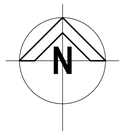
WIND CATEGORY C2



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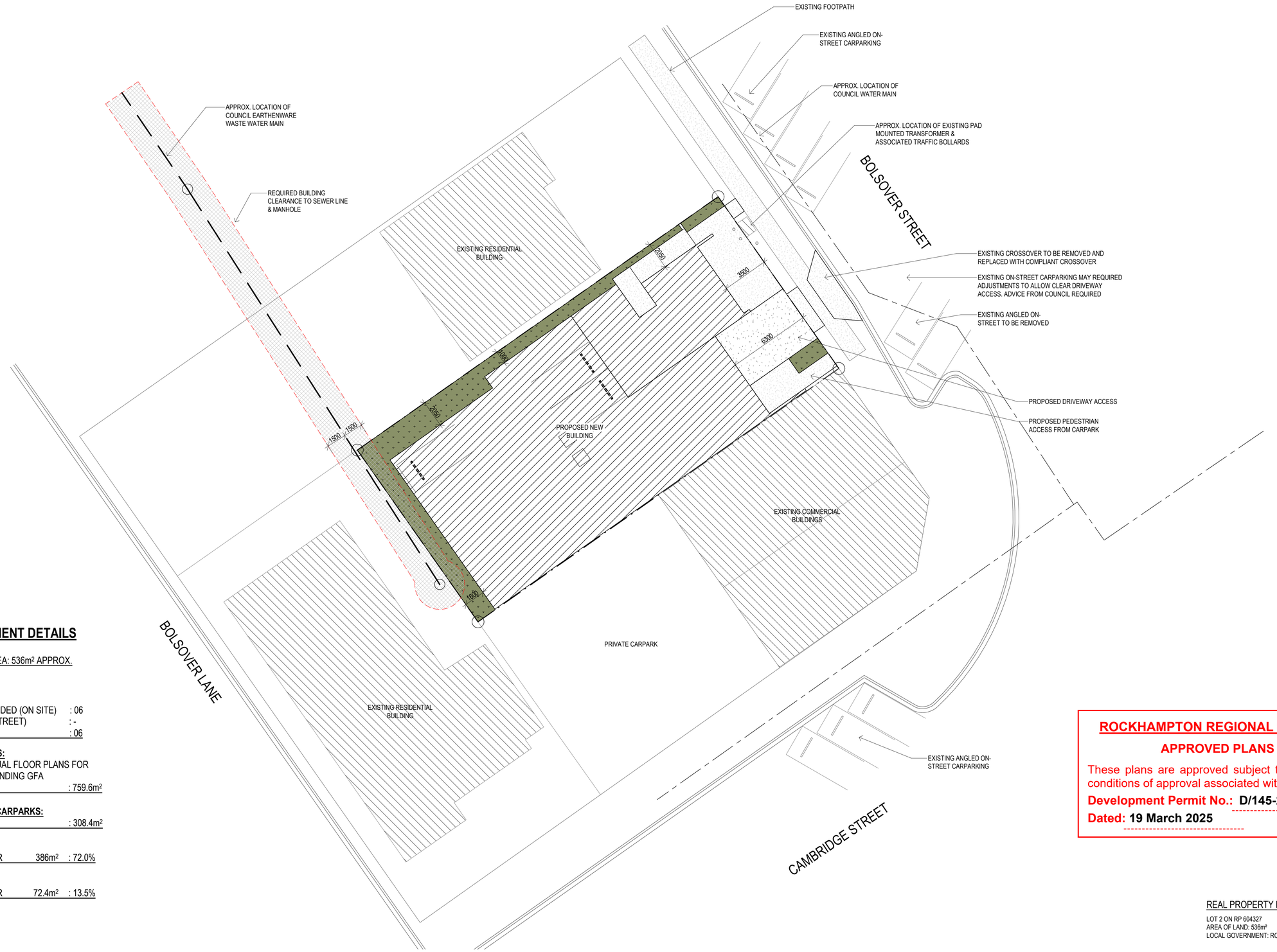

DEVELOPMENT DETAILS

TOTAL SITE AREA: 536m² APPROX.

CAR PARKS:
PARKING PROVIDED (ON SITE) : 06
PARKING (ON STREET) : -
TOTAL : 06

BUILDING GFA'S:
REFER INDIVIDUAL FLOOR PLANS FOR IT'S CORRESPONDING GFA
TOTAL GFA : 759.6m²

DRIVEWAYS & CARPARKS:
NEW : 308.4m²

SITE COVER:
GROUND FLOOR 386m² : 72.0%

LANDSCAPING:
GROUND FLOOR 72.4m² : 13.5%

1 SITE PLAN
1 : 150

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/145-2024
Dated: 19 March 2025

REAL PROPERTY DESCRIPTION
LOT 2 ON RP 604327
AREA OF LAND: 536m²
LOCAL GOVERNMENT: ROCKHAMPTON REGIONAL COUNCIL

NOTES:
1. VERIFY ALL LEVELS & DIMENSIONS BEFORE COMMENCING ANY FABRICATION
2. FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALED
3. COMPLY WITH LOCAL AUTHORITY, STANDARD BUILDING LAW AND ALL RELEVANT AUSTRALIAN STANDARDS & LEGISLATION
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REV ISSUE	DATE	DESCRIPTION
6	09.12.24	PRELIMINARY
5	29.10.24	PRELIMINARY
4	10.10.24	PRELIMINARY
3	02.10.24	PRELIMINARY
2	01.10.24	PRELIMINARY
1	25.09.24	PRELIMINARY

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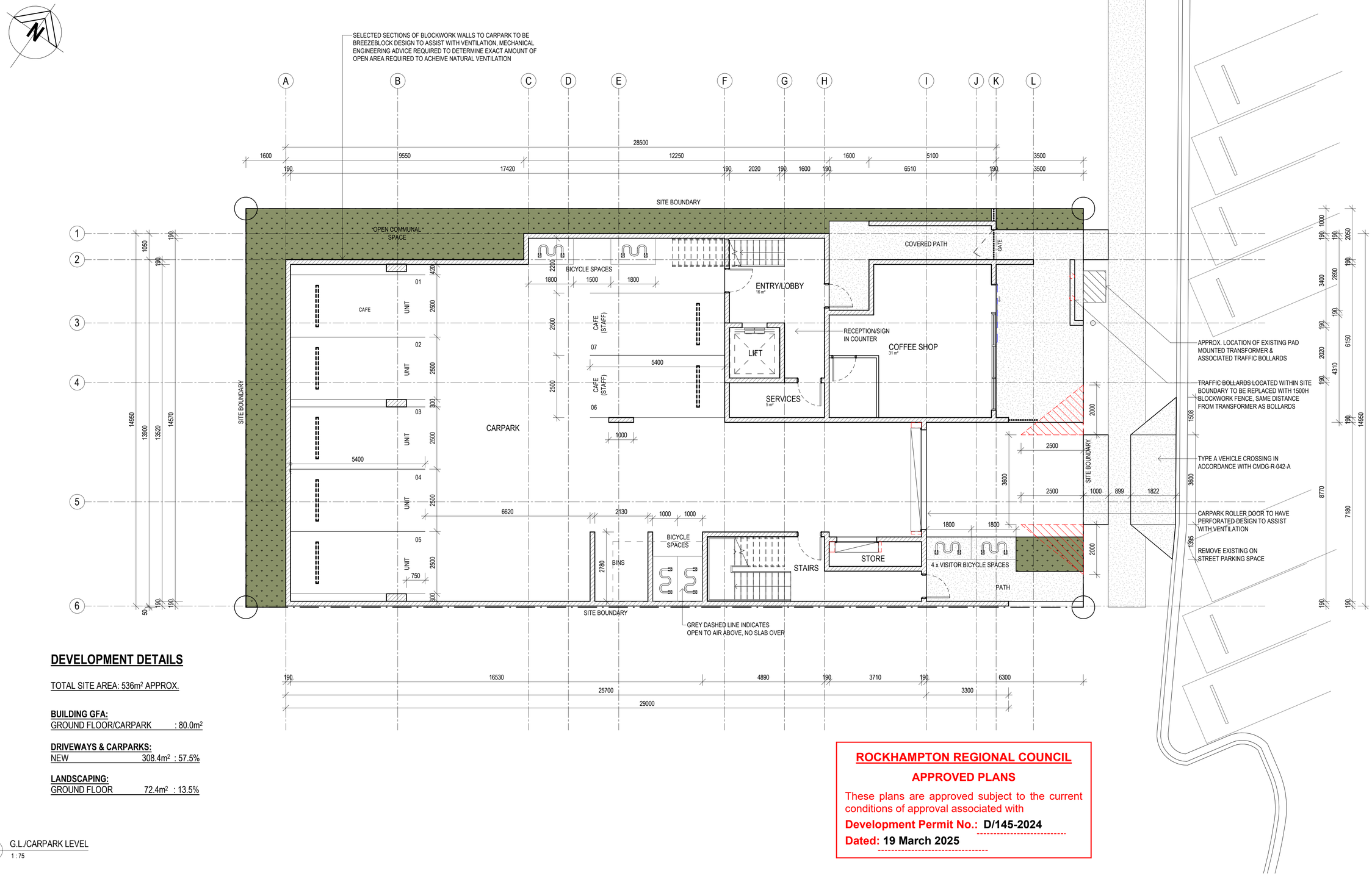
m: 0423 623 647
a: 11 Cashell Crescent, Bushland Beach, QLD 4818
e: nathan@thedesignhousenq.com.au
w: www.thedesignhousenq.com.au

The Design House NQ

Project: ROOMING ACCOMODATION
Client: RIBAR PTY LTD
Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: SITE PLAN
Date: 19.12.24 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2024-256-R Drawing No.: DD 02 Rev.: 7

WIND CATEGORY C2



DEVELOPMENT DETAILS

TOTAL SITE AREA: 536m² APPROX.

BUILDING GFA:
GROUND FLOOR/CARPARK : 80.0m²

DRIVEWAYS & CARPARKS:
NEW 308.4m² : 57.5%

LANDSCAPING:
GROUND FLOOR 72.4m² : 13.5%

1 G.L./CARPARK LEVEL
1 : 75

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Dated: 19 March 2025

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w: www.thedesignhousenq.com.au

Project: ROOMING ACCOMODATION
Client: RIBAR PTY LTD
Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: FLOOR PLAN 01
Date: 19.12.24 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2024-256-R Drawing No.: DD 03 Rev.: 7

WIND CATEGORY C2

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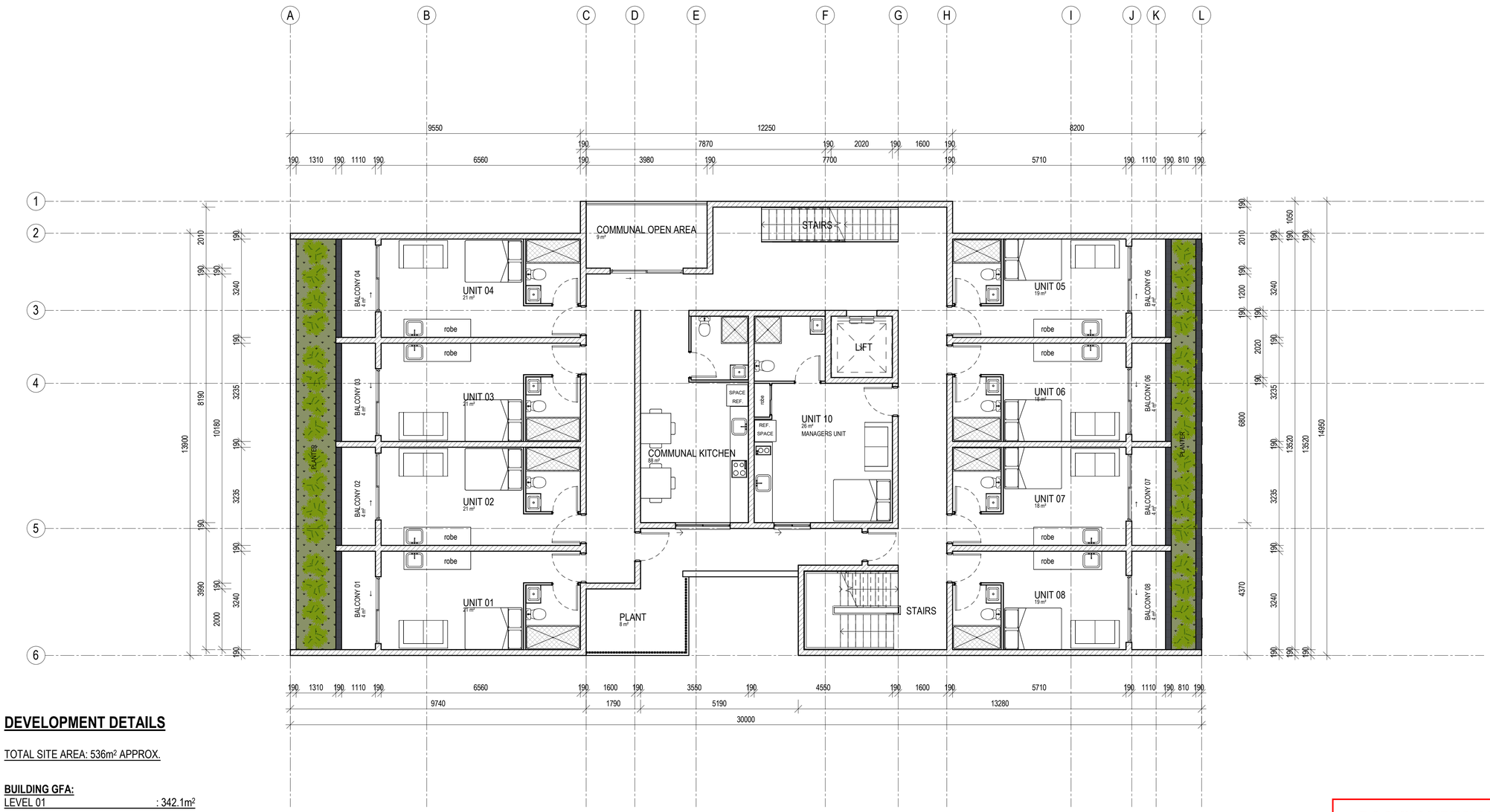

DEVELOPMENT DETAILS

TOTAL SITE AREA: 536m² APPROX.

BUILDING GFA:
LEVEL 01 : 342.1m²

LANDSCAPING:
LEVEL 01 : 28.7m²

1 LEVEL 01
1 : 75

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The Design House NQ

Project: ROOMING ACCOMODATION
Client: RIBAR PTY LTD
Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: FLOOR PLAN 02
Date: 19.12.24 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2024-256-R Drawing No.: DD 04 Rev. 7

WIND CATEGORY C2

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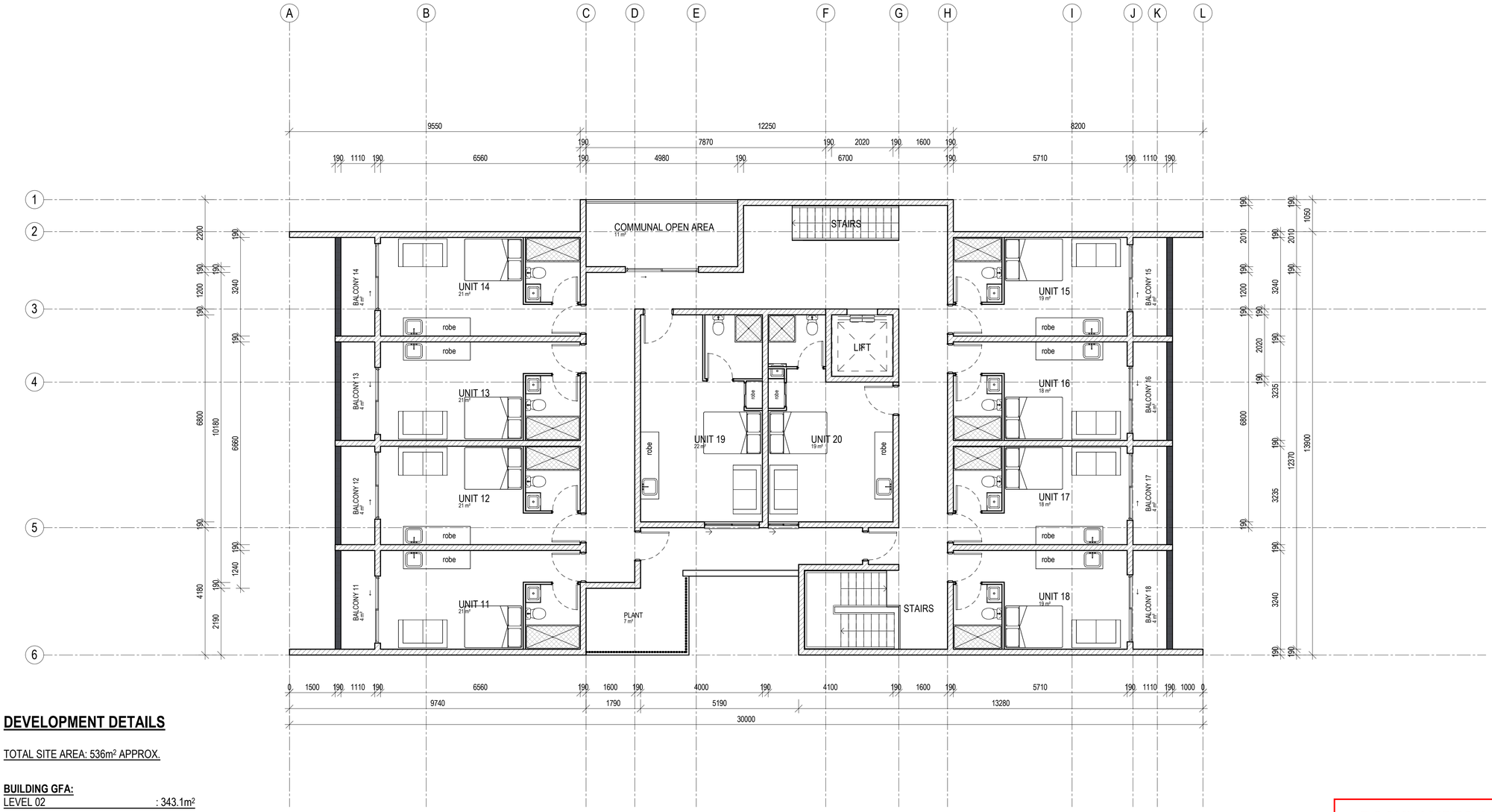

DEVELOPMENT DETAILS

TOTAL SITE AREA: 536m² APPROX.

BUILDING GFA:
LEVEL 02 : 343.1m²

1 LEVEL 02
1 : 75

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
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Dated: 19 March 2025

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The Design House NQ

Project: ROOMING ACCOMODATION
Client: RIBAR PTY LTD
Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: FLOOR PLAN 03
Date: 19.12.24 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2024-256-R Drawing No.: DD 05 Rev.: 7

PRELIMINARY
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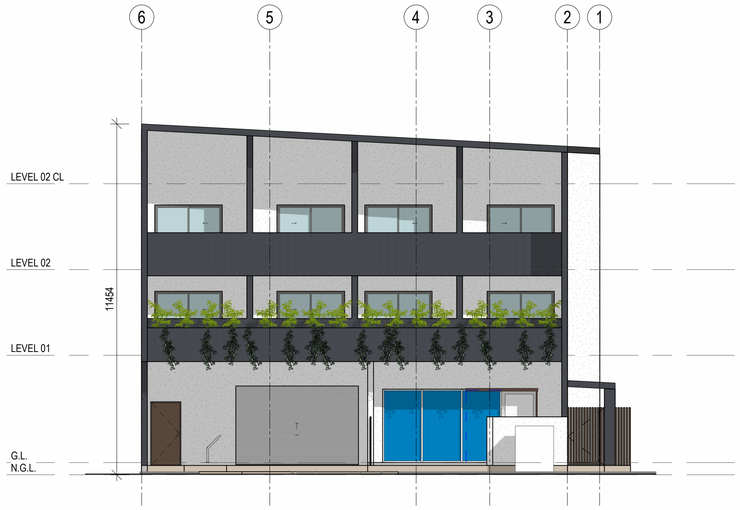

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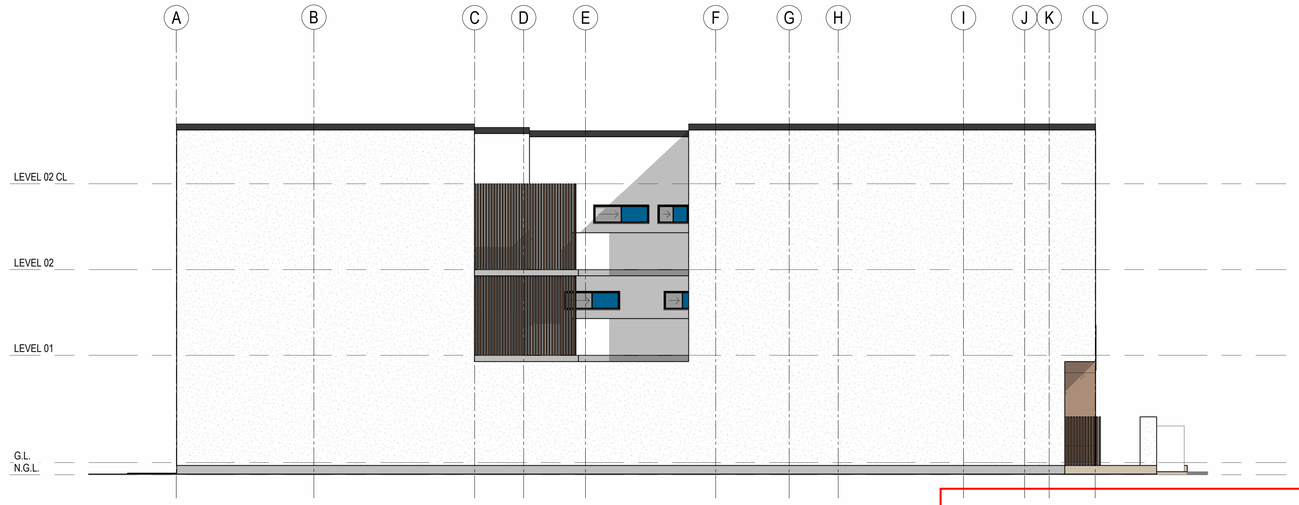

2 ELEVATION 02
1 : 100

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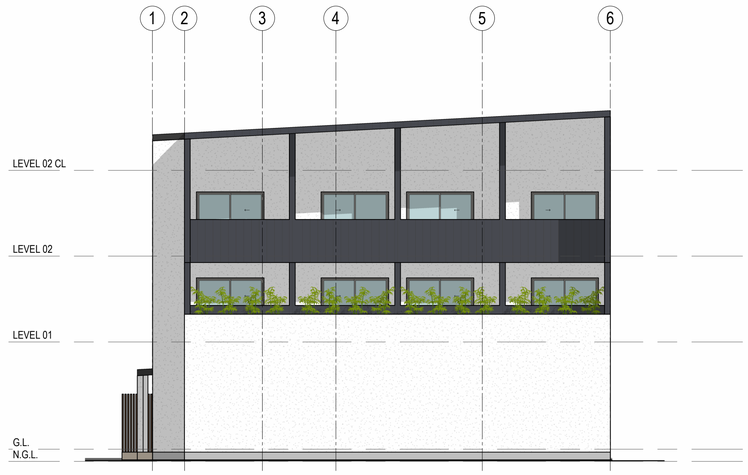
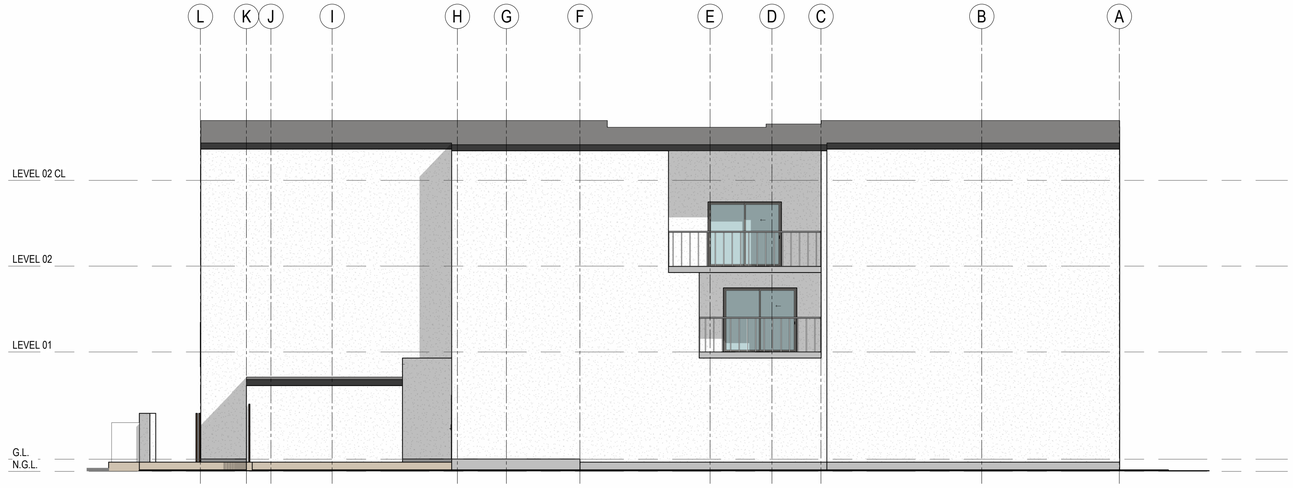
Development Permit No.: D/145-2024

Dated: 19 March 2025



3 ELEVATION 03
1 : 100



4 ELEVATION 04
1 : 100

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w: www.thedesignhousenq.com.au

The Design House NQ

Project: ROOMING ACCOMODATION

Client: RIBAR PTY LTD

Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: ELEVATIONS

Date: 19.12.24 Drawn: D.A.

