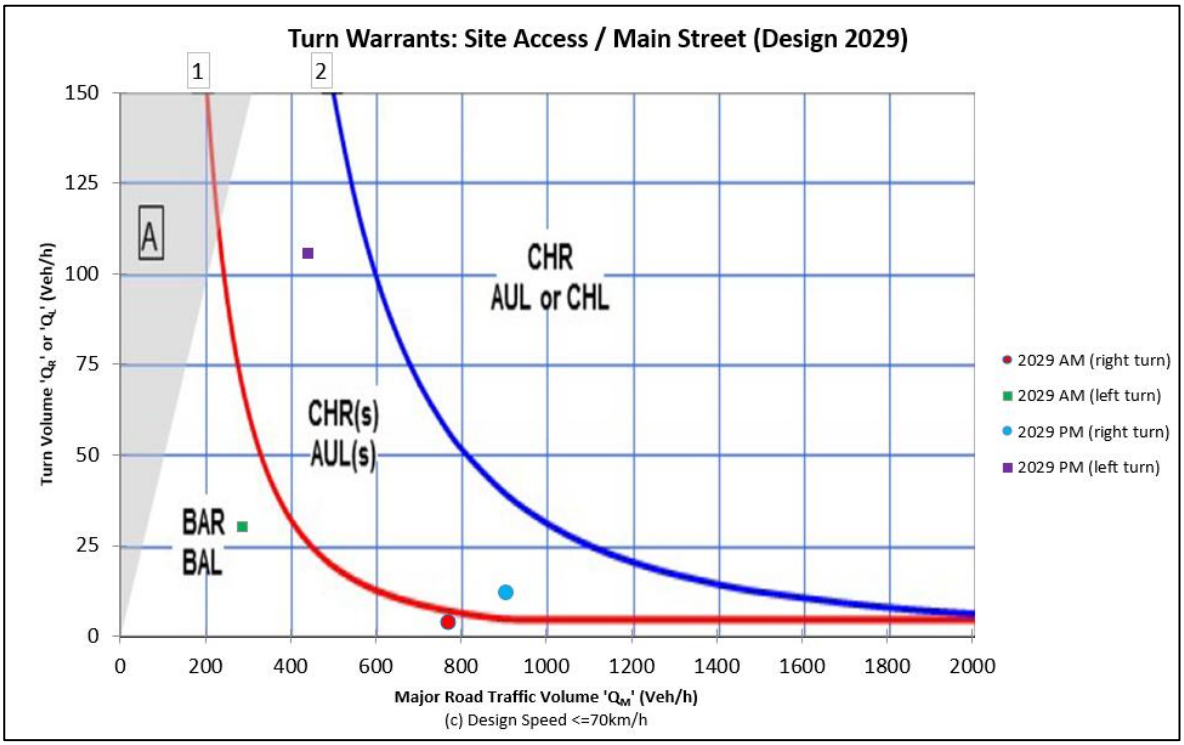


Figure 4-3 Main Street / Site Access Intersection - Turn Lane Warrant Assessment 2029 Design Traffic

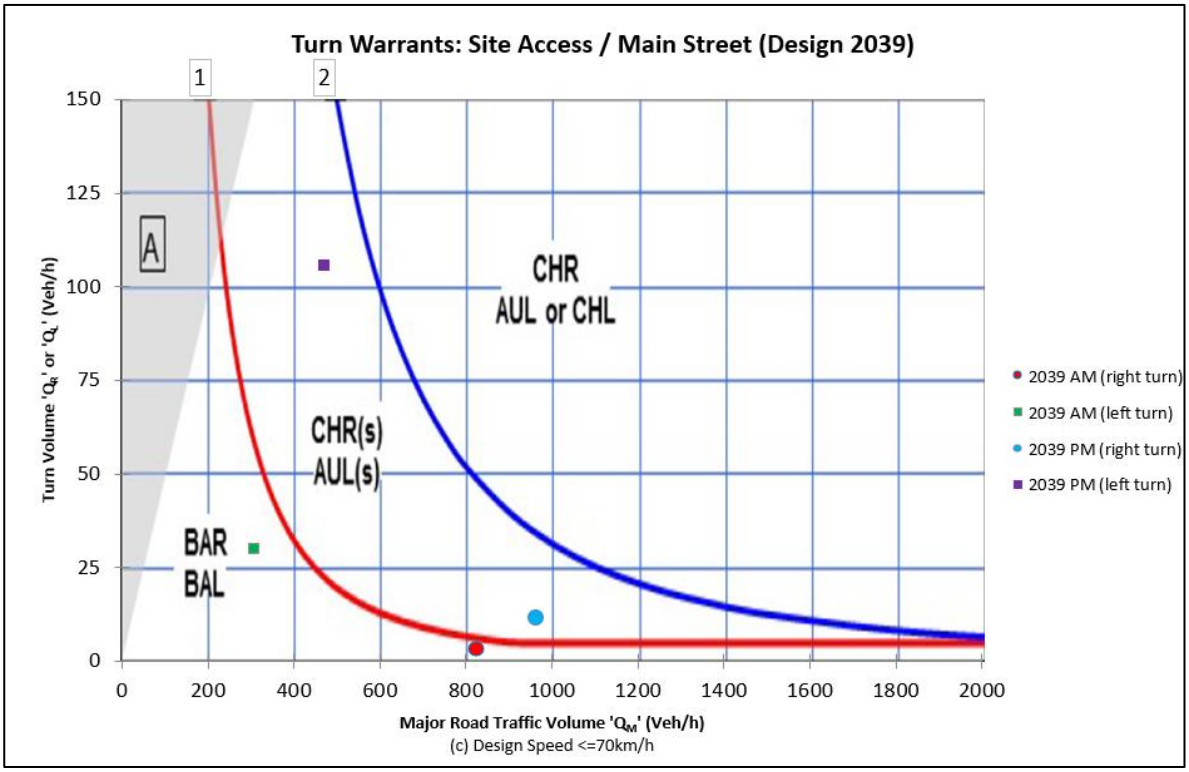


Figure 4-4 Main Street / Site Access Intersection - Turn Lane Warrant Assessment 2039 Design Traffic

As shown in **Figure 4-3** and **Figure 4-4**, the turn lane warrant assessment indicates that the Main Street / Site Access intersection requires a short auxiliary left-turn treatment (AUL(s)) and a channelised right turn treatment CHR(s) in both 2029 and 2039 design scenarios.

We note, however, that the ability to deliver a CHR(s) in accordance with Austroads Normal Design Domain (NDD), is compromised by the close proximity of the adjacent lot boundaries…

With respect to above, Austroads states that Extended Design Domain (EDD) parameters can be applied if a site has existing constraints. We have therefore completed a turn lane warrant assessment using EDD parameters, the results are shown in **Figure 4-5** and **Figure 4-6**.

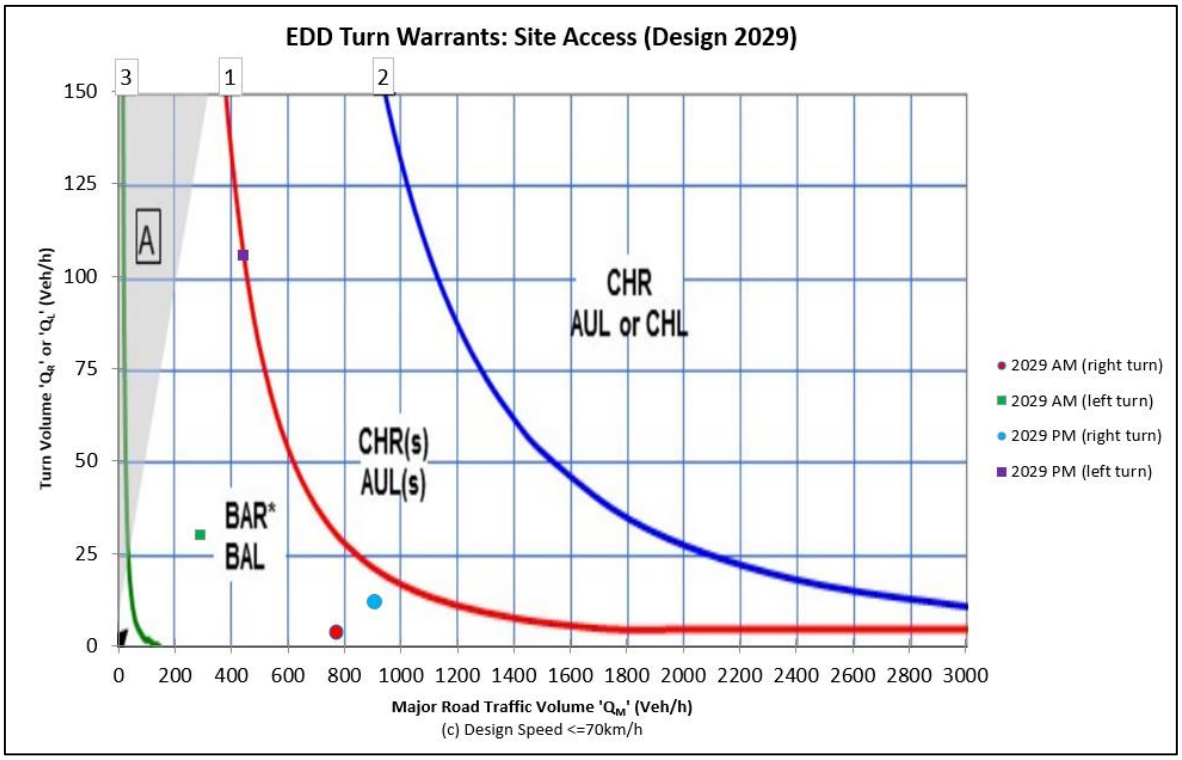


Figure 4-5 Main Street / Site Access Intersection - EDD Turn Lane Warrant Assessment 2029 Design Traffic

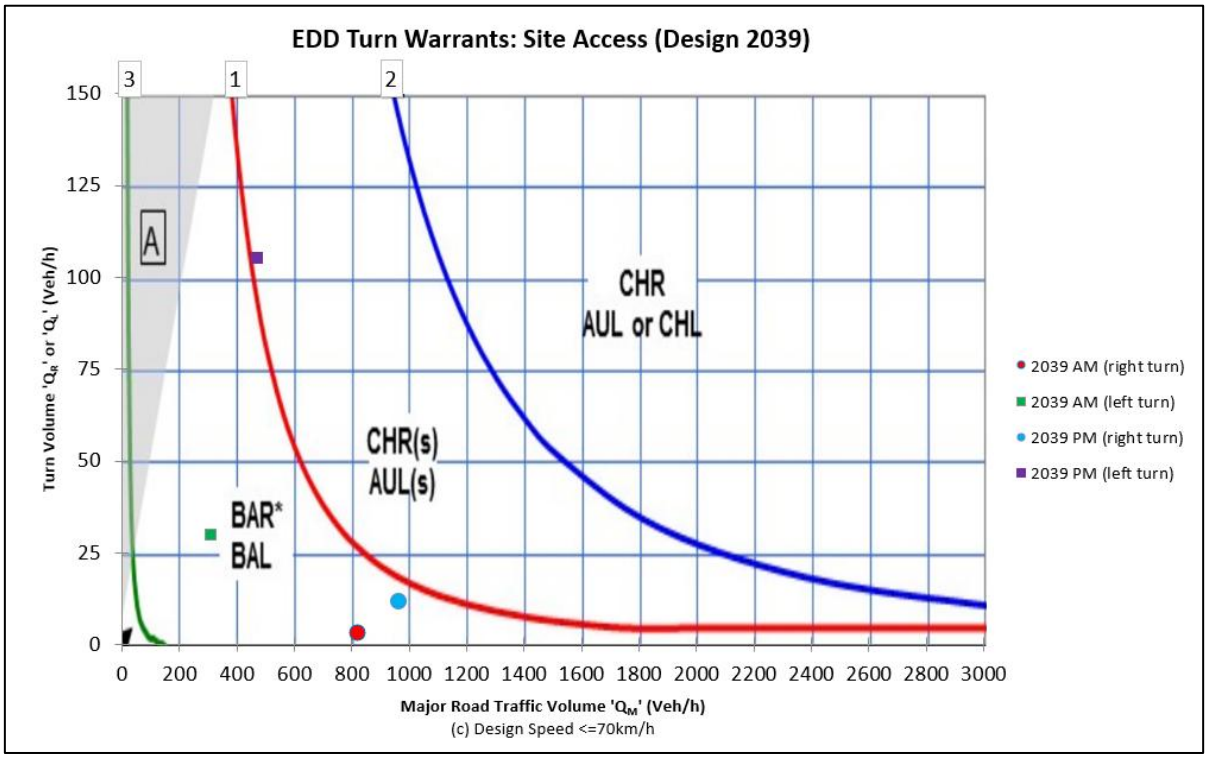


Figure 4-6 Main Street / Site Access Intersection – EDD Turn Lane Warrant Assessment 2039 Design Traffic

As shown in **Figure 4-5** and **Figure 4-6**, the EDD turn lane warrant assessment indicates that a CHR(s) is not required in both 2029 and 2039 design scenarios and instead, a Basic Auxiliary Right (BAR) turn lane is triggered. We note that a (AUL(s)) is triggered in both design scenarios.

