WIND CATEGORY C2

SOIL EROSION AND SEDIMENT CONTROL ASSESSMENT

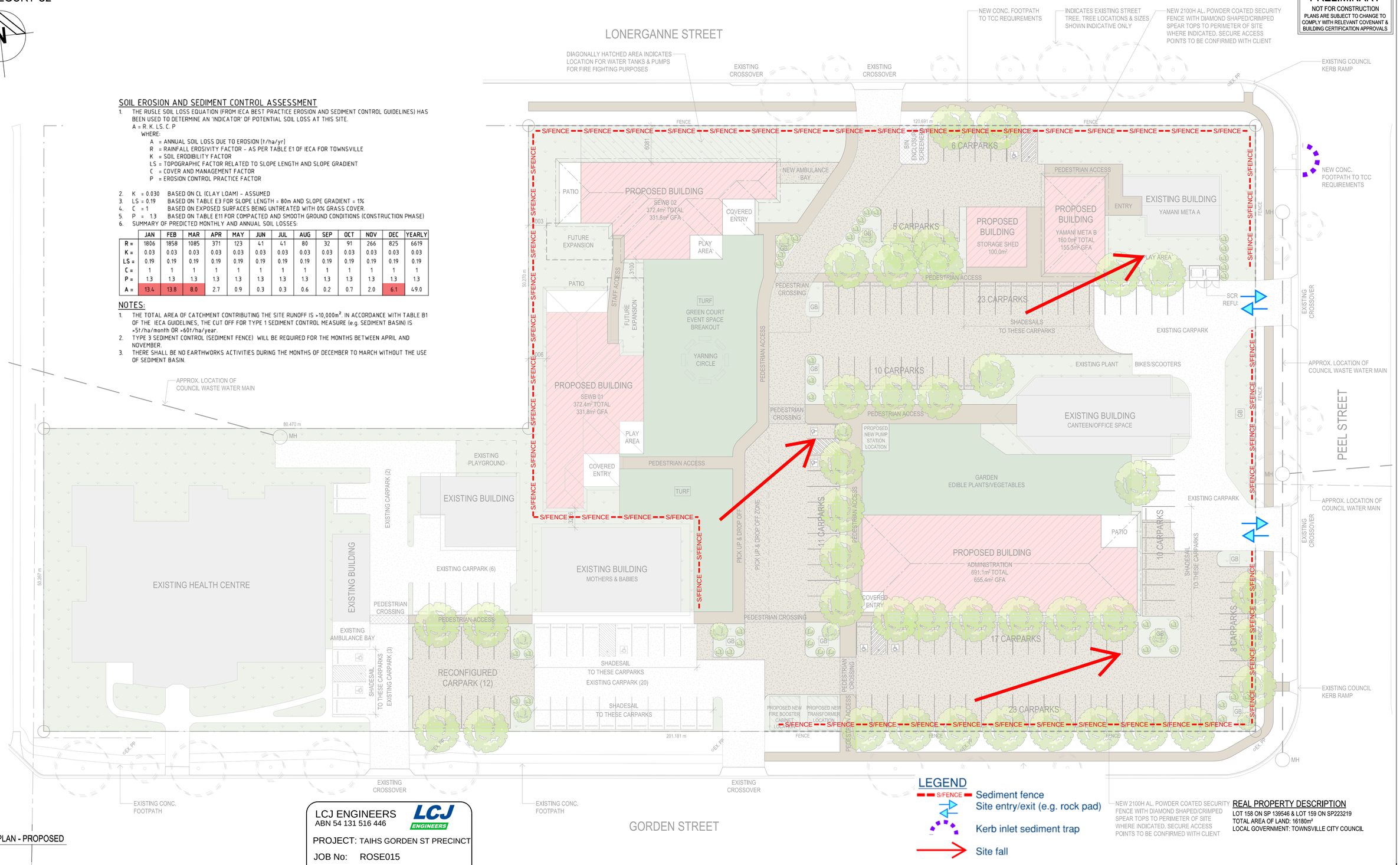
1. THE RUSLE SOIL LOSS EQUATION (FROM IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINES) HAS BEEN USED TO DETERMINE AN 'INDICATOR' OF POTENTIAL SOIL LOSS AT THIS SITE.
   A = R. K. LS. C. P
   WHERE:
   - A = ANNUAL SOIL LOSS DUE TO EROSION [t/ha/yr]
   - R = RAINFALL EROSIVITY FACTOR - AS PER TABLE E1 OF IECA FOR TOWNSVILLE
   - K = SOIL ERODIBILITY FACTOR
   - LS = TOPOGRAPHIC FACTOR RELATED TO SLOPE LENGTH AND SLOPE GRADIENT
   - C = COVER AND MANAGEMENT FACTOR
   - P = EROSION CONTROL PRACTICE FACTOR

2. K = 0.030 BASED ON CL (CLAY LOAM) - ASSUMED
3. LS = 0.19 BASED ON TABLE E3 FOR SLOPE LENGTH = 80m AND SLOPE GRADIENT = 1%
4. C = 1 BASED ON EXPOSED SURFACES BEING UNTREATED WITH 0% GRASS COVER.
5. P = 1.3 BASED ON TABLE E11 FOR COMPACTED AND SMOOTH GROUND CONDITIONS (CONSTRUCTION PHASE)
6. SUMMARY OF PREDICTED MONTHLY AND ANNUAL SOIL LOSSES:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEARLY
R =	1806	1858	1085	371	123	41	41	80	32	91	266	825	6619
K =	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
LS =	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
C =	1	1	1	1	1	1	1	1	1	1	1	1	1
P =	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
A =	13.4	13.8	8.0	2.7	0.9	0.3	0.3	0.6	0.2	0.7	2.0	6.1	49.0

NOTES:

1. THE TOTAL AREA OF CATCHMENT CONTRIBUTING THE SITE RUNOFF IS >10,000m². IN ACCORDANCE WITH TABLE B1 OF THE IECA GUIDELINES, THE CUT OFF FOR TYPE 1 SEDIMENT CONTROL MEASURE (e.g. SEDIMENT BASIN) IS >5t/ha/month OR >60t/ha/year.
2. TYPE 3 SEDIMENT CONTROL (SEDIMENT FENCE) WILL BE REQUIRED FOR THE MONTHS BETWEEN APRIL AND NOVEMBER.
3. THERE SHALL BE NO EARTHWORKS ACTIVITIES DURING THE MONTHS OF DECEMBER TO MARCH WITHOUT THE USE OF SEDIMENT BASIN.



1 SITE PLAN - PROPOSED
1 : 300

LEGEND

- S/FENCE — Sediment fence
- Site entry/exit (e.g. rock pad)
- Kerb inlet sediment trap
- Site fall

NEW 2100H AL. POWDER COATED SECURITY FENCE WITH DIAMOND SHAPED/CRIMPED SPEAR TOPS TO PERIMETER OF SITE WHERE INDICATED. SECURE ACCESS POINTS TO BE CONFIRMED WITH CLIENT

REAL PROPERTY DESCRIPTION
LOT 158 ON SP 139546 & LOT 159 ON SP223219
TOTAL AREA OF LAND: 16180m²
LOCAL GOVERNMENT: TOWNSVILLE CITY COUNCIL

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

LCJ ENGINEERS
ABN 54 131 516 446

PROJECT: TAIHS GORDEN ST PRECINCT
JOB No: ROSE015
BY: HMF
DATE: 02/04/26
PAGE: SK01

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
4. THIS DRAWING IS ONLY INTENDED TO OBTAIN A LOCAL AUTHORITY BUILDING PERMIT
5. THIS DRAWING IS COPYRIGHT TO THE DESIGN HOUSE NQ pty ltd & IS NOT TO BE COPIED OR DUPLICATED IN PART OR FULL WITH OUT THE PERMISSION OF THE DESIGN HOUSE NQ pty ltd

REV ISSUE	DATE	DESCRIPTION
6	06.03.26	TCC RFI RESPONSE
4	13.01.26	REFUSE AREA ADDED
3	08.12.25	INDICATIVE LANDSCAPING ADDED
2	11.11.25	PRELIMINARY
1	07.11.25	PRELIMINARY

THE DESIGN HOUSE NQ
m: 0423 623 647
a:19 Castlemaine St, Kirwan, QLD 4818
e: nathan@thedesignhousenq.com.au
w: www.thedesignhousenq.com.au

The Design House NQ

Project: TAIHS GORDON STREET PRECINCT MASTERPLANNING
Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: SITE PLAN - PROPOSED
Date: 06.11.25 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 102 Rev.: 6

APPENDIX E
Traffic Impact Assessment (TIA)

TRAFFIC IMPACT ASSESSMENT REPORT

TAIHS GORDEN STREET PRECINCT MASTERPLANNING

at

57-67 GORDEN STREET AND 10-16 PEEL STREET, GARBUTT

for

TOWNSVILLE ABORIGINAL & ISLANDER HEALTH SERVICE (TAIHS)
C/- ROSEL SHERWOOD

LCJ ENGINEERS

Job No ROSE015 November 2025

Document Control					
Issue	Author	Reviewer	Approved for Issue		
			Name	Signature	Date
1	A Charrismanagara RPEQ 34266	DE Johnstone RPEQ 5892	DE Johnstone RPEQ 5892		12/11/25

LCJ Engineers Pty Ltd
Consulting Engineers
ABN 54 131 516 446
601 Flinders Street Townsville QLD 4810
PO Box 1498 Aitkenvale QLD 4814
Tel: (07) 4721 5800
townsville@lcjengineers.com.au
www.lcjengineers.com.au

CONTENTS

Appendices

TRAFFIC IMPACT ASSESSMENT REPORT
TAIHS GORDEN STREET PRECINCT MASTERPLANNING
57-67 GORDEN STREET AND 10-16 PEEL STREET, GARBUTT

Executive Summary

LCJ Engineers was engaged by Townsville Aboriginal & Islander Health Service (TAIHS) (C/- Rosel Sherwood) to undertake a Traffic Impact Assessment (TIA) for the proposed development at 57-67 Gorden Street (Lot 158 on SP139546) and 10-16 Peel Street (Lot 159 on SP223219), Garbutt. The TIA is to include sufficient detail for pre-lodgement to Townsville City Council (TCC).

The proposed development consists of the amalgamation of two (2) lots, demolition of existing buildings on 10-16 Peel Street, and construction a new building and associated carpark facilities.

The proposed development will have access from Lonerganne Street at the north, Peel Street at the east, and Gorden Street at the south. It is anticipated that the development will be completed at the of year 2026.

A summary of findings from this TIA for the proposed development includes:

- The anticipated traffic generation volumes of 893vpd for daily traffic and 89vph peak hour traffic;
- The existing road network will not be significantly affected by the proposed development; and
- The developed scenarios will not exceed the acceptable levels of Level of Service (LoS) and Degree of Saturation (DoS) on the existing intersections, as specified in the Townsville City Council City Plan.

1. INTRODUCTION AND SUMMARY

1.1 Justification for Moderate or High Impact Assessment

The proposed development has been assessed against Townsville City Council's (TCC) City Plan Table SC6.4.5.2 - *Urban Area TIA Impact Level Assessment Criteria*. It is expected that the proposed development will fall within the criteria of "Moderate Impact" development.

1.2 Study Objectives and Scope

The development site is bounded by Council controlled roads – Lonerganne Street to the north, Peel Street to the east, Gorden Street to the south and Meenan Street to the west. The proposed development consists of the amalgamation of two (2) lots, demolition of existing buildings on 10-16 Peel Street, and construction new buildings and associated carpark facilities.

The subject site is currently zoned as both "Community Facilities" (at 57-67 Gorden Street) and "Low Density Residential" (at 10-16 Peel Street). The client advised their intention to amalgamate the lots. Therefore, for the purposes of traffic impact assessment, the whole site will be classified as "Community Facilities".

Figure 1 – Study area

2. PROPOSED DEVELOPMENT

2.1 Site Plan / Layout

The proposed development site plan by The Design House is attached in Appendix A. As shown on the drawings, the development site is to be accessed from Lonerganne Street, Peel Street at the east, and Gorden Street.

2.2 Land Use and Intensity

As noted above, the development site is to be zoned as “Community Facilities”.

2.3 Phasing and Timing

At this stage, the exact phasing and timing of the proposed development is unknown as this will depend on design and construction staging. However, our assumption is that the opening year for the proposed development is expected to be 2026. The impact mitigation period for access intersections is ten (10) years after the opening year, resulting in a design year of 2036.

3. EXISTING CONDITIONS

3.1 Study Area Land Use

The subject site is currently zoned as both “Community Facilities” (at 57-67 Gorden Street) and “Low Density Residential” (at 10-16 Peel Street) as shown in sketch **SK02**. The client advised their intention to amalgamate the lots. It is assumed that future use of the “Future Developments” is consistent with the “Community Facilities” zoning.

Land use surrounding the development site is generally “Low Density Residential” to the east and west, “Community Facilities” to the north where Garbutt State School is located and “Low Impact Industry” to the south.

Immediately to the west of subject site is St Teresa’s Catholic Church and Community Centre which is accessed from Lonerganne Street.