Scale: 1 : 100 Designed: N.H.

Job No.:	Drawing No.:	Rev.
2024-256-R	DD 06	7

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1 PERSPECTIVE 01

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Development Permit No.: D/145-2024

Dated: 19 March 2025

2 PERSPECTIVE 02

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The Design House NQ

Project: ROOMING ACCOMODATION

Client: RIBAR PTY LTD

Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: PERSPECTIVES

Date: 19.12.24 Drawn: D.A.

Scale: Designed: N.H.

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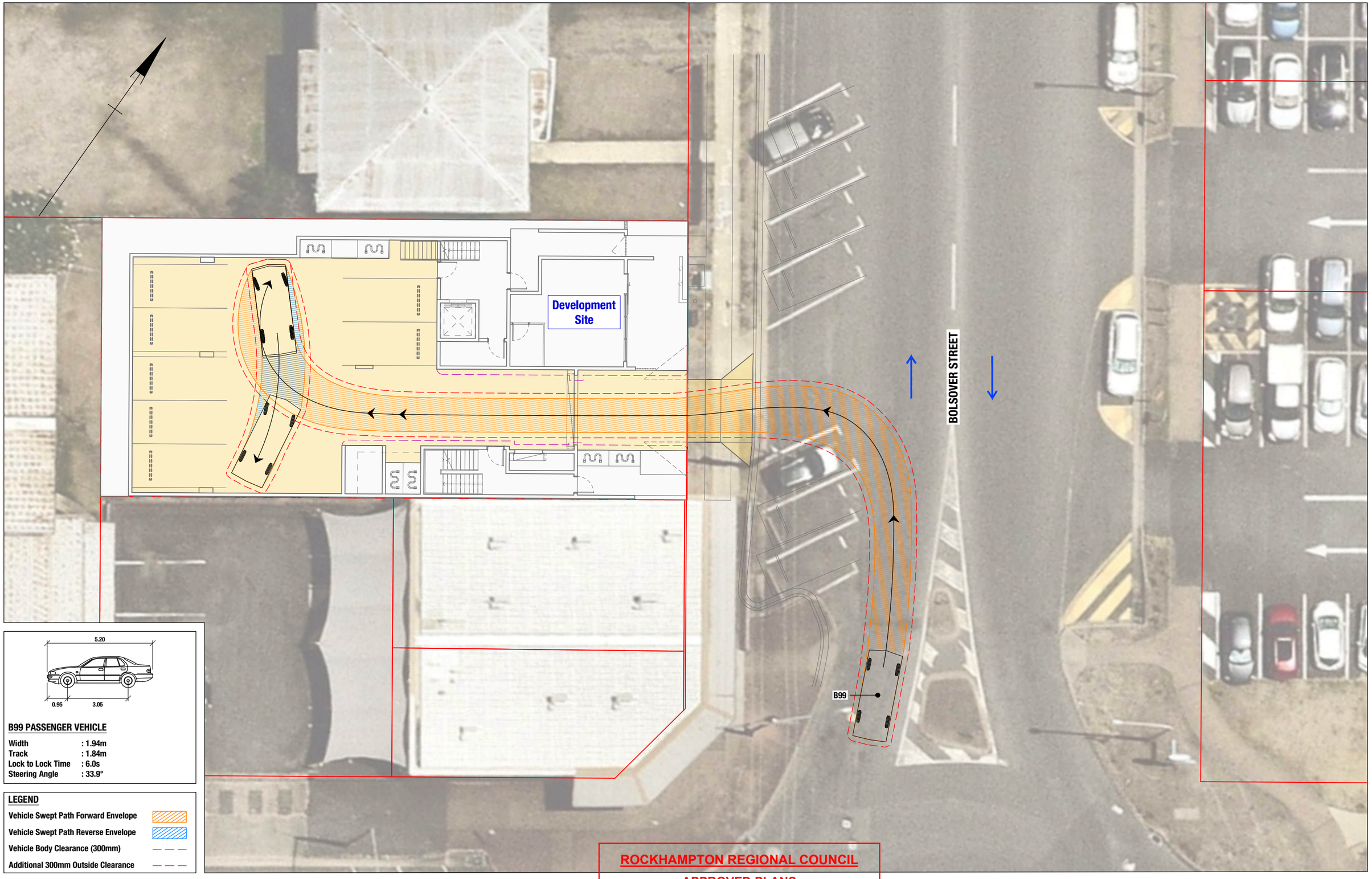
F-7330 A 05.01.2015



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0.95 3.05

B99 PASSENGER VEHICLE

Width	: 1.94m
Track	: 1.84m
Lock to Lock Time	: 6.0s
Steering Angle	: 33.9°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

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Dated: 19 March 2025

GELEON

ABN 58 668 001 303
Suite 12, Level 1, 3029 The Boulevard
Emerald Lakes, Carrara
PO Box 454 Nerang Qld 4211
tel +61 7 5594 4473

0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B99 PASSENGER VEHICLE
TURN AROUND MANOEUVRE

Project No. 50938

Issue Date 12/12/24

Drawing No. 50938-SP001-A

Series No. 1 of 6

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13 December 2024
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F-7330 A 05.01.2015

5.20

0.95 3.05

B99 PASSENGER VEHICLE

Width	: 1.94m
Track	: 1.84m
Lock to Lock Time	: 6.0s
Steering Angle	: 33.9°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

ROCKHAMPTON REGIONAL COUNCIL

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tel +61 7 5594 4473

0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B99 PASSENGER VEHICLE
EXIT FROM DEVELOPMENT SITE

Project No. 50938

Issue Date 12/12/24

Drawing No. 50938-SP002-A

Series No. 2 of 6

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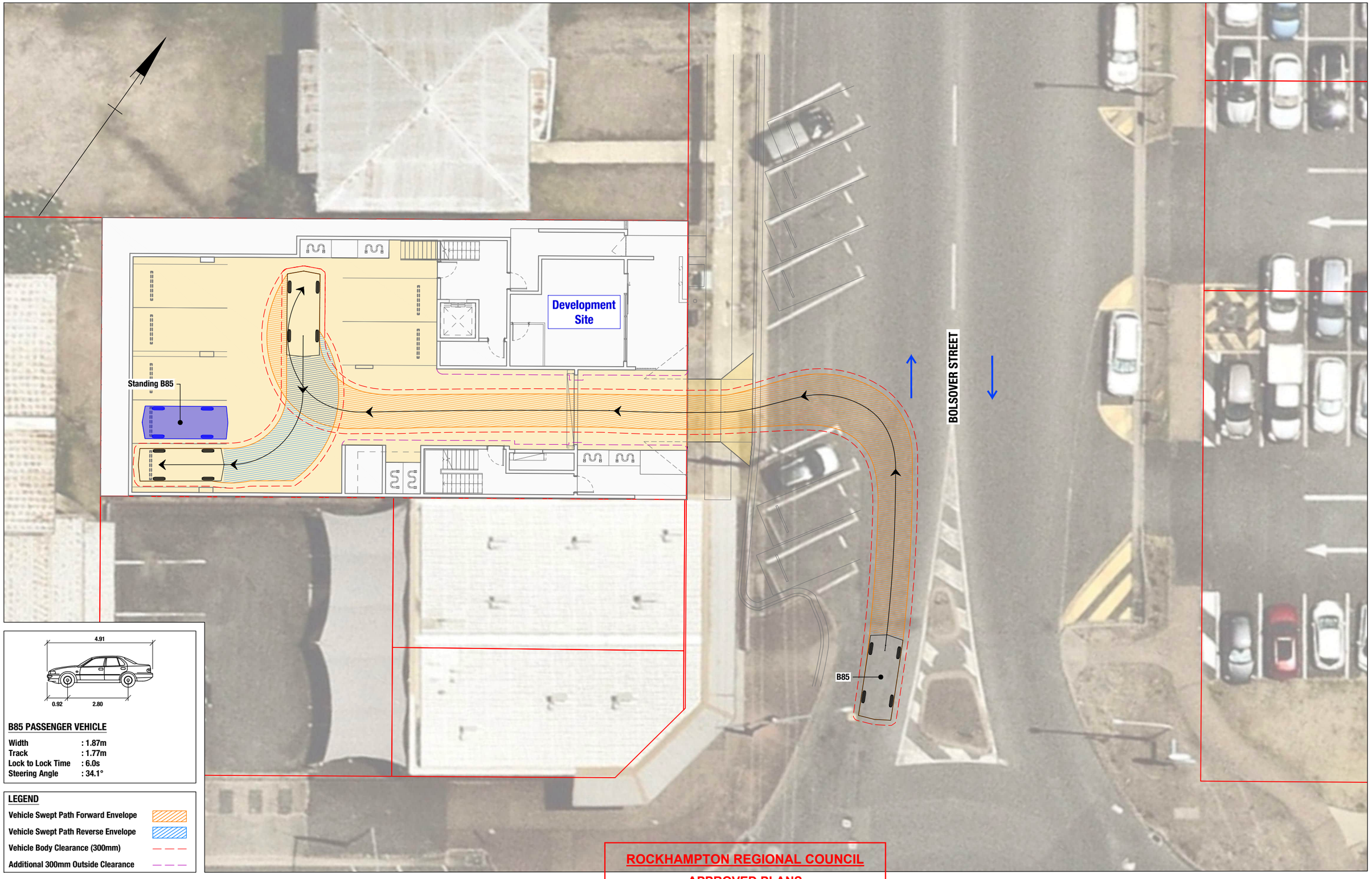

B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

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Dated: 19 March 2025

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT B85 PASSENGER VEHICLE REVERSE PARKING MANOEUVRE

Project No. 50938

Issue Date 12/12/24

Drawing No. 50938-SP003-A

Series No. 3 of 6

F-7330 A 05.01.2015

4.91

0.92 2.80

B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Development Permit No.: D/145-2024

Dated: 19 March 2025

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PO Box 454 Nerang Qld 4211
tel +61 7 5594 4473

0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
EXIT FROM DEVELOPMENT SITE

Project No.	Issue Date
50938	12/12/24

Drawing No.
50938-SP004-A

Series No. 4 of 6

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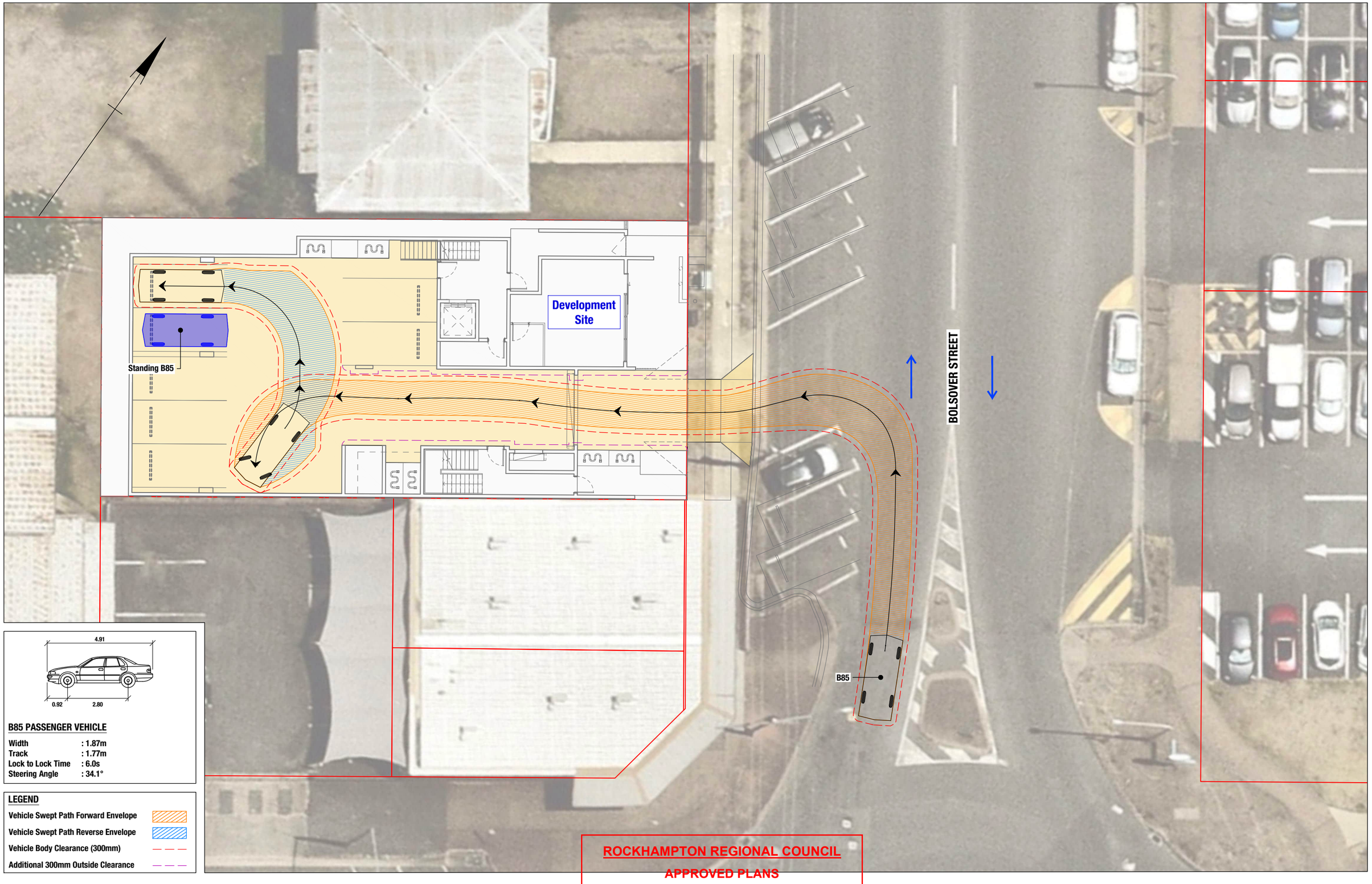

B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

ROCKHAMPTON REGIONAL COUNCIL

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Dated: 19 March 2025

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tel +61 7 5594 4473

0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
REVERSE PARKING MANOEUVRE

Project No. 50938

Issue Date 12/12/24

Drawing No. 50938-SP005-A

Series No. 5 of 6

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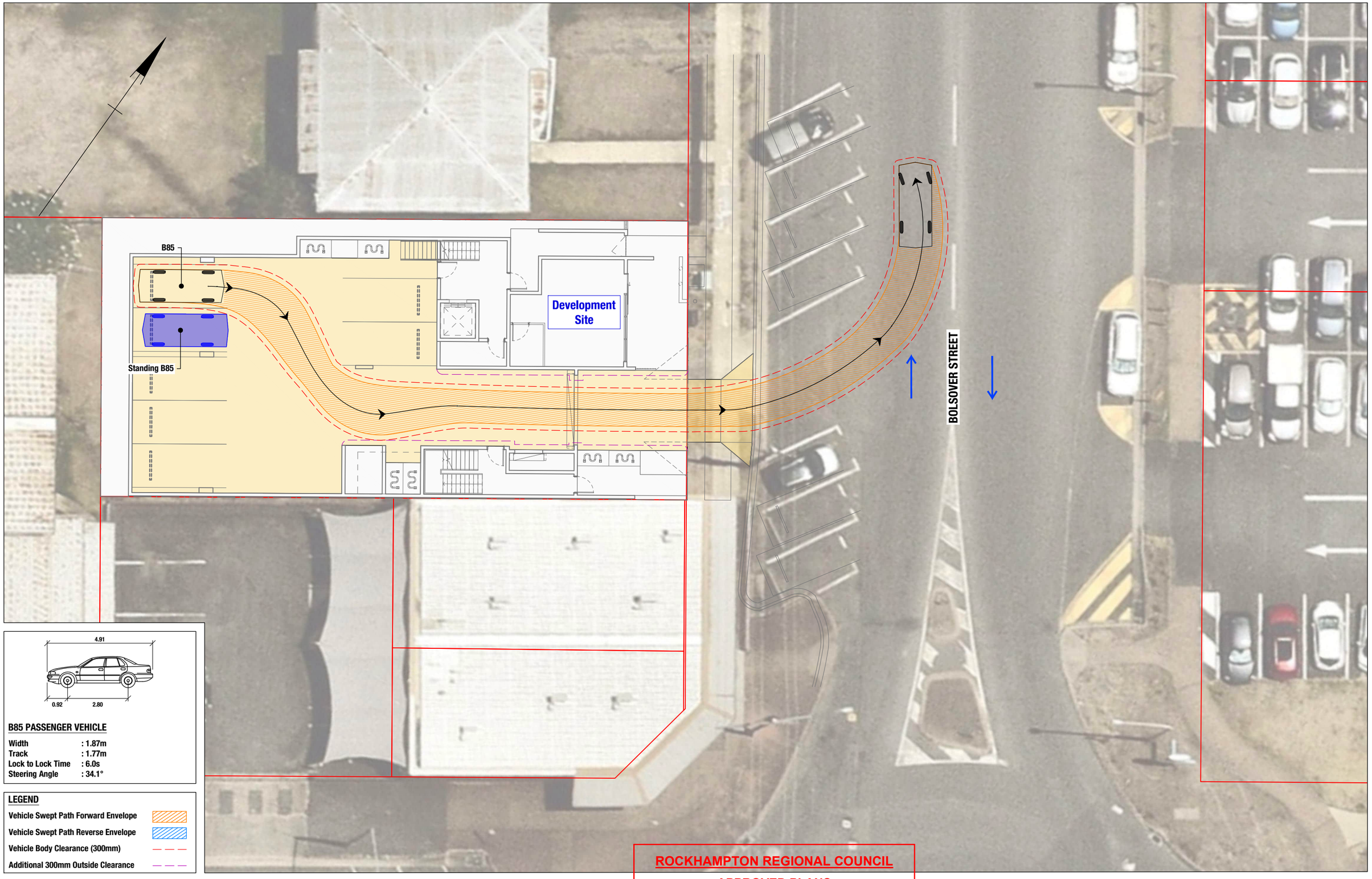

4.91

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B85 PASSENGER VEHICLE

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Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

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- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

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0 1 2 3 4m

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Development Permit No.: D/145-2024

Dated: 19 March 2025

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
EXIT FROM DEVELOPMENT SITE

Project No.	Issue Date
50938	12/12/24

Drawing No.
50938-SP006-A

Series No. 6 of 6

Traffic Impact Assessment

Proposed Mixed-Use Development

70 Bolsover Street, Rockhampton City

18 December 2024

Prepared for:
The Trustee for Ribar Trust
Report: 50938-RP01-A

GELEON

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/145-2024
Dated: 19 March 2025

Document Control Information

Document Title: Traffic Impact Assessment
Document Reference: 50938-RP01-A
Prepared for: The Trustee for Ribar Trust
Prepared by: Alex Williams
Reviewed by: James Goodman
Project Reference: 50938

Revision History

Authorised for issue

Version	Issue date	Purpose of issue	Details	Name / position	Signature
A	18 December 2024	To support development application	Original issue	Luke Seeney | RPEQ 23542 Principal Engineer	

Table of Contents

1. Introduction 1
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1. Introduction

1.1 Project background

Geleon has been engaged by The Trustee for Ribar Trust (the **Applicant**) to prepare a Traffic Impact Assessment to accompany a Development Application (DA) to establish a mixed-use development for rooming accommodation and food and drink outlet land uses at 70 Bolsover Street, Rockhampton City (Lot 2 on RP604327) (**Figure 1.1**). The existing 536m^2 site is currently vacant.

Figure 1.1 Locality plan

1.2 Development details

The development proposes the establishment of a mixed-use development to implement rooming accommodation and food and drink outlet land uses on the subject site. Access to and from the development will be provided via Bolsover Street.

Details of the proposed development are provided in **Table 1.2**, with the site plan shown in **Figure 1.2**. Relevant plans of development have been included in **Appendix A**.

Table 1.2 Development details

Land use	Quantity	
Food and Drink outlet	31	GFA (m^2)
Rooming accommodation	414	GFA (m^2)
	19	Guest bedrooms
	1	Manager residence

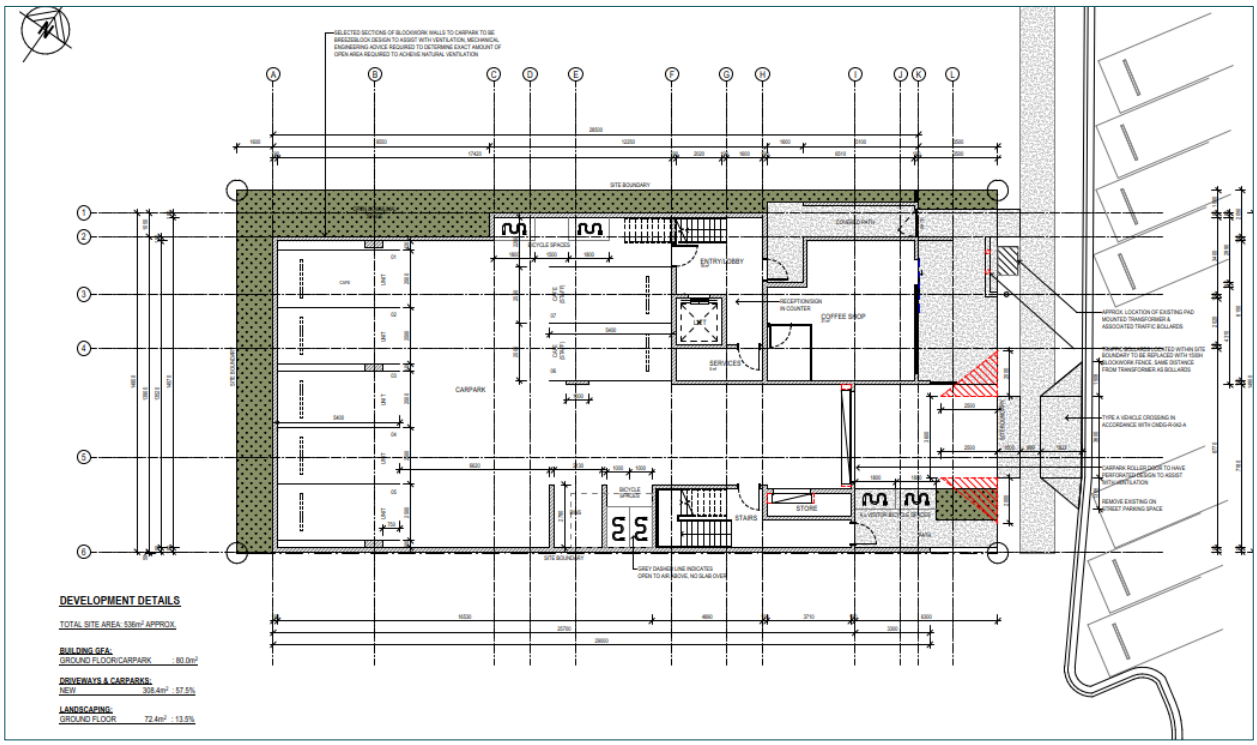


Figure 1.2 Development plan – ground floor plan

1.3 Applicable planning scheme

The proposed development site falls under the jurisdiction of the Rockhampton Regional Council (**Council**) and is governed by the *Rockhampton Region Planning Scheme (August 2015) – Version 4.4*.

1.4 Scope

The scope of the assessment presented in this report is as follows:

- assess public transport, pedestrian and cycling accessibility to / from site and on site
- calculate the anticipated development traffic generation and its impact to the external road network
- assess proposed car parking supply against relevant Council requirements
- review design of on site traffic and transport operations against Australian Standards and Council's requirements
- assess site access and access configuration against Council requirements
- assess servicing arrangements, and
- complete council development code templates to accompany the development application.

2. Existing conditions

2.1 Road network

2.1.1 Key road links

The hierarchy of the road network surrounding the development is shown in **Table 2.1.1**.

Table 2.1.1 Surrounding road network

Road name	Jurisdiction	No. of lanes (two-way)	Posted speed limit	Median divided	Hierarchy	Footpath / bicycle lanes	On-street parking
Albert Street[1]	TMR [2]	4	60-70km/h	Yes	Main Road	Footpath both sides / no bicycle lanes	No parking
Bolsover Street	Council	2	50km/h	No	Major Council Road	Footpath both sides / no bicycle lanes	Formal Parking
Victoria Parade	Council	2	40km/h	No	Council Road	Footpath both sides / no bicycle lanes	Formal and informal parking
Alma Street	Council	2	50km/h	No	Council Road	Generally, footpaths both sides, no bicycle lanes	Formal parking
Cambridge Street	Council	2	50km/h	No	Council Road	Generally, footpaths one side, no bicycle lanes	Formal and informal parking

Notes:
1. *Bruce Highway (SCR10F)*
2. *Department of Transport and Main Roads*

2.1.2 Key intersections

In addition to the surrounding road network, there is one key intersection in proximity to the proposed development site which development generated traffic will utilise. This is the Bolsover Street / Cambridge Street 4-leg roundabout as shown in **Figure 2.1.2**.