As a result of above, the future form of the Main Street / Site Access intersection has been modelled in SIDRA with an AUL(s), as shown in **Figure 4-7**. The AUL(s) is to incorporate a 35m turn lane (including taper), in accordance with Austroads design requirements. **Table 4-3** presents the results of the SIDRA intersection analysis, with detailed movement SIDRA Outputs attached in **Appendix C**.

We note that functional layout plan for this intersection has also been prepared and can be found in **Appendix D**.

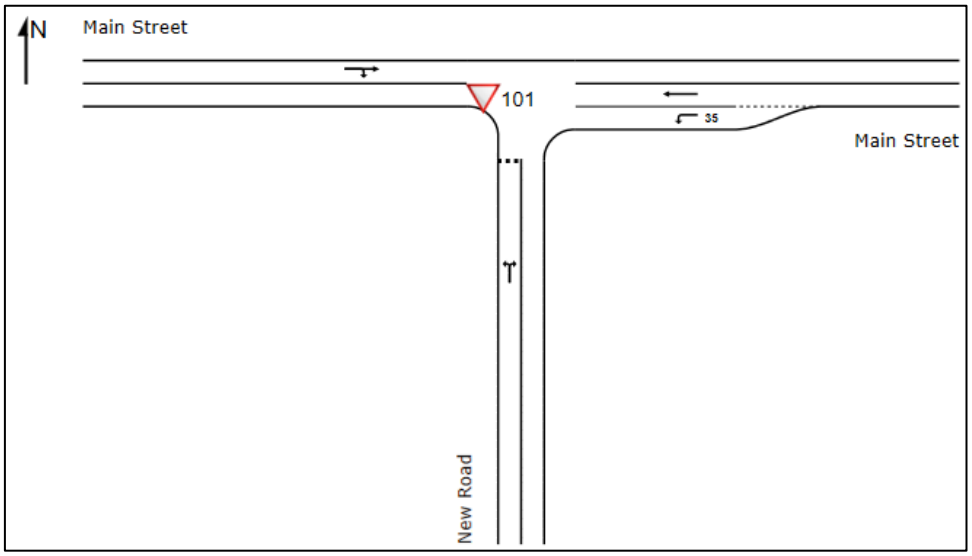


Figure 4-7 Main Street / Site Access – SIDRA Layout

Table 4-3 Main Street / Site Access – SIDRA Results

SCENARIO	APPROACH	AM PEAK				PM PEAK			
		DOS	AVG DELAY (S)	LOS	95% BACK OF QUEUE (M)	DOS	AVG DELAY (S)	LOS	95% BACK OF QUEUE (M)
2029 Design Traffic (incl. Development)	New Rd (S)	0.321	14.5	LOS B	9.8	0.142	14.4	LOS B	3.5
	Main St (E)	0.162	0.6	NA	0	0.247	1.1	NA	0
	Main St (W)	0.256	0	NA	0.3	0.218	0.5	NA	1.4
2039 Design Traffic (incl. Development)	New Rd (S)	0.349	15.9	LOS C	10.8	0.157	15.5	LOS C	3.8
	Main St (E)	0.173	0.5	NA	0	0.263	1.1	NA	0
	Main St (W)	0.272	0	NA	0.3	0.232	0.5	NA	1.5

As indicated in **Table 4-3**, the Main Street / Site Access intersection will theoretically operate below capacity during the year of opening (2029) and 10-year design horizon (2039) in both peak periods with acceptable queues and delays on all approaches. Based on above, we recommend that an AUL(s) of 35m in length (including taper based on Austroads requirements) is provided to facilitate safe left turn movements into the site access.

4.7.3. Highfields Road / Meringandan Road Intersection

The existing form of the Highfields Road / Meringandan Road intersection has been modelled in SIDRA, as shown in **Figure 4-8. Table 4-4** presents the results of the SIDRA intersection analysis, with detailed movement SIDRA outputs attached in **Appendix C**.

Figure 4-8 Highfields Road / Meringandan Road – SIDRA Layout

Table 4-4 Highfields Road / Meringandan Road – SIDRA Results

SCENARIO	APPROACH	AM PEAK				PM PEAK			
		DOS	AVG DELAY (S)	LOS	95% BACK OF QUEUE (M)	DOS	AVG DELAY (S)	LOS	95% BACK OF QUEUE (M)
2029 Design Traffic (incl. Development)	Highfields Rd (South)	0.518	14	LOS B	35.5	0.423	9.6	LOS A	16.8
	Meringandan Rd (East)	0.118	3.3	NA	0	0.098	1.1	NA	0
	Highfields Rd (West)	0.398	5.4	NA	17.9	0.273	4.8	NA	11.1
2039 Design Traffic (incl. Development)	Highfields Rd (South)	0.587	16.6	LOS C	52.9	0.453	10.1	LOS B	21
	Meringandan Rd (East)	0.128	3.3	NA	0	0.108	1.1	NA	0
	Highfields Rd (West)	0.424	5.5	NA	19.5	0.293	4.9	NA	12.1

As indicated in **Table 4-4**, the Highfields Road / Meringandan Road intersection will theoretically operate below capacity during the year of opening (2029) and 10-year design horizon (2039) in both peak periods with acceptable queues and delays on all approaches, as a result of the development.

4.8. Road Network Capacity Analysis

Table 4-5 summaries the estimated traffic volumes on existing and proposed road infrastructure within close proximity to the development site. We note that TRC's Planning Scheme Policy does not provide typical traffic volume thresholds for all road hierarchies therefore the road network has also been assessed against the target capacity volumes provided within the interim LGIP Amendment currently available.

Table 4-5 Summary of Road Network Volumes and Capacity

Road Name	Road Hierarchy	Maximum proposed Lots	PSP Capacity	Peak Hour Volume per lane	Interim LGIP Amendment Target Capacity (pcus per lane-hour)
Main Street	Regional Arterial Road	-	-	483	1800
Meringandan Road	Regional Arterial Road	-	-	154	1,800
Highfields Road	Sub-Arterial	-	-	722	1,500
Internal 23.0m wide New Road	Collector	199 Lots	300 Lots	132	300
Internal 19.0m New Road	Local Access	187 Lots	175 lots	124	100
Internal 18.0m New Road	Local Access	67 Lots	75 lots	44	100

We note the proposed internal 19.0m wide road will provide access to approximately 187 lots which Marginally exceeds the 175 lots threshold however this will only occur over a small 30m section of this road adjacent to Lot 113 which is considered acceptable in our view.

The 23m wide internal collector has sufficient capacity to allow access to an additional 101 lots in future stages of the development without exceeding the TRC's capacity threshold. We also note in the ultimate development scenario once Heushile Road is constructed, traffic will be split across two accesses reducing traffic on the internal road network.

5. Summary

Lambert & Rehbein (SEQ) Pty Ltd have been commissioned by KDL Property Group Pty Ltd to prepare a Traffic Impact Assessment report in support of the proposed Development Application (DA) for a residential subdivision located along Meringandan Road, Meringandan QLD 4352. The development site is formally described as Lot 3 on AG4138 and Lot 1 on RP27298, with total site area of approximately 36.813ha. The proposal involves the development of 199 residential lots and two (2) balance lots. Access to the proposed development will be via a new access intersection that connects to Main Street along the site's northern frontage.

The proposed development will gain access to the external road network via Main Street at the site's northern frontage. The form of this intersection will be a priority-controlled T-intersection and will provide all-movements access in and out of the development site. The access intersection meets the minimum sight distance requirements as per Austroads. It should be noted that there are several trees/overgrown grass located along the Main Street frontage, which if removed, would further improve available sight distance at this location for all road users. Main Street currently provides a 13.0m wide road reserve at the site's access location. A 3.1m wide road dedication has been allowed to accommodate a 17m Regional Arterial Road including a dedicated left turn lane into the site.

The proposed internal road network has been designed in accordance with TRC's *Engineering Standards Roads and Drainage Infrastructure Planning Scheme Policy*. It is noted that frontage works to Heuschle Road (towards the south of the development site) will also be constructed as per TRC's *Engineering Standards Roads and Drainage Infrastructure Planning Scheme Policy.* This includes one (1) half of the full carriageway width plus one (1) 3.5m wide traffic lane and 0.5m of pavement for a shoulder. This will provide two-way functionality for the access street and will facilitate connectivity within the subdivision.

The proposed internal road carriageway has been designed generally in accordance with TRC's *Engineering Standards Roads and Drainage Infrastructure Planning Scheme Policy* and will therefore accommodate the spatial requirements of an RCV. We note that temporary turnaround bays will be provided at the end of each stub road to facilitate turnaround of the RCV. Bin pads will also be provided adjacent to Lot 419 to facilitate refuse collection for Lots 416 to 418 and adjacent to lot 344 to facilitate refuse collection for lot 345.

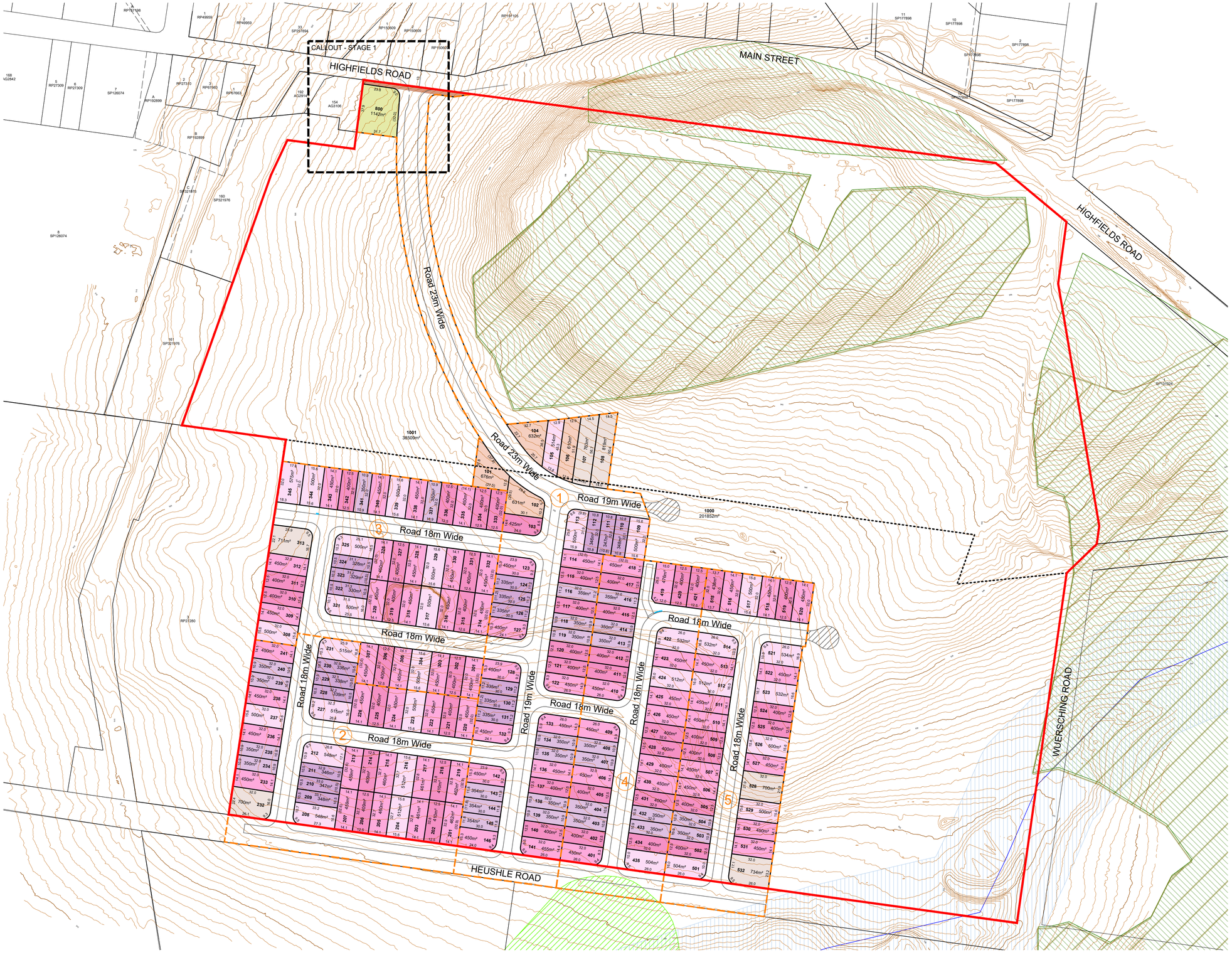
The development site is anticipated to generate a total of 165 trips in the AM Peak (combined in and out) and 167 trips in the PM peak (combined in and out). The future form of the Main Street / Site Access intersection has been modelled in SIDRA with an AUL(s) and will theoretically operate below capacity during the year of opening (2029) and 10-year design horizon (2039) in both peak periods with acceptable queues and delays on all approaches.