Photographs of roads adjacent to the site are provided in Appendix B.

3.2 Existing Traffic Analysis

The development site has frontage to Lonerganne Street to the north and Gorden Street to the south. The “Future Development” area will have frontage to Lonerganne Street, Peel Street and Gorden Street.

The development site is located in a part of the Garbutt suburb that has a grid-pattern street network layout. The streets that are arranged north-south typically have shorter mid-block lengths (approximately 100m long) and are generally priority through-roads. The streets that are arranged east-west typically have longer mid-block lengths (approximately 200m long) and are controlled by a give way or stop sign at the intersections. Occasionally, the intersections are controlled by a roundabout. Figure 1 provides a general view of the streets surrounding the subject site.

The site is flat and generally has good visibility.

3.2.1 Lonerganne Street

Lonerganne Street is a local government road under the governing authority of TCC with a posted speed limit of 50km/h. It is an undivided 15m wide pavement (kerb to kerb), providing one (1) lane in each direction in a 30m wide reserve. The road shoulders have street trees in kerbed planters and unmarked on-street car parking between the planters.

Fronting the subject site, Lonerganne Street is also a school zone road with a posted speed limit of 40km/h during school drop-off (8:00am to 9:00am) and pick-up (2:30pm to 3:30pm) hours. Lonerganne Street has a stop controlled intersection with Meenan Street and a give way controlled intersection with Peel Street.

3.2.2 Peel Street

Peel Street is a local government road under the governing authority of TCC with a posted speed limit of 50km/h. It is an undivided 15m wide pavement (kerb to kerb), providing one (1) lane in each direction in a 30m wide reserve. The road shoulders have street trees in kerbed planters and unmarked on-street car parking between the planters.

Peel Street has priority at the intersection with Lonerganne Street and a roundabout intersection with Gorden Street.

3.2.3 Gorden Street

Gorden Street is a local government road under the governing authority of TCC with a posted speed limit of 50km/h. It is an undivided 15m wide pavement (kerb to kerb), providing one (1) lane in each direction in a 30m wide reserve. The road shoulders have marked and signed on-street car parking.

Gorden Street has a “stop” controlled intersection with Meenan Street and a roundabout intersection with Peel Street.

3.2.4 Meenan Street

Meenan Street is a local government road under the governing authority of TCC with a posted speed limit of 60km/h. It is an undivided 15m wide pavement (kerb to kerb), providing one (1) lane in each direction in a 30m wide reserve. The road shoulders have on-street car parking behind the marked edge line.

Meenan Street has priority at the intersection with Lonerganne Street and Gorden Street, and is the most trafficked street in the vicinity. It also has ‘school zone’ pavement marking towards the Gorden Street end with a flashing ‘school zone’ sign and posted speed limit of 40km/h during school drop-off (8:00am to 9:00am) and pick-up (2:30pm to 3:30pm) hours.

3.2.5 Public transport

Local public transport operating in Garbutt consists of bus, taxi and ride sharing services (e.g. Uber). Taxi and ride sharing services operate from a passenger specified origin to a destination and are ordered by phone or website booking.

Townsville bus services are operated by Sunbus with two (2) scheduled routes operating along the streets associated with the development site (Routes 205 and 215). Services operate every 30 minutes on weekdays and 90 minutes on Saturdays. There are no services on Sunday or public holidays. The full bus timetable can be obtained from the Queensland Translink website.

3.3 Traffic Volumes

Townsville City Council has traffic models, Townsville Aimsun Integrated Model (TAIM) that can be accessed using TownsvilleMAPS. Traffic data was obtained for the years 2026 and 2036. For simplicity, year 2026 data will be used as the year of development and year 2036 will be used as the 10-year design horizon.

Council advised in an email dated 19 October 2023, that the models only provide traffic volumes for trunk roads, i.e. arterial, sub-arterial and major collector roads. Lesser order roads do not have validated traffic volumes. In most instances, traffic volumes taken from the model on local streets should not be considered reliable. A copy of the email and the TAIM information factsheet is attached in Appendix C.

3.3.1 Meenan Street

Meenan Street is the only street with available traffic data. Table 1 lists the traffic volumes for Meenan Street for the three (3) mid-block sections between Chandler Street to the north and Ingham Road to the south. These traffic volumes were obtained from TownsvileMAPS on the 3rd November 2025.

Table 1 – TAIM Census Meenan Street Traffic Volumes

Year	AADT (%HV)		AM peak *(vph)*		PM peak *(vph)*	
	Northbound	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound**
North *(Chandler Street to Lonerganne Street)*						
2026	2425 (4.6%)	2836 (5.6%)	112	221	136	88
2036	2921 (5.2%)	3361 (5.0%)	143	207	204	113
Site frontage *(Lonerganne Street to Gorden Street)*						
2026	2203 (5.5%)	2858 (5.7%)	107	273	151	111
2036	2638 (6.2%)	3387 (5.2%)	107	266	221	119
South *(Gorden Street to Ingham Road)*						
2026	3061 (6.7%)	3729 (7.7%)	210	264	148	244
2036	3450 (7.1%)	4228 (7.1%)	196	219	218	237

This equates to an approximate northbound : southbound directional split on Meenan Street of:

- 37% : 63% in the morning peak hour; and
- 56% : 44% in the evening peak hour.

With regard to the heavy vehicles, generally the percentages are consistent for the three (3) mid-block sections and for the subject years, i.e. 6.0% for both northbound and southbound.

3.3.2 Local Minor Streets

As previously discussed, there are no available traffic data for the local minor streets – Lonerganne Street, Peel Street and Gorden Street. As such, the existing traffic volumes will be estimated based on *LGIP - DSS, definitions and demand Table 8.1 Infrastructure demand unit rates* for the relevant category and sub-category of surrounding land uses. Refer Figure 2.

With regard to the mid-block directional split, we have assumed the following:

- 35% northbound : 65% southbound, both morning and evening peak hours; and
- 50% eastbound : 50% westbound, both morning and evening peak hours.

For the directional split at the intersections, we have assumed that the majority of the traffic will turn south (towards Ingham Road) and that motorists will prefer to travel along the through roads (north-south orientation) instead of traveling east-west orientation which will require to stop and/or give way at each intersection. For this reason, we assume the following intersection directional split:

- 30% northbound : 60% southbound : 10% eastbound/westbound, both morning and evening peak hours.

With regard to the heavy vehicles, it is assumed to be 3.0%.

It is to be noted that this area of Garbutt is generally a built-up area and is not expected to have significant growth in traffic volumes. As such, the assumed traffic volumes for the local minor streets will remain throughout the years.

Category	Sub-category	Unit	Water[4] (EP)	Water[5] (EP)	Sewer (EP)	Roads (trip ends/day)	Pathways (trip ends/day)
Employment	Retail	100m2 GFA	2.11	2.11	2.74	18.7	0.22
	Services	100m2 GFA	1.35	1.35	1.88	41.5	0.54
	Professional	100m2 GFA	1.11	1.11	1.00	33.4	0.34
	Industrial	100m2 GFA	0.18	0.18	0.18	10.0	0.10
	Other	100m2 GFA	-	-	-	30.0	0.30
	Retail	job	0.74	0.74	0.96	6.5	0.01
	Services	job	0.23	0.23	0.32	7.1	0.03
	Professional	job	0.20	0.20	0.18	6.0	0.02
	Industrial	job	0.11	0.11	0.11	6.0	0.002
	Other	job	-	-	-	6.0	0.02
Housing	Single (rural)	dwelling	-	2.80	-	7.3	-
	Single (rural res.)	dwelling	2.80	2.80	-	7.3	-
	Single (urban)	dwelling	2.80	2.80	2.80	7.3	0.43
	Units	dwelling	1.80	1.80	1.80	4.8	0.41
	Other	dwelling	1.80	1.80	1.80	4.8	0.41
Students	Primary	students	0.14	0.14	0.22	1.2	0.69
	Secondary	students	0.28	0.28	0.43	0.5	0.38
	Tertiary	students	0.28	0.28	0.43	0.6	0.16

Figure 2 – Prescribed infrastructure demand unit rates. Source: *LGIP - DSS, definitions and demand* (TCC, April 2017)

3.3.2.1 Lonerganne Street

Table 2 details the estimated traffic volumes for Lonerganne Street for the three (3) mid-block sections between Crowder Street to the west and Ramsay Street to the east.

It is to be noted that St Teresa's Catholic Church is not expected to generate significant traffic volumes during weekdays, as generally, church activities occur on weekends and after hours. Therefore, it will be excluded from the estimation of traffic volume.

Garbutt State School (Garbutt SS) is a primary school with 110 students. The attached email in Appendix D (dated 26 October 2023) from the Garbutt SS's Principal advised the number of enrolled students. Garbutt SS does not appear to have a dedicated drop-off/pick-up zone and is therefore assumed to have 50% of the traffic generated along Lonerganne Street. Furthermore, due to the nature of school traffic, it is assumed that 50% of the generated traffic volume will coincide with the morning peak hour traffic and before the evening peak hour traffic.

Table 2 – Lonerganne Street Estimated Traffic Volumes

Year	AADT		**AM peak** (10% of AADT-UNO) *(vph)*		**PM peak** (10% of AADT) *(vph)*	
	Westbound	**Eastbound**	**Westbound**	**Eastbound**	**Westbound**	**Eastbound**
West *(Crowder Street to Meenan Street)* 13 single (urban) and 27 units = total 224.5vpd (say, 226vpd)						
All	113	113	11	11	11	11
Site frontage *(Meenan Street to Peel Street)* Garbutt SS (110 primary students) = total 132 vpd Assumed 50% access on Lonerganne St = 66 vpd						
All	33	33	16*	17*	0	0
East *(Peel Street to Ramsay Street)* 16 single (urban) and 17 units = total 198.4vpd (say, 198vpd)						
All	99	99	10	10	10	10

*Denotes these values are based on school traffic all being generated in the morning peak and a 50% directional split.

3.3.2.2 Peel Street

Table 3 details the estimated traffic volumes for Peel Street for the three (3) mid-block sections between Chandler Street to the north and Ingham Road to the south.

It is to be noted that the existing buildings on 10-16 Peel Street are to be demolished as part of the proposed development. As such, it will be excluded from the estimation of traffic volume.

Table 3 – Peel Street Estimated Traffic Volumes

Year	AADT		**AM peak** (10% of AADT) *(vph)*		**PM peak** (10% of AADT) *(vph)*	
	Northbound	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound**
North *(Chandler Street to Lonerganne Street)* 5 single (urban) = total 36.5vpd (say, 36vpd)						
All	13	23	1	2	1	2

Year	AADT		**AM peak** (10% of AADT) *(vph)*		**PM peak** (10% of AADT) *(vph)*	
	Northbound	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound**
Site frontage *(Lonerganne Street to Gorden Street)* 3 single (urban), 10 units = 69.9vpd (say, 70vpd)						
All	25	45	3	5	3	5
South *(Gorden Street to Ingham Road)* 4720m^2 GFA industrial = 472vpd						
All	165	307	17	31	17	31

3.3.2.3 Gorden Street

Table 4 outlines the estimated traffic volumes for Gorden Street for the three (3) mid-block sections between Crowder Street to the west and Ramsay Street to the east.

Table 4 – Gorden Street Estimated Traffic Volumes

Year	AADT		**AM peak** (10% of AADT) *(vph)*		**PM peak** (10% of AADT) *(vph)*	
	Westbound	**Eastbound**	**Westbound**	**Eastbound**	**Westbound**	**Eastbound**
West *(Crowder Street to Meenan Street)* 5 single (urban), 19 units and 3550m^2 GFA industrial = total 482.7vpd (say, 484vpd)						
All	242	242	24	24	24	24
Site frontage *(Meenan Street to Peel Street)* 1 single (urban) and 3385m^2 GFA industrial = total 345.8vpd (say 346vpd)						
All	173	173	17	17	17	17
East *(Peel Street to Ramsay Street)* 10 single (urban), 11 units and 2525m^2 GFA = total 378.3vpd (say, 378vpd)						
All	189	189	19	19	19	19

3.4 Road Safety Issues

Traffic crash data recorded for the last five (5) years adjacent to the subject site is shown in Table 5. The data was obtained from Queensland Government Open Data Portal.

The crash data suggests there were three (3) crashes that occurred near the subject site. The crashes appeared to be isolated incidents with no specific reason relating to the existing road network.

Table 5 – Crash data

Crash Ref No.	Crash DCA Code	Crash Year	Crash Severity	Crash Nature	Crash Location
354942	303	2019	Hospitalisation	Rear-end	Meenan St / Lonerganne St intersection
349986	104	2019	Minor injury	Angle	Meenan St / Gorden St
333687	301	2021	Minor injury	Rear-end	Meenan St, 30m south of Gorden St intersection

4. TRAFFIC FORECASTING AND ANALYSIS

4.1 Method of Projection

As discussed in Section 3.3 of this report, traffic data provided by TCC TAIM will be used for the SIDRA intersection analysis.