Figure 2.1.2 Key intersections in proximity to the site

2.2 Public transport

The development site is not located within walking distance (<400m) of any public transport facilities. The closest bus stop, known as Rockhampton Police Complex, Rockhampton City (Stop ID: 860502) is located approximately 610m south of the development site. This bus stop is serviced by two public routes known as '450' and '451'.

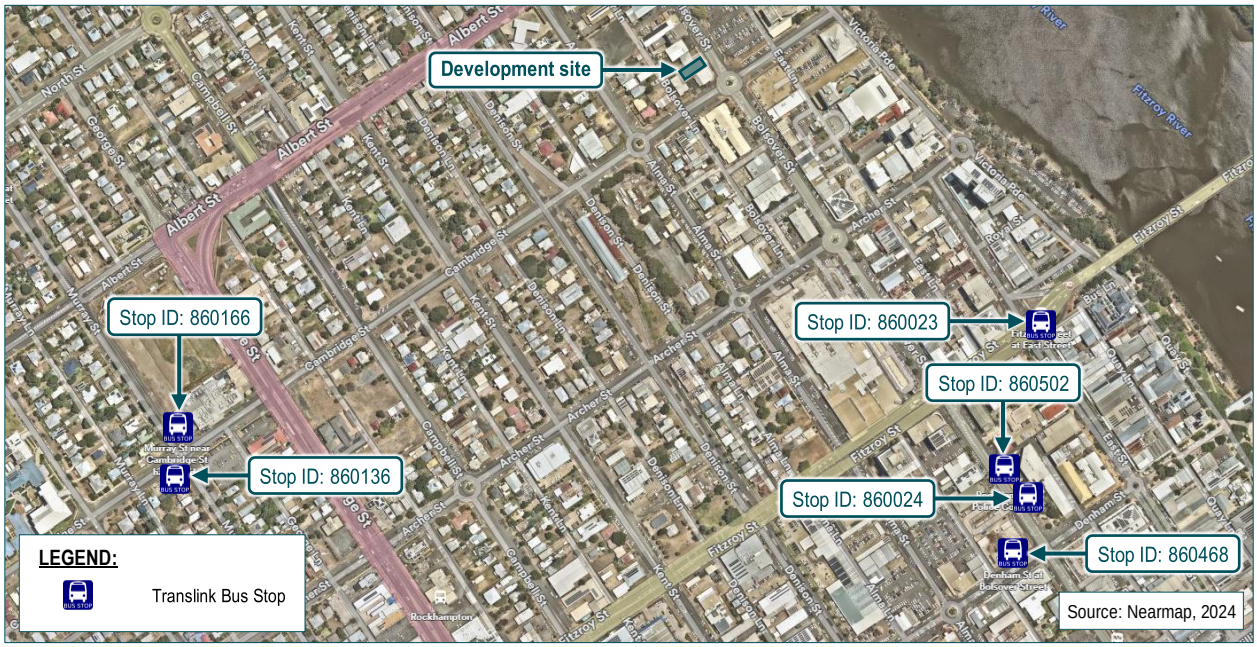


Figure 2.2 Public transport network surrounding the site

2.3 Active transport

The subject site is serviced by a suitable network of pedestrian footpaths which provide a connection to nearby surrounding commercial businesses and residential developments. In addition, the subject site fronts Bolsover Street and is within proximity to Albert Street and Archer Street which are classified as priority A routes on TMR's Central Queensland Principal Cycle Network.

The principal cycle network surrounding the proposed development is illustrated in **Figure 2.3.1** with the route priorities shown in **Figure 2.3.2**.

Figure 2.3.1 Principal cycle network

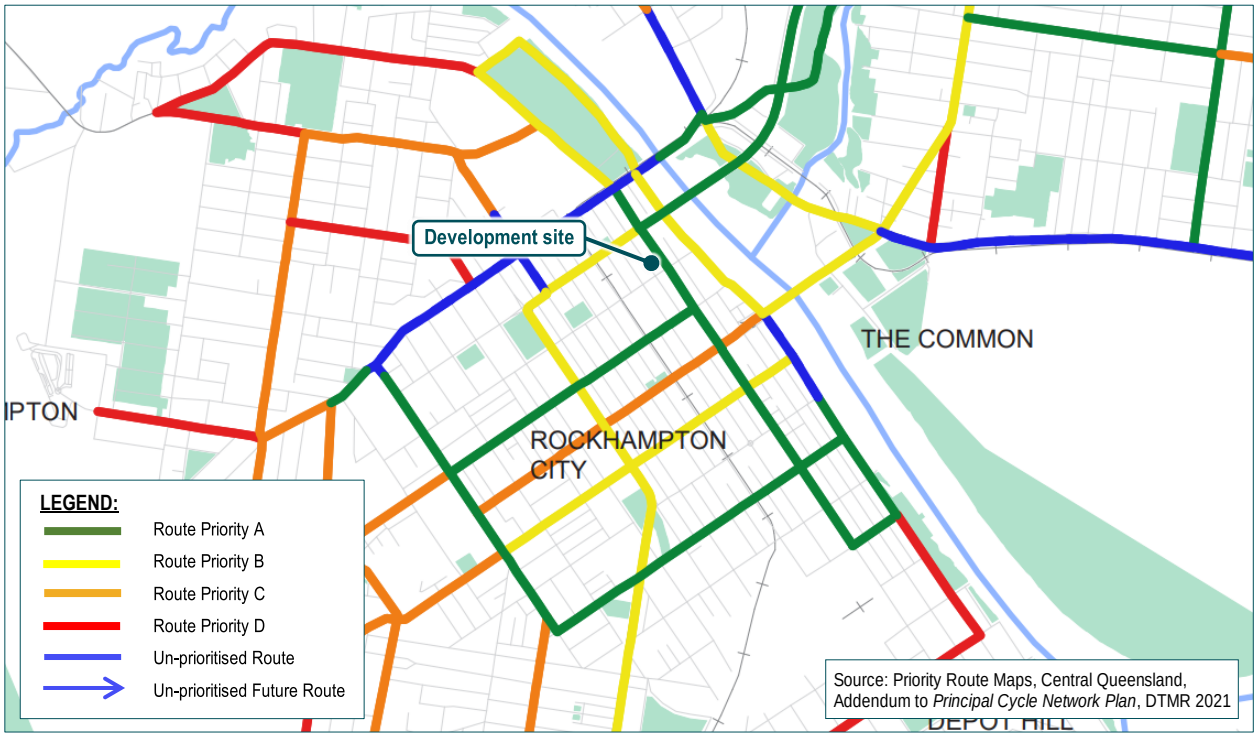


Figure 2.3.2 Priority route map

2.4 Background traffic volumes

Traffic count data for the Bolsover Street / Cambridge Street roundabout was sourced from an intersection count conducted by Austraffic in December 2024 (**Appendix B**). Typical weekday periods for the intersection, as sourced from the traffic count, are presented in **Table 2.4**. Existing 2024 AM and PM peak hour intersection traffic volumes are shown in **Figure 2.4**.

Table 2.4 Road link count data

Intersection	AM Peak	PM Peak
Bolsover Street / Cambridge Street	8:00am – 9:00am	3:45pm – 4:45pm

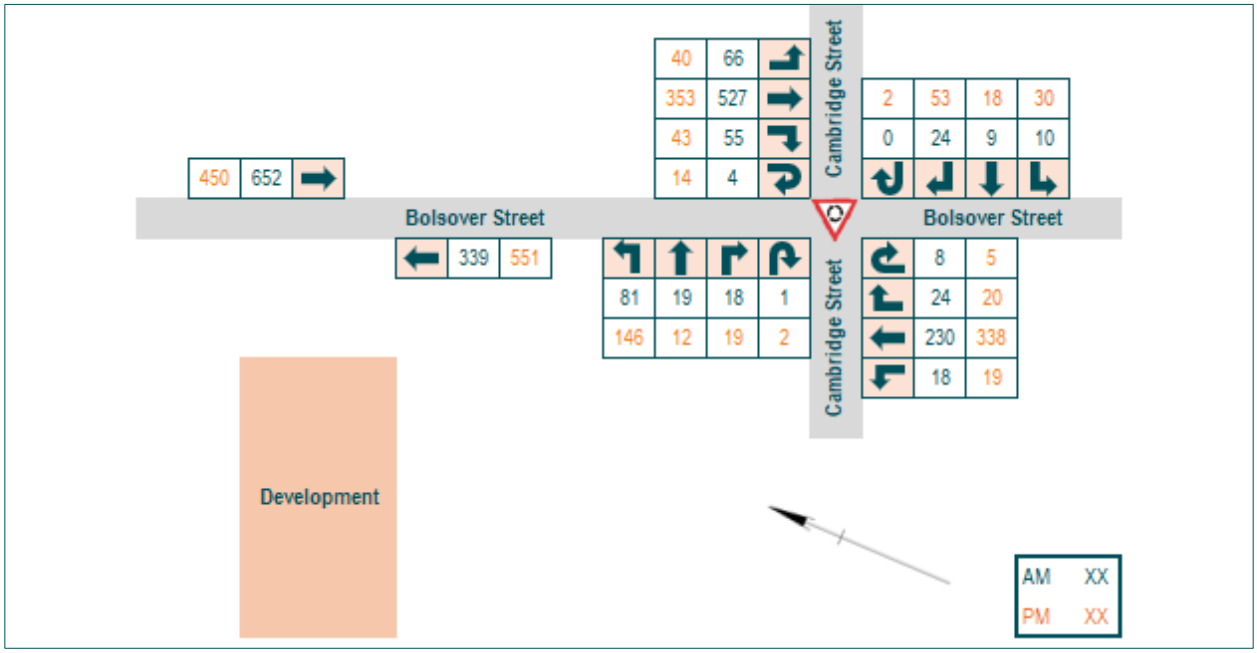


Figure 2.4 2024 Background traffic volumes

2.5 Intersection operation

Using the available background traffic data, an assessment of the existing operational performance of the Bolsover Street / Cambridge Street roundabout has been undertaken using SIDRA 9.1 intersection analysis software.

2.5.1 Intersection performance criteria

Principal criteria against which intersection performance is assessed are:

- the intersection degree of saturation (DOS), which is the ratio of maximum movement demand volume to capacity at an intersection
- level of service (LOS) expressed as a function of the movement delay, and
- queue lengths on intersection legs.

For the purposes of this assessment, criteria outlined in Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis (2017)* have been adopted. Austroads suggests that for intersections, LOS and DOS are the criteria upon which performance is measured. **Table 2.5.1.1** shows the maximum degree of saturation[1] for the various intersection types.

Table 2.5.1.1 Maximum degree of saturation for road intersections

Intersection type	Maximum degree of saturation
Signalised intersection	0.9
Roundabout	0.85
Unsignalised intersection	0.8

While DOS is an important measure of the capacity and operational performance of an intersection, several other factors are also important, in particular intersection and individual movement level of service (LOS) and delay, as well as the impact of identified vehicle queue lengths. While delay is calculated for all types of intersections, it is most critical for priority or sign controlled intersections, where excessive delays to vehicle movements exiting minor side roads can lead to motorists accepting smaller gaps in the opposing traffic flows thereby increasing safety conflicts.

[1] Austroads (April 2020), *Guide to Traffic Management Part 3: Transport Study and Analysis Methods*, s.4.2.2, p.38.

The LOS and delay criteria adopted for this assessment have been taken from the SIDRA Intersection 9 *User Guide*[2] and for ease of reference are summarised in **Table 2.5.1.2**.

Table 2.5.1.2 LOS criteria for road intersections using delay

Level of service	Average delay per vehicle (d) in seconds		
	Signalised intersections (SIDRA)	Roundabouts (SIDRA)	Unsignalised intersections (RTA NSW)
A	d ≤ 10	d ≤ 10	d < 14.5
B	10 < d ≤ 20	10 < d ≤ 20	14.5 < d <28.5
C	20 < d ≤ 35	20 < d ≤ 35	28.5 < d < 42.5
D	35 < d ≤ 55	35 < d ≤ 50	42.5 < d < 56.5
E	55 < d ≤ 80	50 < d ≤ 70	56.5 < d < 70.5
F	80 < d	70 < d	70.5 < d

For this assessment, where an intersection has been analysed and the outcome from that analysis indicates a level of service of LOS C or better based on the *average delay per vehicle,* then that intersection has been deemed to perform in a satisfactory or better manner. Delays producing a LOS D or LOS E have been deemed to be excessive and are considered to increase the potential for both unsafe operation and capacity constraints at the intersection.

2.6 Intersection assessment

2.6.1 Bolsover Street / Cambridge Street roundabout

The existing intersection configuration is shown in **Figure 2.6.1.1** and the layout modelled in SIDRA is shown in **Figure 2.6.1.2**. A summary of the key performance indicators is provided in **Table 2.6.1**.

Table 2.6.1 2024 SIDRA results – Bolsover Street / Cambridge Street

Approach	Degree of saturation	Average delay (s)	Level of service	95% back of queue (m)
2024 AM				
Bolsover Street (S)	0.235	4.3	A	10.7
Cambridge Street (E)	0.057	10.0	A	3.0
Bolsover Street (N)	0.491	4.1	A	25.6
Cambridge Street (W)	0.122	5.4	A	4.6
2024 PM				
Bolsover Street (S)	0.323	4.3	A	15.5
Cambridge Street (E)	0.114	8.1	A	5.3
Bolsover Street (N)	0.337	4.1	A	14.1
Cambridge Street (W)	0.208	6.3	A	8.6

The results of the SIDRA analysis demonstrates that, under existing conditions, the Bolsover Street / Cambridge Street roundabout operates within the acceptable key performance criteria for a roundabout. Further details on the individual movements are included in the SIDRA outputs provided in **Appendix C**.

[2] Akcelik & Associates Pty Ltd (May 2020), *Sidra Intersection 9 User Guide*, s.5.14.1, Table 5.14.3, Table 5.14.4, p.423.

Figure 2.6.1.1 Existing Bolsover Street / Cambridge Street layout

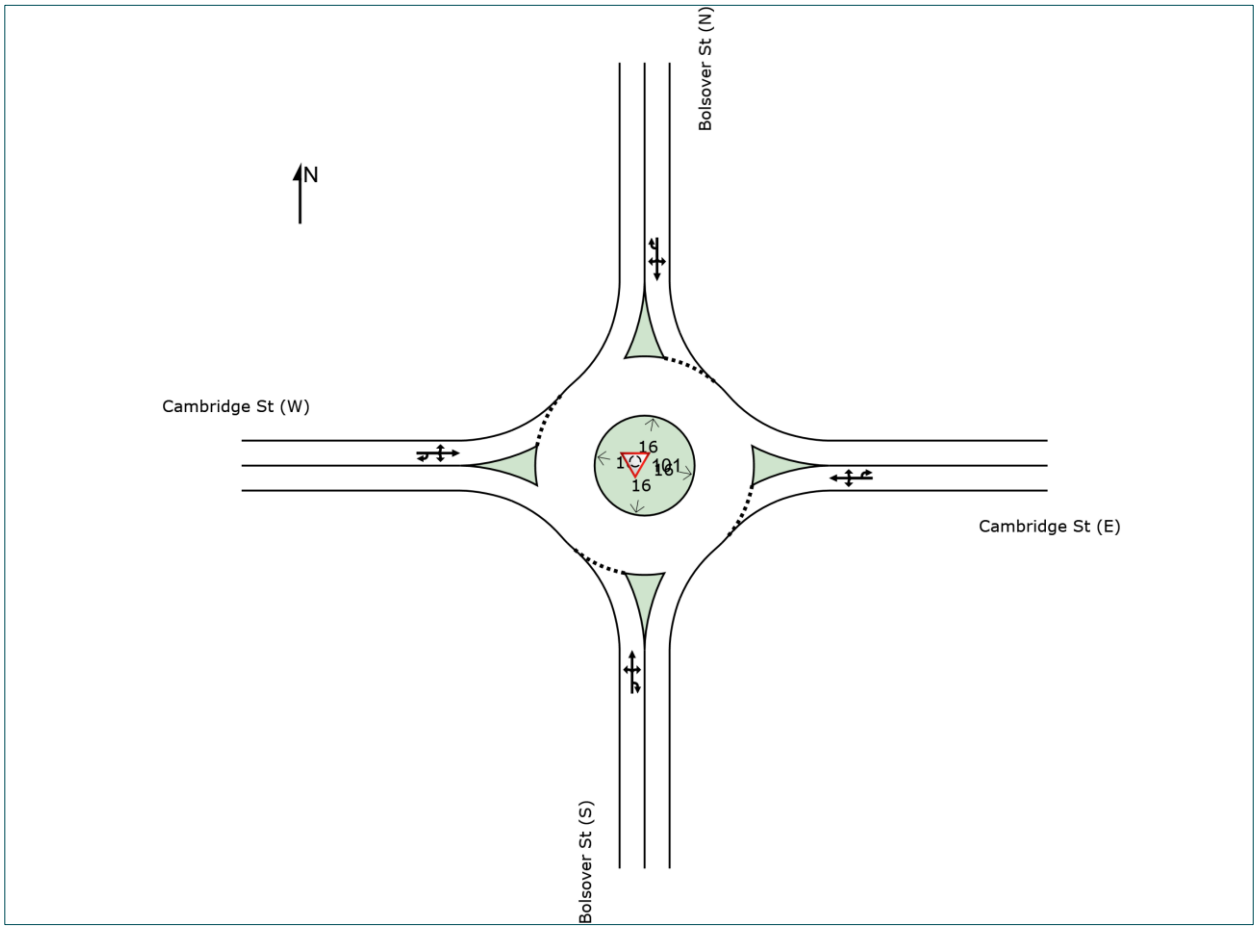


Figure 2.6.1.2 Existing Bolsover Street / Cambridge Street SIDRA layout

3. Traffic impact assessment

3.1 Traffic generation

A review of Council's *Rockhampton Region Planning Scheme* has not identified traffic generation rates for the proposed land use. In lieu of Council specific traffic generation rates, traffic generation rates for the proposed development have been based on the rates provided in RTA's *Guide to Traffic Generating Developments (GTGD)* and TMR's *Traffic Generation Data - 2006 – 2018*.

A summary of the expected development traffic generation is shown in **Table 3.1**.

Table 3.1 Development traffic generation

Land use	Quantity		Peak period	Traffic generation rate		Traffic generation volume
Food and drink outlet	31	GFA (m2)	AM	5	trips per 100m^2 GFA	2
			PM	5	trips per 100m^2 GFA	2
Rooming accommodation	20	units	AM	0.25	trips per bed	5
			PM	0.24	trips per bed	5
					Total AM Peak Hour Trips	7
					Total PM Peak Hour Trips	7

3.2 Trip distribution

TMR's guide to Traffic Impact Assessment (GTIA) stipulates:

"Peak hour development-generated traffic volumes need to be split into entry (IN) and exit (OUT) volumes for assignment of this traffic to the access intersection and to the surrounding road network."

Based on the proposed uses, it is expected that In / Out trips would differ across the AM and PM peak hours. On this basis, for the food and drink land use, traffic splits of 100% 'In' and 0% 'Out' for the AM peak hour and 0% 'In' and 100% 'Out' for the PM peak hour have been adopted to reflect staff travel patterns.

For the rooming accommodation, traffic splits of 30% 'In' and 70% 'Out' for the AM peak hour and 60% 'In' and 40% 'Out' for the PM peak hour have been adopted.

The AM and PM In / Out traffic splits are shown in **Table 3.2**.

Table 3.2 Development traffic splits

Land use	Traffic generation (trips)	Peak period	IN%	IN Trips	OUT %	OUT TRIPS
Food and drink outlet	2	AM Peak	100%	2	0%	0
	2	PM Peak	0%	0	100%	2
Rooming accommodation	5	AM Peak	30%	2	70%	3
	5	PM Peak	60%	3	40%	2
			Total AM peak IN trips	4	Total AM peak OUT trips	3
			Total PM peak IN trips	3	Total PM peak OUT trips	4

3.3 Traffic distribution

The development traffic distribution to / from the site on the surrounding road network has been calculated based on the development's location to key activity generators (town centres, schools, shopping centres etc.) and existing intersection directional splits from observed background traffic volumes at the Bolsover Street / Cambridge Street roundabout.

The anticipated development traffic distribution percentages are shown in **Figure 3.3.1**, with the resultant traffic volumes shown in **Figure 3.3.2**. The resultant traffic volumes reflect the net increase in development trips.

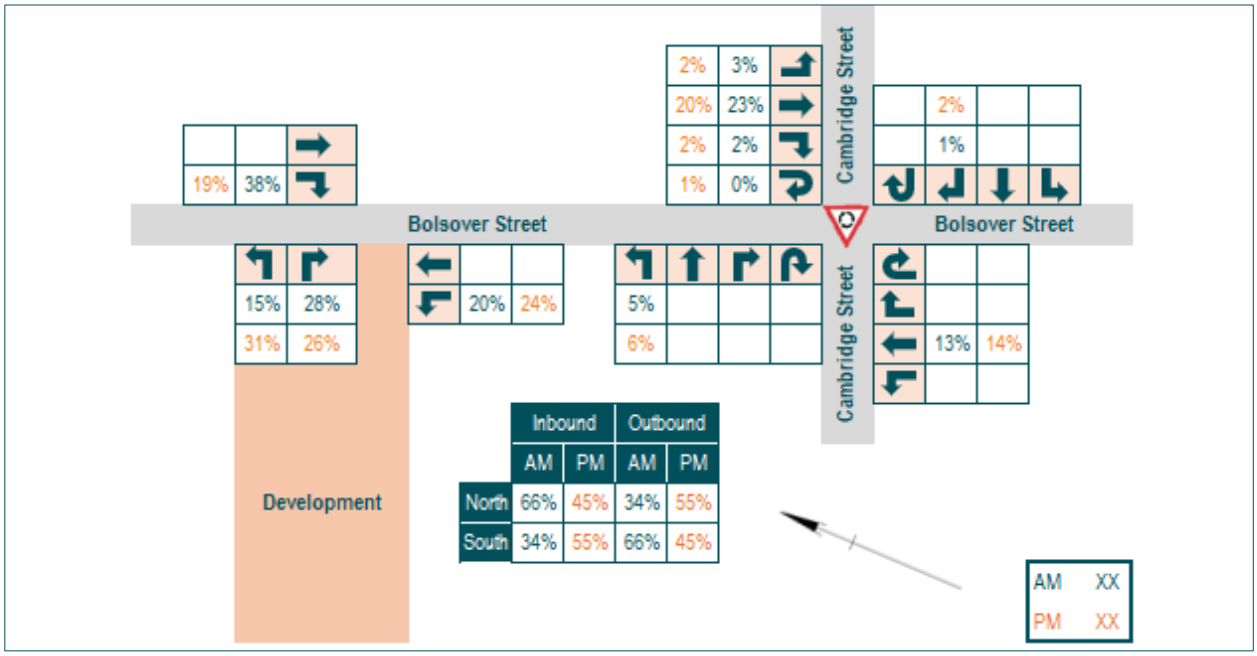


Figure 3.3.1 Development distributions (%)

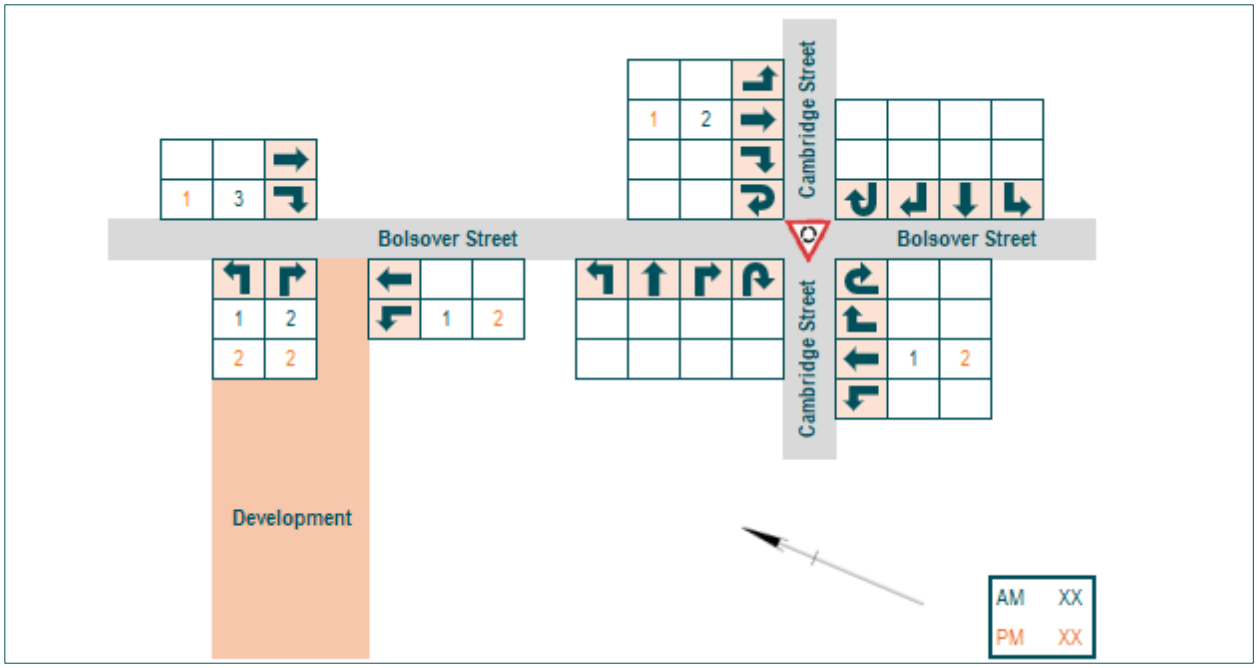


Figure 3.3.2 Development distributions (vehicles)

3.4 Assessment of traffic impacts

3.4.1 Assumptions

The following assumptions have been relied upon for the purposes of undertaking this traffic assessment:

- the year of opening for the proposed development will be 2026
- the 10-year design horizon is 2036, and
- 2% compounding growth rate.