The Highfields Road / Meringandan Road intersection will theoretically operate below capacity during the year of opening (2029) and 10-year design horizon (2039) in both peak periods with acceptable queues and delays on all approaches, as a result of the development.

We do not believe that any traffic and transport engineering matters have been identified that should preclude the approval of the proposed development.

Appendix A – Site Layout

CONCEPT PLAN - OVERALL



LEGEND

- Site Boundary
- Major Contour (5.0m interval)
- Major Contour (0.5m interval)
- Environmental Significance - High
- Environmental Significance - General
- Koala Habitat Area
- Waterways and Wetlands Buffer
- Waterways and Wetlands
- Stage Boundary
- (3) Stage No.
- Indicative Bin Pad location
- Temporary Turn Around Easement

DEVELOPMENT STATISTICS - Overall			
RESIDENTIAL ALLOTMENTS	**No. Lots**	**%**	**Net Area**
300m² - < 350m²	18	9.0%	0.609 ha
350m² - < 400m²	27	13.6%	0.948 ha
400m² - < 450m²	45	22.6%	1.811 ha
450m² - < 500m²	68	34.2%	3.073 ha
500m² - < 600m²	31	15.6%	1.591 ha
> 600m²	4	2.0%	0.255 ha
Duplex	6	3.0%	0.442 ha
Total Residential Allotments	**199**	**100.0%**	**8.729 ha**

Land Budget	**Area (Ha)**	**%**	
Area of Subject Site / Stage	36.813 ha	—	
Net Residential Area (no roads)	8.729 ha	23.7%	
Detention / Drainage	0.114 ha	0.3%	
Road Widening	0.029 ha	0.1%	
Road Areas	3.905 ha	10.6%	
Balance (Lot 1000 & 1001)	24.036 ha	65.3%	
Total	**36.813 ha**	**100.0%**	

SCALE @A1 1:1500 @A3 1:3000 - LENGTHS ARE IN METRES

20 0 20 40 60 80 100 120 140 160 180

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744 | saundershavill.com

SOURCE
PROJECTION: SURVEY COORDINATES
SUBJECT BOUNDARIES: SURVEY FROM SAUNDERS HAVILL DATED 04/06/2025
CONTOURS: ELVIS - SURVEY BY SAUNDERS HAVILL DATED 04/06/2025
STATE OVERLAYS: QUEENSLAND GOVERNMENT
LOCAL OVERLAYS: TOOWOOMBA REGIONAL COUNCIL

N

CLIENT
KDL PROPERTY GROUP PTY LTD

SITE ADDRESS
MERINGANDAN ROAD, MERINGANDAN

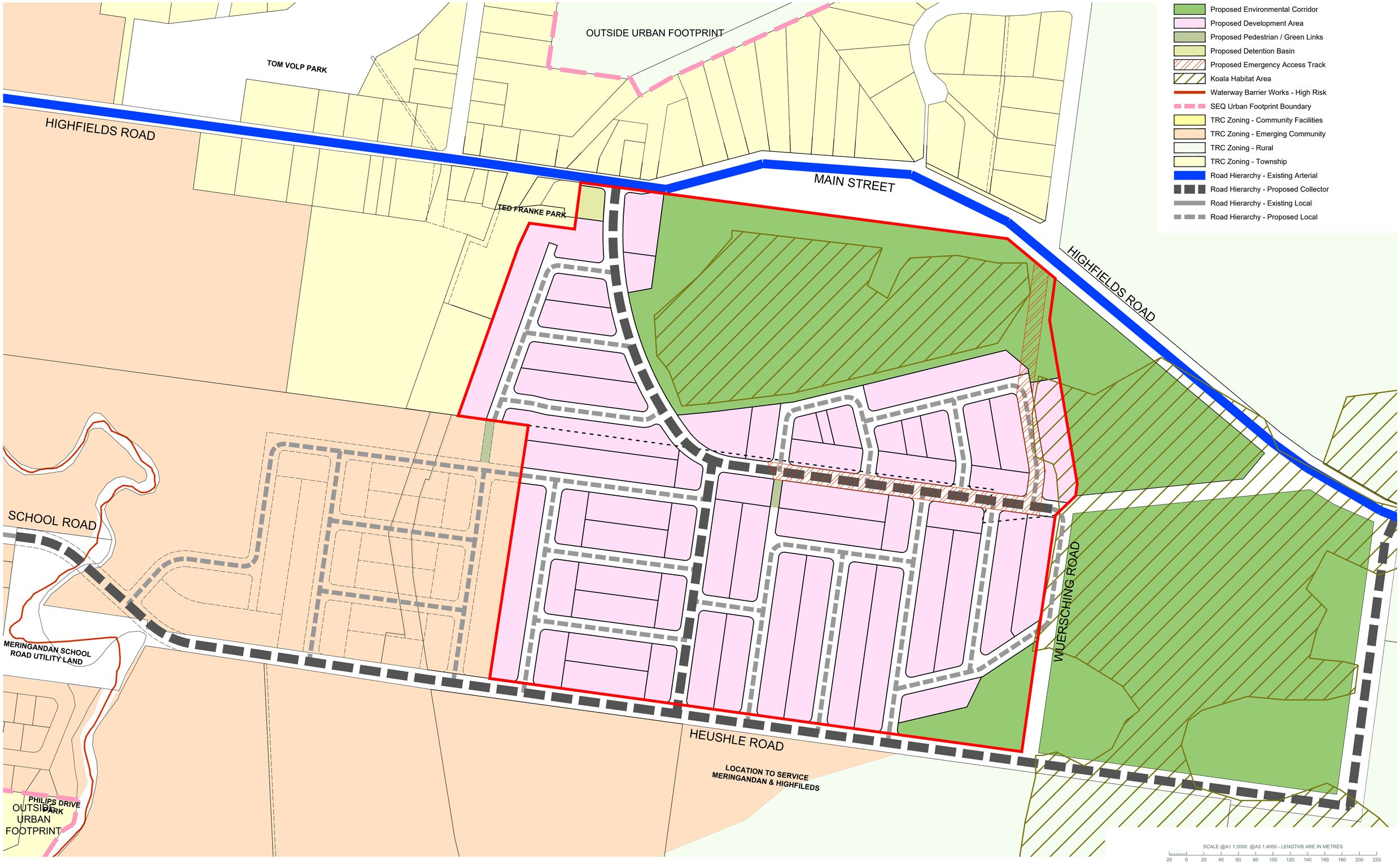
RP DESCRIPTION
Lot 3 on AG4138 & Lot 1 on RP27298

DRAWN
JC

DATE
26/05/2026

DRAWING NO.
12459 P 12 Rev I - CON 01

STRUCTURE PLAN



LEGEND

- Site Boundary
- Proposed Environmental Corridor
- Proposed Development Area
- Proposed Pedestrian / Green Links
- Proposed Detention Basin
- Proposed Emergency Access Track
- Koala Habitat Area
- Waterway Barrier Works - High Risk
- SEQ Urban Footprint Boundary
- TRC Zoning - Community Facilities
- TRC Zoning - Emerging Community
- TRC Zoning - Rural
- TRC Zoning - Township
- Road Hierarchy - Existing Arterial
- Road Hierarchy - Proposed Collector
- Road Hierarchy - Existing Local
- Road Hierarchy - Proposed Local

SCALE @A1 1:2000 @A3 1:4000 - LENGTHS ARE IN METRES

20 0 20 40 60 80 100 120 140 160 180 200 220

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SOURCE
PROJECTION: SURVEY COORDINATES
SUBJECT BOUNDARIES: SURVEY FROM SAUNDERS HAVILL DATED 04/06/2025
CONTOURS: ELVIS - SURVEY BY SAUNDERS HAVILL DATED 04/06/2025
STATE OVERLAYS: QUEENSLAND GOVERNMENT
LOCAL OVERLAYS: TOOWOOMBA REGIONAL COUNCIL

N

CLIENT
KDL PROPERTY GROUP PTY LTD

SITE ADDRESS
MERINGANDAN ROAD, MERINGANDAN

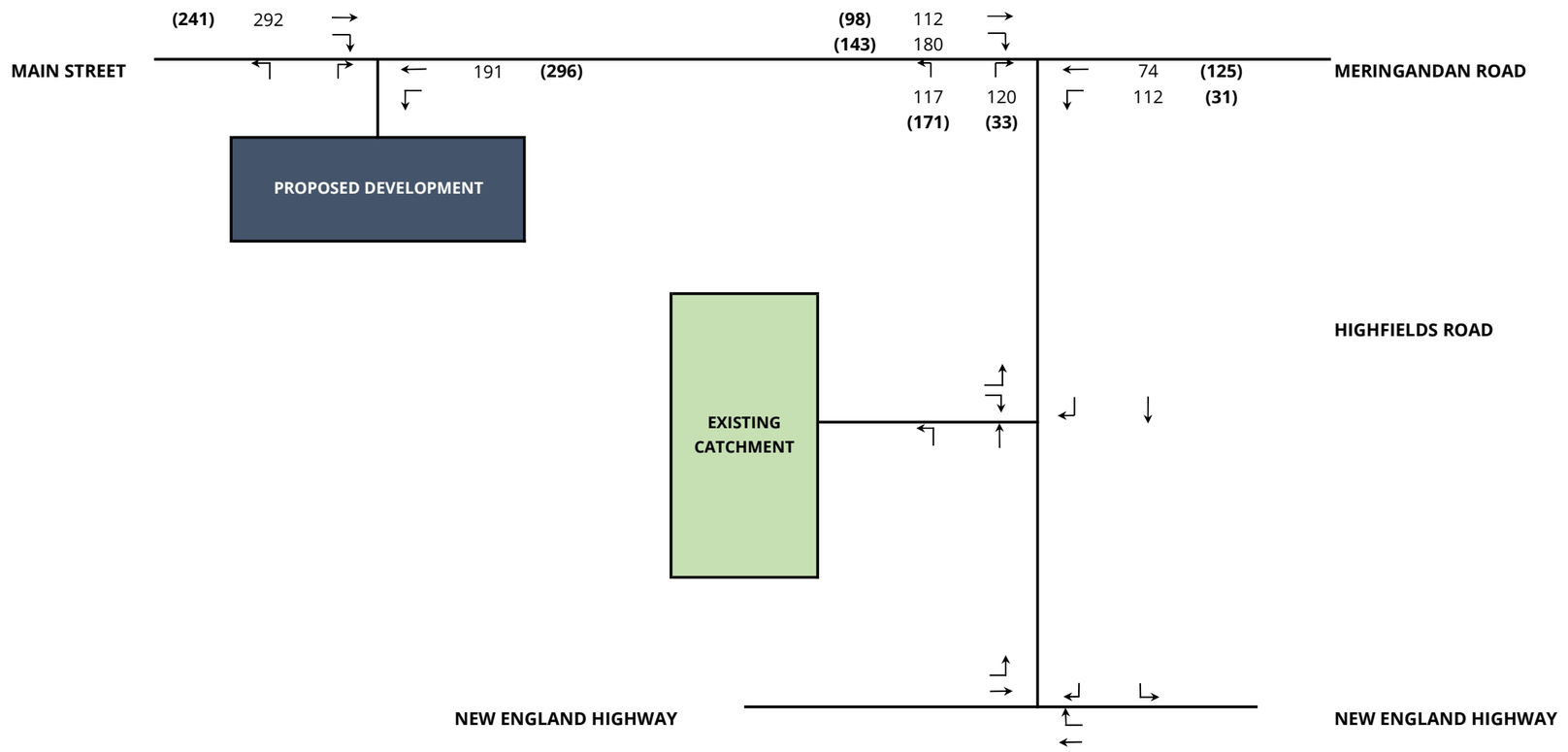
RP DESCRIPTION
Lot 3 on AG4138 & Lot 1 on RP27298