4.2 Background Traffic (Each horizon year)

4.2.1 Traffic model calibration or validation if applicable

SIDRA Intersection 10.0 was used to model the intersections surrounding the subject site. Default parameters predetermined in the original program were unaltered.

It is to be noted that in SIDRA software, a zero “0” traffic movement is not possible to be modelled. Thus, a minimum of one (1) movement is applied.

4.2.2 Forecasting and analysis

As discussed in Section 3.3 of this report, traffic data provided by TCC TAIM will be used for the SIDRA intersection analysis.

4.3 Development Traffic Generation

Traffic generation for the development was estimated from the total GFA and applying the prescribed infrastructure demand unit rate as specified in Table 8.1 of *LGIP - DSS, definitions and demand*.

From the drawings, the proposed building will have a GFA of 2,151m^2. The prescribed rate for “Services” employment is 41.5vpd per 100m^2 GFA. Thus, the estimated traffic generated from the proposed development is as follows:

- Total daily traffic = 893vpd; and
- Total peak hour traffic (taken as 10% of daily traffic) = 89vph.

From the TAIHS website (https://www.taihs.net.au/) it was identified that generally the clinic offers three (3) types of patient appointments:

- Short 20-minute appointments;
- Standard 40-minute appointments; and
- Long 60-minute appointments.

The clinic also offers walk-in and emergency services for patients presenting with non-urgent issues, who are advised of the expected wait time and/or to book an appointment for the next available time.

4.3.1 Trip distribution

The proposed development will be accessed from Lonerganne Street, Peel Street, and also be connected to an existing driveway/carpark access on Gorden Street. The access from Peel Street will be via two (2) driveways, however, for the purpose of this assessment it will be treated as a single point of access.

Therefore, it is assumed that the access split will be equally divided between the three access points, i.e. 33.3% x 89vph = 30vph.

Assumptions to the directional split are consistent with Section 3.3.2 of this report:

- Lonerganne Street access peak hour traffic = 30vph.
- Gorden Street access peak hour traffic = 30vph.
- Peel Street access peak hour traffic = 30vph.

Furthermore, it is assumed that the inbound/outbound split is also 50% : 50%.

4.3.2 Development traffic volumes on the network

Table 6 summarises the assumed peak hour development traffic directional split and distribution. Appendix E provides diagrammatic representation of the development traffic movements.

Table 6 - Proposed development peak hour traffic directional split

Peak hour traffic generation				
Total *(vph)*	**Morning**		**Evening**	
	Inbound *(vph)*	**Outbound** *(vph)*	**Inbound** *(vph)*	**Outbound** *(vph)*
Lonerganne Street access				
30	15	15	15	15
Gorden Street access				
30	15	15	15	15
Peel Street access				
30	15	15	15	15

Note: Inbound/outbound splits have been rounded to the next highest round number.

4.4 Method of Analysis

In Section 3.3 of this report, it is shown that the evening (PM) peak hour traffic volumes appear to be generally lower than the morning (AM) peak hour traffic volumes. It can be assumed that this is due to the start of working hours coinciding with the school morning peak hour, and thus the AM peak hour traffic is the more critical period to be analysed. Therefore, our traffic analyses were undertaken for the morning peak hour traffic only.

The following traffic scenarios have been considered within this traffic impact assessment:

- Morning peak hour, Background Cases 2026 and 2036, without subject development; and
- Morning peak hour, Design Cases 2026 and 2036, with subject development.

SIDRA Intersection 10.0 was used to analyse the intersection performance in terms of the following parameters:

Level of Services (LoS)

LoS is a qualitative measure describing operating conditions as perceived by motorists. LoS varies from ideal conditions 'LoS A' to virtual gridlock 'LoS F'. TCC City Plan Table SC6.4.5.6 *Desirable Service Standard for Intersection / Access Operation* specifies the Acceptable LoS for urban Roundabout Intersection, Priority Intersection or Give-Way/Stop Controlled Intersection to be 'LoS D'.

Degree of Saturation (DoS)

DoS is the mean difference between the uninterrupted travel time and the interrupted travel time for all vehicles making that particular movement which arrive at the intersection during the peak hour. TCC City Plan Table SC6.4.5.6 *Desirable Service Standard for Intersection / Access Operation* specifies the Acceptable DoS for urban Roundabout Intersection to be less than 0.85, and for Priority Intersection or Give-Way/Stop Controlled Intersection to be less than 0.8.

4.5 Summary of Analysis (With/without development scenario)

SIDRA analyses reports are attached in Appendix F and summarised in Tables 7 to 10. Based on information within this report, the results of our SIDRA analysis indicate that the proposed development will not have any significant impact on the existing road network.

Table 7 – Summary of SIDRA analysis – AM peak hour, background case 2026

Intersection	Approach	DoS	Avg. delay (sec)	LoS	Queue (m)
Meenan St / Lonerganne St	Meenan St (S)	0.066	0.8	NA$^{\Delta}$	0.5
	Lonerganne St (E)	0.018	8.8	A	0.4
	Meenan St (N)	0.126	0.3	NA$^{\Delta}$	0.4
	Lonerganne St (W)	0.014	9.0	A	0.3
	INTERSECTION	**0.126**	**1.1**	**NA$^{\Delta}$**	**0.5**
Peel St / Lonerganne St	Peel St (S)	0.003	1.8	NA$^{\Delta}$	0.0
	Lonerganne St (E)	0.007	4.5	A	0.2
	Peel St (N)	0.002	2.3	NA$^{\Delta}$	0.0
	Lonerganne St (W)	0.014	4.4	A	0.3
	INTERSECTION	**0.014**	**3.8**	**NA$^{\Delta}$**	**0.3**
Peel St / Gorden St	Peel St (S)	0.014	3.7	A	0.5
	Gorden St (E)	0.014	4.5	A	0.5
	Peel St (N)	0.004	4.1	A	0.1
	Gorden St (W)	0.013	5.6	A	0.4
	INTERSECTION	**0.014**	**4.5**	**A**	**0.5**
Meenan St / Gorden St	Meenan St (S)	0.124	0.5	NA$^{\Delta}$	0.6
	Gorden St (E)	0.022	9.6	A	0.6
	Meenan St (N)	0.158	0.4	NA$^{\Delta}$	0.8
	Gorden St (W)	0.038	10.3	B	0.9
	INTERSECTION	**0.158**	**1.2**	**NA$^{\Delta}$**	**0.9**

Table 8 – Summary of SIDRA analysis – AM peak hour, developed case 2026

Intersection	Approach	DoS	Avg. delay (sec)	LoS	Queue (m)
Meenan St / Lonerganne St	Meenan St (S)	0.066	0.8	NA$^{\Delta}$	0.5
	Lonerganne St (E)	0.036	8.9	A	0.9
	Meenan St (N)	0.135	0.7	NA$^{\Delta}$	0.4
	Lonerganne St (W)	0.014	9.1	A	0.3
	INTERSECTION	**0.135**	**1.5**	**NA$^{\Delta}$**	**0.9**
Peel St / Lonerganne St	Peel St (S)	0.010	0.7	NA$^{\Delta}$	0.1
	Lonerganne St (E)	0.018	4.2	A	0.5
	Peel St (N)	0.010	2.3	NA$^{\Delta}$	0.3
	Lonerganne St (W)	0.024	4.5	A	0.6
	INTERSECTION	**0.024**	**3.3**	**NA$^{\Delta}$**	**0.6**
Peel St / Gorden St	Peel St (S)	0.026	3.6	A	0.9
	Gorden St (E)	0.026	5.0	A	0.9
	Peel St (N)	0.015	3.6	A	0.5
	Gorden St (W)	0.025	6.2	A	0.8
	INTERSECTION	**0.026**	**4.7**	**A**	**0.9**
Meenan St / Gorden St	Meenan St (S)	0.143	1.3	NA$^{\Delta}$	2.2
	Gorden St (E)	0.044	9.9	A	1.1
	Meenan St (N)	0.158	0.4	NA$^{\Delta}$	0.8
	Gorden St (W)	0.039	10.6	B	0.9
	INTERSECTION	**0.158**	**1.7**	**NA$^{\Delta}$**	**2.2**

Table 9 – Summary of SIDRA analysis – AM peak hour, background case 2036

Intersection	Approach	DoS	Avg. delay (sec)	LoS	Queue (m)
Meenan St / Lonerganne St	Meenan St (S)	0.066	0.7	NA$^{\Delta}$	0.5
	Lonerganne St (E)	0.017	8.7	A	0.4
	Meenan St (N)	0.119	0.4	NA$^{\Delta}$	0.4
	Lonerganne St (W)	0.014	8.9	A	0.3
	INTERSECTION	**0.119**	**1.1**	**NA$^{\Delta}$**	**0.5**
Peel St / Lonerganne St	Peel St (S)	0.003	1.8	NA$^{\Delta}$	0.0
	Lonerganne St (E)	0.007	4.5	A	0.2
	Peel St (N)	0.002	2.3	NA$^{\Delta}$	0.0
	Lonerganne St (W)	0.014	4.4	A	0.3
	INTERSECTION	**0.014**	**3.8**	**NA$^{\Delta}$**	**0.3**
Peel St / Gorden St	Peel St (S)	0.014	3.7	A	0.5
	Gorden St (E)	0.014	4.5	A	0.5
	Peel St (N)	0.004	4.1	A	0.1
	Gorden St (W)	0.013	5.6	A	0.4
	INTERSECTION	**0.014**	**4.5**	**A**	**0.5**
Meenan St / Gorden St	Meenan St (S)	0.116	0.6	NA$^{\Delta}$	0.5
	Gorden St (E)	0.022	9.5	A	0.5
	Meenan St (N)	0.154	0.4	NA$^{\Delta}$	0.8
	Gorden St (W)	0.037	10.1	B	0.9
	INTERSECTION	**0.154**	**1.2**	**NA$^{\Delta}$**	**0.9**

Table 10 – Summary of SIDRA analysis – AM peak hour, developed case 2036

Intersection	Approach	DoS	Avg. delay (sec)	LoS	Queue (m)
Meenan St / Lonerganne St	Meenan St (S)	0.066	0.8	NA$^{\Delta}$	0.5
	Lonerganne St (E)	0.035	8.8	A	0.9
	Meenan St (N)	0.127	0.7	NA$^{\Delta}$	0.4
	Lonerganne St (W)	0.014	9.0	A	0.3
	INTERSECTION	**0.127**	**1.6**	**NA$^{\Delta}$**	**0.9**
Peel St / Lonerganne St	Peel St (S)	0.010	0.7	NA$^{\Delta}$	0.1
	Lonerganne St (E)	0.018	4.2	A	0.5
	Peel St (N)	0.010	2.3	NA$^{\Delta}$	0.3
	Lonerganne St (W)	0.024	4.5	A	0.6
	INTERSECTION	**0.024**	**3.3**	**NA$^{\Delta}$**	**0.6**
Peel St / Gorden St	Peel St (S)	0.026	3.6	A	0.9
	Gorden St (E)	0.026	5.0	A	0.9
	Peel St (N)	0.015	3.6	A	0.5
	Gorden St (W)	0.025	6.2	A	0.8
	INTERSECTION	**0.026**	**4.7**	**A**	**0.9**
Meenan St / Gorden St	Meenan St (S)	0.135	1.4	NA$^{\Delta}$	2.1
	Gorden St (E)	0.043	9.7	A	1.1
	Meenan St (N)	0.154	0.4	NA$^{\Delta}$	0.8
	Gorden St (W)	0.038	10.4	B	0.9
	INTERSECTION	**0.154**	**1.8**	**NA$^{\Delta}$**	**2.1**

Notes from SIDRA Intersection 10.0:

$^{\Delta}$ NA: Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule)

4.6 Accesses and Carparking

The drawings show the proposed alteration of carparking at the existing facility, as well as new carparking associated with the new development.

Drawing WD 102 (rev 2) provides the carpark schedule outlining the required number of bays and the number of bays provided.

5. CONCLUSION

5.1 Summary of Impacts

Based on information within this report, the results of our SIDRA analysis indicate that the proposed development will not have any significant impact on the existing road network for the developed year and the 10-year design horizon.

5.2 Certification Statement and Authorisation

This report was prepared by Arry Charrismanagara (RPEQ 34266) under the direct supervision of Daniel Eric Johnstone (RPEQ 5892).