Based on these assumptions, the following scenarios have been analysed for the potentially affected intersection:

1. 2026 – Base case (existing with no development)
2. 2026 – Development case (existing with development))
3. 2036 – Base case (existing with no development)
4. 2036 - Development case (existing with development).

3.5 Base case traffic volumes

Base case traffic volumes have been determined for the year of opening (2026) and the 10-year design horizon (2036) by applying the compounding annual growth rates (CAGR) adopted in **Section 3.4.1**, to 2024 background traffic volumes, the results of which are presented in **Figure 3.5.1** for the year of opening (2026) and **Figure 3.5.2** for the 10-year design horizon (2036).

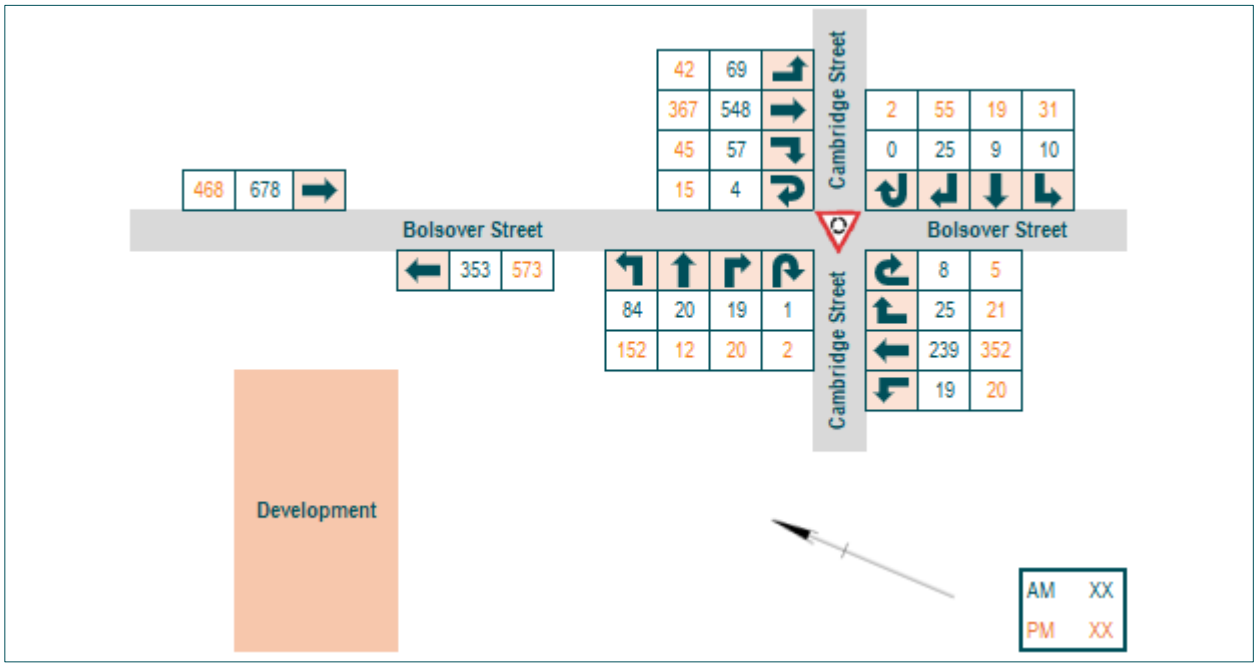


Figure 3.5.1 2026 – Base case traffic volumes (existing with no development)

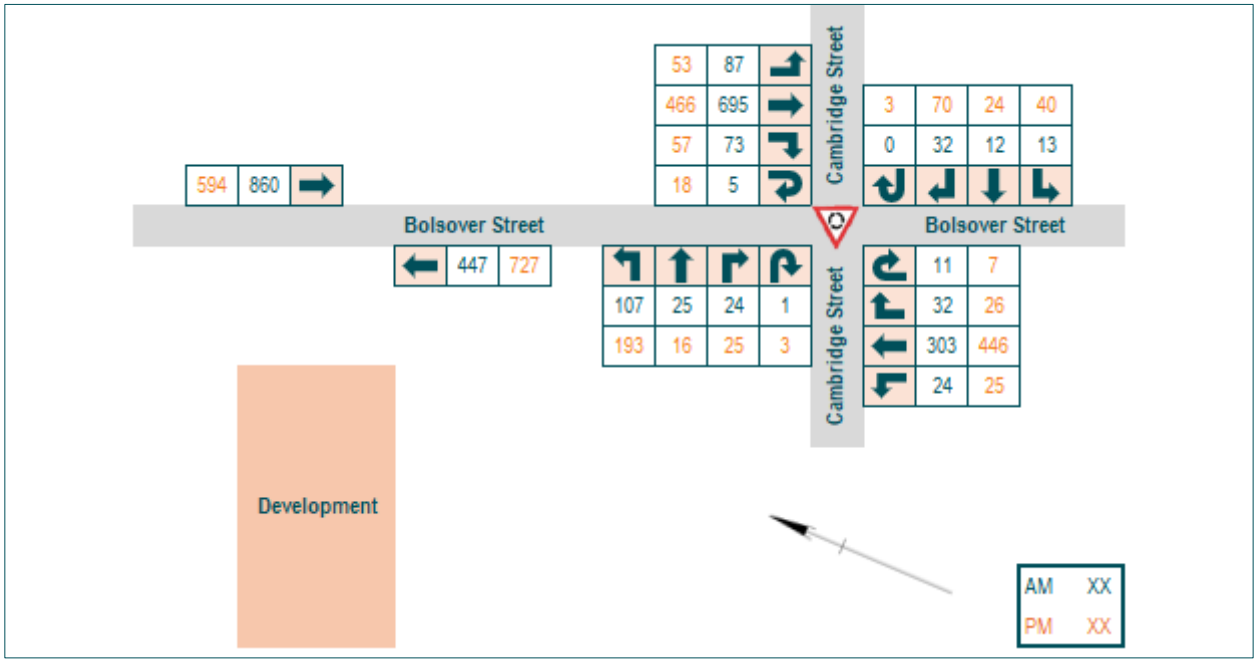


Figure 3.5.2 2036 Base case traffic volumes (existing with no development)

3.6 Design traffic volumes

Development case traffic volumes have been calculated by adding development generated traffic to the existing (or background traffic) for the year of opening (2026) (**Figure 3.6.1**) and the 10-year design horizon (2036) (**Figure 3.6.2**).

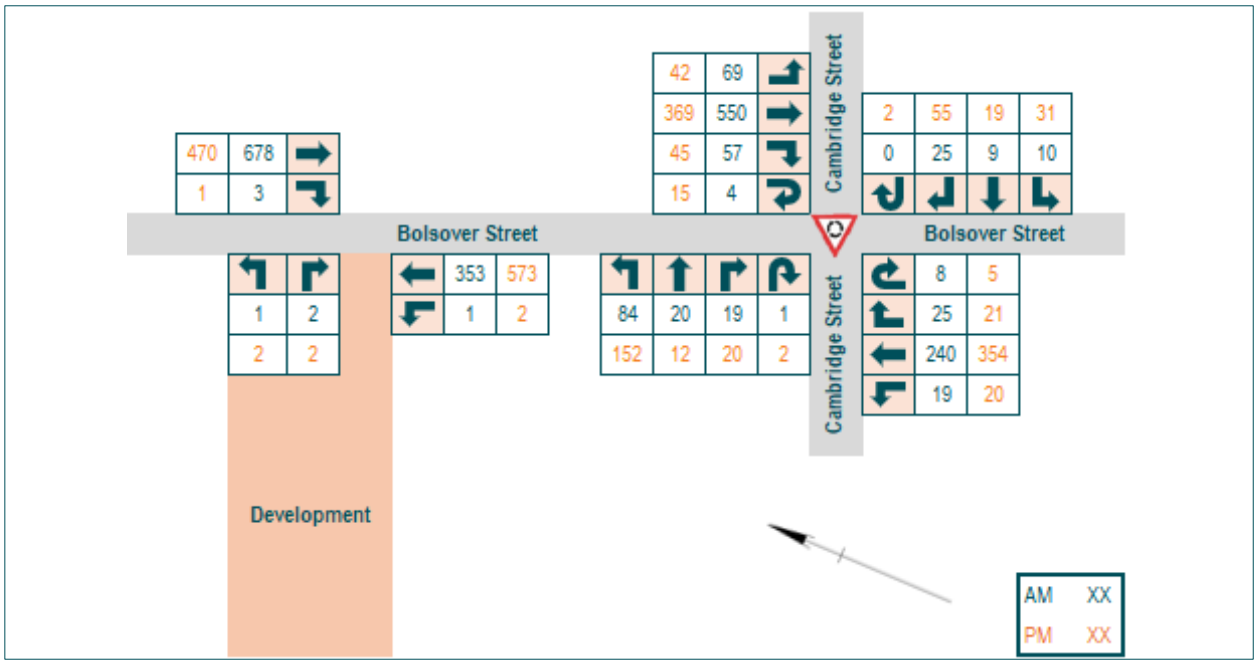


Figure 3.6.1 2026 Design traffic volumes (existing with development)

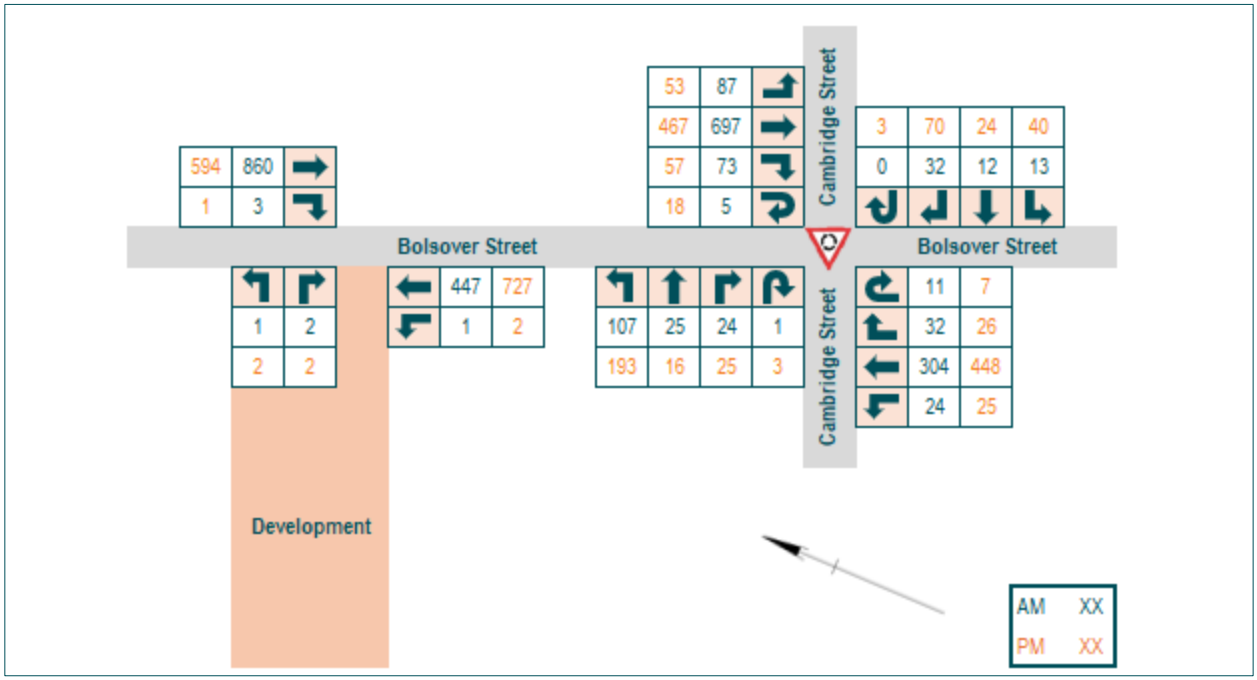


Figure 3.6.2 2036 Design traffic volumes (existing with development)

4. Intersection assessment

Using the design traffic volumes determined for each scenario, intersection analysis using SIDRA 9.1 intersection analysis software was undertaken for the Bolsover Street / Cambridge Street roundabout for the year of opening (2026) and the 10-year design horizon (2036) for each of the scenarios outlined in **Section 3.4.1**.

4.1 Year of opening (2026)

A summary of the key performance indicators as determined by the SIDRA analysis for the year of opening (2026) base case and development case scenarios is presented in **Table 4.1** with SIDRA outputs provided in **Appendix C**.

The results of the SIDRA analysis demonstrate that the introduction of development generated traffic has no significant net impact to key performance indicators for the roundabout in the year of opening (2026) with the level of service (LOS) remaining consistent across all intersection approaches.

Table 4.1 SIDRA results – year of opening (2026) – Base case vs. Development case

Approach	Degree of saturation (DOS)		Average delay (s)		Level of service (LOS)		95% back of queue (m)	
2026 AM	Base	Development	Base	Development	Base	Development	Base	Development
Bolsover Street (S)	0.245	0.246	4.3	4.3	A	A	11.3	11.3
Cambridge Street (E)	0.061	0.061	10.3	10.3	B	B	3.2	3.3
Bolsover Street (N)	0.513	0.514	4.1	4.1	A	A	27.7	27.8
Cambridge Street (W)	0.128	0.128	5.5	5.5	A	A	4.8	4.8
2026 PM	Base	Development	Base	Development	Base	Development	Base	Development
Bolsover Street (S)	0.338	0.339	4.3	4.3	A	A	16.5	16.6
Cambridge Street (E)	0.120	0.120	8.3	8.3	A	A	5.7	5.7
Bolsover Street (N)	0.352	0.352	4.1	4.1	A	A	15.1	15.1
Cambridge Street (W)	0.220	0.220	6.5	6.5	A	A	9.2	9.3

4.2 10-year design horizon (2036)

A summary of the key performance indicators as determined by the SIDRA analysis for the 10-year design horizon (2036) base case and development case scenarios is presented in **Table 4.2** with SIDRA outputs provided in **Appendix C**. The results of the SIDRA analysis demonstrate that Bolsover Street / Cambridge Street roundabout operates within the key performance indicators for a roundabout in the 10-year design horizon (2036).

Table 4.2 SIDRA results – 10-year design horizon (2036) – Base case vs. Development case

Approach	Degree of saturation (DOS)		Average delay (s)		Level of service (LOS)		95% back of queue (m)	
2036 AM	Base	Development	Base	Development	Base	Development	Base	Development
Bolsover Street (S)	0.306	0.307	4.5	4.5	A	A	15.0	15.0
Cambridge Street (E)	0.087	0.088	12.6	12.6	B	B	5.3	5.3
Bolsover Street (N)	0.635	0.637	4.4	4.4	A	A	43.1	43.3
Cambridge Street (W)	0.166	0.166	6.0	6.0	A	A	6.6	6.6
2036 PM	Base	Development	Base	Development	Base	Development	Base	Development
Bolsover Street (S)	0.423	0.425	4.6	4.7	A	A	22.8	22.9
Cambridge Street (E)	0.159	0.159	9.4	9.4	A	A	8.2	8.2
Bolsover Street (N)	0.435	0.436	4.2	4.2	A	A	21.2	21.2
Cambridge Street (W)	0.295	0.296	7.4	7.5	A	A	13.4	13.5

4.3 Intersection delay

An assessment of aggregate-intersection-delay impact 'with development' has been undertaken for the Bolsover Street / Cambridge Street roundabout in accordance with *Section 11.3.1* of TMR's *GTIA,* the results of which are shown in **Table 4.3**.

Table 4.3 Aggregate-intersection-delay-impact 'with development'

2026 Background delay impact (veh-min)		2026 Development delay impact (veh-min)		Net change (%)	
AM	PM	AM	PM	AM	PM
90.99	100.16	91.00	100.16	0.02%	0.0%

The assessment indicates that the aggregate-intersection-delay impact 'with development' is less than 5%, and therefore no mitigation measures are triggered and the development's impact on the intersection is inconsequential.

5. Parking assessment

5.1 Car parking requirements

The car parking requirements for the development have been calculated in accordance with the land use requirements stipulated in Council's *Rockhampton Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code (V4.4)* as shown in **Table 5.1**.

Table 5.1 Council car parking requirements

Land Use	Quantity	Car parking rate	Parking requirement
Food and drink outlet	31 GFA (m^2)	1 space per 15m^2 of GFA	3
Rooming accommodation	19 guest bedrooms	1 space per 3 beds	7
	1 manager residence	1 space for manager residence	1
		Total	11

5.2 Performance outcome car parking demand

PO5 of Council's *Rockhampton Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code (V4.4)* states:

'*Provision is made for on site vehicle parking to meet the demand likely to be generated by the development and to avoid on-street parking where that would adversely impact on the safety or capacity of the road network or unduly impact on local amenity*'.

While **Table 5.1** provides car parking rates in accordance with AO5 of Council's *Rockhampton Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code (V4.4)*, the car parking rates stipulated by Council are considered onerous for the proposed development based on the following:

- the information request for D/145-2024 dated 7 November 2024 from Council states that provisions of two car parking spaces for the food and drink outlet would meet the minimum car parking requirements for the development
- the food and drink outlet component of the development is of a small nature and likely to comprise mostly of customer walk-in's
- the development site is serviced by a suitable network of pedestrian footpaths which provides access to surrounding public transport facilities, has good access to ride share and e-scooter providers, and
- the target market for the rooming accommodation component of the proposed development comprises the not 'drive market' and therefore guests will generally not require access to private vehicles.

Based on the above supporting aspects; to comply with PO5 the development proposes to provide staff parking and rooming accommodation parking that meets the demand of a development of this nature and in this location. Therefore, the Applicant proposes to provide two car parking spaces for the food and drink outlet land use for staff, and 1 space per 5 rooms plus a car parking space for the manger's residence for the rooming accommodation land use.

Adopting a rate of 1 space per 5 rooms for a rooming accommodation land use is consistent with the rates provided in *2014 North Burnett Regional Planning Scheme*, *Brisbane City Council City Plan 2014* and the RTA's *GTGD*.

Based on the above, the performance outcome car parking demand is shown in **Table 5.2**.

Table 5.2 Performance based car parking demand

Land use	Quantity	Car parking rate	Parking requirement
Food and drink outlet	31 GFA (m^2)	2 spaces	2
Rooming accommodation	19 guest bedrooms	1 space per 5 beds	4
	1 manager residence	1 space for manager residence	1
		Total	7

5.3 Car parking provision

The development provides a total of seven parking spaces inclusive of two spaces for staff of the food and drink outlet land use and five spaces for the rooming accommodation land use inclusive of one parking space for the manager residence.

With respect to the *NCC – Volume 1* requirements for PWD accessible parking, the *disability (access to premises – buildings) Standards 2010 of the Disability Discrimination Act 1992* stipulates that a designated PWD parking space need not be designated where there is a total of not more than five car parking spaces per land use. This stipulation is in place so as not to restrict the use of the car parking spaces for only people with a disability. Given only two spaces are provided for the food and drink outlet land use (Class 6 building) and five spaces are provided for the rooming accommodation land use (Class 2 building), PWD parking is not proposed.

Car parking design for the proposed development has been undertaken generally in accordance with Australian Standard *AS2890.1 – Parking Facilities*. **Table 5.3** shows design parameters for each user class in accordance with *AS2890.1* and Council's *Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code (V4.4)*.

Table 5.3 Car parking design requirement

User class	Parking bay width (m)	Parking bay length (m)	Aisle width (m)	Use
1	2.4	5.4	6.2	Staff
2	2.5	5.4	5.8	Guest

Other specific design parameters relating to the parking and internal road layout design have been developed generally in accordance with Australian Standard *AS2890.1 – Parking Facilities* and Council's *City Plan – Access, Parking and Transport Code (V4.4*).

No turnaround bay is provided for the internal car park as there is sufficient space available for a B99 passenger vehicle to perform a turnaround manoeuvre and exit the development site in a forward gear in accordance with the clearances stipulated in *AS2890.1* if all parking spaces are occupied (**Appendix D**).

5.4 Bicycle parking

Bicycle parking for the development has been calculated in accordance with the land use requirements stipulated in Council's *Rockhampton Region Planning Scheme, SC 6.4 – Bicycle Network Planning Scheme Policy* as shown in **Table 5.4**.

Table 5.4 Bicycle parking requirements

Land Use	Quantity	Class	Bicycle Parking Rate	Parking Requirement
Food and Drink outlet	31 GFA (m^2)	Staff - class 1 or 2	1 per 100 GFA (m^2)	1
		Visitor - class 3	1 per 50 GFA (m^2)	1
Rooming Accommodation	20 bedrooms	Guest - class 1	1 per 3 accommodation units or rooms	7
		Visitor - class 3	1 per 12 accommodation units or rooms	2
			Total spaces	11

5.5 Bicycle parking provision

The development provides a total of 12 bicycle parking spaces comprising eight Class 2 spaces (guest and staff) and four visitor spaces (Class 3), and therefore generally complies with Council requirements.

The Class 2 spaces will be located on the ground floor level car parking area behind the line of security. Visitor spaces (Class 3) will be provided at the front of the development on the ground floor level within line of sight to the Bolsover Street road frontage (**Appendix A**).

Bicycle parking for the proposed development has been designed to comply with *AS2890.3* as shown in **Table 5.5**.

Table 5.5 Bicycle parking design requirements

User	Security Level	Min. Parking envelope width (m)	Min. Parking envelope length	Min. Aisle width (m)
Staff / guest	B [1]	0.5	1.8	1.5
Visitors	C [1]	0.5	1.8	1.5

Notes:
1. Bicycle parking requirements based on a horizontal parking layout with floor mounted rails.

5.6 Access and driveway conflict analysis

Due to the narrow site frontage and proposed building configuration, the proposed driveway comprises a width of 3.6m at the property boundary and a 4.4m width (wall to wall) inside the property until transitioning into a 6.2m wide parking aisle. A width of 3.6m at the property boundary is a function of limited width along the Bolsover Street road frontage and the need to provide pedestrian sight triangles on either side of the driveway to ensure safe interaction between vehicles departing the site and pedestrians utilising the footpath provided in the road verge.

While it is acknowledged that the proposed width is at the lower end of the width range stipulated by *AS2890.1* and does not allow for two vehicles to pass one another on the driveway, the width is considered acceptable when considering the following:

- there is sufficient line of sight between vehicles exiting the ground floor carpark and vehicles entering the development site from Bolsover Street
- the distance between a car departing the furthest car parking space and the property boundary is approximately 30m, and
- no commercial visitor parking is permitted on site. All parking will be located behind a secure roller shutter, removing the normal visual clues associated with parking spaces thus reducing the likelihood of a visitor entering the driveway area and into the ground floor parking area.

Furthermore, a key consideration with respect to the potential for opposing vehicles to encounter one another when arriving to or departing from the development is the trip generating characteristics of the site. The proposed development will generate seven trips in the AM and PM peak hours hour. The volume of trips in and out of the site during peak hours are considered low (**Section 3.1**). On this basis, the likelihood of opposing vehicles encountering each other on the driveway is considered to be extremely low.

To support this supposition, vehicle arrival and departure behaviour has been assessed statistically using a Poisson distribution process to analyse the likelihood of conflicting traffic movements. A Poisson distribution is a discrete probability distribution for certain events that occur randomly in a given interval of time.

The probability *P*, of an event is given by:

$$P\,(X = x) = \frac{e^{-\mu}\mu^{x}}{x!}$$

where,

$\mu = mean\ number\ of\ events\ per\ interval\ (in\ this\ case, cars\ per\ hour)$

$X = the\ number\ of\ successes\ occurring\ in\ a\ given\ time\ interval$

x= 0 , 1, 2, 3, 4 ...

In the context of this situation, the *Poisson* distribution provides a solution for the conflict probability of a departing vehicle encountering an arriving vehicle in any portion of the parking aisle to the property boundary (**Figure 5.6**).