DRAWN
JC

DATE
27/05/2026

DRAWING NO.
12459 P 13 Rev G - STR 01

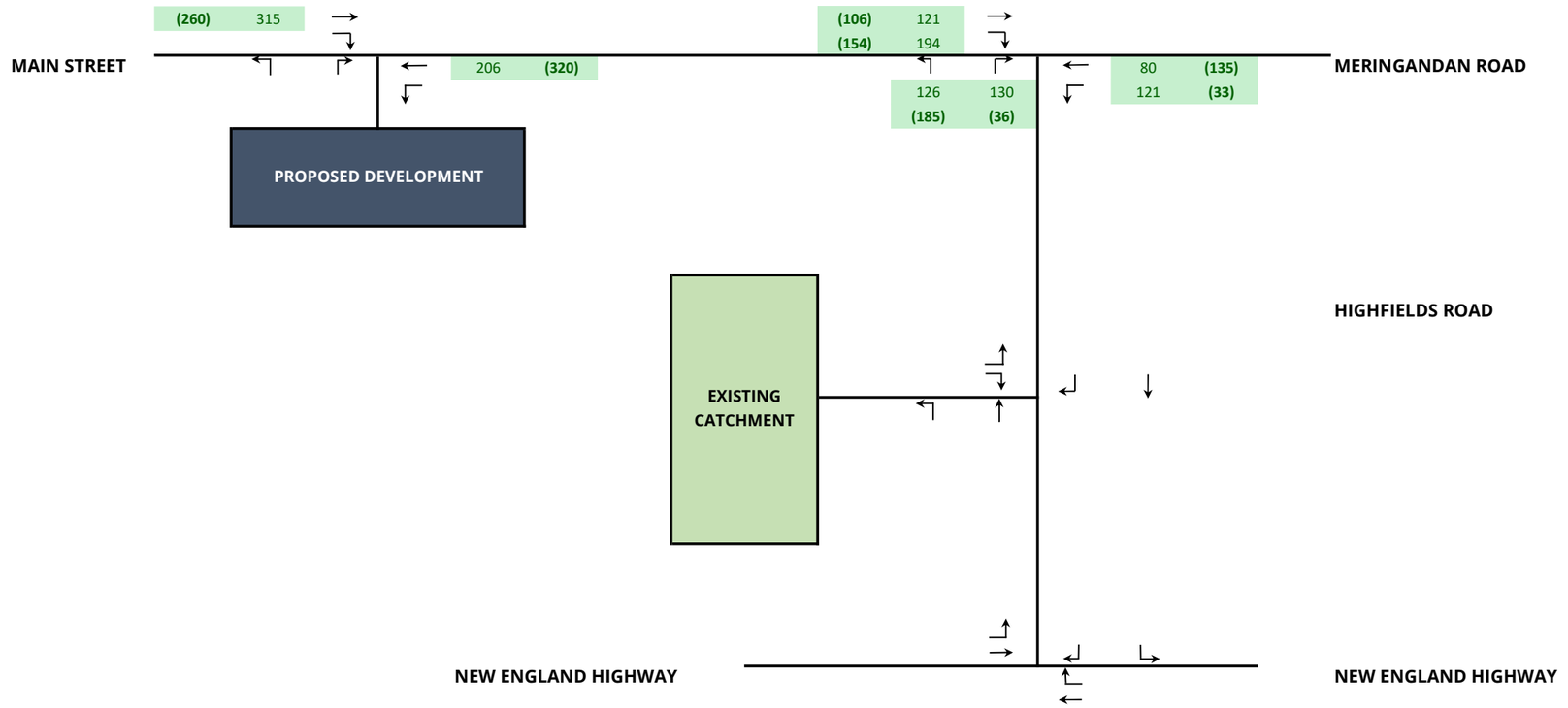
Appendix B – Traffic Movement Diagrams



Weekday AM
Peak Period 7:30AM to 8:30 AM
(Weekday PM)
Peak Period 3:00 PM to 4:00 PM

Project Number:	B25176	Title:				Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Background Traffic - All Vehicles**				B 1
Address:	MERINGANDAN ROAD	**2021**				
Client:	KDL Property Group Pty Ltd	Source: HIG TIA Lot 5 SP339730 Browne Road (Stage 8+9)	Prepared: KC/ZN	Rev: A	Date: Jun-26	

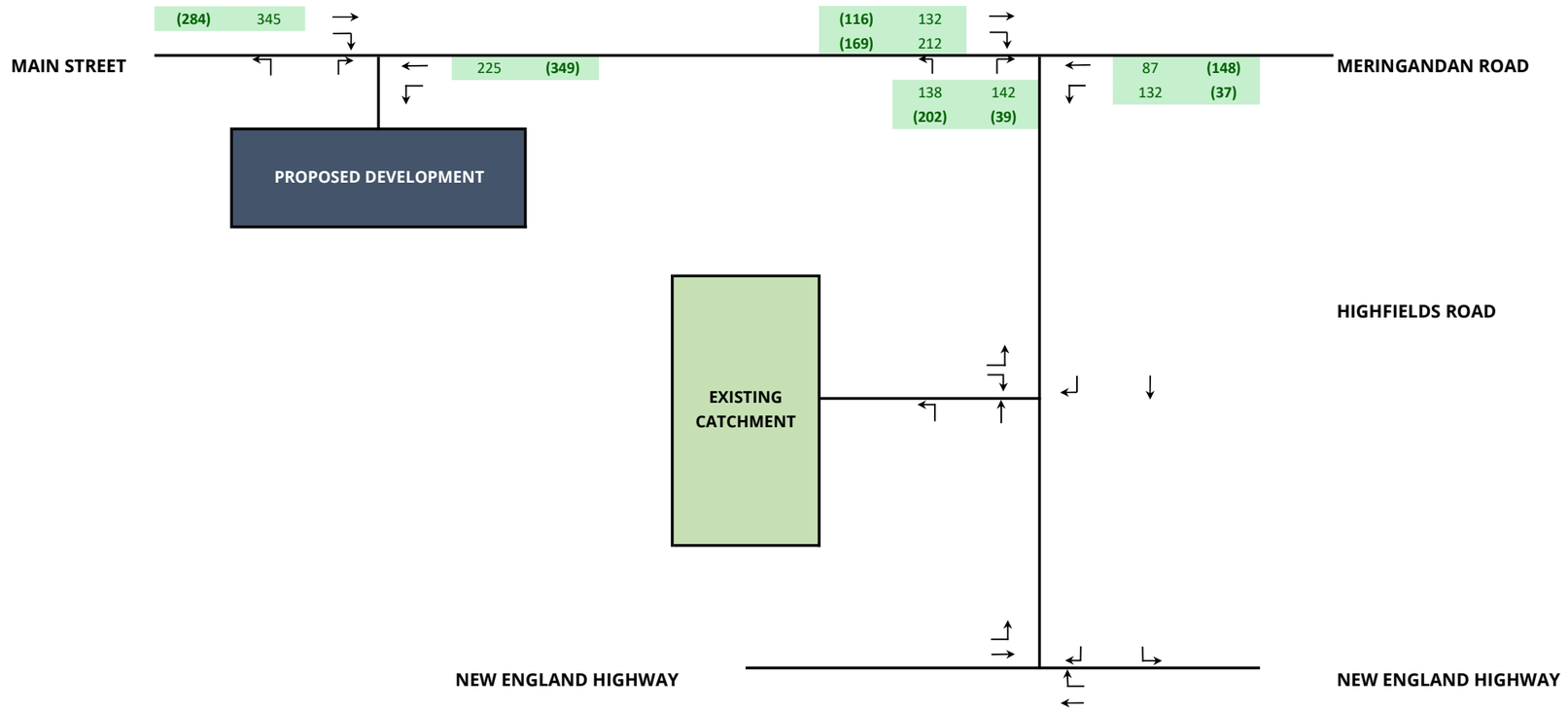
Highfields Road
Growth 1%



Weekday AM
Peak Period 7:45 AM to 8:45 AM
(Weekday PM)
Peak Period 3:00 PM to 4:00 PM

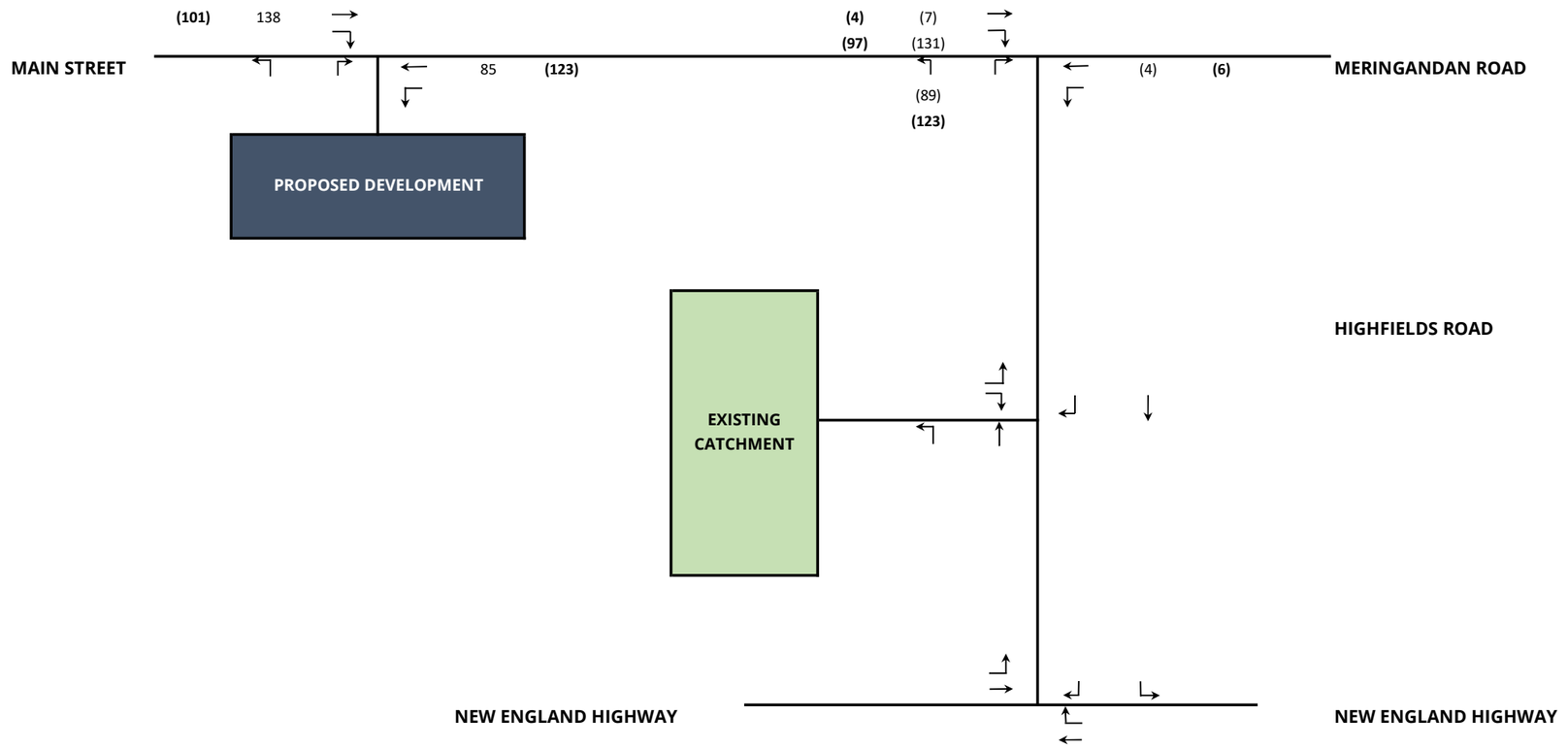
Project Number:	B25176	Title:			Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Background Traffic - All Vehicles 2029**			B 2
Address:	MERINGANDAN ROAD				
Client:	KDL Property Group Pty Ltd	Source:	Prepared: KC/ZN	Rev: A Date: Jun-26	