APPENDIX A
Building Designer's plans

TAIHS GORDON STREET PRECINCT MASTERPLANNING
TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
CORNER OF GORDEN & PEEL STREET, GARBUTT

SHEET LIST

SHEET No.	SHEET NAME	Project Issue DATE	Poject Revision	Current Revision	Revision Date	Current Revision Description
000	COVER PAGE	06.11.25	2	2	11.11.25	PRELIMINARY
100	SITE PLAN - EXISTING	06.11.25	2	2	11.11.25	PRELIMINARY
101	SITE PLAN - DEMOLITION	06.11.25	2	2	11.11.25	PRELIMINARY
102	SITE PLAN - PROPOSED	06.11.25	2	2	11.11.25	PRELIMINARY
200	FLOOR PLANS	06.11.25	2	2	11.11.25	PRELIMINARY
201	FLOOR PLANS	06.11.25	2	2	11.11.25	PRELIMINARY
300	ELEVATIONS	06.11.25	2	2	11.11.25	PRELIMINARY
301	ELEVATIONS	06.11.25	2	2	11.11.25	PRELIMINARY

GENERAL:

1. IF IN DOUBT, JUST ASK.
2. USE FIGURED DIMENSIONS, DO NOT SCALE FROM DRAWINGS.
3. CONFIRM ALL RELEVANT DIMENSIONS, LEVELS AND DETAILS ON SITE PRIOR TO COMMENCEMENT OF ALL WORK. CONFIRM SETBACKS TO ALL ALIGNMENTS.
4. THESE ARCHITECTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ENGINEERING AND OTHER CONSULTANT"S DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES SHALL BE REFERRED TO THE BUILDING DESIGNERFOR DISCUSSION BEFORE PROCEEDING WITH THE WORK.
5. DESIGN AND CONSTRUCTION TO COMPLY WITH CURRENT STANDARD BUILDING BY-LAWS, BUILDING ACT, BUILDING AMENDMENT ACT, BUILDING AND OTHER LEGISLATION AMENDMENT ACT, QUUENSLAND DDEVELOPMENT CODE, BUILDING CONDE OF AUSTRALIA, CURRENT AUSTRALIAN STANDARDS, STATUTORY REQUIREMENTS, ORDINACES, LOCAL GOVERNMENT REQUIREMENTS, RELEVANT BUILDING AUTHORITIES AND ALL CONTRACT DOCUMENTATION.
6. CARRY OUT ALL WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE STATUTORY REGULATIONS, BY-LAWS OR RULES. COMPLY WITH RELEVANT STATE OCCUPATIONAL HEALTH AND SAFETY ACTS INCLUDING ASSOCIATED REGULATIONS AND CODES OF PRACTISE. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCRODANCE WITH LEGISLATIVE REQUIREMENTS, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTISE.
7. TIMBER CONSTRUCTION TO COMPLY WITH AS1720. DOMESTIC TIMBER CONSTRUCTION IN NON-CYCLONIC LOCATIONS SHALL BE IN ACCORDANCE WITH AS1684.
8. ALL BRICKWORK AND BLOCKWORK SHALL BE IN ACCORDANCE WITH AS3700.
9. ALL PROPRIETARY PRODUCTS AND SYSTEMS TO BE INSTALLED TO MANUFACTURER'S SPECIFICATION AND INSTRUCTIONS.
10. GARAGE DOORS TO COMPLY WITH THE ABCB HOUSING PROVISION PART 2.2. - GARAGE DOORS AND OTHER LARGE ACCESS DOORS IN OPENINGS NOT MORE THAN 3M IN HEIGHT IN EXTERNAL WALLS OF BUILDINGS DETERMINED AS BEING LOCATED IN WIND REGION C OR D IN ACCORDANCE WITH FIGURE 2.2.3 : AS/NZS 4505.
11. WHEN BUILDING IN A CORROSIVE ENVIROMENT, CORROSION PROTECTION IS TO COMPLY WITH SECTION 6.3.9 OF THE ABCB HOUSING PROVIONS
12. THESE DRAWINGS ARE THE COPYRIGHT OF THE DESIGN HOUSE NQ AND MAY NOT BE USED, RETAINED OR REPRODUCED WITHOUT WRITTEN AUTHORITY.
13. THESE DRAWINGS ARE FOR THE PURPOSE OF GAINING A BUILDING APPROVAL ONLY.

CLASS 1 & 2 BUILDINGS OR ASSESSABLE AND SELF-ASSESSABLE RENOVATIONS

LIGHTING - ENERGY EFFICIENT LIGHTING - WHICH IS A GLOBE WITH A MINIMUM OUTPUT OF 30 LUMENS/WATT INSTALLED TO A MINIMUM OF 80% OF THE TOTAL FIXED INTERNAL LIGHTING. EXCLUDING LAMPS RADIATING HEAT IN BATHROOMS.

NEW AND REPLACEMENT AIR-CONDITIONING TO HAVE ENERGY EFFICIENCY RATING TO MINIMUM 2.9

IN AREAS SERVICED BY A WATER SERVICE PROVIDER:-

* ***SHOWER ROSES IN A AREA WITH A RETICULATED WATER SERVICE MUST BE MIN 3 STAR WELS RATED.***
* ***ALL TOILET CISTERNS MUST HAVE A DUAL FLUSH FUNCTION AND HAVE A MIN. OF 4 STAR WELS RATING WHICH MUST BE COMPATABLE WITH THE SIZE OF THE TOILET BOWL.***
* ***ALL TAPS SERVING LAUNDRY TUBS, KITCHEN SINKS AND BATHROOM BASINS MUST HAVE A 3 STARWELS RATING.***

(WELS - 'WATER EFFICIENCY LABELLING AND STANDARDS')
(QDC - QUEENSLAND DEVEOPEMENT CODE)
(MP - MANDATORY PART)

SUSTAINABLE BUILDING REQUIREMENTS @ 1 MARCH 2009 - CLASS 1 BUILDINGS

NEW WORK - HOT WATER SYSTEMS MUST BE SUPPLIED BY A:-
- SOLAR HOT WATER SYSTEM, OR HEAT PUMP HOT WATER SYSTEM OR GAS HOT WATER SYSTEM.

TANKS IF REQUIRED BY LOCAL AUTHORITY:
- 5000LTR FOR DETACHED CLASS 1, 3000LTR FOR OTHER THAN CLASS 1 DETACHED AS PER QDC MP 4.2 WATER SAVINGS TARGETS:-
- TO RECIEVE A MINIMUM ROOF AREA AT LEAST 100SQM OR ONE HALF OF THE TOTAL ROOF AREA WHICHEVER IS THE LESSER.
- BE CONNECTED TO TOILET CISTERNS, WASHING MACHINE COLD WATER TAPS (OTHER THAN GREY WATER CONNS.) AND EXTERNAL USE TAPS, REFER QDC MP 4.2 FOR VARIATIONS. PLUMBER TO REFER TO QDC MP 4.2 FOR COMPLETE TANK REQUIREMENTS

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
4. THIS DRAWING IS ONLY INTENDED TO OBTAIN A LOCAL AUTHORITY BUILDING PERMIT
5. THIS DRAWING IS COPYRIGHT TO THE DESIGN HOUSE NQ pty ltd & IS NOT TO BE COPIED OR DUPLICATED IN PART OR FULL WITH OUT THE PERMISSION OF THE DESIGN HOUSE NQ pty ltd

REV ISSUE	DATE	DESCRIPTION
2	11.11.25	PRELIMINARY
1	07.11.25	PRELIMINARY

THE DESIGN HOUSE NQ
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: TAIHS GORDON STREET PRECINCT MASTERPLANNING
Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: COVER PAGE
Date: 06.11.25 Drawn:
Scale: 1 : 1 Designed: N.H
Job No.: 2025-329-C
Drawing No.: DD 000
Rev.: 2

WIND CATEGORY C2

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

LONERGANNE STREET

EXISTING CROSSOVER

EXISTING CROSSOVER

120.691 m

50.270 m

80.470 m

MH

EXISTING BUILDING

EXISTING HEALTH CENTRE

50.267 m

EXISTING BUILDING

EXISTING AMBULANCE BAY

EXISTING BUILDING

MOTHERS & BABIES

201.181 m

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

YAMANI META A

EXISTING BUILDING

CANTEEN/OFFICE SPACE

EXISTING BUILDING

EXISTING BUILDING

MH

100.550 m

MH

EXISTING CROSSOVER

EXISTING CROSSOVER

PEEL STREET

MH

EXISTING CROSSOVER

EXISTING CROSSOVER

GORDEN STREET

1 SITE PLAN - EXISTING
1 : 300

REAL PROPERTY DESCRIPTION
LOT 158 ON SP 139546 & LOT 159 ON SP223219
TOTAL AREA OF LAND: 16180m²
LOCAL GOVERNMENT: TOWNSVILLE CITY COUNCIL

NOTES:
1. VERIFY ALL LEVELS & DIMENSIONS BEFORE COMMENCING ANY FABRICATION
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1	07.11.25	PRELIMINARY

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m: 0423 623 647
a:19 Castlemaine St, Kirwan, QLD 4818
e: nathan@thedesignhousenq.com.au
w: www.thedesignhousenq.com.au

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Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: SITE PLAN - EXISTING
Date: 06.11.25 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 100 Rev.: 2

WIND CATEGORY C2

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

LONERGANNE STREET

EXISTING CROSSOVER

EXISTING CROSSOVER

120.691 m

50.270 m

80.470 m

MH

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING
YAMANI META A

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING
CANTEEN/OFFICE SPACE

EXISTING BUILDING

EXISTING BUILDING

EXISTING HEALTH CENTRE

50.267 m

EXISTING BUILDING

EXISTING AMBULANCE BAY

EXISTING BUILDING
MOTHERS & BABIES

201.181 m

MH

100.550 m

MH

EXISTING CROSSOVER

EXISTING CROSSOVER

EXISTING CROSSOVER

EXISTING CROSSOVER

PEEL STREET

GORDEN STREET

1 SITE PLAN - DEMOLITION
1 : 300

REAL PROPERTY DESCRIPTION
LOT 158 ON SP 139546 & LOT 159 ON SP223219
TOTAL AREA OF LAND: 16180m²
LOCAL GOVERNMENT: TOWNSVILLE CITY COUNCIL

NOTES:
1. VERIFY ALL LEVELS & DIMENSIONS BEFORE COMMENCING ANY FABRICATION
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m: 0423 623 647
a:19 Castlemaine St, Kirwan, QLD 4818
e: nathan@thedesignhousenq.com.au
w: www.thedesignhousenq.com.au

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Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: SITE PLAN - DEMOLITION
Date: 06.11.25 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 101 Rev.: 2