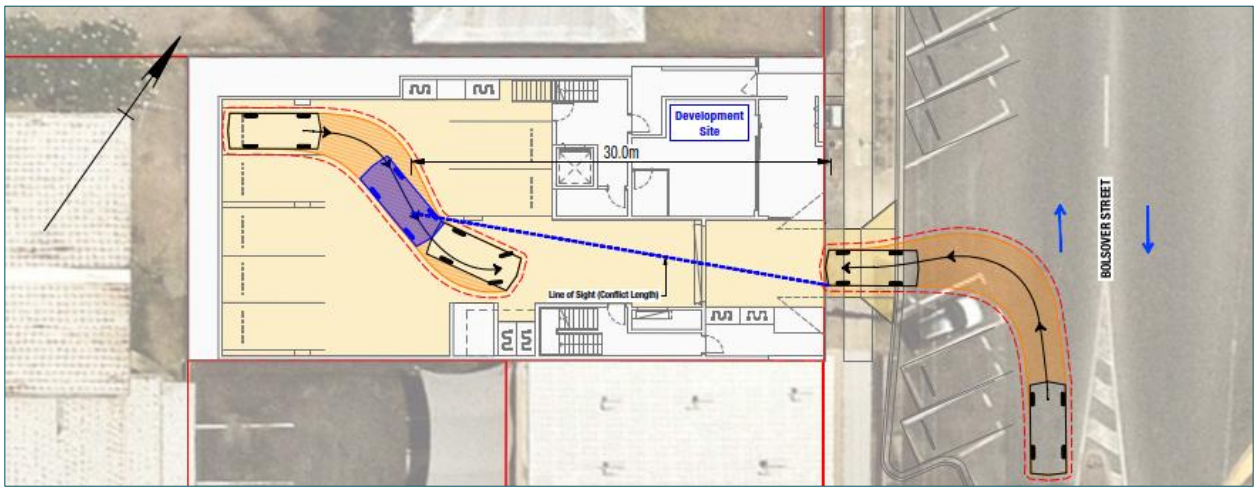


Figure 5.6 Greatest conflict length – line of sight

For the analysis, the 'number of movements' was equal to the total trips generated in the peak hour (i.e., seven trips in the AM and PM peak hours), and the 'arrival rate' was equal to the peak ingress traffic generation (i.e., four vehicles per hour 'IN' to the site in the AM peak hour, and three vehicles per hour 'IN' to the site in the PM peak hour).

Table 5.6 summarises the outcomes of this assessment:

Table 5.6 Poisson Distribution Analysis

Period	Conflict length	Operating speed (km/h)	Travel time through conflict (mins)	Number of movements (trips)	Arrival rate (cars/hr)	Probability of conflict
AM peak	30m	5	0.36	7	4	0.028117% (1 in 3,557)
PM peak	30m	5	0.36	7	3	0.015911% (1 in 6,285)

The above results demonstrate that the likelihood of two vehicles encountering each other on the driveway / vehicle crossing area is highly unlikely due to the low number of vehicle movements and the short parking aisle length / area of potential conflict. Therefore, provision of a one-lane, two-way driveway is considered appropriate for the proposed development and is not likely to result in worsening of operating conditions on the external road network.

6. Access and service assessment

6.1 Access arrangement

The development proposes access from Bolsover Street via a single two-lane, two-way 3.6m wide vehicle crossing designed generally in accordance with *Capricorn Municipal Development Guidelines Standard Drawing R-042A for* a 'Type A' vehicle crossing (**Figure 6.1.1**). While it's acknowledged that in accordance with *Capricorn Municipal Development Guidelines Standard Drawing R-042A* for a 'Type A' vehicle crossing a width of 6m is required, due to the constrained road frontage, this is not possible without removing on-street car parking beyond one space.

As outlined previously in **Section 3.0** of this report, the development is expected to generate no more than seven vehicle trips in the AM and PM peak hours. On this basis and to achieve a functional outcome, it is considered appropriate that the vehicle crossing for this development has a width of 3.6m. The access will cater for all movements. The existing vehicle crossing servicing the development site will be demolished, and the kerb and channel will be reinstated.

With respect to vehicles wishing to turn right to access the development site, **Figure 6.1.2** demonstrates a vehicles ability to pass a vehicle giving way to opposing traffic to turn right from Bolsover Street into the development site.

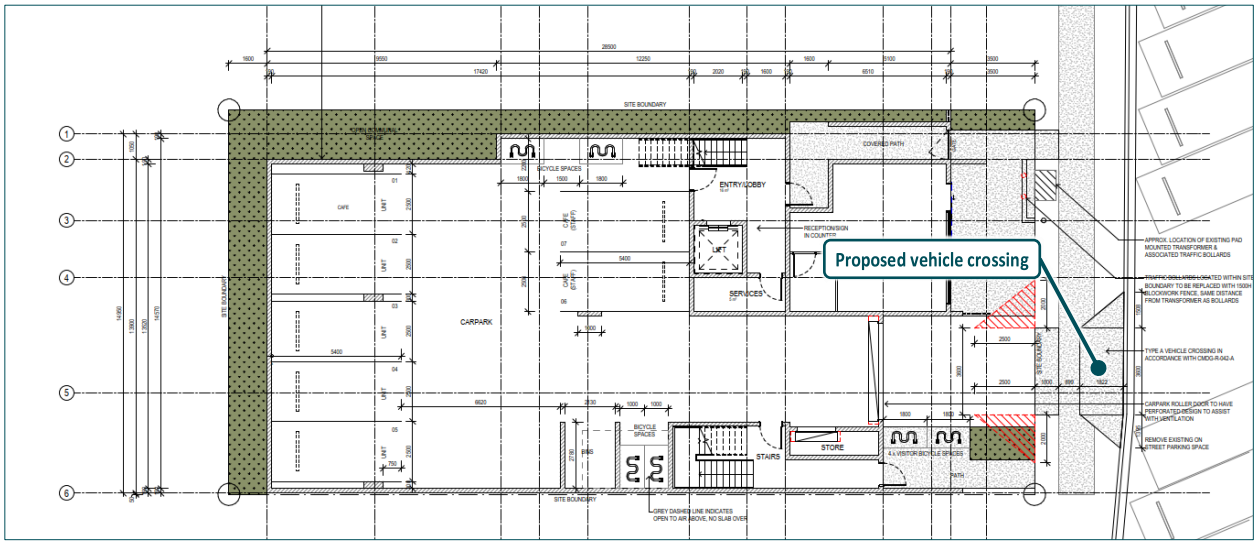


Figure 6.1.1 Proposed access arrangement

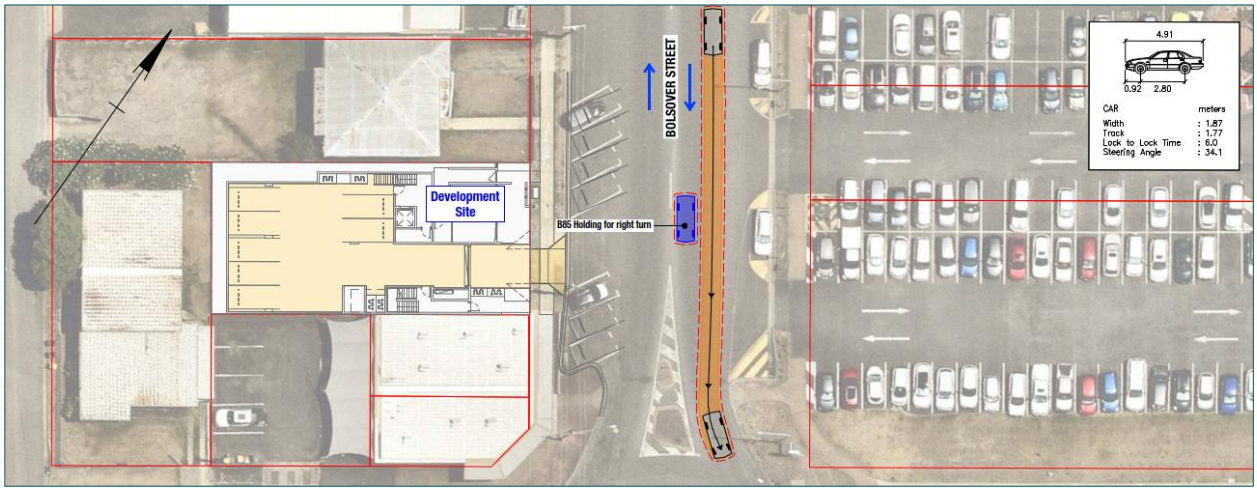


Figure 6.1.2 Vehicle passing car turning right into development site

6.2 Sight distance assessment

A sight distance assessment has been undertaken in accordance with *AS2890.1* to ensure that the location of the Bolsover Street vehicle crossing provides sufficient sight distance for road users to find a safe gap in oncoming traffic when leaving the site.

While Council's information request for D/145-2024 dated 7 November 2024 requesting a safe intersection sight distance (SISD) assessment in accordance with Austroads requirements for the proposed Bolsover Street access is noted, AO12.1 of Council's *Rockhampton Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code (V4.4)* stipulates:

'*Vehicle manoeuvring into and from the site for all vehicles is designed in accordance with the Australian Standard AS 2890, as updated from time to time.*'

The minimum gap sight distance requirements (MGSD) in accordance with AS2890 for a vehicle departing the site are provided in **Table 6.2**. The required sight distance has been calculated based on a frontage road speed along Bolsover Street of 50km/h. With respect to vehicles circulating the roundabout into Bolsover Street, it is anticipated that their operating speed would be 30km/h while travelling through the roundabout.

Table 6.2 Sight distance requirements

Frontage road	Vehicle speed assessed (km/h)	Sight distance requirement (5s gap)
Bolsover Street	50km/h	69.0m
Vehicles circulating the roundabout	30km/h	42.0m

Figure 6.2 shows the required sight distance and associated sight lines for vehicles travelling along Bolsover Street to vehicles departing the development site at the proposed vehicle crossing location, demonstrating compliance with specified requirements. Regarding on-street parked vehicles along Bolsover Street, it is noted that *Figure 3.2* of *AS2890.1* includes the following annotation:

'*no permanent sight obstruction (see Note 3)*.

NOTE 3 Parking on this side of the frontage road may need to be restricted on either side of the driveway so that sight distance required by the above table to an approaching vehicle is not obstructed."

Generally speaking, a parked vehicle does not constitute a permanent sight obstruction and therefore does not need to be removed to comply with *AS2890.1* sight distance requirements. In an urban road environment, vehicles parked on street against the kerb would be located within the sight lines, with this a typical scenario for urban road environments. Removal of any on street parking spaces is a decision for Council, not for the Applicant, notwithstanding that parked vehicles do not constitute a permanent sight obstruction and do not need to be removed to achieve compliance with *AS2890.1* sight distance requirements.

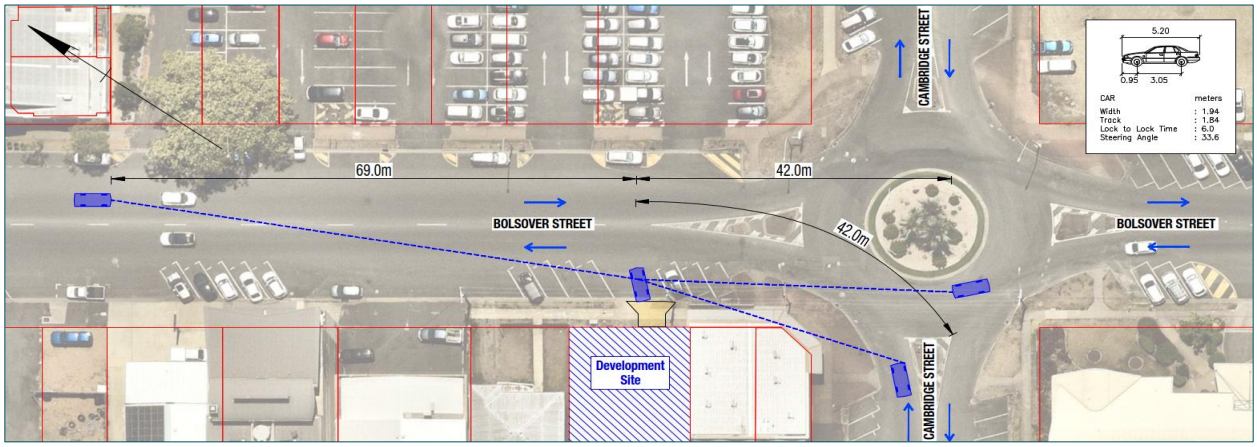


Figure 6.2 Minimum sight distance requirements

6.3 Servicing

Council's *Rockhampton Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code* does not stipulate a service vehicle requirement for the development. In lieu of Council specific service vehicle requirements, it is anticipated that vehicle sizes up to a 6.4m Small Rigid Vehicle (SRV) will be required for servicing the development site. As a consequence of site constraints, on site servicing cannot be provided and instead, it is proposed that servicing of the development site will be undertaken by using the on-street loading zones within proximity of the development site (**Figure 6.3**). The development site has two loading zones located within 120m of the development site.

Figure 6.3 Existing on street loading bay locations

6.4 Refuse Collection

Refuse storage is proposed to be in wheelie bins and refuse collection is proposed to be undertaken kerbside on Bolsover Street by way of a side lift Refuse Collection Vehicle (RCV). On collection day, staff will relocate the wheelie bins from the waste storage room in the ground level car park to the Bolsover Street kerbside (**Appendix A**). Once the wheelie bins are serviced, staff will relocate the wheelie bins back to the waste storage room.

7. Response to development codes

A detailed review of the proposed development against Council's *Rockhampton Region Planning Scheme, Part 9.3.1 – Access, Parking and Transport Code* is provided in **Appendix E**.

8. Conclusion

This report presents the findings related to assessment of traffic impact related matters for a proposed development located at 70 Bolsover Street, Rockhampton City. Based on the presented findings, it can be concluded that the proposed development will not introduce any adverse traffic or transport impacts which would prevent its approval with appropriate conditions.

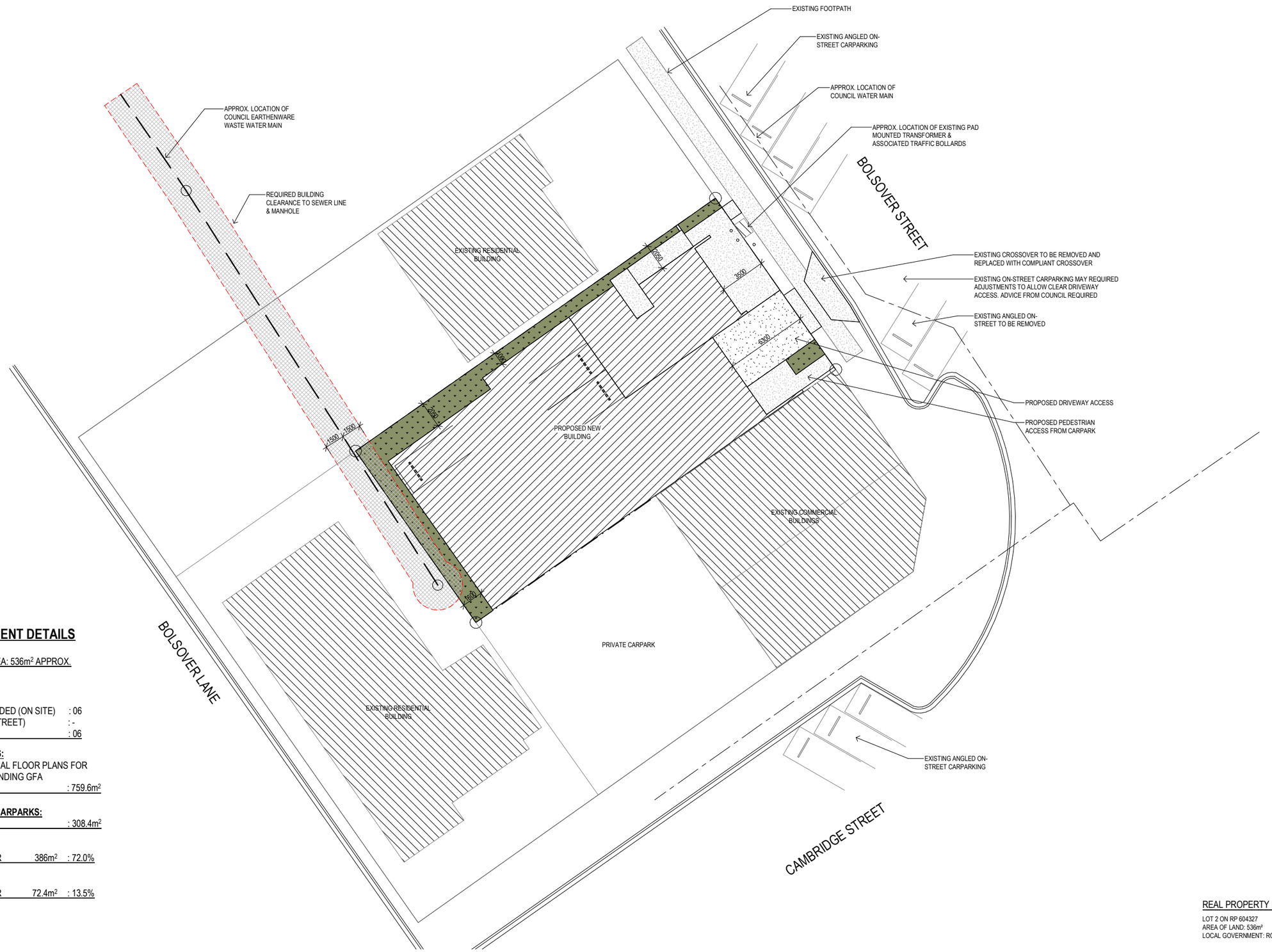
9. References

1. Rockhampton Regional Council, *Rockhampton Region Planning Scheme Version 4.4 (October 2023)*, Rockhampton.
2. Austroads, *Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods,* 2020, Sydney.
3. Akcelik & Associates, *SIDRA Intersection User Guide for Version 9.1, 9th Edition,* 2024, Melbourne.
4. Austroads, *Guide to Traffic Management Part 12: Traffic Impacts of Developments*, 2016, Sydney.
5. Queensland Government (Department of Transport and Main Roads), *Traffic Generation Data - 2006 - 2018*, November 2018, Brisbane.
6. Queensland Government (Department of Transport and Main Roads), *Guide to Traffic Impact Assessment*, December 2018, Brisbane.
7. New South Wales Government (Roads and Traffic Authority), *Guide to Traffic Generating Developments – Issue 2.2*, 2002, Sydney.
8. Brisbane City Council, *City Plan Version 31* (*December 2024*), Brisbane.
9. North Burnett Regional Council, *North Burnett Regional Planning Scheme Version 1.4* (*August 2020*), North Burnett
10. Australian Building Codes Board, *National Construction Code (NCC) Volume 1*, May 2019.
11. Standards Australia/Standards New Zealand 2004, *AS2890.1: Off-street Car Parking Facilities*.
12. Standards Australia/Standards New Zealand 2018, *AS2890.2: Off-street Commercial Vehicle Facilities*.
13. Standards Australia/Standards New Zealand 2022, *AS2890.6: Off-street Car Parking for People with Disabilities*.

Appendix A Plans of development

WIND CATEGORY C2

PRELIMINARY
NOT FOR CONSTRUCTION
PLANS ARE SUBJECT TO CHANGE TO COMPLY WITH RELEVANT COVENANT & BUILDING CERTIFICATION APPROVALS



DEVELOPMENT DETAILS

TOTAL SITE AREA: 536m² APPROX.

CAR PARKS:
PARKING PROVIDED (ON SITE) : 06
PARKING (ON STREET) : -
TOTAL : 06

BUILDING GFA'S:
REFER INDIVIDUAL FLOOR PLANS FOR IT'S CORRESPONDING GFA
TOTAL GFA : 759.6m²

DRIVEWAYS & CARPARKS:
NEW : 308.4m²

SITE COVER:
GROUND FLOOR 386m² : 72.0%

LANDSCAPING:
GROUND FLOOR 72.4m² : 13.5%

1 SITE PLAN
1 : 150

REAL PROPERTY DESCRIPTION
LOT 2 ON RP 604327
AREA OF LAND: 536m²
LOCAL GOVERNMENT: ROCKHAMPTON REGIONAL COUNCIL

NOTES:
1. VERIFY ALL LEVELS & DIMENSIONS BEFORE COMMENCING ANY FABRICATION
2. FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALED
3. COMPLY WITH LOCAL AUTHORITY, STANDARD BUILDING LAW AND ALL RELEVANT AUSTRALIAN STANDARDS & LEGISLATION
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REV ISSUE	DATE	DESCRIPTION
6	09.12.24	PRELIMINARY
5	29.10.24	PRELIMINARY
4	10.10.24	PRELIMINARY
3	02.10.24	PRELIMINARY
2	01.10.24	PRELIMINARY
1	25.09.24	PRELIMINARY

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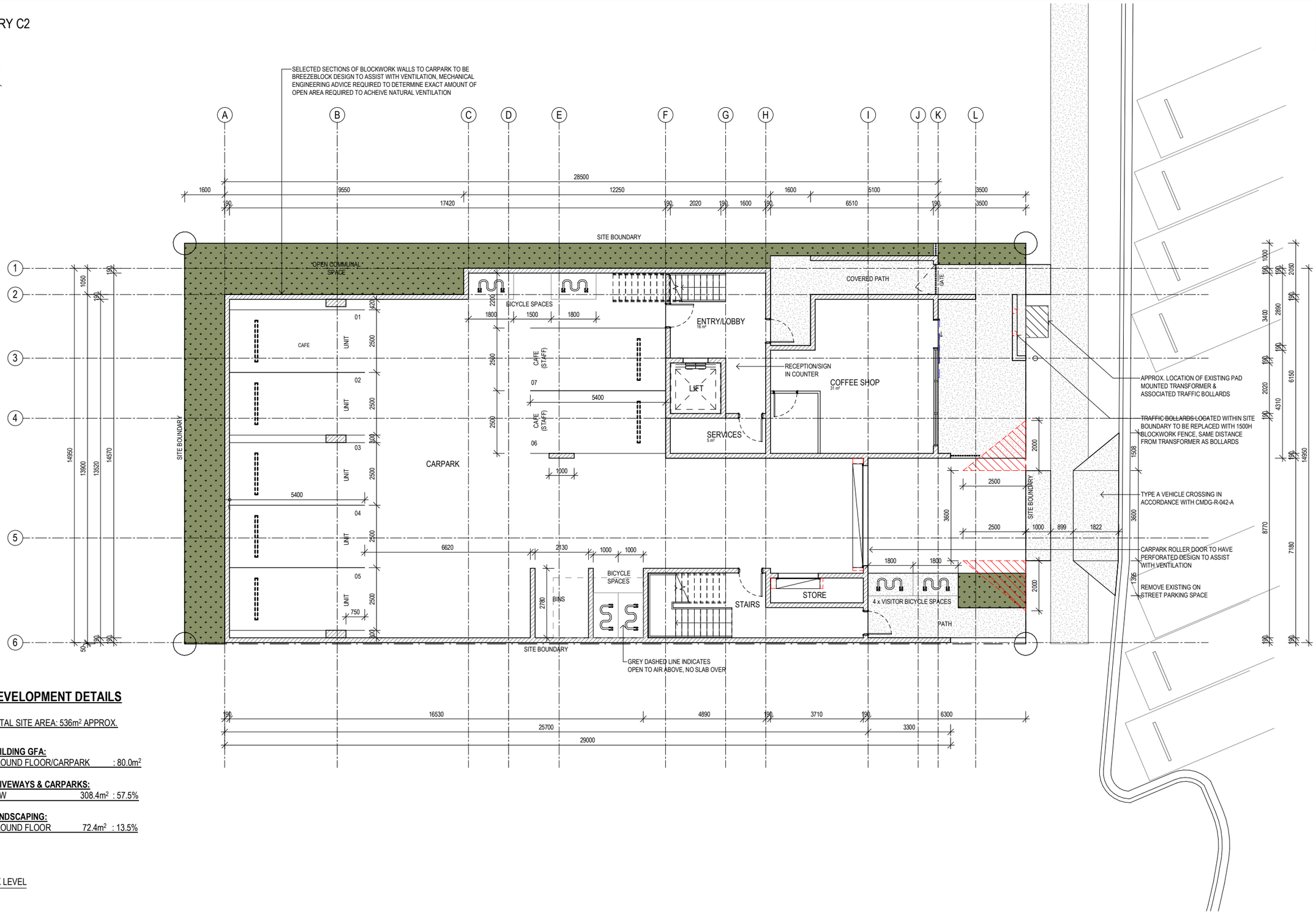
w: www.thedesignhousenq.com.au

Project: UNIT DEVELOPMENT
Client: RIBAR PTY LTD
Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: SITE PLAN
Date: 09.12.24 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2024-256-R Drawing No.: DD 02 Rev.: 6

WIND CATEGORY C2

PRELIMINARY
NOT FOR CONSTRUCTION
PLANS ARE SUBJECT TO CHANGE TO COMPLY WITH RELEVANT COVENANT & BUILDING CERTIFICATION APPROVALS



DEVELOPMENT DETAILS

TOTAL SITE AREA: 536m² APPROX.