Highfields Road
Growth 1%



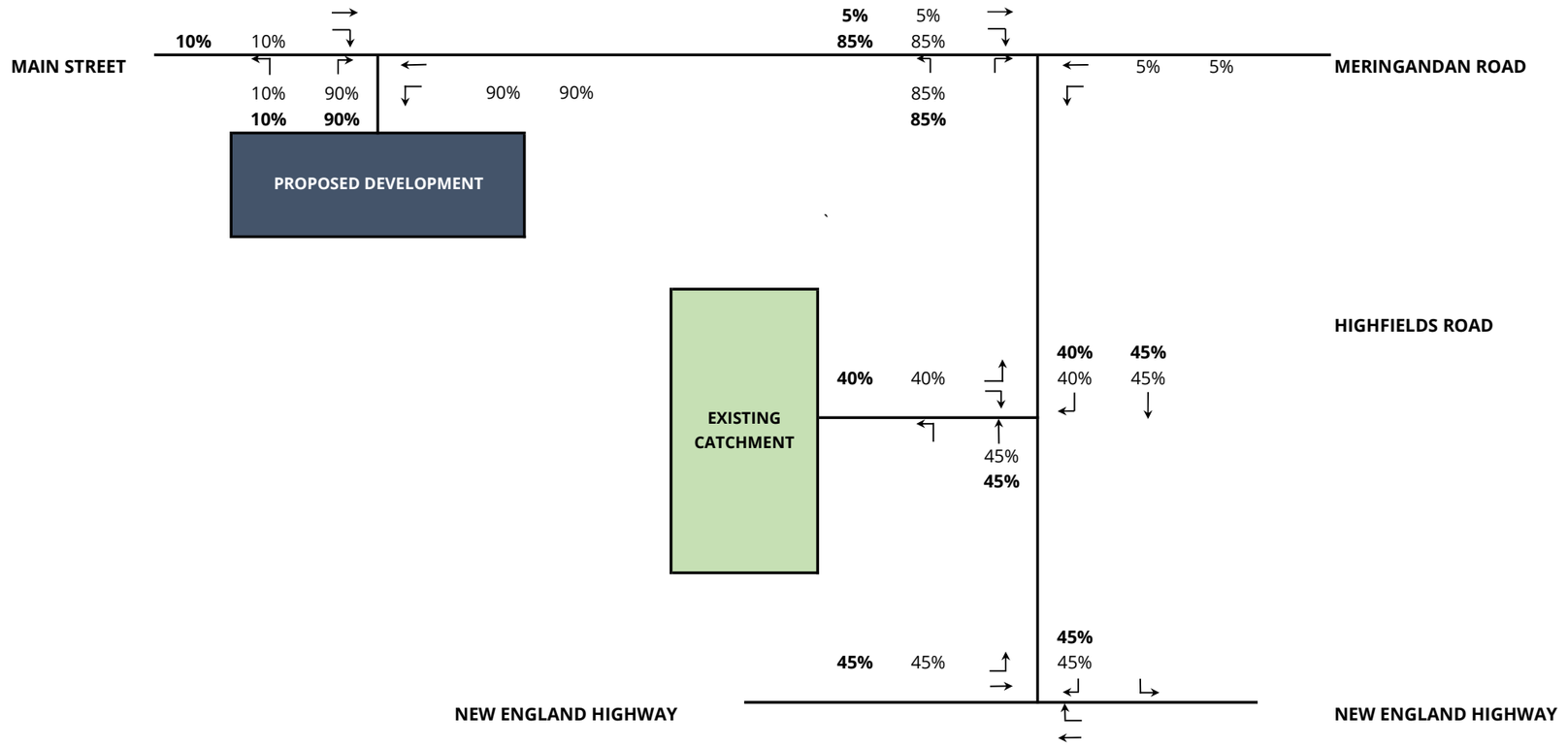
Weekday AM
Peak Period 7:45 AM to 8:45 AM
(Weekday PM)
Peak Period 3:00 PM to 4:00 PM

Project Number:	B25176	Title:			Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Background Traffic - All Vehicles**			B 3
Address:	MERINGANDAN ROAD	**2039**			
Client:	KDL Property Group Pty Ltd	Source:	Prepared: KC/ZN	Rev: A Date: Jun-26	

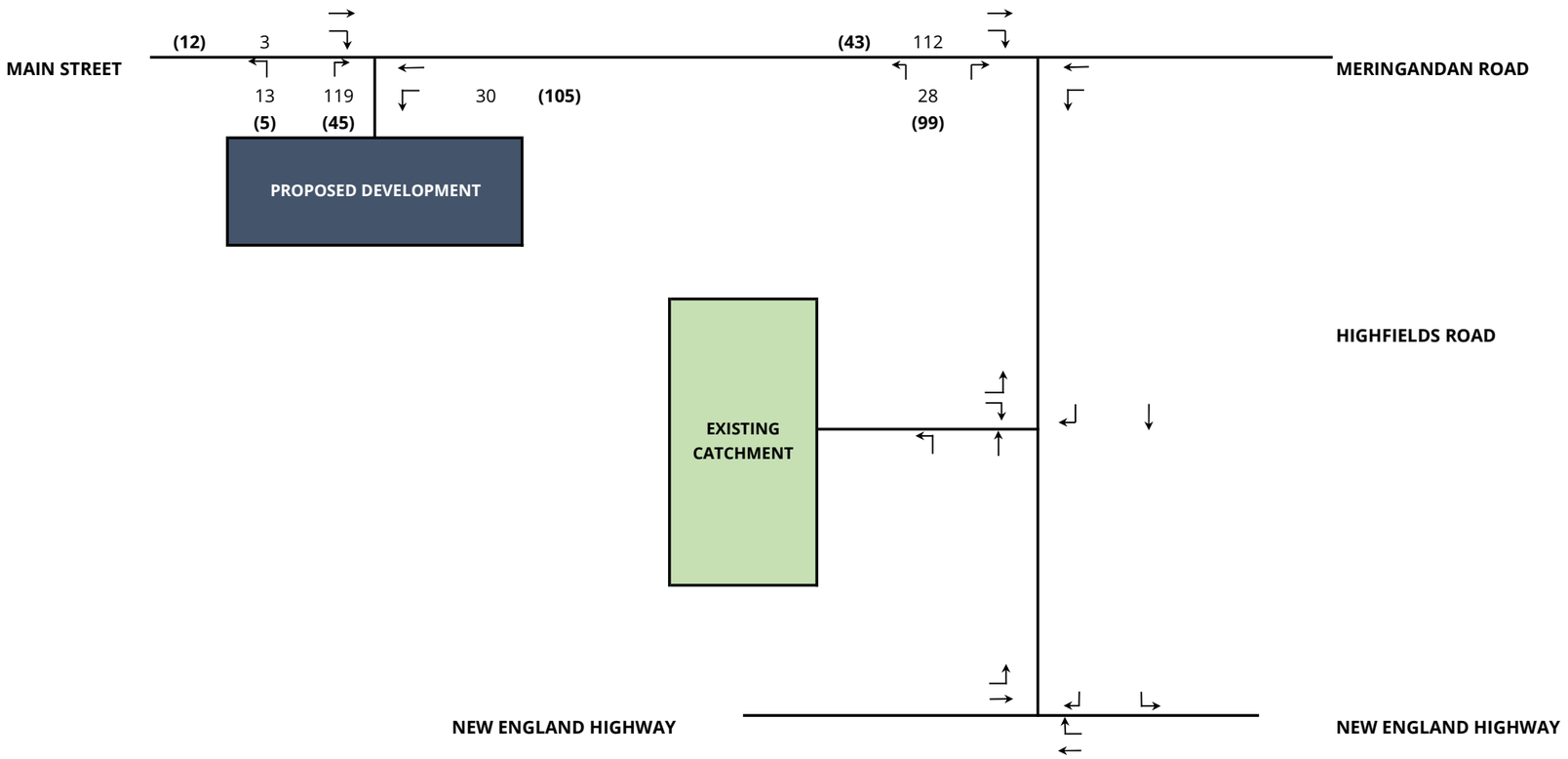


Weekday AM
Peak Period 7:45 AM to 8:45 AM
(Weekday PM)
Peak Period 3:00 PM to 4:00 PM

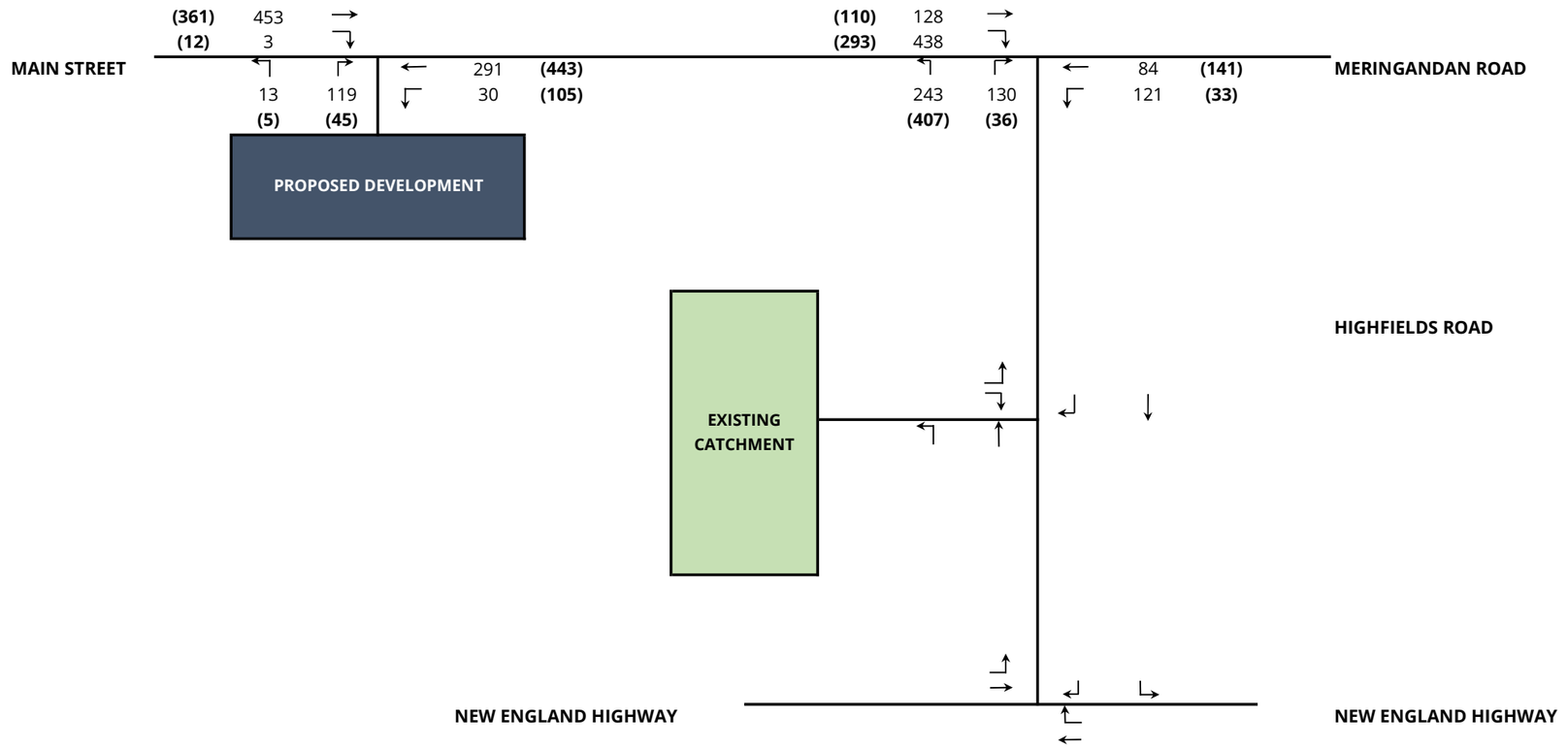
Project Number:	B25176	Title:				Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Adjacent Approved Developemnt Traffic - All Vehicles (Combined)**				B 4
Address:	MERINGANDAN ROAD					
Client:	KDL Property Group Pty Ltd	Source:	Prepared:	KC/ZN	Rev: A Date: Jun-26	