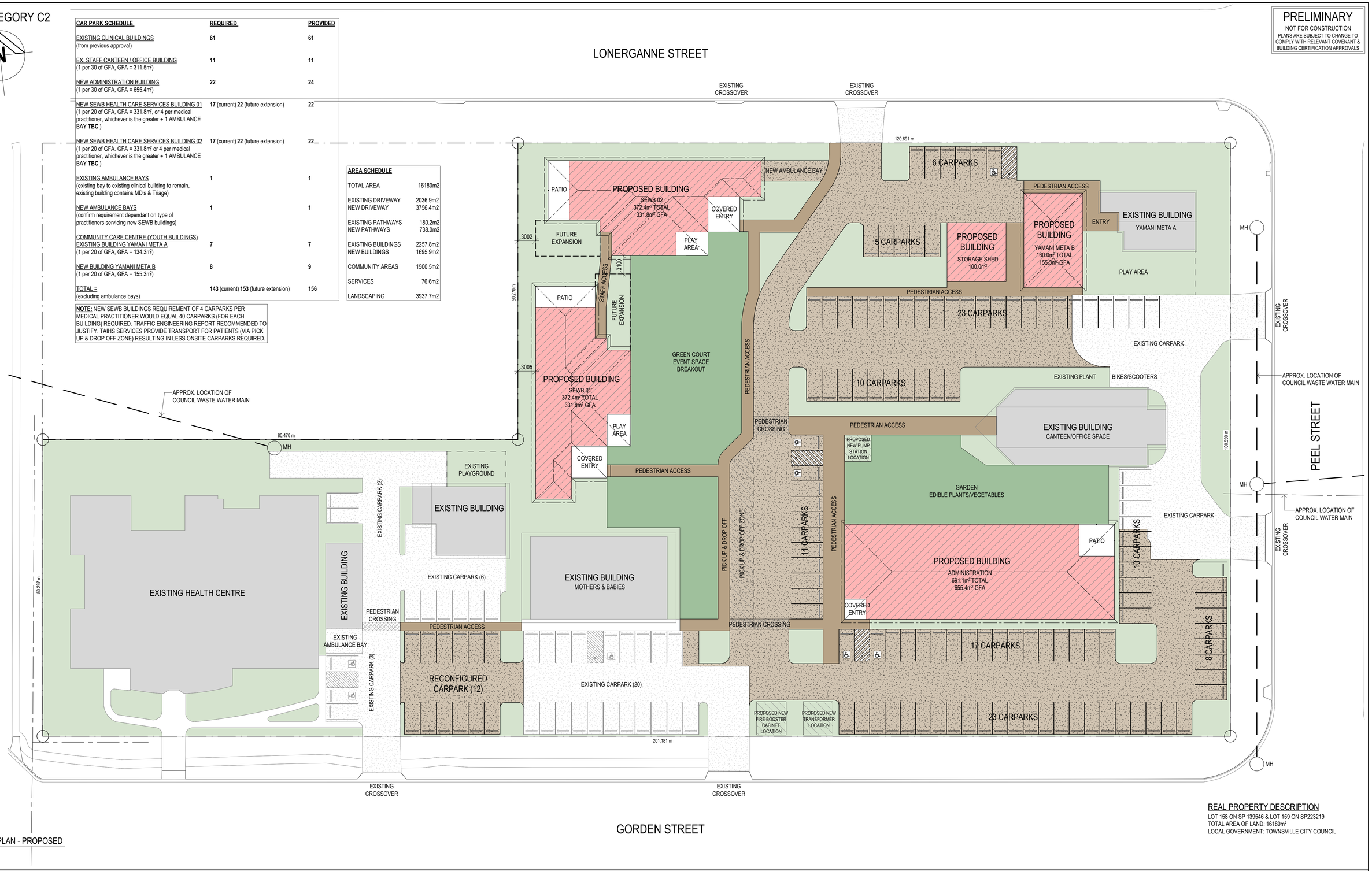
WIND CATEGORY C2

CAR PARK SCHEDULE	REQUIRED	PROVIDED
EXISTING CLINICAL BUILDINGS (from previous approval)	**61**	**61**
EX. STAFF CANTEEN / OFFICE BUILDING (1 per 30 of GFA, GFA = 311.5m²)	**11**	**11**
NEW ADMINISTRATION BUILDING (1 per 30 of GFA, GFA = 655.4m²)	**22**	**24**
NEW SEWB HEALTH CARE SERVICES BUILDING 01 (1 per 20 of GFA, GFA = 331.8m², or 4 per medical practitioner, whichever is the greater + 1 AMBULANCE BAY **TBC**)	**17** (current) **22** (future extension)	**22**
NEW SEWB HEALTH CARE SERVICES BUILDING 02 (1 per 20 of GFA. GFA = 331.8m² or 4 per medical practitioner, whichever is the greater + 1 AMBULANCE BAY **TBC**)	**17** (current) **22** (future extension)	**22**
EXISTING AMBULANCE BAYS (existing bay to existing clinical building to remain, existing building contains MD's & Triage)	**1**	**1**
NEW AMBULANCE BAYS (confirm requirement dependant on type of practitioners servicing new SEWB buildings)	**1**	**1**
COMMUNITY CARE CENTRE (YOUTH BUILDINGS) EXISTING BUILDING YAMANI META A (1 per 20 of GFA, GFA = 134.3m²)	**7**	**7**
NEW BUILDING YAMANI META B (1 per 20 of GFA, GFA = 155.3m²)	**8**	**9**
TOTAL = (excluding ambulance bays)	**143** (current) **153** (future extension)	**156**

NOTE: NEW SEWB BUILDINGS REQUIREMENT OF 4 CARPARKS PER MEDICAL PRACTITIONER WOULD EQUAL 40 CARPARKS (FOR EACH BUILDING) REQUIRED. TRAFFIC ENGINEERING REPORT RECOMMENDED TO JUSTIFY. TAIHS SERVICES PROVIDE TRANSPORT FOR PATIENTS (VIA PICK UP & DROP OFF ZONE) RESULTING IN LESS ONSITE CARPARKS REQUIRED.

AREA SCHEDULE	
TOTAL AREA	16180m2
EXISTING DRIVEWAY	2036.9m2
NEW DRIVEWAY	3756.4m2
EXISTING PATHWAYS	180.2m2
NEW PATHWAYS	738.0m2
EXISTING BUILDINGS	2257.8m2
NEW BUILDINGS	1695.9m2
COMMUNITY AREAS	1500.5m2
SERVICES	76.6m2
LANDSCAPING	3937.7m2

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



1 SITE PLAN - PROPOSED
1 : 300

REAL PROPERTY DESCRIPTION
LOT 158 ON SP 139546 & LOT 159 ON SP223219
TOTAL AREA OF LAND: 16180m²
LOCAL GOVERNMENT: TOWNSVILLE CITY COUNCIL

NOTES:
1. VERIFY ALL LEVELS & DIMENSIONS BEFORE COMMENCING ANY FABRICATION
2. FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALED
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REV ISSUE	DATE	DESCRIPTION
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1	07.11.25	PRELIMINARY

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m: 0423 623 647
a:19 Castlemaine St, Kirwan, QLD 4818
e: nathan@thedesignhousenq.com.au
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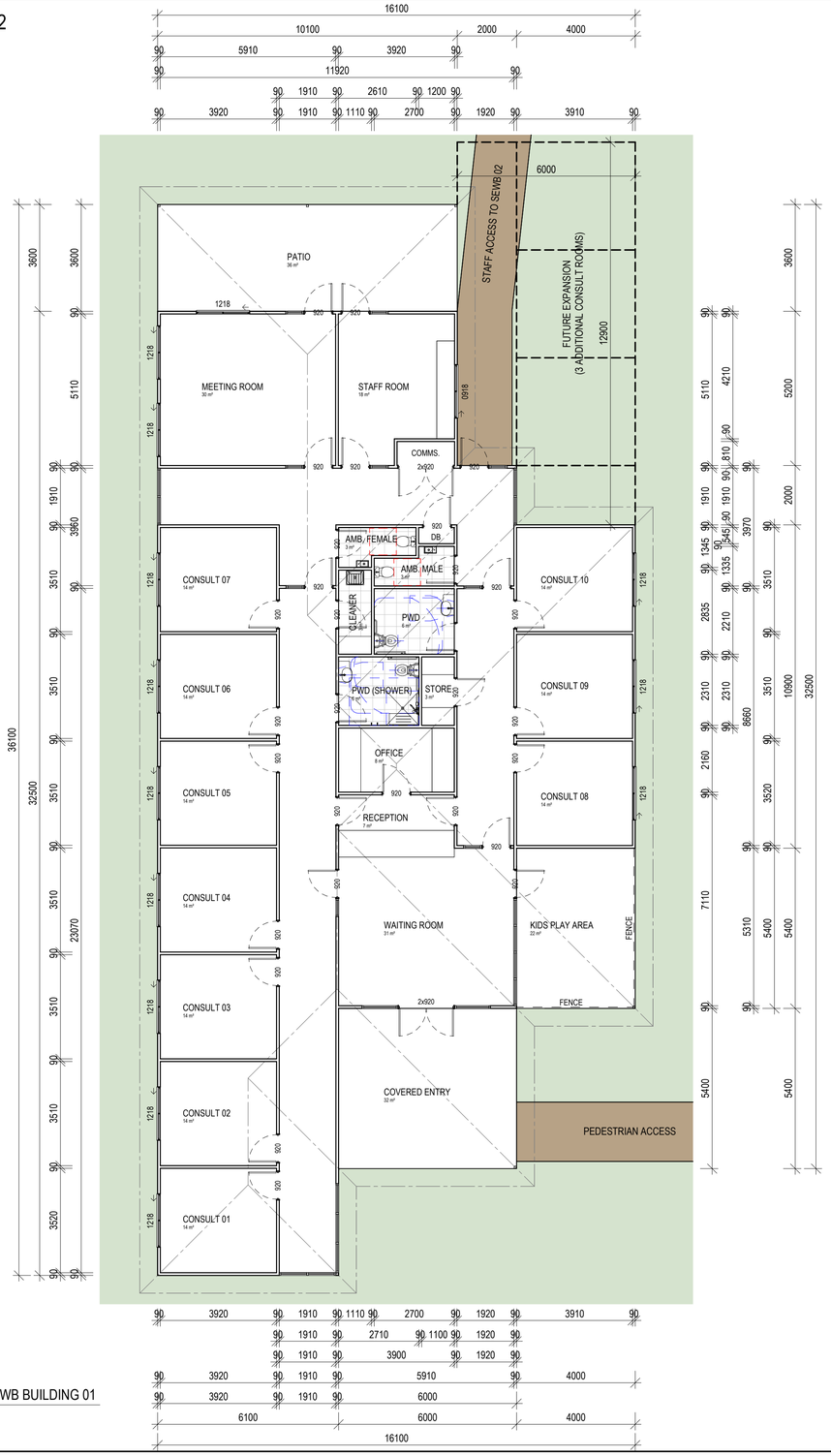
The Design House NQ

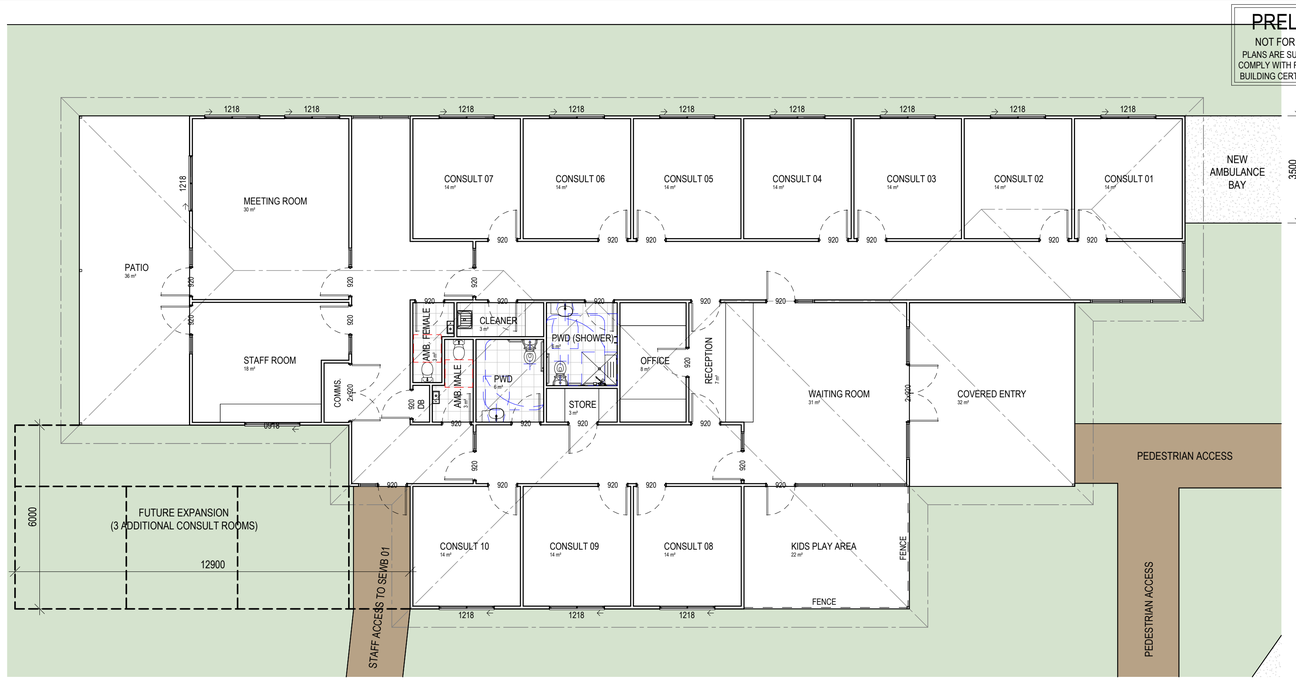
Project: TAIHS GORDON STREET PRECINCT MASTERPLANNING
Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: SITE PLAN - PROPOSED
Date: 06.11.25 Drawn: D.A.
Scale: As indicated Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 102 Rev.: 2

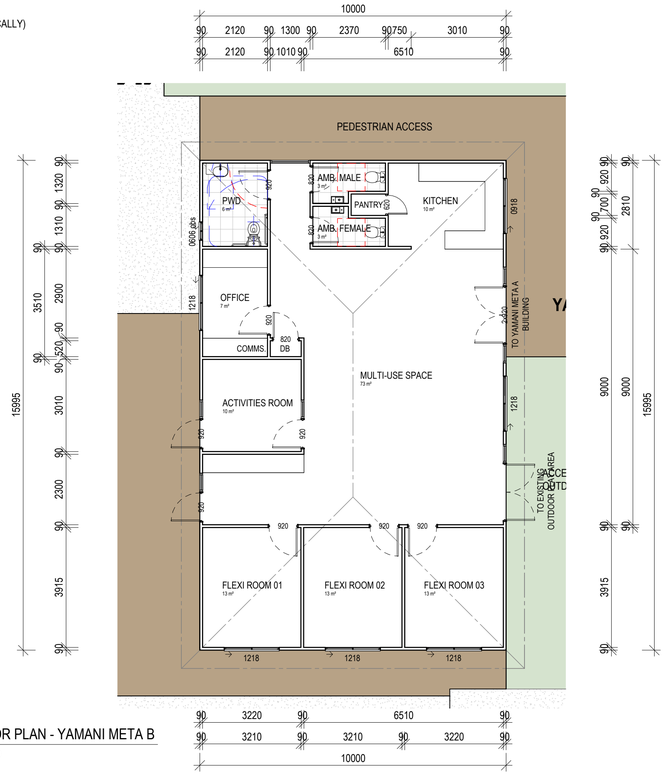
WIND CATEGORY C2



1 FLOOR PLAN - SEWB BUILDING 01
1 : 100



2 FLOOR PLAN - SEWB BUILDING 02
1 : 100
(SIMILAR TO SEWB BUILDING 01, ROTATED & MIRRORED VERTICALLY)



3 FLOOR PLAN - YAMANI META B
1 : 100

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2	11.11.25	PRELIMINARY

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m: 0423 623 647
a:19 Castlemaine St, Kirwan, QLD 4818
e: nathan@thedesignhousenq.com.au
w: www.thedesignhousenq.com.au