BUILDING GFA:
GROUND FLOOR/CARPARK : 80.0m²

DRIVEWAYS & CARPARKS:
NEW 308.4m² : 57.5%

LANDSCAPING:
GROUND FLOOR 72.4m² : 13.5%

1 G.L./CARPARK LEVEL
1 : 75

NOTES:
1. VERIFY ALL LEVELS & DIMENSIONS BEFORE COMMENCING ANY FABRICATION
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ISSUE:	DATE:	DESCRIPTION:
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2	01.10.24	PRELIMINARY
1	25.09.24	PRELIMINARY
REV ISSUE	DATE	DESCRIPTION

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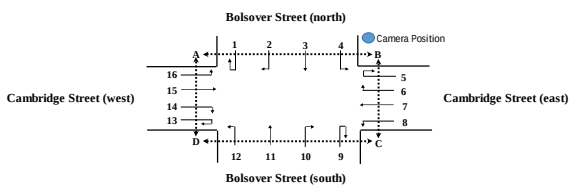
Project: UNIT DEVELOPMENT
Client: RIBAR PTY LTD
Location: 70 BOLSOVER STREET ROCKHAMPTON

TITLE: FLOOR PLAN 01
Date: 09.12.24 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2024-256-R Drawing No.: DD 03 Rev.: 6

Appendix B Intersection count data

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine
Location: Bolsover Street/Cambridge Street, Rockhampton City
Day/Date: Tuesday, 3 December 2024
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 4:45 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*
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7:00 AM	0	0	**0**	0	10	0	**10**	0	67	1	**68**	0	12	0	**12**	0	0	0	**0**	0	4	0	**4**	0	4	1	**5**	0	3	0	**3**	0
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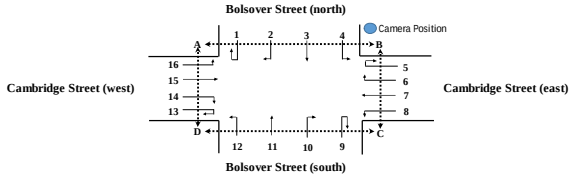
12:15 PM	2	0	**2**	0	6	0	**6**	0	78	1	**79**	0	9	0	**9**	0	0	0	**0**	0	11	1	**12**	0	5	1	**6**	0	5	0	**5**	0
12:30 PM	0	0	**0**	0	6	0	**6**	0	84	5	**89**	0	12	0	**12**	0	0	0	**0**	0	10	1	**11**	0	1	1	**2**	0	1	0	**1**	0
12:45 PM	0	0	**0**	0	9	0	**9**	0	82	3	**85**	0	10	0	**10**	0	0	0	**0**	0	10	0	**10**	0	5	0	**5**	0	6	0	**6**	0
1:00 PM	0	0	**0**	0	9	1	**10**	0	83	3	**86**	0	11	0	**11**	0	0	0	**0**	0	7	1	**8**	0	0	0	**0**	0	3	0	**3**	0
1:15 PM	2	0	**2**	0	8	1	**9**	0	71	4	**75**	0	5	0	**5**	0	0	0	**0**	0	8	0	**8**	0	6	0	**6**	0	4	0	**4**	0
1:30 PM	1	0	**1**	0	9	0	**9**	0	59	1	**60**	0	4	0	**4**	0	0	0	**0**	0	10	0	**10**	0	2	0	**2**	0	2	0	**2**	0
1:45 PM	1	0	**1**	0	6	0	**6**	0	85	7	**92**	0	9	0	**9**	0	0	0	**0**	0	9	0	**9**	0	1	1	**2**	0	2	0	**2**	0
2:00 PM	0	0	**0**	0	6	0	**6**	0	86	4	**90**	0	4	0	**4**	0	0	0	**0**	0	5	0	**5**	0	2	0	**2**	0	4	0	**4**	0
2:15 PM	1	0	**1**	0	7	0	**7**	0	90	1	**91**	0	8	0	**8**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	1	2	0	**2**	0
2:30 PM	2	0	**2**	0	7	0	**7**	0	84	3	**87**	0	9	0	**9**	0	0	0	**0**	0	7	0	**7**	0	2	0	**2**	0	3	0	**3**	0
2:45 PM	0	1	**1**	0	10	0	**10**	0	96	3	**99**	0	3	1	**4**	0	0	0	**0**	0	12	0	**12**	0	2	0	**2**	0	5	0	**5**	0
3:00 PM	0	0	**0**	0	7	0	**7**	0	84	1	**85**	0	14	1	**15**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	3	0	**3**	0
3:15 PM	0	0	**0**	0	14	1	**15**	0	92	4	**96**	0	9	0	**9**	0	0	0	**0**	0	8	0	**8**	0	4	1	**5**	0	2	0	**2**	0
3:30 PM	1	0	**1**	0	11	0	**11**	0	103	2	**105**	0	8	0	**8**	0	0	0	**0**	0	6	0	**6**	0	5	0	**5**	0	3	0	**3**	0
3:45 PM	1	0	**1**	0	9	1	**10**	0	94	1	**95**	0	5	0	**5**	0	0	0	**0**	0	11	0	**11**	0	2	0	**2**	0	2	0	**2**	0
4:00 PM	6	0	**6**	0	13	0	**13**	0	97	0	**97**	0	9	0	**9**	0	1	0	**1**	0	6	0	**6**	0	4	0	**4**	1	8	0	**8**	0
4:15 PM	4	0	**4**	0	9	0	**9**	0	82	2	**84**	0	11	0	**11**	0	1	0	**1**	0	16	1	**17**	0	7	0	**7**	0	5	0	**5**	0
4:30 PM	0	0	**0**	0	12	0	**12**	0	95	1	**96**	0	10	0	**10**	0	0	0	**0**	0	11	0	**11**	0	2	0	**2**	0	6	0	**6**	0
4:45 PM	4	0	**4**	0	9	0	**9**	0	75	1	**76**	0	10	0	**10**	0	0	0	**0**	0	19	0	**19**	0	5	0	**5**	0	11	0	**11**	0
5:00 PM	3	0	**3**	0	11	0	**11**	0	80	0	**80**	0	4	0	**4**	0	0	0	**0**	0	14	0	**14**	0	6	0	**6**	0	4	0	**4**	0
5:15 PM	3	0	**3**	0	8	0	**8**	0	70	0	**70**	0	11	0	**11**	0	0	0	**0**	0	29	0	**29**	0	13	0	**13**	0	6	0	**6**	0
5:30 PM	1	0	**1**	0	9	0	**9**	0	71	0	**71**	0	10	0	**10**	0	0	0	**0**	0	10	0	**10**	0	5	0	**5**	0	6	0	**6**	0
5:45 PM	1	0	**1**	0	6	0	**6**	0	66	1	**67**	0	12	0	**12**	0	0	0	**0**	0	7	0	**7**	0	3	0	**3**	0	2	0	**2**	0
6:00 PM	2	0	**2**	0	5	0	**5**	0	58	0	**58**	0	16	0	**16**	0	1	0	**1**	0	8	0	**8**	0	2	0	**2**	0	3	0	**3**	0
6:15 PM	0	0	**0**	0	2	0	**2**	0	51	0	**51**	0	7	0	**7**	0	1	0	**1**	0	5	0	**5**	0	4	0	**4**	0	5	0	**5**	0
6:30 PM	0	0	**0**	0	5	0	**5**	0	61	0	**61**	0	10	0	**10**	1	0	0	**0**	0	9	0	**9**	0	0	0	**0**	0	1	0	**1**	0
12 hr Total	**53**	**4**	**57**	**0**	**456**	**12**	**468**	**1**	**4094**	**98**	**4192**	**0**	**443**	**2**	**445**	**1**	**4**	**0**	**4**	**0**	**393**	**11**	**404**	**0**	**144**	**8**	**152**	**4**	**156**	**3**	**159**	**0**
AM Peak	**4**	**0**	**4**	**0**	**51**	**4**	**55**	**0**	**515**	**12**	**527**	**0**	**66**	**0**	**66**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**24**	**0**	**9**	**0**	**9**	**0**	**9**	**1**	**10**	**0**
PM Peak	**14**	**0**	**14**	**0**	**43**	**0**	**43**	**0**	**340**	**4**	**353**	**0**	**40**	**0**	**40**	**0**	**2**	**0**	**2**	**0**	**52**	**1**	**53**	**0**	**18**	**0**	**18**	**1**	**30**	**0**	**30**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine
Location: Bolsover Street/Cambridge Street, Rockhampton City
Day/Date: Tuesday, 3 December 2024
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 4:45 PM*



TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
6:45 AM	0	0	**0**	0	0	0	**0**	0	33	1	**34**	0	2	0	**2**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	5	0	**5**	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0
7:00 AM	0	0	**0**	0	1	0	**1**	0	25	1	**26**	0	4	0	**4**	0	0	0	**0**	0	1	0	**1**	0	3	0	**3**	0	8	0	**8**	0	0	0	1	0	2	0	1	0	2	0	0	0	0	0	0	0
7:15 AM	1	0	**1**	0	4	0	**4**	0	35	2	**37**	0	3	0	**3**	0	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	8	1	**9**	0	0	0	1	0	4	0	0	0	5	0	2	0	0	0	1	0
7:30 AM	0	0	**0**	0	5	1	**6**	0	38	0	**38**	0	3	0	**3**	0	0	0	**0**	0	2	0	**2**	0	7	0	**7**	0	8	2	**10**	0	0	0	1	0	5	0	0	0	13	0	0	0	2	0	2	0
7:45 AM	0	0	**0**	0	6	0	**6**	0	40	5	**45**	0	4	0	**4**	0	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	11	0	**11**	0	0	0	3	0	6	0	0	0	8	0	2	0	0	0	9	0
8:00 AM	0	0	**0**	0	8	0	**8**	0	55	7	**62**	0	3	0	**3**	0	0	0	**0**	0	4	0	**4**	0	2	0	**2**	0	18	2	**20**	0	0	0	2	0	20	0	0	0	19	0	0	0	3	0	6	0
8:15 AM	0	0	**0**	0	5	0	**5**	0	52	2	**54**	0	4	0	**4**	0	1	0	**1**	0	2	0	**2**	0	9	0	**9**	0	16	0	**16**	0	0	0	0	0	5	0	0	0	10	0	0	0	2	0	1	0
8:30 AM	0	0	**0**	0	8	0	**8**	0	54	4	**58**	0	2	0	**2**	0	0	0	**0**	0	8	0	**8**	0	6	0	**6**	0	18	0	**18**	0	1	0	1	0	5	0	0	0	12	0	1	0	4	0	4	0
8:45 AM	4	0	**4**	0	7	0	**7**	0	51	5	**56**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	20	1	**21**	0	2	0	5	0	2	0	3	0	5	0	0	0	0	0	2	0
9:00 AM	3	1	**4**	0	3	1	**4**	0	60	2	**62**	0	10	0	**10**	0	0	0	**0**	0	6	0	**6**	0	2	0	**2**	0	26	0	**26**	0	3	0	0	0	3	0	0	0	4	0	0	0	1	0	1	0
9:15 AM	1	0	**1**	0	4	0	**4**	0	61	1	**62**	0	1	1	**2**	0	0	0	**0**	0	3	0	**3**	0	1	0	**1**	0	19	1	**20**	0	0	0	0	0	1	0	0	0	1	0	2	0	1	0	2	0
9:30 AM	2	0	**2**	0	0	0	**0**	0	69	1	**70**	0	3	0	**3**	1	0	0	**0**	0	4	1	**5**	0	1	0	**1**	0	19	0	**19**	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
9:45 AM	2	0	**2**	0	1	0	**1**	0	77	2	**79**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	14	0	**14**	0	0	0	0	0	0	0	1	0	3	0	1	1	1	2	2	1
10:00 AM	4	0	**4**	0	3	0	**3**	0	74	3	**77**	0	5	1	**6**	0	0	0	**0**	0	4	0	**4**	0	2	0	**2**	0	15	2	**17**	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0
10:15 AM	0	0	**0**	0	4	0	**4**	0	74	0	**74**	0	1	0	**1**	0	0	0	**0**	0	4	0	**4**	0	1	0	**1**	0	22	0	**22**	0	0	0	0	1	0	0	0	0	0	0	3	0	1	0	0	0
10:30 AM	2	0	**2**	0	2	0	**2**	0	70	3	**73**	0	4	0	**4**	0	0	0	**0**	0	3	0	**3**	0	1	1	**2**	0	13	0	**13**	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	1	0
10:45 AM	4	0	**4**	0	1	1	**2**	0	61	4	**65**	0	7	1	**8**	0	1	0	**1**	0	5	1	**6**	0	1	0	**1**	0	19	1	**20**	0	0	0	0	0	1	0	1	0	0	0	2	0	1	0	3	0
11:00 AM	3	0	**3**	0	2	0	**2**	0	70	2	**72**	0	4	2	**6**	0	0	0	**0**	0	7	0	**7**	0	3	0	**3**	1	15	0	**15**	0	0	0	0	0	2	0	0	1	0	0	1	0	2	0	0	0
11:15 AM	4	0	**4**	0	1	0	**1**	0	61	4	**65**	0	3	0	**3**	0	0	0	**0**	0	2	0	**2**	0	1	0	**1**	1	12	2	**14**	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
11:30 AM	2	1	**3**	0	2	0	**2**	0	63	3	**66**	0	3	0	**3**	0	0	0	**0**	0	3	1	**4**	0	1	0	**1**	0	16	1	**17**	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	3	0	**3**	0	2	0	**2**	0	61	2	**63**	0	2	1	**3**	0	1	0	**1**	0	4	0	**4**	0	1	0	**1**	0	19	0	**19**	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0
12:00 PM	3	0	**3**	0	5	0	**5**	0	64	1	**65**	0	3	0	**3**	0	0	0	**0**	0	4	0	**4**	0	1	0	**1**	0	26	1	**27**	0	0	0	0	0	0	0	3	0	0	1	3	0	0	0	0	0
12:15 PM	4	0	**4**	0	4	1	**5**	0	67	2	**69**	1	6	0	**6**	0	0	0	**0**	0	3	1	**4**	0	5	0	**5**	0	19	2	**21**	0	0	0	0	0	2	1	2	0	3	0	4	0	0	0	0	0
12:30 PM	1	0	**1**	0	2	0	**2**	0	69	3	**72**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	17	1	**18**	1	1	0	0	0	4	0	1	0	4	0	3	0	2	1	0	0
12:45 PM	1	0	**1**	0	2	0	**2**	0	68	4	**72**	0	6	1	**7**	0	0	0	**0**	0	6	0	**6**	0	2	0	**2**	0	22	0	**22**	0	0	0	2	0	1	0	2	0	1	0	4	0	0	0	3	0
1:00 PM	1	0	**1**	0	1	0	**1**	0	60	3	**63**	0	3	0	**3**	0	0	0	**0**	0	1	0	**1**	0	2	1	**3**	0	17	0	**17**	0	2	0	0	1	0	0	1	0	1	0	1	0	2	0	1	0
1:15 PM	2	0	**2**	0	3	0	**3**	0	62	5	**67**	0	4	0	**4**	0	1	0	**1**	0	2	0	**2**	0	1	0	**1**	0	16	0	**16**	0	0	0	0	0	2	0	4	0	1	0	1	0	0	0	1	0
1:30 PM	1	0	**1**	0	2	1	**3**	0	62	1	**63**	0	3	0	**3**	0	0	0	**0**	0	1	0	**1**	0	3	0	**3**	0	19	0	**19**	0	0	0	1	0	1	0	0	0	2	0	1	0	0	0	0	0
1:45 PM	2	0	**2**	0	1	0	**1**	0	53	3	**56**	0	2	0	**2**	0	0	0	**0**	0	2	1	**3**	0	1	0	**1**	0	17	1	**18**	0	1	0	0	0	1	0	1	0	1	0	1	0	0	0	1	0
2:00 PM	0	0	**0**	0	0	0	**0**	0	44	4	**48**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	16	1	**17**	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	3	0
2:15 PM	2	0	**2**	0	4	0	**4**	0	60	3	**63**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	21	1	**22**	0	0	0	0	0	0	0	2	0	1	1	2	0	0	0	1	0
2:30 PM	3	0	**3**	0	9	0	**9**	0	69	2	**71**	0	11	0	**11**	0	1	0	**1**	0	4	0	**4**	0	2	0	**2**	0	21	0	**21**	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	1	0
2:45 PM	2	0	**2**	0	0	0	**0**	0	91	2	**93**	0	3	0	**3**	0	0	0	**0**	0	5	0	**5**	0	3	0	**3**	0	33	0	**33**	0	0	0	0	0	0	1	3	0	0	0	5	0	0	0	0	0
3:00 PM	3	0	**3**	0	1	0	**1**	0	79	1	**80**	0	6	0	**6**	0	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	29	2	**31**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	2	0	**2**	0	2	1	**3**	0	88	3	**91**	0	4	0	**4**	0	1	0	**1**	0	1	0	**1**	0	4	0	**4**	0	28	1	**29**	0	0	0	0	0	2	0	1	0	0	0	1	0	1	0	0	0
3:30 PM	0	0	**0**	0	5	0	**5**	0	92	0	**92**	0	2	0	**2**	0	0	0	**0**	0	5	0	**5**	0	3	0	**3**	0	20	0	**20**	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
3:45 PM	1	0	**1**	0	3	0	**3**	0	72	0	**72**	0	8	0	**8**	0	1	0	**1**	0	6	0	**6**	0	3	0	**3**	1	34	2	**36**	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	1	0
4:00 PM	1	0	**1**	0	8	0	**8**	0	87	1	**88**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	30	2	**32**	0	1	0	0	0	0	0	1	0	1	1	2	0	1	0	1	0
4:15 PM	0	0	**0**	0	7	0	**7**	0	85	2	**87**	0	3	0	**3**	0	0	0	**0**	0	3	0	**3**	0	3	0	**3**	0	37	0	**37**	0	1	0	0	0	0	0	8	0	1	0	10	0	1	0	0	0
4:30 PM	3	0	**3**	0	3	1	**4**	0	72	0	**72**	0	6	0	**6**	0	1	0	**1**	0	9	1	**10**	0	8	0	**8**	0	40	1	**41**	0	0	0	1	0	0	0	3	0	1	0	3	0	0	0	0	0
4:45 PM	1	0	**1**	0	1	0	**1**	0	91	0	**91**	1	8	0	**8**	0	1	0	**1**	0	4	0	**4**	0	0	0	**0**	0	36	0	**36**	0	0	0	0	0	1	0	22	0	2	0	32	0	8	0	1	0
5:00 PM	0	0	**0**	0	2	0	**2**	0	75	1	**76**	0	3	0	**3**	0	1	0	**1**	0	2	0	**2**	0	2	0	**2**	0	21	0	**21**	0	0	0	0	0	0	0	11	0	0	0	12	0	0	0	0	0
5:15 PM	1	0	**1**	0	2	0	**2**	0	103	0	**103**	0	7	0	**7**	0	0	0	**0**	0	3	0	**3**	0	4	0	**4**	0	29	1	**30**	0	0	0	0	0	0	0	9	0	1	0	11	0	2	0	2	0
5:30 PM	3	0	**3**	0	6	0	**6**	0	65	0	**65**	1	5	0	**5**	0	0	0	**0**	0	6	0	**6**	0	6	0	**6**	0	33	0	**33**	0	0	0	0	0	0	0	5	0	0	0	7	0	0	0	0	0
5:45 PM	1	0	**1**	0	2	0	**2**	0	66	0	**66**	0	2	0	**2**	0	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	12	0	**12**	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0
6:00 PM	0	0	**0**	0	2	0	**2**	0	63	0	**63**	0	1	0	**1**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	16	0	**16**	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
6:15 PM	0	0	**0**	0	2	0	**2**	0	60	1	**61**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	3	0	**3**	0	30	0	**30**	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0
6:30 PM	0	0	**0**	0	3	0	**3**	0	43	1	**44**	0	4	1	**5**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	9	1	**10**	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
12 hr Total	**73**	**2**	**75**	**0**	**151**	**7**	**158**	**0**	**3094**	**97**	**3191**	**3**	**194**	**8**	**202**	**1**	**10**	**0**	**10**	**0**	**156**	**6**	**162**	**0**	**114**	**2**	**116**	**3**	**969**	**30**	**999**	**1**	**15**	**0**	**22**	**2**	**76**	**2**	**89**	**1**	**116**	**3**	**132**	**1**	**44**	**3**	**51**	**1**
AM Peak	**7**	**1**	**8**	**0**	**23**	**1**	**24**	**0**	**217**	**13**	**230**	**0**	**18**	**0**	**18**	**0**	**1**	**0**	**1**	**0**	**18**	**0**	**18**	**0**	**19**	**0**	**19**	**0**	**80**	**1**	**81**	**0**	**6**	**0**	**6**	**0**	**15**	**0**	**3**	**0**	**31**	**0**	**1**	**0**	**7**	**0**	**8**	**0**
PM Peak	**5**	**0**	**5**	**0**	**19**	**1**	**20**	**0**	**335**	**3**	**338**	**1**	**19**	**0**	**19**	**0**	**2**	**0**	**2**	**0**	**18**	**1**	**19**	**0**	**12**	**0**	**12**	**0**	**143**	**3**	**146**	**0**	**2**	**0**	**1**	**0**	**1**	**0**	**34**	**0**	**5**	**1**	**47**	**0**	**10**	**0**	**2**	**0**

Appendix C SIDRA outputs

MOVEMENT SUMMARY

Site: 101 [Bolsover_Cambridge_Existing_2024_AM (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Background Traffic Volumes
Site Category: Base Year
Roundabout

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: Bolsover St (S)															
1	L2	All MCs	19	0.0	19	0.0	0.235	3.7	LOS A	1.5	10.7	0.30	0.41	0.30	39.5
2	T1	All MCs	242	5.7	242	5.7	0.235	3.8	LOS A	1.5	10.7	0.30	0.41	0.30	41.9
3	R2	All MCs	25	4.2	25	4.2	0.235	7.8	LOS A	1.5	10.7	0.30	0.41	0.30	39.1
3u	U	All MCs	8	12.5	8	12.5	0.235	9.7	LOS A	1.5	10.7	0.30	0.41	0.30	39.3
Approach			295	5.4	295	5.4	0.235	4.3	LOS A	1.5	10.7	0.30	0.41	0.30	41.5
East: Cambridge St (E)															
4	L2	All MCs	11	10.0	11	10.0	0.057	7.8	LOS A	0.4	3.0	0.70	0.63	0.70	35.0
5	T1	All MCs	9	0.0	9	0.0	0.057	7.5	LOS A	0.4	3.0	0.70	0.63	0.70	32.1
6	R2	All MCs	25	0.0	25	0.0	0.057	11.6	LOS B	0.4	3.0	0.70	0.63	0.70	34.6
6u	U	All MCs	1	0.0	1	0.0	0.057	14.9	LOS B	0.4	3.0	0.70	0.63	0.70	28.7
Approach			46	2.3	46	2.3	0.057	10.0	LOS A	0.4	3.0	0.70	0.63	0.70	34.2
North: Bolsover St (N)															
7	L2	All MCs	69	0.0	69	0.0	0.491	3.6	LOS A	3.6	25.6	0.26	0.41	0.26	40.7
8	T1	All MCs	555	0.8	555	0.8	0.491	3.7	LOS A	3.6	25.6	0.26	0.41	0.26	42.4
9	R2	All MCs	58	21.8	58	21.8	0.491	8.1	LOS A	3.6	25.6	0.26	0.41	0.26	29.3
9u	U	All MCs	4	0.0	4	0.0	0.491	9.5	LOS A	3.6	25.6	0.26	0.41	0.26	41.3
Approach			686	2.5	686	2.5	0.491	4.1	LOS A	3.6	25.6	0.26	0.41	0.26	41.0
West: Cambridge St (W)															
10	L2	All MCs	85	1.2	85	1.2	0.122	4.7	LOS A	0.6	4.6	0.47	0.54	0.47	38.4
11	T1	All MCs	20	0.0	20	0.0	0.122	4.7	LOS A	0.6	4.6	0.47	0.54	0.47	36.7
12	R2	All MCs	19	0.0	19	0.0	0.122	8.8	LOS A	0.6	4.6	0.47	0.54	0.47	37.8
12u	U	All MCs	1	0.0	1	0.0	0.122	10.6	LOS B	0.6	4.6	0.47	0.54	0.47	28.2
Approach			125	0.8	125	0.8	0.122	5.4	LOS A	0.6	4.6	0.47	0.54	0.47	38.0
All Vehicles			1153	3.0	1153	3.0	0.491	4.5	LOS A	3.6	25.6	0.31	0.44	0.31	40.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Existing_2024_PM (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Background Traffic Volumes
Site Category: Base Year
Roundabout