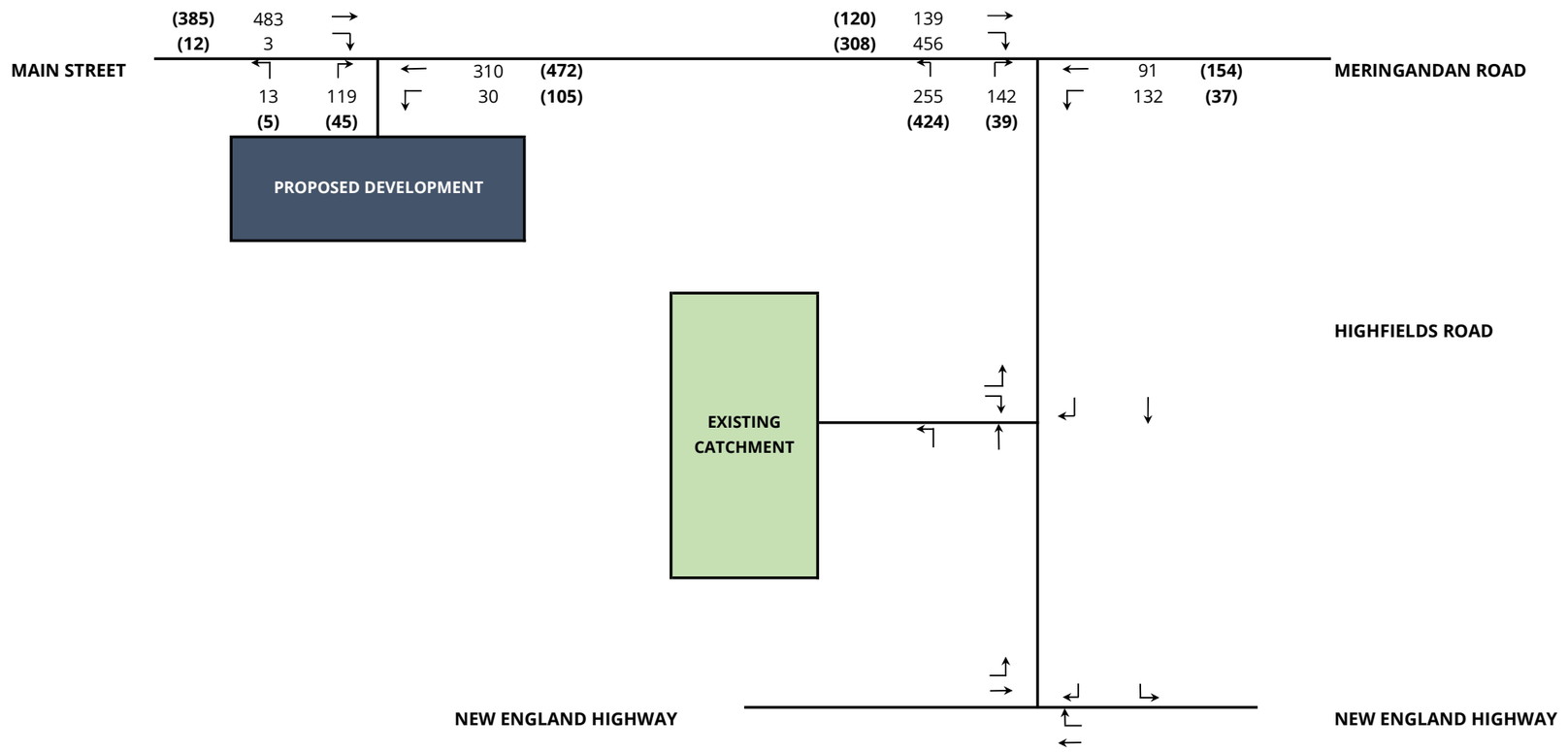
Project Number:	B25176	Title:			Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Development Traffic (%)**			B 5
Address:	MERINGANDAN ROAD				
Client:	KDL Property Group Pty Ltd		Prepared: KC/ZN	Rev: A Date: Jun-26	



Project Number:	B25176	Title:			Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Development Traffic (Volume)**			B 6
Address:	MERINGANDAN ROAD				
Client:	KDL Property Group Pty Ltd		Prepared: KC/ZN	Rev: A Date: Jun-26	



Project Number:	B25176	Title:			Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Design Traffic**			B 7
Address:	MERINGANDAN ROAD	**2029**			
Client:	KDL Property Group Pty Ltd		Prepared: KC/ZN	Rev: A Date: Jun-26	



Project Number:	B25176	Title:			Figure Number:
Project Name:	PROPOSED RESIDENTIAL SUBDIVISION	**Design Traffic**			B 8
Address:	MERINGANDAN ROAD	**2039**			
Client:	KDL Property Group Pty Ltd		Prepared: KC/ZN	Rev: A Date: Jun-26	

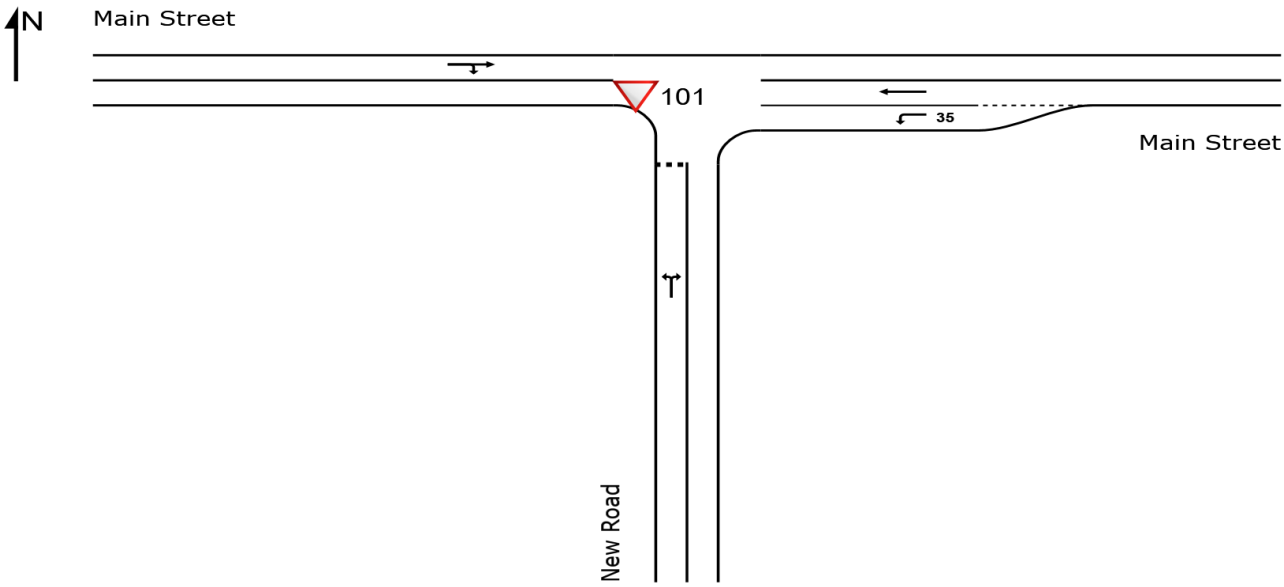
Appendix C – SIDRA Results

SITE LAYOUT

Site: 101 [Design 2029 AM (Site Folder: Main Street / Site Access)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Design 2029 AM (Site Folder: Main Street / Site Access)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Road															
1	L2	All MCs	14	0.0	14	0.0	0.321	7.7	LOS A	1.4	9.8	0.71	0.93	0.87	46.8
3	R2	All MCs	125	0.0	125	0.0	0.321	15.2	LOS C	1.4	9.8	0.71	0.93	0.87	46.7
Approach			139	0.0	139	0.0	0.321	14.5	LOS B	1.4	9.8	0.71	0.93	0.87	46.7
East: Main Street															
4	L2	All MCs	32	0.0	32	0.0	0.017	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
5	T1	All MCs	306	5.0	306	5.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			338	4.5	338	4.5	0.162	0.6	NA	0.0	0.0	0.00	0.05	0.00	59.2
West: Main Street															
11	T1	All MCs	477	5.0	477	5.0	0.256	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.9
12	R2	All MCs	3	0.0	3	0.0	0.256	5.9	LOS A	0.0	0.3	0.01	0.01	0.01	57.1
Approach			480	5.0	480	5.0	0.256	0.0	NA	0.0	0.3	0.01	0.01	0.01	59.9
All Vehicles			957	4.1	957	4.1	0.321	2.3	NA	1.4	9.8	0.11	0.16	0.13	57.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Design 2029 PM (Site Folder: Main Street / Site Access)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Road															
1	L2	All MCs	5	0.0	5	0.0	0.142	7.4	LOS A	0.5	3.5	0.72	0.88	0.72	46.9
3	R2	All MCs	47	0.0	47	0.0	0.142	15.2	LOS C	0.5	3.5	0.72	0.88	0.72	46.8
Approach			53	0.0	53	0.0	0.142	14.4	LOS B	0.5	3.5	0.72	0.88	0.72	46.8
East: Main Street															
4	L2	All MCs	111	0.0	111	0.0	0.060	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
5	T1	All MCs	466	5.0	466	5.0	0.247	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			577	4.0	577	4.0	0.247	1.1	NA	0.0	0.0	0.00	0.11	0.00	58.4
West: Main Street															
11	T1	All MCs	380	5.0	380	5.0	0.218	0.2	LOS A	0.2	1.4	0.06	0.07	0.06	59.5
12	R2	All MCs	13	0.0	13	0.0	0.218	9.0	LOS A	0.2	1.4	0.06	0.07	0.06	56.7
Approach			393	4.8	393	4.8	0.218	0.5	NA	0.2	1.4	0.06	0.07	0.06	59.4
All Vehicles			1022	4.1	1022	4.1	0.247	1.6	NA	0.5	3.5	0.06	0.13	0.06	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Design 2039 AM (Site Folder: Main Street / Site Access)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Road															
1	L2	All MCs	14	0.0	14	0.0	0.349	8.2	LOS A	1.5	10.8	0.74	0.95	0.95	46.0
3	R2	All MCs	125	0.0	125	0.0	0.349	16.7	LOS C	1.5	10.8	0.74	0.95	0.95	45.9
Approach			139	0.0	139	0.0	0.349	15.9	LOS C	1.5	10.8	0.74	0.95	0.95	45.9
East: Main Street															
4	L2	All MCs	32	0.0	32	0.0	0.017	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
5	T1	All MCs	326	5.0	326	5.0	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			358	4.6	358	4.6	0.173	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.2
West: Main Street															
11	T1	All MCs	508	5.0	508	5.0	0.272	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.9
12	R2	All MCs	3	0.0	3	0.0	0.272	6.0	LOS A	0.0	0.3	0.01	0.01	0.01	57.1
Approach			512	5.0	512	5.0	0.272	0.0	NA	0.0	0.3	0.01	0.01	0.01	59.9
All Vehicles			1008	4.1	1008	4.1	0.349	2.4	NA	1.5	10.8	0.11	0.15	0.13	57.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Design 2039 PM (Site Folder: Main Street / Site Access)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Road															
1	L2	All MCs	5	0.0	5	0.0	0.157	7.6	LOS A	0.5	3.8	0.75	0.90	0.75	46.2
3	R2	All MCs	47	0.0	47	0.0	0.157	16.4	LOS C	0.5	3.8	0.75	0.90	0.75	46.1
Approach			53	0.0	53	0.0	0.157	15.5	LOS C	0.5	3.8	0.75	0.90	0.75	46.1
East: Main Street															
4	L2	All MCs	111	0.0	111	0.0	0.060	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
5	T1	All MCs	497	5.0	497	5.0	0.263	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			607	4.1	607	4.1	0.263	1.1	NA	0.0	0.0	0.00	0.10	0.00	58.4
West: Main Street															
11	T1	All MCs	405	5.0	405	5.0	0.232	0.2	LOS A	0.2	1.5	0.06	0.07	0.06	59.5
12	R2	All MCs	13	0.0	13	0.0	0.232	9.4	LOS A	0.2	1.5	0.06	0.07	0.06	56.7
Approach			418	4.8	418	4.8	0.232	0.5	NA	0.2	1.5	0.06	0.07	0.06	59.4
All Vehicles			1078	4.2	1078	4.2	0.263	1.6	NA	0.5	3.8	0.06	0.13	0.06	58.0