The Design House NQ

Project: TAIHS GORDON STREET PRECINCT MASTERPLANNING
Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: FLOOR PLANS
Date: 06.11.25 Drawn: D.A.
Scale: 1 : 100 Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 200 Rev.: 2

WIND CATEGORY C2

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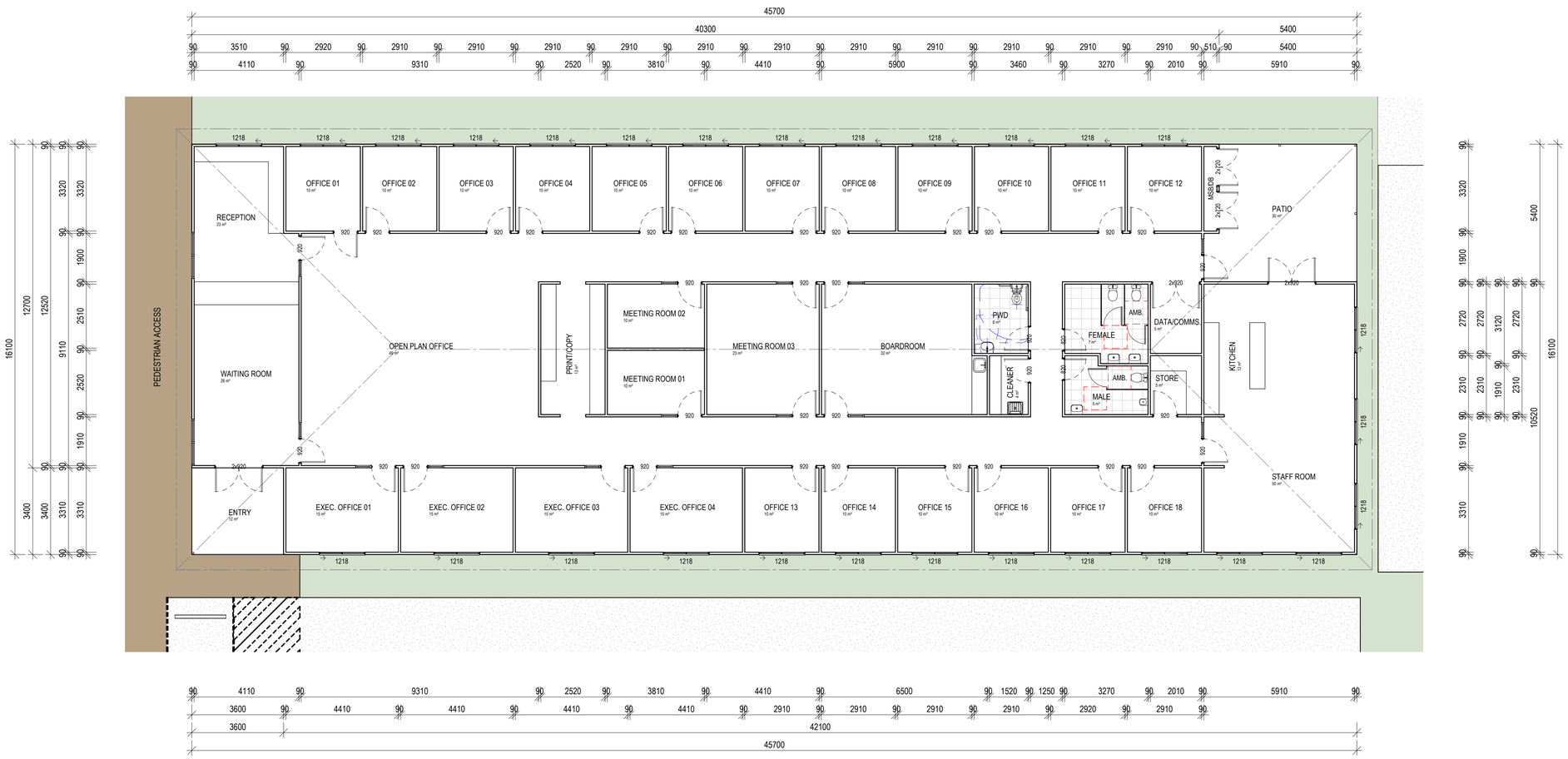

1 FLOOR PLAN - ADMINISTRATION BUILDING
1 : 100

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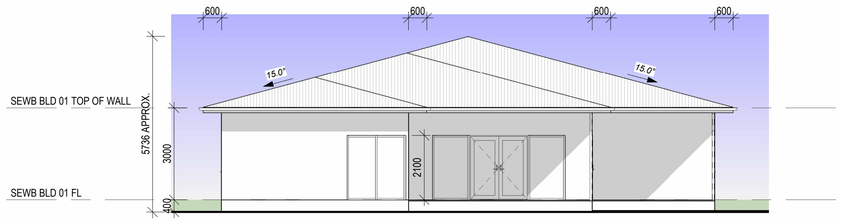
Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: FLOOR PLANS
Date: 06.11.25 Drawn: D.A.
Scale: 1 : 100 Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 201 Rev.: 2

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



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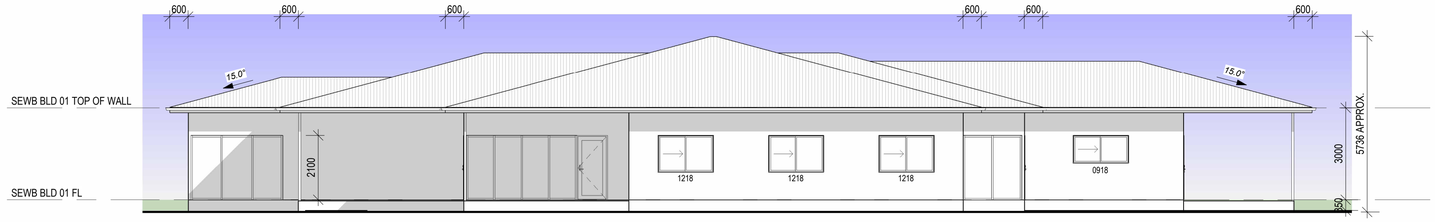

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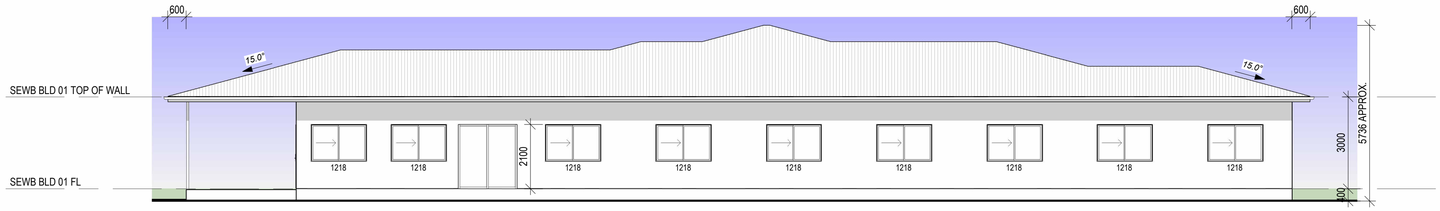
1 : 100

03 ELEVATION 03 - SEWB BUILDING 01
1 : 100



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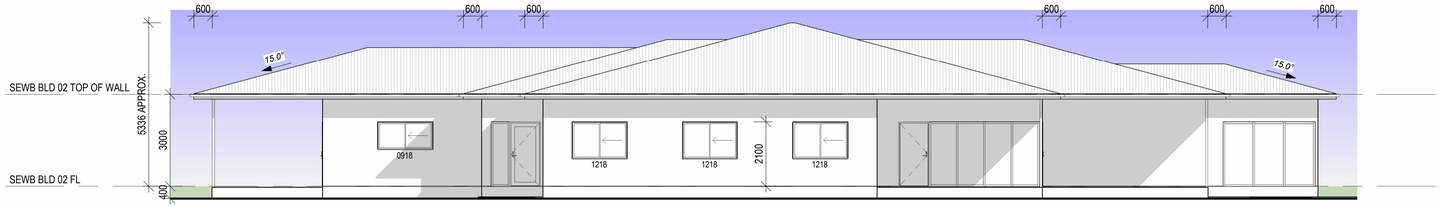

05 ELEVATION 05 - SEWB BUILDING 02
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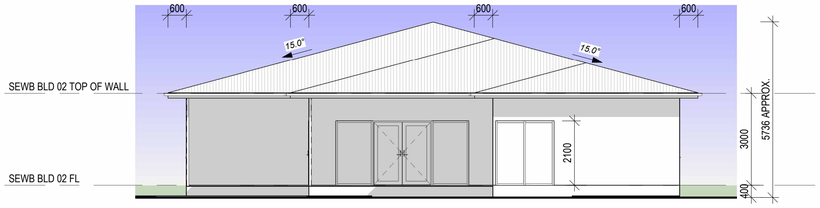

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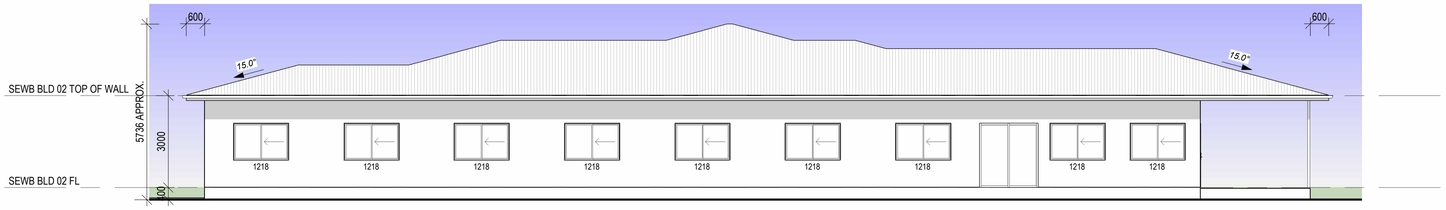

07 ELEVATION 07 - SEWB BUILDING 02
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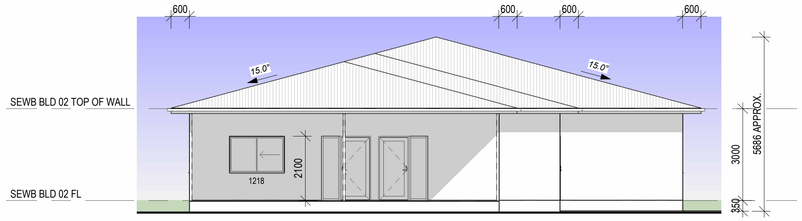

08 ELEVATION 08 - SEWB BUILDING 02
1 : 100

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Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

TITLE: ELEVATIONS
Date: 06.11.25 Drawn: D.A.
Scale: 1 : 100 Designed: N.H.
Job No.: 2025-329-C Drawing No.: WD 300 Rev.: 2

PRELIMINARY
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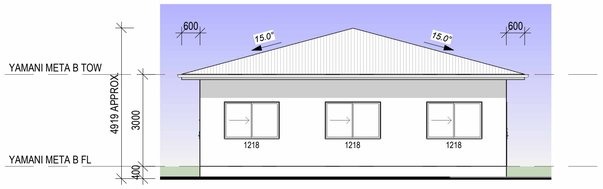
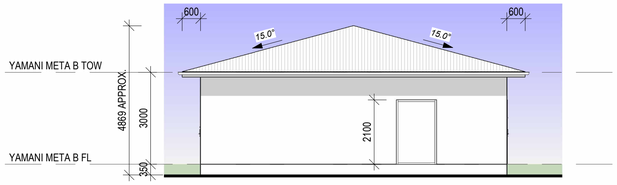