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: Bolsover St (S)															
1	L2	All MCs	20	0.0	20	0.0	0.323	3.9	LOS A	2.2	15.5	0.38	0.42	0.38	39.1
2	T1	All MCs	356	0.9	356	0.9	0.323	4.0	LOS A	2.2	15.5	0.38	0.42	0.38	41.6
3	R2	All MCs	21	5.0	21	5.0	0.323	8.1	LOS A	2.2	15.5	0.38	0.42	0.38	38.7
3u	U	All MCs	5	0.0	5	0.0	0.323	9.8	LOS A	2.2	15.5	0.38	0.42	0.38	40.6
Approach			402	1.0	402	1.0	0.323	4.3	LOS A	2.2	15.5	0.38	0.42	0.38	41.4
East: Cambridge St (E)															
4	L2	All MCs	32	0.0	32	0.0	0.114	5.8	LOS A	0.7	5.3	0.58	0.60	0.58	36.9
5	T1	All MCs	19	0.0	19	0.0	0.114	5.9	LOS A	0.7	5.3	0.58	0.60	0.58	34.0
6	R2	All MCs	56	1.9	56	1.9	0.114	10.0	LOS B	0.7	5.3	0.58	0.60	0.58	36.3
6u	U	All MCs	2	0.0	2	0.0	0.114	13.3	LOS B	0.7	5.3	0.58	0.60	0.58	26.1
Approach			108	1.0	108	1.0	0.114	8.1	LOS A	0.7	5.3	0.58	0.60	0.58	35.9
North: Bolsover St (N)															
7	L2	All MCs	42	0.0	42	0.0	0.337	3.4	LOS A	2.0	14.1	0.20	0.41	0.20	40.8
8	T1	All MCs	372	1.1	372	1.1	0.337	3.5	LOS A	2.0	14.1	0.20	0.41	0.20	42.5
9	R2	All MCs	45	0.0	45	0.0	0.337	7.6	LOS A	2.0	14.1	0.20	0.41	0.20	29.8
9u	U	All MCs	15	0.0	15	0.0	0.337	9.3	LOS A	2.0	14.1	0.20	0.41	0.20	41.4
Approach			474	0.9	474	0.9	0.337	4.1	LOS A	2.0	14.1	0.20	0.41	0.20	41.0
West: Cambridge St (W)															
10	L2	All MCs	154	2.1	154	2.1	0.208	5.8	LOS A	1.2	8.6	0.60	0.61	0.60	37.6
11	T1	All MCs	13	0.0	13	0.0	0.208	5.8	LOS A	1.2	8.6	0.60	0.61	0.60	35.8
12	R2	All MCs	20	5.3	20	5.3	0.208	10.0	LOS B	1.2	8.6	0.60	0.61	0.60	36.8
12u	U	All MCs	2	0.0	2	0.0	0.208	11.6	LOS B	1.2	8.6	0.60	0.61	0.60	27.5
Approach			188	2.2	188	2.2	0.208	6.3	LOS A	1.2	8.6	0.60	0.61	0.60	37.3
All Vehicles			1173	1.2	1173	1.2	0.337	4.9	LOS A	2.2	15.5	0.36	0.46	0.36	40.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Existing_2026_AM (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Background Traffic Volumes
Site Category: Future Conditions 1
Roundabout
Design Life Analysis (Final Year): Results for 2 years

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: Bolsover St (S)															
1	L2	All MCs	20	0.0	20	0.0	0.245	3.7	LOS A	1.5	11.3	0.31	0.41	0.31	39.4
2	T1	All MCs	252	5.7	252	5.7	0.245	3.8	LOS A	1.5	11.3	0.31	0.41	0.31	41.8
3	R2	All MCs	26	4.2	26	4.2	0.245	7.9	LOS A	1.5	11.3	0.31	0.41	0.31	39.1
3u	U	All MCs	9	12.5	9	12.5	0.245	9.7	LOS A	1.5	11.3	0.31	0.41	0.31	39.3
Approach			307	5.4	307	5.4	0.245	4.3	LOS A	1.5	11.3	0.31	0.41	0.31	41.4
East: Cambridge St (E)															
4	L2	All MCs	11	10.0	11	10.0	0.061	8.2	LOS A	0.5	3.2	0.72	0.64	0.72	34.7
5	T1	All MCs	10	0.0	10	0.0	0.061	7.8	LOS A	0.5	3.2	0.72	0.64	0.72	31.7
6	R2	All MCs	26	0.0	26	0.0	0.061	11.9	LOS B	0.5	3.2	0.72	0.64	0.72	34.4
6u	U	All MCs	1	0.0	1	0.0	0.061	15.2	LOS B	0.5	3.2	0.72	0.64	0.72	28.4
Approach			48	2.3	48	2.3	0.061	10.3	LOS B	0.5	3.2	0.72	0.64	0.72	33.9
North: Bolsover St (N)															
7	L2	All MCs	72	0.0	72	0.0	0.513	3.7	LOS A	3.9	27.7	0.27	0.42	0.27	40.6
8	T1	All MCs	577	0.8	577	0.8	0.513	3.7	LOS A	3.9	27.7	0.27	0.42	0.27	42.3
9	R2	All MCs	60	21.8	60	21.8	0.513	8.1	LOS A	3.9	27.7	0.27	0.42	0.27	29.2
9u	U	All MCs	4	0.0	4	0.0	0.513	9.5	LOS A	3.9	27.7	0.27	0.42	0.27	41.2
Approach			714	2.5	714	2.5	0.513	4.1	LOS A	3.9	27.7	0.27	0.42	0.27	40.9
West: Cambridge St (W)															
10	L2	All MCs	89	1.2	89	1.2	0.128	4.8	LOS A	0.7	4.8	0.48	0.55	0.48	38.4
11	T1	All MCs	21	0.0	21	0.0	0.128	4.8	LOS A	0.7	4.8	0.48	0.55	0.48	36.7
12	R2	All MCs	20	0.0	20	0.0	0.128	8.9	LOS A	0.7	4.8	0.48	0.55	0.48	37.7
12u	U	All MCs	1	0.0	1	0.0	0.128	10.7	LOS B	0.7	4.8	0.48	0.55	0.48	28.1
Approach			130	0.8	130	0.8	0.128	5.5	LOS A	0.7	4.8	0.48	0.55	0.48	38.0
All Vehicles			1199	3.0	1199	3.0	0.513	4.6	LOS A	3.9	27.7	0.32	0.44	0.32	40.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Existing_2026_PM (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Background Traffic Volumes
Site Category: Future Conditions 1
Roundabout
Design Life Analysis (Final Year): Results for 2 years

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: Bolsover St (S)															
1	L2	All MCs	21	0.0	21	0.0	0.338	4.0	LOS A	2.3	16.5	0.40	0.43	0.40	39.0
2	T1	All MCs	370	0.9	370	0.9	0.338	4.0	LOS A	2.3	16.5	0.40	0.43	0.40	41.5
3	R2	All MCs	22	5.0	22	5.0	0.338	8.2	LOS A	2.3	16.5	0.40	0.43	0.40	38.6
3u	U	All MCs	5	0.0	5	0.0	0.338	9.8	LOS A	2.3	16.5	0.40	0.43	0.40	40.5
Approach			418	1.0	418	1.0	0.338	4.3	LOS A	2.3	16.5	0.40	0.43	0.40	41.3
East: Cambridge St (E)															
4	L2	All MCs	33	0.0	33	0.0	0.120	6.0	LOS A	0.8	5.7	0.60	0.60	0.60	36.7
5	T1	All MCs	20	0.0	20	0.0	0.120	6.0	LOS A	0.8	5.7	0.60	0.60	0.60	33.8
6	R2	All MCs	58	1.9	58	1.9	0.120	10.2	LOS B	0.8	5.7	0.60	0.60	0.60	36.1
6u	U	All MCs	2	0.0	2	0.0	0.120	13.4	LOS B	0.8	5.7	0.60	0.60	0.60	26.0
Approach			113	1.0	113	1.0	0.120	8.3	LOS A	0.8	5.7	0.60	0.60	0.60	35.7
North: Bolsover St (N)															
7	L2	All MCs	44	0.0	44	0.0	0.352	3.5	LOS A	2.1	15.1	0.21	0.42	0.21	40.7
8	T1	All MCs	387	1.1	387	1.1	0.352	3.5	LOS A	2.1	15.1	0.21	0.42	0.21	42.4
9	R2	All MCs	47	0.0	47	0.0	0.352	7.6	LOS A	2.1	15.1	0.21	0.42	0.21	29.7
9u	U	All MCs	15	0.0	15	0.0	0.352	9.3	LOS A	2.1	15.1	0.21	0.42	0.21	41.4
Approach			493	0.9	493	0.9	0.352	4.1	LOS A	2.1	15.1	0.21	0.42	0.21	40.9
West: Cambridge St (W)															
10	L2	All MCs	160	2.1	160	2.1	0.220	6.0	LOS A	1.3	9.2	0.62	0.62	0.62	37.5
11	T1	All MCs	13	0.0	13	0.0	0.220	5.9	LOS A	1.3	9.2	0.62	0.62	0.62	35.6
12	R2	All MCs	21	5.3	21	5.3	0.220	10.2	LOS B	1.3	9.2	0.62	0.62	0.62	36.7
12u	U	All MCs	2	0.0	2	0.0	0.220	11.8	LOS B	1.3	9.2	0.62	0.62	0.62	27.3
Approach			196	2.2	196	2.2	0.220	6.5	LOS A	1.3	9.2	0.62	0.62	0.62	37.2
All Vehicles			1220	1.2	1220	1.2	0.352	4.9	LOS A	2.3	16.5	0.38	0.47	0.38	40.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Existing_2036_AM (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Background Traffic Volumes
Site Category: Future Conditions 2
Roundabout
Design Life Analysis (Final Year): Results for 12 years

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: Bolsover St (S)															
1	L2	All MCs	24	0.0	24	0.0	0.306	3.9	LOS A	2.0	15.0	0.37	0.43	0.37	39.0
2	T1	All MCs	307	5.7	307	5.7	0.306	4.0	LOS A	2.0	15.0	0.37	0.43	0.37	41.5
3	R2	All MCs	32	4.2	32	4.2	0.306	8.1	LOS A	2.0	15.0	0.37	0.43	0.37	38.7
3u	U	All MCs	11	12.5	11	12.5	0.306	10.0	LOS A	2.0	15.0	0.37	0.43	0.37	39.0
Approach			374	5.4	374	5.4	0.306	4.5	LOS A	2.0	15.0	0.37	0.43	0.37	41.1
East: Cambridge St (E)															
4	L2	All MCs	13	10.0	13	10.0	0.087	10.5	LOS B	0.7	5.3	0.85	0.66	0.85	32.8
5	T1	All MCs	12	0.0	12	0.0	0.087	10.1	LOS B	0.7	5.3	0.85	0.66	0.85	29.5
6	R2	All MCs	32	0.0	32	0.0	0.087	14.2	LOS B	0.7	5.3	0.85	0.66	0.85	32.4
6u	U	All MCs	1	0.0	1	0.0	0.087	17.5	LOS B	0.7	5.3	0.85	0.66	0.85	26.8
Approach			59	2.3	59	2.3	0.087	12.6	LOS B	0.7	5.3	0.85	0.66	0.85	31.9
North: Bolsover St (N)															
7	L2	All MCs	88	0.0	88	0.0	0.635	4.0	LOS A	6.0	43.1	0.36	0.44	0.36	40.0
8	T1	All MCs	704	0.8	704	0.8	0.635	4.0	LOS A	6.0	43.1	0.36	0.44	0.36	41.8
9	R2	All MCs	73	21.8	73	21.8	0.635	8.5	LOS A	6.0	43.1	0.36	0.44	0.36	28.9
9u	U	All MCs	5	0.0	5	0.0	0.635	9.8	LOS A	6.0	43.1	0.36	0.44	0.36	40.7
Approach			870	2.5	870	2.5	0.635	4.4	LOS A	6.0	43.1	0.36	0.44	0.36	40.4
West: Cambridge St (W)															
10	L2	All MCs	108	1.2	108	1.2	0.166	5.3	LOS A	0.9	6.6	0.55	0.58	0.55	38.0
11	T1	All MCs	25	0.0	25	0.0	0.166	5.3	LOS A	0.9	6.6	0.55	0.58	0.55	36.2
12	R2	All MCs	24	0.0	24	0.0	0.166	9.4	LOS A	0.9	6.6	0.55	0.58	0.55	37.3
12u	U	All MCs	1	0.0	1	0.0	0.166	11.1	LOS B	0.9	6.6	0.55	0.58	0.55	27.8
Approach			159	0.8	159	0.8	0.166	6.0	LOS A	0.9	6.6	0.55	0.58	0.55	37.5
All Vehicles			1462	3.0	1462	3.0	0.635	4.9	LOS A	6.0	43.1	0.40	0.46	0.40	39.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Existing_2036_PM (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Background Traffic Volumes
Site Category: Future Conditions 2
Roundabout
Design Life Analysis (Final Year): Results for 12 years

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: Bolsover St (S)															
1	L2	All MCs	25	0.0	25	0.0	0.423	4.3	LOS A	3.2	22.8	0.48	0.46	0.48	38.4
2	T1	All MCs	451	0.9	451	0.9	0.423	4.4	LOS A	3.2	22.8	0.48	0.46	0.48	41.0
3	R2	All MCs	27	5.0	27	5.0	0.423	8.5	LOS A	3.2	22.8	0.48	0.46	0.48	38.1
3u	U	All MCs	7	0.0	7	0.0	0.423	10.2	LOS B	3.2	22.8	0.48	0.46	0.48	40.0
Approach			510	1.0	510	1.0	0.423	4.6	LOS A	3.2	22.8	0.48	0.46	0.48	40.8
East: Cambridge St (E)															
4	L2	All MCs	40	0.0	40	0.0	0.159	7.1	LOS A	1.2	8.2	0.69	0.63	0.69	35.7
5	T1	All MCs	24	0.0	24	0.0	0.159	7.1	LOS A	1.2	8.2	0.69	0.63	0.69	32.7
6	R2	All MCs	71	1.9	71	1.9	0.159	11.2	LOS B	1.2	8.2	0.69	0.63	0.69	35.2
6u	U	All MCs	3	0.0	3	0.0	0.159	14.5	LOS B	1.2	8.2	0.69	0.63	0.69	25.4
Approach			138	1.0	138	1.0	0.159	9.4	LOS A	1.2	8.2	0.69	0.63	0.69	34.8
North: Bolsover St (N)															
7	L2	All MCs	53	0.0	53	0.0	0.435	3.6	LOS A	3.0	21.2	0.26	0.43	0.26	40.4
8	T1	All MCs	471	1.1	471	1.1	0.435	3.7	LOS A	3.0	21.2	0.26	0.43	0.26	42.1
9	R2	All MCs	57	0.0	57	0.0	0.435	7.7	LOS A	3.0	21.2	0.26	0.43	0.26	29.6
9u	U	All MCs	19	0.0	19	0.0	0.435	9.5	LOS A	3.0	21.2	0.26	0.43	0.26	41.1
Approach			601	0.9	601	0.9	0.435	4.2	LOS A	3.0	21.2	0.26	0.43	0.26	40.7
West: Cambridge St (W)															
10	L2	All MCs	195	2.1	195	2.1	0.295	6.9	LOS A	1.9	13.4	0.71	0.67	0.71	36.3
11	T1	All MCs	16	0.0	16	0.0	0.295	6.9	LOS A	1.9	13.4	0.71	0.67	0.71	34.3
12	R2	All MCs	25	5.3	25	5.3	0.295	11.2	LOS B	1.9	13.4	0.71	0.67	0.71	35.6
12u	U	All MCs	3	0.0	3	0.0	0.295	12.7	LOS B	1.9	13.4	0.71	0.67	0.71	26.5
Approach			239	2.2	239	2.2	0.295	7.4	LOS A	1.9	13.4	0.71	0.67	0.71	36.0
All Vehicles			1487	1.2	1487	1.2	0.435	5.4	LOS A	3.2	22.8	0.45	0.49	0.45	39.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Development_2026_AM (Site Folder: Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Development Traffic Volumes
Site Category: Future Conditions 1
Roundabout
Design Life Analysis (Final Year): Results for 2 years

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: Bolsover St (S)															
1	L2	All MCs	20	0.0	20	0.0	0.246	3.7	LOS A	1.5	11.3	0.31	0.41	0.31	39.4
2	T1	All MCs	253	5.6	253	5.6	0.246	3.8	LOS A	1.5	11.3	0.31	0.41	0.31	41.8
3	R2	All MCs	26	4.2	26	4.2	0.246	7.9	LOS A	1.5	11.3	0.31	0.41	0.31	39.1
3u	U	All MCs	9	12.5	9	12.5	0.246	9.7	LOS A	1.5	11.3	0.31	0.41	0.31	39.3
Approach			308	5.3	308	5.3	0.246	4.3	LOS A	1.5	11.3	0.31	0.41	0.31	41.4
East: Cambridge St (E)															
4	L2	All MCs	11	10.0	11	10.0	0.061	8.2	LOS A	0.5	3.3	0.72	0.64	0.72	34.7
5	T1	All MCs	10	0.0	10	0.0	0.061	7.9	LOS A	0.5	3.3	0.72	0.64	0.72	31.7
6	R2	All MCs	26	0.0	26	0.0	0.061	11.9	LOS B	0.5	3.3	0.72	0.64	0.72	34.3
6u	U	All MCs	1	0.0	1	0.0	0.061	15.3	LOS B	0.5	3.3	0.72	0.64	0.72	28.4
Approach			48	2.3	48	2.3	0.061	10.3	LOS B	0.5	3.3	0.72	0.64	0.72	33.8
North: Bolsover St (N)															
7	L2	All MCs	72	0.0	72	0.0	0.514	3.7	LOS A	3.9	27.8	0.27	0.42	0.27	40.6
8	T1	All MCs	579	0.8	579	0.8	0.514	3.7	LOS A	3.9	27.8	0.27	0.42	0.27	42.3
9	R2	All MCs	60	21.8	60	21.8	0.514	8.1	LOS A	3.9	27.8	0.27	0.42	0.27	29.2
9u	U	All MCs	4	0.0	4	0.0	0.514	9.5	LOS A	3.9	27.8	0.27	0.42	0.27	41.2
Approach			716	2.4	716	2.4	0.514	4.1	LOS A	3.9	27.8	0.27	0.42	0.27	40.9
West: Cambridge St (W)															
10	L2	All MCs	89	1.2	89	1.2	0.128	4.8	LOS A	0.7	4.8	0.49	0.55	0.49	38.4
11	T1	All MCs	21	0.0	21	0.0	0.128	4.8	LOS A	0.7	4.8	0.49	0.55	0.49	36.6
12	R2	All MCs	20	0.0	20	0.0	0.128	8.9	LOS A	0.7	4.8	0.49	0.55	0.49	37.7
12u	U	All MCs	1	0.0	1	0.0	0.128	10.7	LOS B	0.7	4.8	0.49	0.55	0.49	28.1
Approach			130	0.8	130	0.8	0.128	5.5	LOS A	0.7	4.8	0.49	0.55	0.49	37.9
All Vehicles			1202	3.0	1202	3.0	0.514	4.6	LOS A	3.9	27.8	0.32	0.44	0.32	40.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Development_2026_PM (Site Folder: Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Development Traffic Volumes
Site Category: Future Conditions 1
Roundabout
Design Life Analysis (Final Year): Results for 2 years

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: Bolsover St (S)															
1	L2	All MCs	21	0.0	21	0.0	0.339	4.0	LOS A	2.4	16.6	0.40	0.43	0.40	39.0
2	T1	All MCs	372	0.9	372	0.9	0.339	4.0	LOS A	2.4	16.6	0.40	0.43	0.40	41.6
3	R2	All MCs	22	5.0	22	5.0	0.339	8.2	LOS A	2.4	16.6	0.40	0.43	0.40	38.7
3u	U	All MCs	5	0.0	5	0.0	0.339	9.8	LOS A	2.4	16.6	0.40	0.43	0.40	40.5
Approach			420	1.0	420	1.0	0.339	4.3	LOS A	2.4	16.6	0.40	0.43	0.40	41.3
East: Cambridge St (E)															
4	L2	All MCs	33	0.0	33	0.0	0.120	6.0	LOS A	0.8	5.7	0.60	0.60	0.60	36.7
5	T1	All MCs	20	0.0	20	0.0	0.120	6.0	LOS A	0.8	5.7	0.60	0.60	0.60	33.8
6	R2	All MCs	58	1.9	58	1.9	0.120	10.2	LOS B	0.8	5.7	0.60	0.60	0.60	36.1
6u	U	All MCs	2	0.0	2	0.0	0.120	13.4	LOS B	0.8	5.7	0.60	0.60	0.60	26.0
Approach			113	1.0	113	1.0	0.120	8.3	LOS A	0.8	5.7	0.60	0.60	0.60	35.7
North: Bolsover St (N)															
7	L2	All MCs	44	0.0	44	0.0	0.352	3.5	LOS A	2.1	15.1	0.21	0.42	0.21	40.7
8	T1	All MCs	388	1.1	388	1.1	0.352	3.5	LOS A	2.1	15.1	0.21	0.42	0.21	42.4
9	R2	All MCs	47	0.0	47	0.0	0.352	7.6	LOS A	2.1	15.1	0.21	0.42	0.21	29.7
9u	U	All MCs	15	0.0	15	0.0	0.352	9.3	LOS A	2.1	15.1	0.21	0.42	0.21	41.4
Approach			494	0.9	494	0.9	0.352	4.1	LOS A	2.1	15.1	0.21	0.42	0.21	41.0
West: Cambridge St (W)															
10	L2	All MCs	160	2.1	160	2.1	0.220	6.0	LOS A	1.3	9.3	0.62	0.62	0.62	37.4
11	T1	All MCs	13	0.0	13	0.0	0.220	5.9	LOS A	1.3	9.3	0.62	0.62	0.62	35.6
12	R2	All MCs	21	5.3	21	5.3	0.220	10.2	LOS B	1.3	9.3	0.62	0.62	0.62	36.7
12u	U	All MCs	2	0.0	2	0.0	0.220	11.8	LOS B	1.3	9.3	0.62	0.62	0.62	27.3
Approach			196	2.2	196	2.2	0.220	6.5	LOS A	1.3	9.3	0.62	0.62	0.62	37.1
All Vehicles			1223	1.2	1223	1.2	0.352	4.9	LOS A	2.4	16.6	0.38	0.47	0.38	40.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Development_2036_AM (Site Folder: Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Development Traffic Volumes
Site Category: Future Conditions 1
Roundabout
Design Life Analysis (Final Year): Results for 12 years

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: Bolsover St (S)															
1	L2	All MCs	24	0.0	24	0.0	0.307	3.9	LOS A	2.1	15.0	0.37	0.43	0.37	39.0
2	T1	All MCs	308	5.6	308	5.6	0.307	4.0	LOS A	2.1	15.0	0.37	0.43	0.37	41.5
3	R2	All MCs	32	4.2	32	4.2	0.307	8.1	LOS A	2.1	15.0	0.37	0.43	0.37	38.7
3u	U	All MCs	11	12.5	11	12.5	0.307	10.0	LOS A	2.1	15.0	0.37	0.43	0.37	39.0
Approach			375	5.3	375	5.3	0.307	4.5	LOS A	2.1	15.0	0.37	0.43	0.37	41.1
East: Cambridge St (E)															
4	L2	All MCs	13	10.0	13	10.0	0.088	10.5	LOS B	0.7	5.3	0.85	0.67	0.85	32.7
5	T1	All MCs	12	0.0	12	0.0	0.088	10.1	LOS B	0.7	5.3	0.85	0.67	0.85	29.5
6	R2	All MCs	32	0.0	32	0.0	0.088	14.2	LOS B	0.7	5.3	0.85	0.67	0.85	32.4
6u	U	All MCs	1	0.0	1	0.0	0.088	17.5	LOS B	0.7	5.3	0.85	0.67	0.85	26.8
Approach			59	2.3	59	2.3	0.088	12.6	LOS B	0.7	5.3	0.85	0.67	0.85	31.9
North: Bolsover St (N)															
7	L2	All MCs	88	0.0	88	0.0	0.637	4.0	LOS A	6.1	43.3	0.36	0.44	0.36	40.0
8	T1	All MCs	706	0.8	706	0.8	0.637	4.0	LOS A	6.1	43.3	0.36	0.44	0.36	41.8
9	R2	All MCs	73	21.8	73	21.8	0.637	8.5	LOS A	6.1	43.3	0.36	0.44	0.36	28.9
9u	U	All MCs	5	0.0	5	0.0	0.637	9.8	LOS A	6.1	43.3	0.36	0.44	0.36	40.7
Approach			873	2.4	873	2.4	0.637	4.4	LOS A	6.1	43.3	0.36	0.44	0.36	40.4
West: Cambridge St (W)															
10	L2	All MCs	108	1.2	108	1.2	0.166	5.3	LOS A	0.9	6.6	0.55	0.58	0.55	38.0
11	T1	All MCs	25	0.0	25	0.0	0.166	5.3	LOS A	0.9	6.6	0.55	0.58	0.55	36.2
12	R2	All MCs	24	0.0	24	0.0	0.166	9.4	LOS A	0.9	6.6	0.55	0.58	0.55	37.3
12u	U	All MCs	1	0.0	1	0.0	0.166	11.1	LOS B	0.9	6.6	0.55	0.58	0.55	27.8
Approach			159	0.8	159	0.8	0.166	6.0	LOS A	0.9	6.6	0.55	0.58	0.55	37.5
All Vehicles			1465	3.0	1465	3.0	0.637	4.9	LOS A	6.1	43.3	0.40	0.46	0.40	40.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 [Bolsover_Cambridge_Development_2036_PM (Site Folder: Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Development Traffic Volumes
Site Category: Future Conditions 1
Roundabout
Design Life Analysis (Final Year): Results for 12 years