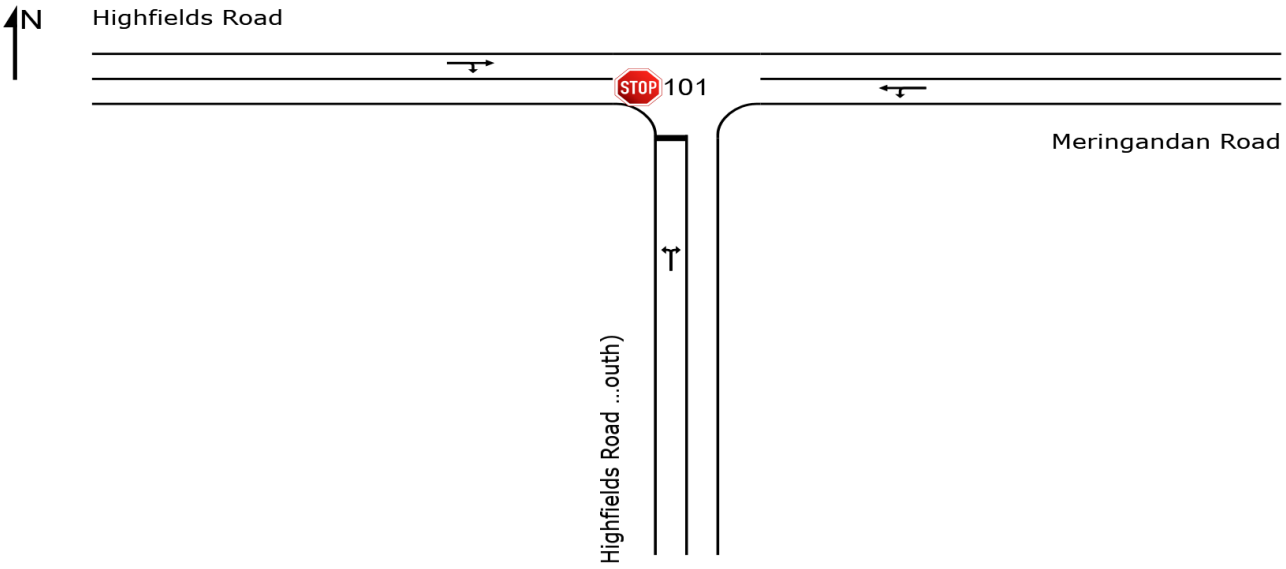
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [Design 2029 AM (Site Folder: Highfields Road / Meringandan Road)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Design 2029 AM (Site Folder: Highfields Road / Meringandan Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Highfields Road (South)															
1	L2	All MCs	256	5.0	256	5.0	0.518	10.4	LOS B	4.9	35.5	0.51	0.84	0.66	47.7
3	R2	All MCs	137	5.0	137	5.0	0.518	20.8	LOS C	4.9	35.5	0.51	0.84	0.66	47.4
Approach			393	5.0	393	5.0	0.518	14.0	LOS B	4.9	35.5	0.51	0.84	0.66	47.6
East: Meringandan Road															
4	L2	All MCs	127	5.0	127	5.0	0.118	5.6	LOS A	0.0	0.0	0.00	0.35	0.00	54.4
5	T1	All MCs	88	5.0	88	5.0	0.118	0.0	LOS A	0.0	0.0	0.00	0.35	0.00	56.9
Approach			216	5.0	216	5.0	0.118	3.3	NA	0.0	0.0	0.00	0.35	0.00	55.4
West: Highfields Road															
11	T1	All MCs	135	5.0	135	5.0	0.398	1.1	LOS A	2.5	17.9	0.43	0.54	0.43	54.7
12	R2	All MCs	461	5.0	461	5.0	0.398	6.6	LOS A	2.5	17.9	0.43	0.54	0.43	52.2
Approach			596	5.0	596	5.0	0.398	5.4	NA	2.5	17.9	0.43	0.54	0.43	52.7
All Vehicles			1204	5.0	1204	5.0	0.518	7.8	NA	4.9	35.5	0.38	0.60	0.43	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Design 2029 PM (Site Folder: Highfields Road / Meringandan Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Highfields Road (South)															
1	L2	All MCs	428	5.0	428	5.0	0.423	9.2	LOS A	2.3	16.8	0.40	0.85	0.40	50.5
3	R2	All MCs	38	5.0	38	5.0	0.423	14.2	LOS B	2.3	16.8	0.40	0.85	0.40	50.2
Approach			466	5.0	466	5.0	0.423	9.6	LOS A	2.3	16.8	0.40	0.85	0.40	50.4
East: Meringandan Road															
4	L2	All MCs	35	5.0	35	5.0	0.098	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	56.3
5	T1	All MCs	148	5.0	148	5.0	0.098	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	58.9
Approach			183	5.0	183	5.0	0.098	1.1	NA	0.0	0.0	0.00	0.11	0.00	58.4
West: Highfields Road															
11	T1	All MCs	116	5.0	116	5.0	0.273	0.8	LOS A	1.5	11.1	0.35	0.48	0.35	55.2
12	R2	All MCs	308	5.0	308	5.0	0.273	6.3	LOS A	1.5	11.1	0.35	0.48	0.35	52.6
Approach			424	5.0	424	5.0	0.273	4.8	NA	1.5	11.1	0.35	0.48	0.35	53.3
All Vehicles			1074	5.0	1074	5.0	0.423	6.3	NA	2.3	16.8	0.31	0.58	0.31	52.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Design 2039 AM (Site Folder: Highfields Road / Meringandan Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Highfields Road (South)															
1	L2	All MCs	268	5.0	268	5.0	0.587	12.1	LOS B	7.3	52.9	0.60	0.87	0.92	46.2
3	R2	All MCs	149	5.0	149	5.0	0.587	24.9	LOS C	7.3	52.9	0.60	0.87	0.92	46.0
Approach			418	5.0	418	5.0	0.587	16.6	LOS C	7.3	52.9	0.60	0.87	0.92	46.1
East: Meringandan Road															
4	L2	All MCs	139	5.0	139	5.0	0.128	5.6	LOS A	0.0	0.0	0.00	0.35	0.00	54.4
5	T1	All MCs	96	5.0	96	5.0	0.128	0.0	LOS A	0.0	0.0	0.00	0.35	0.00	56.9
Approach			235	5.0	235	5.0	0.128	3.3	NA	0.0	0.0	0.00	0.35	0.00	55.4
West: Highfields Road															
11	T1	All MCs	146	5.0	146	5.0	0.424	1.2	LOS A	2.7	19.5	0.46	0.55	0.46	54.7
12	R2	All MCs	480	5.0	480	5.0	0.424	6.8	LOS A	2.7	19.5	0.46	0.55	0.46	52.1
Approach			626	5.0	626	5.0	0.424	5.5	NA	2.7	19.5	0.46	0.55	0.46	52.7
All Vehicles			1279	5.0	1279	5.0	0.587	8.7	NA	7.3	52.9	0.42	0.62	0.52	50.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Design 2039 PM (Site Folder: Highfields Road / Meringandan Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

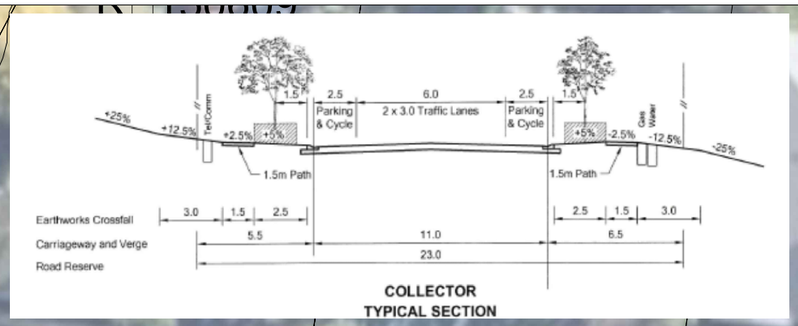
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Highfields Road (South)															
1	L2	All MCs	446	5.0	446	5.0	0.453	9.6	LOS A	2.9	21.0	0.43	0.85	0.46	50.2
3	R2	All MCs	41	5.0	41	5.0	0.453	15.5	LOS C	2.9	21.0	0.43	0.85	0.46	50.0
Approach			487	5.0	487	5.0	0.453	10.1	LOS B	2.9	21.0	0.43	0.85	0.46	50.2
East: Meringandan Road															
4	L2	All MCs	39	5.0	39	5.0	0.108	5.6	LOS A	0.0	0.0	0.00	0.12	0.00	56.3
5	T1	All MCs	162	5.0	162	5.0	0.108	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	58.9
Approach			201	5.0	201	5.0	0.108	1.1	NA	0.0	0.0	0.00	0.12	0.00	58.4
West: Highfields Road															
11	T1	All MCs	126	5.0	126	5.0	0.293	0.9	LOS A	1.7	12.1	0.37	0.49	0.37	55.2
12	R2	All MCs	324	5.0	324	5.0	0.293	6.4	LOS A	1.7	12.1	0.37	0.49	0.37	52.5
Approach			451	5.0	451	5.0	0.293	4.9	NA	1.7	12.1	0.37	0.49	0.37	53.2
All Vehicles			1139	5.0	1139	5.0	0.453	6.4	NA	2.9	21.0	0.33	0.58	0.35	52.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix D – Functional Layout Plan

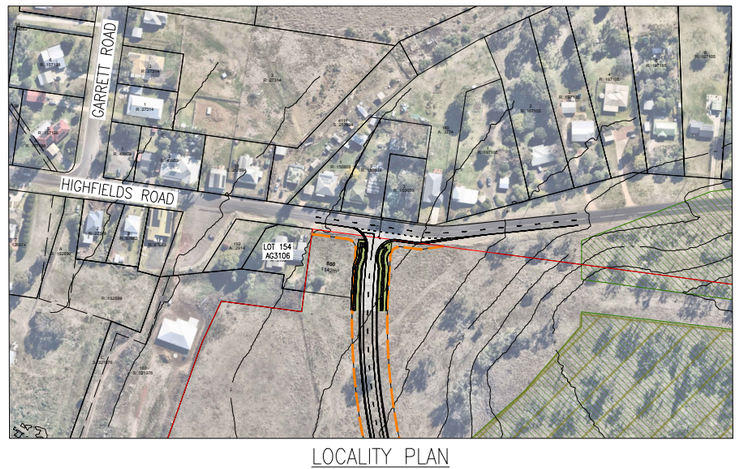
CONCEPT ONLY
1 June 2026

NOTES:
- INTERSECTION IS BASED ON THE GUIDE TO LEFT TURN (AUL(S)). REFER TO AUSTROADS – GUIDE TO ROAD DESIGN PART 4A: UNSIGNALISED AND SIGNALISED INTERSECTIONS – FIGURE 8.11: AUXILIARY LEFT–TURN (AUL(S)) ON THE MAJOR LEG OF AN INTERSECTION.
- DESIGN VEHICLE IS A REFUSE TRUCK.
- DESIGN SPEED OF HIGHFIELDS ROAD IS 70km/h



COLLECTOR
TYPICAL SECTION

LOT 1 RP150609
LOT 2 RP150609
LOT 3 RP150609
LOT 180 AG3774
LOT 154 AG3106
PROPERTY BOUNDARY
HIGHFIELDS ROAD
535
530
13.90
3.50
17.00
7.80
(GWL)
(ULL)
(LL)
(CL)
(EL)
(LL)
(EL)
3.50
15.00
20.0 TAPER
23.00
PROPOSED DEVELOPMENT AREA OF WORKS
PROPOSED PAVEMENT TO TIE INTO EXISTING NEATLY
REFER TOOWOOMBA PSP FOR COLLECTOR ROAD TYPE DETAILS
DESIGN HAS BEEN ALIGNED THE PROPOSED CORRIDOR AS PROVIDED



LOCALITY PLAN
SCALE 1:2000

0 2 4 6 8m
SCALE 1:200 (A1)

Project: PROPOSED DEVELOPMENT MERINGANDAN ROAD, MERINGANDAN

Client: *KDL PROPERTY GROUP PTY LTD*

Title: FUNCTIONAL LAYOUT PLAN

L+R ENGINEERS MANAGERS SCIENTISTS
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Rev.	Date
B	29/05/26
A	07/08/25

Drawn: MDB | Checked: KC | Approved: AG

Figure No: B25176-SK-001
Scale: AS SHOWN
File Ref: SEE BELOW
Sheet Size: A1

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Appendix E – State Code 6 Response

State code 6: Protection of state transport networks

Table 6.2 Development in general

Performance outcomes	Acceptable outcomes	Response
Network impacts		
PO1 Development does not compromise the safety of users of the **state-controlled road** network.	No acceptable outcome is prescribed.	Complies with PO1. Please refer to Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). The proposed development is located 7km (approx.) from the state-controlled network. It is anticipated that trips generated by the proposed development will disperse across the local road network before reaching the state-controlled network, there no impacts will be triggered.
PO2 Development does not adversely impact the structural integrity or physical condition of a **state-controlled road** or **road transport infrastructure**.	No acceptable outcome is prescribed.	Not for traffic response
PO3 Development ensures **no net worsening** of the operating performance the **state-controlled road** network.	No acceptable outcome is prescribed.	Complies with PO3. Refer to response in PO1.
PO4 Traffic movements are not directed onto a **state-controlled road** where they can be accommodated on the **local road** network.	No acceptable outcome is prescribed.	Complies with PO4. Refer to response in PO1.
PO5 Development involving haulage exceeding 10,000 tonnes per year does not damage the pavement of a **state-controlled road**.	No acceptable outcome is prescribed.	Not applicable
PO6 Development does not require a new **railway** level crossing.	No acceptable outcome is prescribed.	Not applicable
PO7 Development does not adversely impact the operating performance of an existing **railway crossing**.	No acceptable outcome is prescribed.	Not applicable
PO8 Development does not adversely impact on the safety of an existing **railway crossing**.	No acceptable outcome is prescribed.	Not applicable