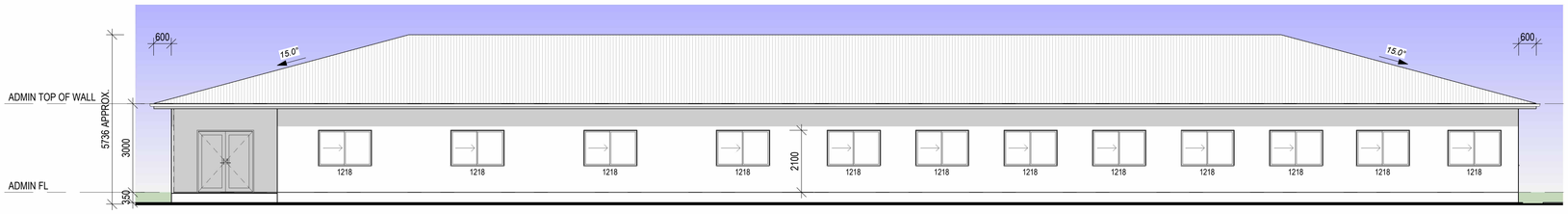
09 ELEVATION 09 - YAMANI META B
1 : 100

10 ELEVATION 10 - YAMANI META B
1 : 100

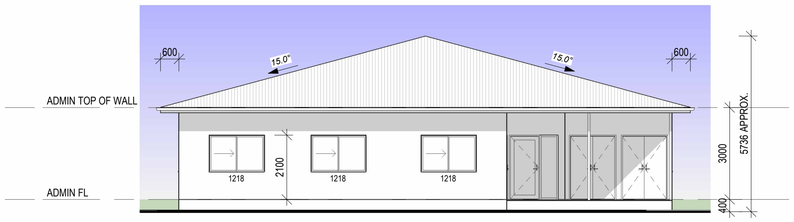


11 ELEVATION 11 - YAMANI META B
1 : 100

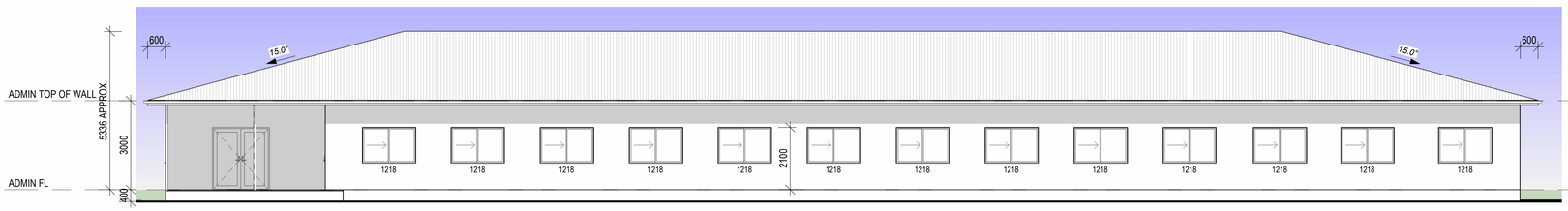
12 ELEVATION 12 - YAMANI META B
1 : 100



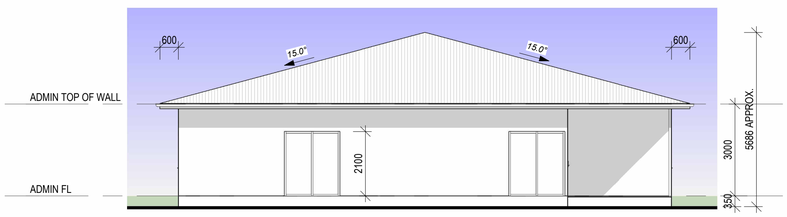
13 ELEVATION 13 - ADMIN. BUILDING
1 : 100



14 ELEVATION 14 - ADMIN. BUILDING
1 : 100



15 ELEVATION 15 - ADMIN. BUILDING
1 : 100



16 ELEVATION 16 - ADMIN. BUILDING
1 : 100

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Client: TAIHS (ABORIGINAL & ISLANDER HEALTH SERVICE)
Location: CORNER OF GORDEN & PEEL STREET, GARBUTT

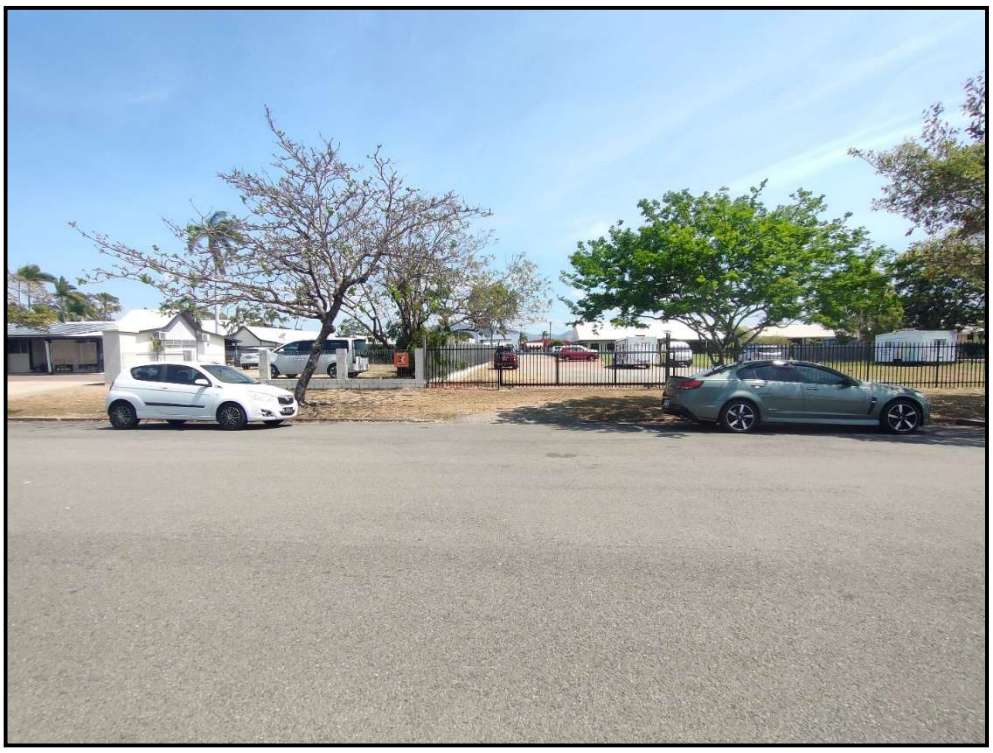
TITLE: ELEVATIONS
Date: 06.11.25 Drawn: D.A.
Scale: 1 : 100 Designed: N.H.

Job No.:	Drawing No.:		Rev.
2025-329-C	WD	301	2

APPENDIX B
Site photographs

Photograph 1 – Lonerganne Street looking west towards Meenan Street intersection

Photograph 2 – Lonerganne Street looking east



Photograph 3 – Lonerganne Street looking south towards subject site

Photograph 4 – Lonerganne Street looking west

Photograph 5 – Lonerganne Street looking east towards Peel Street intersection

Photograph 6 – Gorden Street looking east towards Peel Street intersection

Photograph 7 – Gorden Street looking west

Photograph 8 – Gorden Street looking north towards subject site

Photograph 9 – Gorden Street looking east

Photograph 10 – Gorden Street looking west towards Meenan Street intersection

APPENDIX C
Email – TCC traffic data

Arry Charrismanagara

From: Michael Kaye <Michael.Kaye@townsville.qld.gov.au>
Sent: Thursday, 19 October 2023 12:55 PM
To: Arry Charrismanagara; Paul Viero
Cc: Records.Out; Danny Johnstone
Subject: RE: ROSE004 - TCC Traffic Data
Attachments: Factsheets_TrafficModelData_InfoSheets_2023.pdf

Hello Arry

The TAIM models trunk roads, i.e., Arterial, Sub-Arterial & Major Collector Roads, lesser order roads (Minor Collector Streets, Access Streets and Access Places) , although occasionally included in the model network, do not have validated traffic volumes.

Minor streets have only been included in the model to simulate locations where traffic flow on the trunk network maybe interrupted by a minor street intersection. The modelling process may in some instances assign volumes to these minor street links to achieve calibration with signals data or traffic counts used in the model. In most instances traffic volumes taken from the model on local streets should not be considered reliable.

For further information about the model, I have included the attached Information Sheet.

Kind Regards,

Michael Kaye RPEQ, MIEAust, CPEng, NER, APEC Engineer, IntPE(Aus)
Coordinator – Strategic Infrastructure Planning
Strategic Infrastructure Planning
Asset Strategy & Compliance
Infrastructure and Operations

P (07) 4727 9355 **M** 0427 248 357 **E** michael.kaye@townsville.qld.gov.au

143 Walker Street, Townsville QLD 4810 | PO Box 1268, Townsville QLD 4810

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WINNER QLD TRAINING AWARDS NQ REGION LARGE EMPLOYER OF THE YEAR 2022 & 2023

Townsville City Council acknowledges the Wulgurukaba of Gurambilbarra and Yunbenun, Bindal, Gugu Badhun and Nywaigi as the Traditional Owners of this land. We pay our respects to their cultures, their ancestors and their Elders, past, present, and all future generations.

From: Arry Charrismanagara <acharrismanagara@lcjengineers.com.au>
Sent: Thursday, October 19, 2023 11:56 AM
To: Paul Viero <Paul.Viero@townsville.qld.gov.au>; Michael Kaye <Michael.Kaye@townsville.qld.gov.au>

Cc: Records.Out <records.out@lcjengineers.com.au>; Danny Johnstone <djohnstone@lcjengineers.com.au>
Subject: RE: ROSE004 - TCC Traffic Data

Hi Paul/Michael,

Can you please assist with the below request?

Kind regards,

Arry Charrismanagara
Civil Engineer
Email: acharrismanagara@lcjengineers.com.au
Mobile: 0493 558 938

LCJ Engineers Pty Ltd
Consulting Engineers
601 Flinders Street PO Box 1498
Townsville QLD 4810 Aitkenvale QLD 4814
Tel: (07) 4721 5800
townsville@lcjengineers.com.au
www.lcjengineers.com.au

From: Arry Charrismanagara
Sent: Monday, October 9, 2023 11:07 AM
To: Michael Kaye <Michael.Kaye@townsville.qld.gov.au>
Cc: Records.Out <records.out@lcjengineers.com.au>; Danny Johnstone <djohnstone@lcjengineers.com.au>
Subject: FW: ROSE004 - TCC Traffic Data

Hi Michael,

The below email was sent to Paul last week and we received an out of office reply.

Are you able to assist/provide guidance?

Kind regards,

Arry Charrismanagara
Civil Engineer
Email: acharrismanagara@lcjengineers.com.au
Mobile: 0493 558 938

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Consulting Engineers
601 Flinders Street PO Box 1498
Townsville QLD 4810 Aitkenvale QLD 4814
Tel: (07) 4721 5800
townsville@lcjengineers.com.au
www.lcjengineers.com.au

From: Arry Charrismanagara
Sent: Friday, October 6, 2023 1:26 PM
To: Paul Viero <Paul.Viero@townsville.qld.gov.au>
Cc: Records.Out <records.out@lcjengineers.com.au>; Danny Johnstone <djohnstone@lcjengineers.com.au>
Subject: ROSE004 - TCC Traffic Data

Hi Paul,

We note that we can now obtain traffic data using TownsvilleMAPS, particularly on higher trafficked roads/streets. However, for smaller local streets it appears that either there is no data available, or the traffic data seem incorrect (e.g. Lonerganne St adjacent to Garbutt State school is showing only 24vpd and 2vph AM peak traffic).

Can Council advise on what would be acceptable method for traffic estimation on local streets where it's a through road?

Kind regards,

Arry Charrismanagara
Civil Engineer
Email: acharrismanagara@lcjengineers.com.au
Mobile: 0493 558 938

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Consulting Engineers
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Townsville QLD 4810 Aitkenvale QLD 4814
Tel: (07) 4721 5800
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**** PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL****

Traffic Model Fact Sheet

The Townsville Aimsun Integrated Model (TAIM) is a city-wide mesoscopic model and is Council's primary planning tool for the analysis of proposed improvement options, upgrades, and interventions on the road network to support growth identified in the Local Government Infrastructure Plan (LGIP).

The TAIM is calibrated annually against traffic signal information provided by the Department of Transport and Main Roads and provides detailed traffic flow information across the entire city for the calibration year and future year projections in 2026, 2031, 2036 and 2041.

The TAIM is also used to assess the impacts of land development proposals on the operation of the Townsville road network.

Model information comprising traffic flow data can be provided by Council upon request, Council encourages the use of this data when submitting a development application for assessment as the modelled traffic flows represent the planned future network structure in accordance with the LGIP.

Model outputs can be accessed using the following links:

Calibration Model
https://www.arcgis.com/apps/mapviewer/index.html?layers=b43387bbf63c4257af6855a2dba0b2cf

Forecast Models
https://www.arcgis.com/apps/mapviewer/index.html?layers=2a21edf287094a549f44f0180ecc1b2c

The following limitations apply to the Traffic Model:

- The TAIM is an imperfect representation of traffic information on the road network in the calibration year. The traffic model has been developed using Aimsun traffic modelling software and provides an interpretation of the traffic conditions limited by the modelling processes.
- The model has been calibrated against traffic flow data recorded by vehicle detection equipment at 148 signalised intersections comprising 2175 detection counts, and approximately 150 traffic count sites located across the city.
- Model accuracy at any particular location is relative to how close the location is to a calibration point in the model. At a calibration point the model replicates the traffic flows at that location, e.g., at a signalised intersection the model flows and the data recorded by the signals will match in the calibration year. Between calibration points the model becomes less accurate and a process called Dynamic User Equilibrium (DUE) is used to estimate traffic flows based on travel time algorithms.
- Townsville City Council accepts no responsibility for damages, if any, suffered by any party because of decisions or actions made based on data extracted from the model.