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: Bolsover St (S)															
1	L2	All MCs	25	0.0	25	0.0	0.425	4.3	LOS A	3.2	22.9	0.48	0.46	0.48	38.5
2	T1	All MCs	453	0.9	453	0.9	0.425	4.4	LOS A	3.2	22.9	0.48	0.46	0.48	41.1
3	R2	All MCs	27	5.0	27	5.0	0.425	8.5	LOS A	3.2	22.9	0.48	0.46	0.48	38.1
3u	U	All MCs	7	0.0	7	0.0	0.425	10.2	LOS B	3.2	22.9	0.48	0.46	0.48	40.0
Approach			512	1.0	512	1.0	0.425	4.7	LOS A	3.2	22.9	0.48	0.46	0.48	40.8
East: Cambridge St (E)															
4	L2	All MCs	40	0.0	40	0.0	0.159	7.1	LOS A	1.2	8.2	0.69	0.63	0.69	35.7
5	T1	All MCs	24	0.0	24	0.0	0.159	7.1	LOS A	1.2	8.2	0.69	0.63	0.69	32.7
6	R2	All MCs	71	1.9	71	1.9	0.159	11.3	LOS B	1.2	8.2	0.69	0.63	0.69	35.1
6u	U	All MCs	3	0.0	3	0.0	0.159	14.5	LOS B	1.2	8.2	0.69	0.63	0.69	25.3
Approach			138	1.0	138	1.0	0.159	9.4	LOS A	1.2	8.2	0.69	0.63	0.69	34.7
North: Bolsover St (N)															
7	L2	All MCs	53	0.0	53	0.0	0.436	3.6	LOS A	3.0	21.2	0.26	0.43	0.26	40.4
8	T1	All MCs	472	1.1	472	1.1	0.436	3.7	LOS A	3.0	21.2	0.26	0.43	0.26	42.2
9	R2	All MCs	57	0.0	57	0.0	0.436	7.7	LOS A	3.0	21.2	0.26	0.43	0.26	29.6
9u	U	All MCs	19	0.0	19	0.0	0.436	9.5	LOS A	3.0	21.2	0.26	0.43	0.26	41.1
Approach			602	0.9	602	0.9	0.436	4.2	LOS A	3.0	21.2	0.26	0.43	0.26	40.7
West: Cambridge St (W)															
10	L2	All MCs	195	2.1	195	2.1	0.296	7.0	LOS A	1.9	13.5	0.71	0.67	0.71	36.3
11	T1	All MCs	16	0.0	16	0.0	0.296	6.9	LOS A	1.9	13.5	0.71	0.67	0.71	34.3
12	R2	All MCs	25	5.3	25	5.3	0.296	11.2	LOS B	1.9	13.5	0.71	0.67	0.71	35.6
12u	U	All MCs	3	0.0	3	0.0	0.296	12.7	LOS B	1.9	13.5	0.71	0.67	0.71	26.4
Approach			239	2.2	239	2.2	0.296	7.5	LOS A	1.9	13.5	0.71	0.67	0.71	36.0
All Vehicles			1490	1.2	1490	1.2	0.436	5.4	LOS A	3.2	22.9	0.45	0.50	0.45	39.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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 Swept path assessment

F-7330 A 05.01.2015

5.20

0.95 3.05

B99 PASSENGER VEHICLE

Width	: 1.94m
Track	: 1.84m
Lock to Lock Time	: 6.0s
Steering Angle	: 33.9°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

GELEON

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0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B99 PASSENGER VEHICLE
TURN AROUND MANOEUVRE

Project No.	Issue Date
50938	12/12/24

Drawing No.
50938-SP001-A

Series No. 1 of 6

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Development Site

B99

BOLSOVER STREET

5.20

0.95 3.05

B99 PASSENGER VEHICLE

Width	: 1.94m
Track	: 1.84m
Lock to Lock Time	: 6.0s
Steering Angle	: 33.9°

LEGEND

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0 1 2 3 4m

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70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B99 PASSENGER VEHICLE
EXIT FROM DEVELOPMENT SITE

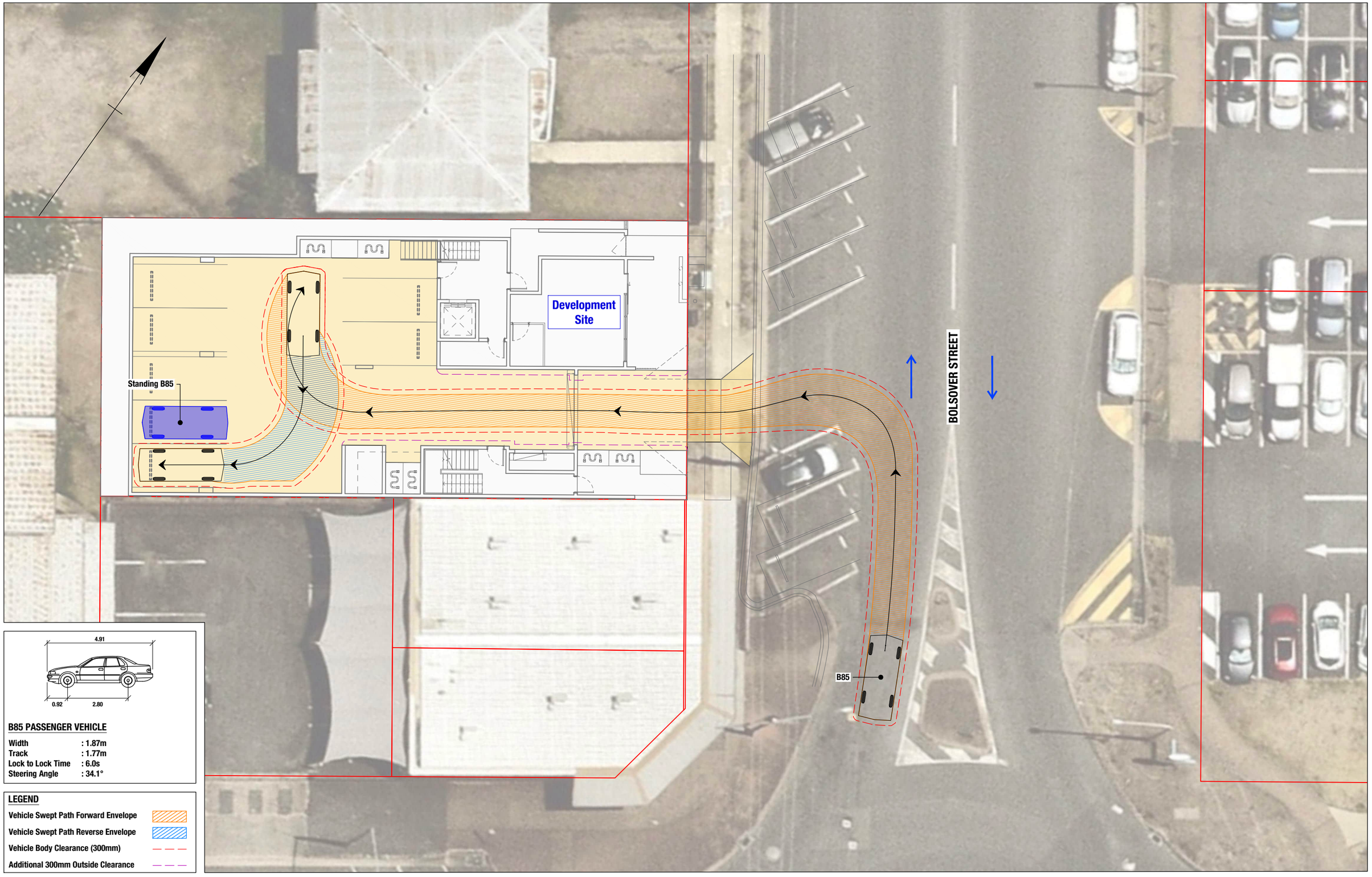
Project No. 50938

Issue Date 12/12/24

Drawing No. 50938-SP002-A

Series No. 2 of 6

F-7330 A 05.01.2015



B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

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0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
REVERSE PARKING MANOEUVRE

Project No.	Issue Date
50938	12/12/24

Drawing No.
50938-SP003-A

Series No. 3 of 6

F-7330 A 05.01.2015

B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

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70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
EXIT FROM DEVELOPMENT SITE

Project No.	Issue Date
50938	12/12/24

Drawing No.
50938-SP004-A

Series No. 4 of 6

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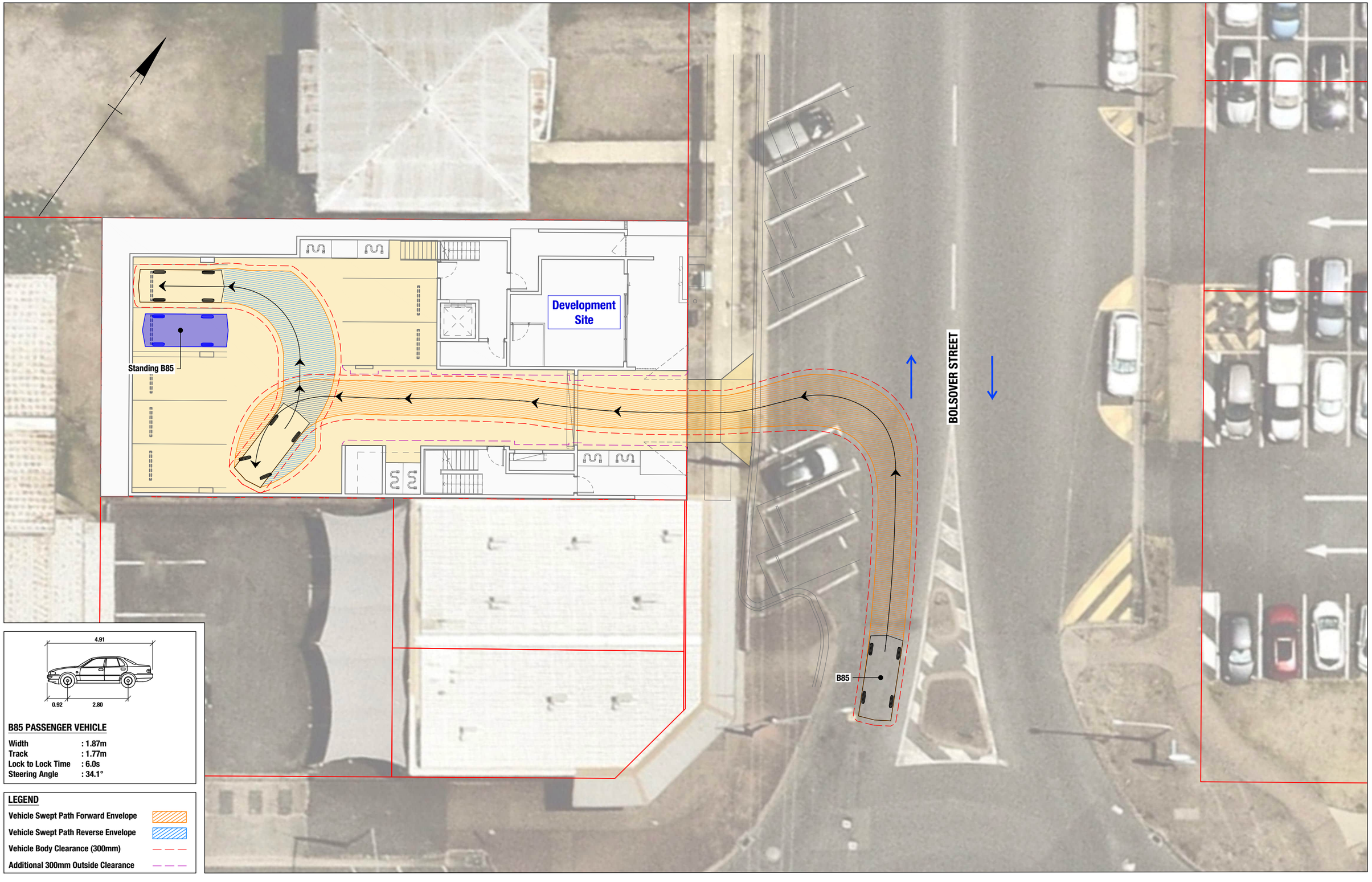

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0.92 2.80

B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

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70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
REVERSE PARKING MANOEUVRE

Project No. 50938
Issue Date 12/12/24
Drawing No. 50938-SP005-A
Series No. 5 of 6

F-7330 A 05.01.2015

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B85 PASSENGER VEHICLE

Width	: 1.87m
Track	: 1.77m
Lock to Lock Time	: 6.0s
Steering Angle	: 34.1°

LEGEND

- Vehicle Swept Path Forward Envelope
- Vehicle Swept Path Reverse Envelope
- Vehicle Body Clearance (300mm)
- Additional 300mm Outside Clearance

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0 1 2 3 4m

70 BOLSOVER STREET, ROCKHAMPTON
PROPOSED MIXED USE DEVELOPMENT

SWEPT PATH ASSESSMENT
B85 PASSENGER VEHICLE
EXIT FROM DEVELOPMENT SITE

Project No. 50938
Issue Date 12/12/24
Drawing No. 50938-SP006-A
Series No. 6 of 6

Appendix E Development code responses

9.3.5 Transport Impact, Access and Parking Code

Performance outcomes	Acceptable outcomes	Comment
Access driveways		
PO1 Access driveways are located to avoid conflicts and designed to operate efficiently and safely, taking into account: 1. the size of the parking area; 2. the volume, frequency and type of vehicle traffic; 3. the need for some land uses (for example hospitals) to accommodate emergency vehicle access; 4. the type of use and the implications on parking and circulation, for example long-term or short-term car parking; 5. frontage road function and conditions; and	**AO1.1** Access driveways are not located within: a) twenty–five (25) metres of a signalised road intersection; b) twenty (20) metres of an un-signalised road intersection in an industrial or centres zone or ten (10) metres otherwise; and c) one (1) metre of any street signage, power poles, street lights, manholes, stormwater gully pits or other Council asset.	**COMPLIES WITH AO1.1** The vehicle crossing to access the development site is located over 20m from the Bolsover Street / Cambridge Street roundabout. An existing power pole will be relocated. For further details in this regard, refer to plans of development and **Section 6.1** of Geleon Traffic Impact Assessment **50938-RP01-A**.
PO2 Access driveways do not disrupt existing road or footpath infrastructure.	**AO2.1** Access driveways: a) do not require the modification, relocation or removal of any infrastructure including street trees, fire hydrants, water meters and street signs; b) do not front a traffic island, speed control device, car parking bay, bus stop or other infrastructure within the road carriageway; c) must be sealed and to a formed road; d) are not constructed over an access point to equipment under the control of a regulatory authority, including storm water pits, water meters, hydrants and telephone pits; and e) are raised or lowered to match the surface level of the driveway, where an access chamber is to be incorporated within the driveway.	**COMPLIES WITH PO2** The development proposes access from Bolsover Street via a single one-lane two-way 3.6m wide “Type A” vehicle crossing designed generally in accordance with Capricorn Municipal Development Guidelines Standard Drawing R-042A Urban Commercial / Industrial Driveway. The access will cater for all movements. Due to the site constraints, the vehicle crossing accessing the development site will require the relocation of an existing power pole located in the verge and an on-street parking space. For further details in this regard, refer to plans of development and **Section 6.1** of Geleon Traffic Impact Assessment **50938-RP01-A**.

Performance outcomes	Acceptable outcomes	Comment
PO3 Access driveways are designed and constructed so as to: a) enable safe and functional vehicular access from the street to the property; and b) not cause a change in the level of a footpath.	**AO3.1** Access driveways are constructed in compliance with the Capricorn Municipal Development Guidelines.	**COMPLIES WITH PO3** The development proposes access from Bolsover Street via a single one-lane two-way 3.6m wide "Type A" vehicle crossing designed generally in accordance with Capricorn Municipal Development Guidelines Standard Drawing R-042A Urban Commercial / Industrial Driveway. The access will cater for all movements. A swept path assessment has been undertaken in **Appendix D** of Geleon Traffic Impact Assessment Report **50938-RP01-A**, which demonstrates vehicle sizes up to a B99 passenger vehicle can satisfactorily enter and exit the development site using the proposed access.
PO4 A driveway does not allow water to pond adjacent to any buildings or cause water to enter a building.	AO4.1 A driveway has a minimum cross fall of one (1) metre (vertical) to 100 metres (horizontal) away from all adjoining buildings.	**COMPLIES WITH PO4** Refer to plans of development
Parking		
PO5 Provision is made for on-site vehicle parking: a) to meet the demand likely to be generated by the development; and b) to avoid on-street parking where that would adversely impact on the safety or capacity of the road network or unduly impact on local amenity. Editor's note—SC6.6 — Car parking contributions planning scheme policy prescribes circumstances under which an applicant can satisfy PO5.	**(a) AO5.1** **AO5.1.1** On-site car parking is provided at the rates set out in Table 9.3.1.3.2 of the access, parking and transport code. OR **AO5.1.2** Where a change of use of existing premises is proposed and there is no increase in the gross floor area, the existing number of on-site car parks is retained or increased. AND **AO5.2** All parking, loading and manoeuvring facilities for visitors and employees to be located on-site. AND **AO5.3** Manoeuvring facilities to be of adequate dimensions to prevent any queuing in a roadway.	**COMPLIES WITH PO5** The parking requirement for the development is 11 car parking spaces. The development provides a total of seven parking spaces inclusive of two spaces for staff of the food and drink outlet land use and five spaces for the rooming accommodation land use inclusive of one parking space for the manager residence. For further details in this regard, refer to **Section 5.2** of Geleon Traffic Impact Assessment Report **50938-RP01-A**.
PO6 Parking and servicing facilities are designed to meet user requirements.	**AO6.1** Parking spaces, access and manoeuvring facilities, loading facilities and	**COMPLIES WITH PO6** The car parking layout has been generally designed in accordance with AS2890.1. The development does not provide a turnaround bay or a 1m

Performance outcomes	Acceptable outcomes	Comment
	connections to the transport network are sealed and designed in accordance with Australian Standard AS2890.	extension beyond the end car parks. The development supplies sufficient room for a B99 passenger vehicle to enter the development site and perform a turn around manoeuvre within the parking aisle. Additionally, the end car parks have been nominated as reverse in only. A swept path assessment has been undertaken in **Appendix G** of Geleon Traffic Impact Assessment Report **50938-RP01-A**.
PO7 Sites with more than one (1) road frontage (excluding laneways) gain access only from the lower order road, except if it will introduce traffic generated by a non–residential use into a street that is in a residential zone.	No acceptable outcome is nominated.	**COMPLIES WITH PO7** The development proposes access from Bolsover Street which is the only road frontage. For further details in this regard, refer to **Section 6.1** of Geleon Traffic Impact Assessment Report **50938-RP01-A** and plans of development.
PO8 Parking areas are illuminated in a manner that maximises user safety but minimises the impacts on adjoining residents.	**AO8.1** Parking areas for uses that operate at night are illuminated in accordance with the requirements of Australian Standard AS 1158. AND **AO8.2** Lighting used in parking areas does not cause an environmental nuisance and complies with Australian Standard AS 4282.	**COMPLIES WITH AO8.1 AND AO8.2** Lighting will be considered at the detailed design stage.
PO9 Car parking areas, pathways and other elements of the transport network are designed to enhance public safety by discouraging crime and antisocial behaviour, having regard to: a) provision of opportunities for casual surveillance; b) the use of fencing to define public and private spaces, whilst allowing for appropriate sightlines; c) minimising potential concealment points and assault locations; d) minimising opportunities for graffiti and other vandalism; and e) restricting unlawful access to buildings and between buildings.	No acceptable outcome is nominated. Editor's note—Refer to Crime Prevention Through Environmental Design (CPTED) guidelines for Queensland for guidance.	**COMPLIES WITH PO9** Refer to plans of development.
PO10 Parking and servicing areas are kept accessible and available for	No acceptable outcome is nominated.	**COMPLIES WITH PO10**

Performance outcomes	Acceptable outcomes	Comment
their intended use at all times during the normal business hours of the activity.		Council does not stipulate a service vehicle requirement for the development. In lieu of council specific service vehicle requirements, it is anticipated that vehicle sizes up to a 6.4m Small Rigid Vehicle will be required for servicing the development site. As a consequence of site constraints, on site servicing cannot be provided and instead, it is proposed that servicing of the development site will be undertaken by using the on-street loading zones within proximity of the development site For further details in this regard, refer to **Section 6.3** of Geleon Traffic Impact Assessment Report **50938-RP01-A**.
Transport Impact		
PO11 Development contributes to the creation of a transport network which is designed to: a) achieve a high level of permeability and connectivity for all modes of transport, including pedestrians and cyclists, within the development and to the surrounding area; and b) encourage people to walk, cycle or use public transport to and from the site instead of using a car.	No acceptable outcome is nominated. Editor's note—Refer to SC6.19 – Structure plan planning scheme policy for guidance.	**COMPLIES WITH PO11** Refer to plans of development.
PO12 Development is located on roads that are appropriate for the nature of traffic (including vehicles, pedestrians and cyclists) generated, having regard to the safety and efficiency of the transport network.	**AO12.1** Traffic generated by the development is safely accommodated within the design capacity of roads as provided in SC6.15 — Road infrastructure and hierarchy planning scheme policy. AND **AO12.2** A road or street does not connect with another road or street that is more than two (2) levels higher or lower in the road hierarchy. AND **AO12.3** The existing infrastructure fronting the proposed development is upgraded in accordance with SC6.15 — Road infrastructure and hierarchy planning scheme policy and Capricorn Municipal Development Guidelines.	**COMPLIES WITH AO12** Refer to **Section 3** and **4** of Geleon Traffic Impact Assessment Report **50938-RP01-A**. **COMPLIES WITH AO12.2 AND AO12.3**

Performance outcomes	Acceptable outcomes	Comment
PO13 Where the nature of the development creates a demand, provision is made for set down and pick-up facilities by bus, taxis or private vehicle, which: a) are safe for pedestrians and vehicles; b) are conveniently connected to the main component of the development by pedestrian pathway; and c) provide for pedestrian priority and clear sightlines.	No acceptable outcome is nominated.	**COMPLIES WITH PO13** The development site is not expected to create a demand for pick-up or set down zones.
Site access		
PO14 Development does not impact on the safety, operation or function of the road network or system.	**AO14.1** Vehicle manoeuvring into and from the site for all vehicles is designed in accordance with the Australian Standard AS 2890, as updated from time to time. AND **AO14.2** No direct property access is gained to a highway, main road, urban arterial or sub arterial road as defined in SC6.15 — Road infrastructure and hierarchy planning scheme policy other than via a service road or a joint access arrangement with other sites. AND **AO14.3** Development that generates greater than 100 vehicle movements per day does not gain access to or from an urban access place or urban access streets as defined in SC6.15 — Road infrastructure and hierarchy planning scheme policy.	**COMPLIES WITH PO14** The development provides a 4.4m wide two-way, single lane driveway connecting the internal car park to the vehicle crossing. No turn around bay has been provided in the internal car park as there is sufficient room to perform a turn around manoeuvre within the parking aisle. Access to the development site is provided from Bolsover street which is the only road the development site fronts. For further details in this regard, refer to **Section 5** and **Section 6** of Geleon Traffic Impact Assessment Report **50938-RP01-A**.
PO15 Development facilitates the orderly provision and upgrading of the transport network or contributes to the construction of transport network improvements.	No acceptable outcome is nominated.	**COMPLIES WITH PO15**
PO16 On-site transport network infrastructure integrates safely and effectively with surrounding networks.	**AO16.1** Intersections, connections and access arrangements are designed in accordance with the Capricorn Municipal Development Guidelines and Australian Standard AS 2890.	**COMPLIES WITH AO16.1** Refer to plans of development

Performance outcomes	Acceptable outcomes	Comment
Pedestrian and cyclist facilities		
PO17 Development provides safe and convenient pedestrian and cycle movement to the site and within the site having regard to desire lines, users' needs, safety and legibility.	**AO17.1** Pedestrian and cyclist movement are designed in compliance with the Capricorn Municipal Development Guidelines and Australian Standard AS 2890 — Parking facilities.	**COMPLIES WITH AO17.1** Pedestrian and cyclist facilities have been designed in accordance with AS2890.3 and the Capricorn Municipal Development Guidelines For further details in this regard, refer to the plans of development and **Section 5.4 of** Geleon Traffic Impact Assessment Report **50938-RP01-A**
PO18 Provision is made for adequate bicycle parking and end of trip facilities, to meet the likely needs of users and encourage cycle travel.	No acceptable outcome is nominated. Editor's note—Provisions are made for parking and end of trip facilities in accordance with the SC6.4 — Bicycle network planning scheme policy.	**COMPLIES WITH PO18** The development provides a total of 12 bicycle parking spaces comprising eight Class 2 spaces (guest and staff) and four visitor spaces (Class 3), and therefore generally complies with Council requirements. For further details in this regard, refer to **Section 5.4** of Geleon Traffic Impact Assessment Report **50938-RP01-A**.
PO19 Refuse collection vehicles are able to safely access on-site refuse collection facilities.	**AO19.1** Refuse collection areas are provided and designed in accordance with the waste management code and Australian Standard AS 2890.	**COMPLIES WITH PO19** Refuse storage is proposed to be in wheelie bins and refuse collection occur via kerbside collection. On the day of servicing, staff will relocate the wheelie bins from the waste storage to the kerbside and once collected staff will move the wheelie bins from the kerbside back to the waste storage room. For further details in this regard, refer to **Section 6.4** of Geleon Traffic Impact Assessment Report **50938-RP01-A**.

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