Performance outcomes	Acceptable outcomes	Response
PO9 Development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a **railway crossing**.	No acceptable outcome is prescribed.	Not applicable
PO10 Development does not create a safety hazard within the **railway corridor**.	No acceptable outcome is prescribed.	Not applicable
PO11 Development does not adversely impact the operating performance of the **railway corridor**.	No acceptable outcome is prescribed.	Not applicable
PO12 Development does not interfere with or obstruct the **railway transport infrastructure** or **other rail infrastructure**.	No acceptable outcome is prescribed.	Not applicable
PO13 Development does not adversely impact the structural integrity or physical condition of a **railway corridor** or **rail transport infrastructure**.	No acceptable outcome is prescribed.	Not applicable
Stormwater and overland flow		
PO14 Stormwater run-off or overland flow from the development site does not create or exacerbate a safety hazard for users of a **state transport corridor** or **state transport infrastructure**.	No acceptable outcome is prescribed.	Not for traffic response
PO15 Stormwater run-off or overland flow from the development site does not result in a material worsening of operating performance of a **state transport corridor** or **state transport infrastructure**.	No acceptable outcome is prescribed.	Not for traffic response
PO16 Stormwater run-off or overland flow from the development site does not interfere with the structural integrity or physical condition of the **state transport corridor** or **state transport infrastructure**.	No acceptable outcome is prescribed.	Not for traffic response
PO17 Development associated with a **state-controlled road** or **road transport infrastructure** ensures that stormwater is lawfully discharged.	**AO17.1** Development does not create any new points of discharge to a **state transport corridor** or **state transport infrastructure**. AND	Not for traffic response

Performance outcomes	Acceptable outcomes	Response
	AO17.2 Development does not concentrate flows to a **state transport corridor**. AND **AO17.3** Stormwater run-off is discharged to a **lawful point of discharge**. AND **AO17.4** Development does not worsen the condition of an existing **lawful point of discharge** to a **state transport corridor** or **state transport infrastructure**.	
Flooding		
PO18 Development does not result in a material worsening of flooding impacts within a **state transport corridor** or **state transport infrastructure**	*For a **state-controlled road** or **road transport infrastructure**, all of the following apply:* **AO18.1** For all flood events up to 1% **annual exceedance probability**, development ensures there are negligible impacts (within +/- 10mm) to existing flood levels within a **state transport corridor**. AND **AO18.2** For all flood events up to 1% **annual exceedance probability**, development ensures there are negligible impacts (up to a 10% increase) to existing peak velocities within a **state transport corridor**. AND **AO18.3** For all flood events up to 1% annual exceedance probability, development ensures there are negligible impacts (up to a 10%	Not for traffic response

Performance outcomes	Acceptable outcomes	Response
	increase) to existing time of submergence of a **state transport corridor**. *No acceptable outcome is prescribed for a **railway corridor** or **rail transport infrastructure**.*	
Drainage infrastructure		
PO19 Drainage infrastructure does not create a safety hazard in a **state transport corridor**.	*For a **state-controlled road** environment, both of the following apply:* **AO19.1** Drainage infrastructure associated with, or in a **state-controlled road** is wholly contained within the development site, except at the **lawful point of discharge**. AND **AO19.2** Drainage infrastructure can be maintained without requiring access to a **state transport corridor**. *For a **railway** environment both of the following apply:* **AO19.3** Drainage infrastructure associated with a **railway corridor** or **rail transport infrastructure** is wholly contained within the development site. AND **AO19.4** Drainage infrastructure can be maintained without requiring access to a **state transport corridor**.	Not for traffic response
PO20 Drainage infrastructure associated with, or in a **state-controlled road** or **road transport**	No acceptable outcome is prescribed.	Not for traffic response

Performance outcomes	Acceptable outcomes	Response
infrastructure is constructed and designed to ensure the structural integrity and physical condition of existing drainage infrastructure and the surrounding drainage network is maintained.		
Planned upgrades		
PO21 Development does not impede delivery of **planned upgrades** of **state transport infrastructure**.	No acceptable outcome is prescribed.	Not for traffic response

Table 6.3 Public passenger transport infrastructure and active transport

Performance outcomes	Acceptable outcomes	Response
PO22 Development does not damage or interfere with **public passenger transport infrastructure**, **active transport infrastructure** or **public passenger services**.	No acceptable outcome is prescribed.	Complies with PO22. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed development.
PO23 Development does not compromise the safety of **public passenger transport infrastructure**, **public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	Complies with PO23. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed development.
PO24 Development does not adversely impact the operating performance of **public passenger transport infrastructure, public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	Complies with PO24. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and

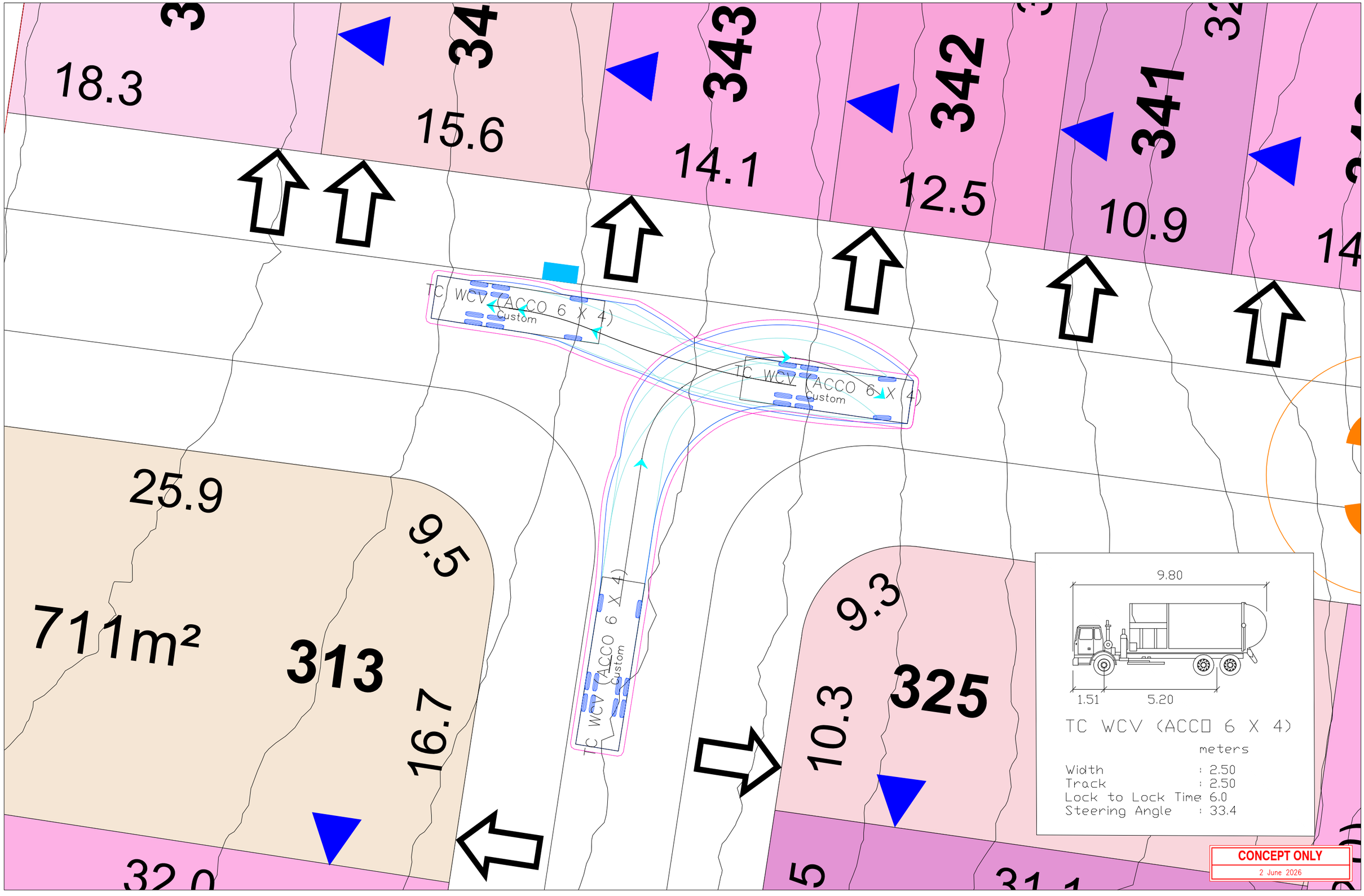
Performance outcomes	Acceptable outcomes	Response
		services as a result of the proposed development.
PO25 Development does not adversely impact the structural integrity or physical condition of **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	Complies with PO25. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed development.
PO26 Upgraded or new **public passenger transport infrastructure** and **active transport infrastructure** is provided to accommodate the demand for **public passenger transport** and **active transport** generated by the development.	No acceptable outcome is prescribed.	Complies with PO26. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed development. We do note, the internal road network is suitable to cater for local bus services.
PO27 Development is designed to ensure the location of **public passenger transport infrastructure** prioritises and enables efficient **public passenger services**.	No acceptable outcome is prescribed.	Complies with PO27. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed development. We do note, the internal road network is suitable to cater for local bus services
PO28 Development enables the provision or extension of **public passenger services**, **public passenger transport infrastructure** and **active transport infrastructure** to the development and avoids creating indirect or inefficient routes for **public passenger services**.	No acceptable outcome is prescribed.	Complies with PO28. Refer to Section 2 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed

Performance outcomes	Acceptable outcomes	Response
		development. We do note, the internal road network is suitable to cater for local bus services.
PO29 New or modified road networks are designed to enable development to be serviced by **public passenger services**.	**AO29.1** Roads catering for buses are arterial or **sub-arterial roads**, collector or their equivalent. AND **AO29.2** Roads intended to accommodate buses are designed and constructed in accordance with: 1. Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design; Department of Transport and Main Roads; 2. Supplement to Austroads Guide to Road Design (Parts 3, 4-4C and 6), Department of Transport and Main Roads; 3. Austroads Guide to Road Design (Parts 3, 4-4C and 6); 4. Austroads Design Vehicles and Turning Path Templates; 5. Queensland Manual of Uniform Traffic Control Devices, Part 13: Local Area Traffic Management and AS 1742.13-2009 Manual of Uniform Traffic Control Devices – Local Area Traffic Management; AND **AO29.3** Traffic calming devices are not installed on roads used for buses in accordance with section 2.3.2 Bus Route Infrastructure, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.	Complies with PO29. We note no new or modified road networks are proposed onto the state-controlled network. Furthermore, the internal local road network has been designed to cater for public transport bus services.
PO30 Development provides safe, direct and	No acceptable outcome is prescribed.	Complies with PO30.

Performance outcomes	Acceptable outcomes	Response
convenient access to existing and future **public passenger transport infrastructure** and **active transport infrastructure**.		Refer to Section 2.3 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). There will be no change to the existing provision of active and public transport infrastructure and services as a result of the proposed development. The development site is also well connected to the existing public transport network on Main Street.
PO31 On-site vehicular circulation ensures the safety of both **public passenger transport services** and pedestrians.	No acceptable outcome is prescribed.	Complies with PO33. Refer to Section 3.3 of Traffic Impact Assessment, prepared by L+R (B25176TR001_RevA). The proposed internal road network has been designed in accordance with Toowoomba Regional Council's planning scheme policy requirements, thereby ensuring safe on-site vehicle circulation.
PO32 Taxi facilities are provided to accommodate the demand generated by the development.	No acceptable outcome is prescribed.	Not applicable
PO33 Facilities are provided to accommodate the demand generated by the development for community transport services, courtesy transport services, and **booked hire services** other than taxis.	No acceptable outcome is prescribed.	Not applicable

Performance outcomes	Acceptable outcomes	Response
PO34 Taxi facilities are located and designed to provide convenient, safe and equitable access for passengers.	**AO34.1** A **taxi facility** is provided parallel to the kerb and adjacent to the main entrance. AND **AO34.2 Taxi facilities** are designed in accordance with: 1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work; 2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices 3. AS/NZS 2890.6–2009 Parking facilities –off street parking for people with disabilities; 4. Disability standards for accessible public 5. transport 2002 made under section 31(1) of the Disability Discrimination Act 1992; 6. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area (category P) lighting – Performance and design requirements; 7. Chapter 7 Taxi Facilities, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.	Not applicable
PO35 Educational establishments are designed to ensure the safe and efficient operation of **public passenger services**, pedestrian and cyclist access and **active transport infrastructure**.	**AO35.1** Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.	Not applicable

Appendix F – Swept Path Assessment



Project:
PROPOSED DEVELOPMENT
MERINGANDAN ROAD, MERINGANDAN QLD 4352

Client:
KDL Property Group Pty Ltd

Title:
TRC WCV
SWEPT PATH ASSESSMENT

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CONSULT AUSTRALIA

Drawn:	Checked:	Approved:	Rev.	Date
ZN	AG	AG	A	02/06/26

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