APPENDIX D
Email – Garbutt State School student number

Arry Charrismanagara

From: GUINEY, Jackie (jguin9) <jguin9@eq.edu.au>
Sent: Thursday, 26 October 2023 2:53 PM
To: Arry Charrismanagara
Subject: Re: ROSE004 - Garbutt State School - Student Number Enquiry

110 students

With thanks,

Jackie Guiney
Principal
Garbutt State School

Ph: 47594888
0400635526
OC SA Holder #2352

From: Arry Charrismanagara <acharrismanagara@lcjengineers.com.au>
Sent: Thursday, 26 October 2023 2:36 PM
To: Principal, Garbutt SS <Principal@garbuttss.eq.edu.au>
Cc: Records.Out <records.out@lcjengineers.com.au>
Subject: ROSE004 - Garbutt State School - Student Number Enquiry

Good afternoon,

We are currently undertaking a Traffic Impact Assessment for a proposed development in Garbutt. As part of this we are required to estimate the vehicular trips generated by Garbutt State School based on the total student number.

Can you please advise (round up to the nearest 10) the number of students attending Garbutt SS? Thanks.

Kind regards,

Arry Charrismanagara
Civil Engineer
Email: acharrismanagara@lcjengineers.com.au
Mobile: 0493 558 938

LCJ Engineers Pty Ltd
Consulting Engineers
601 Flinders Street PO Box 1498
Townsville QLD 4810 Aitkenvale QLD 4814
Tel: (07) 4721 5800
townsville@lcjengineers.com.au
www.lcjengineers.com.au

APPENDIX E
Traffic Movement Diagrams

Blue text denotes AM peak hour
Red text denotes PM peak hour

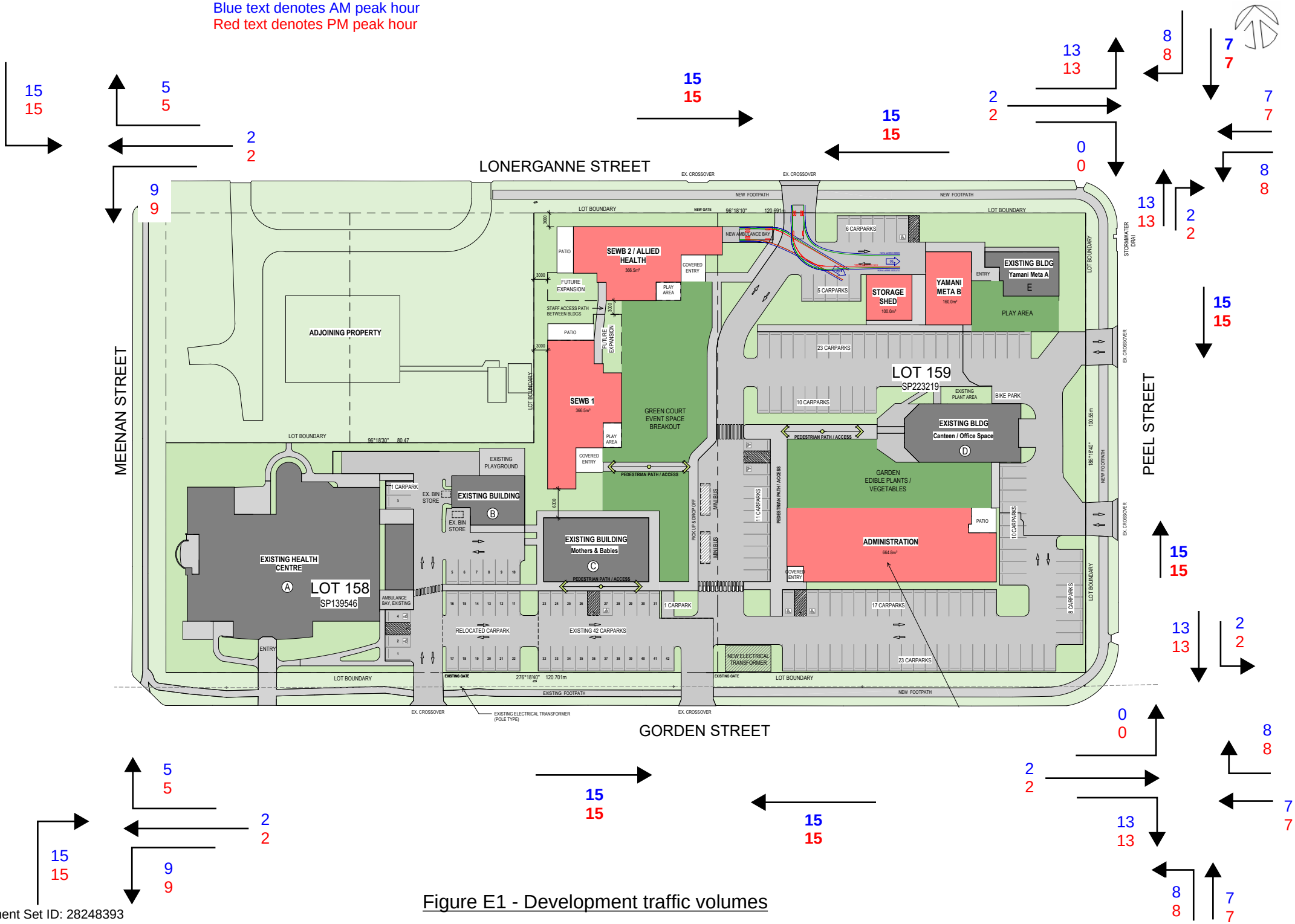


Figure E1 - Development traffic volumes

Blue text denotes AM peak hour
Red text denotes PM peak hour

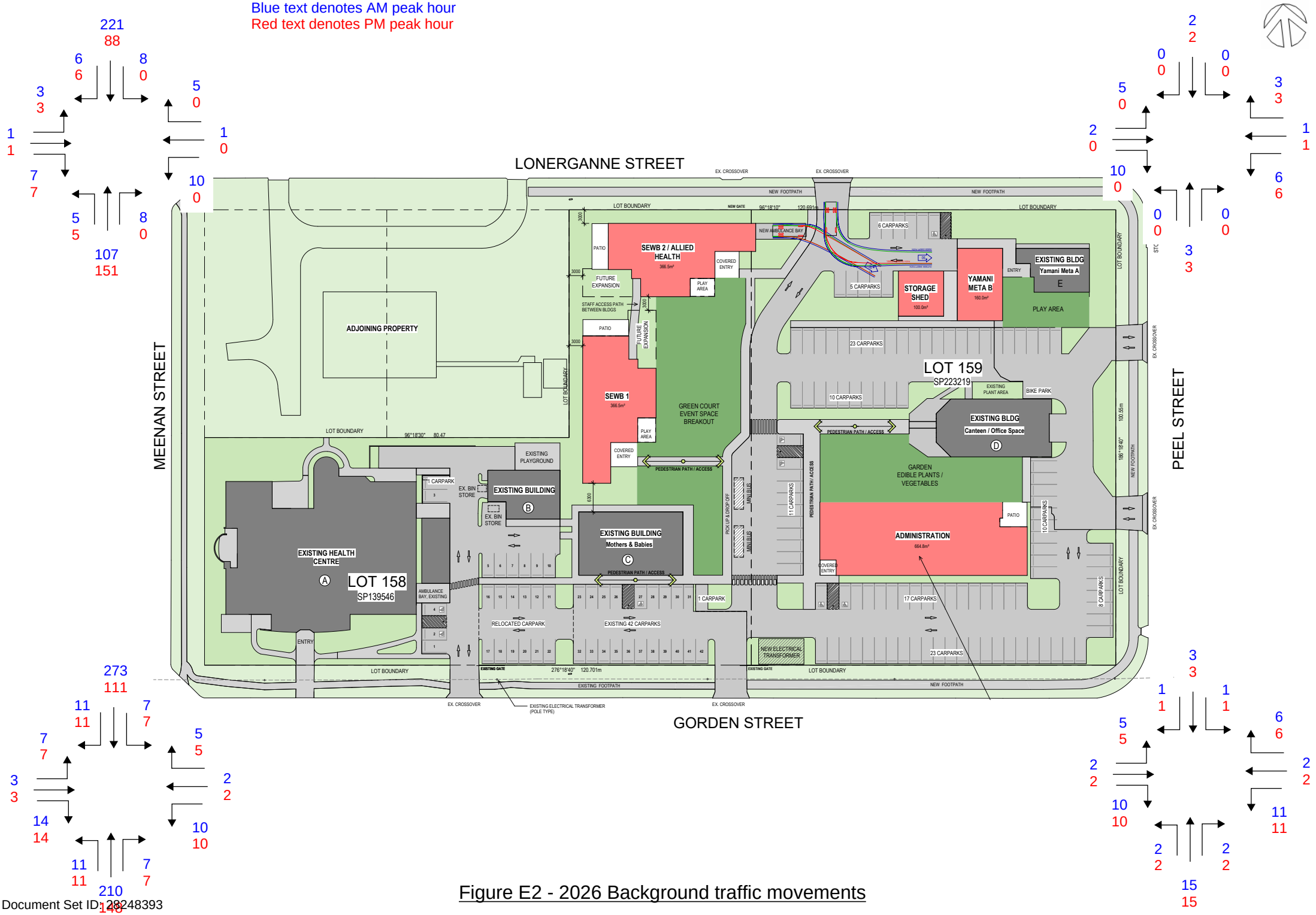


Figure E2 - 2026 Background traffic movements

Blue text denotes AM peak hour
Red text denotes PM peak hour

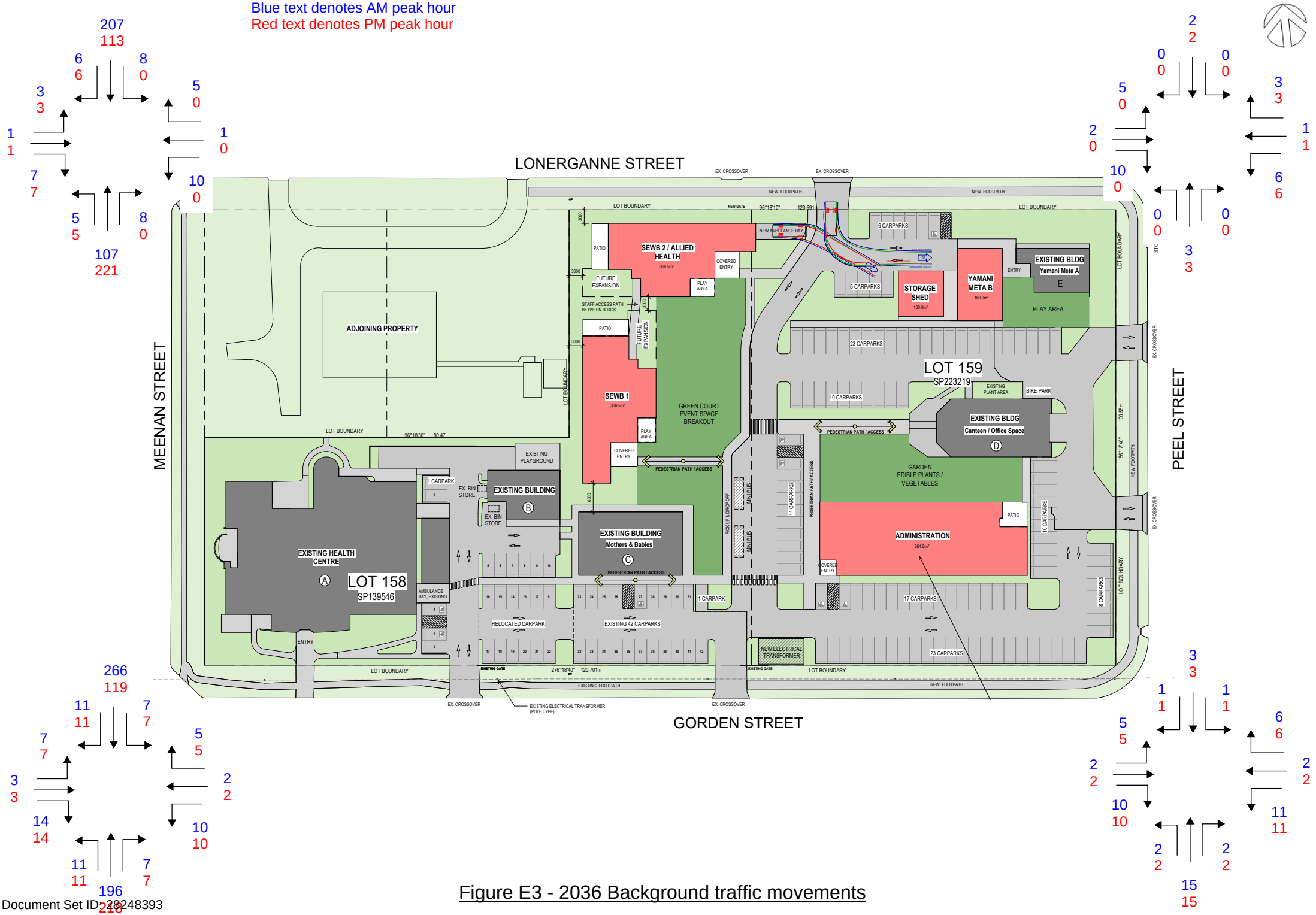


Figure E3 - 2036 Background traffic movements

Blue text denotes AM peak hour
Red text denotes PM peak hour

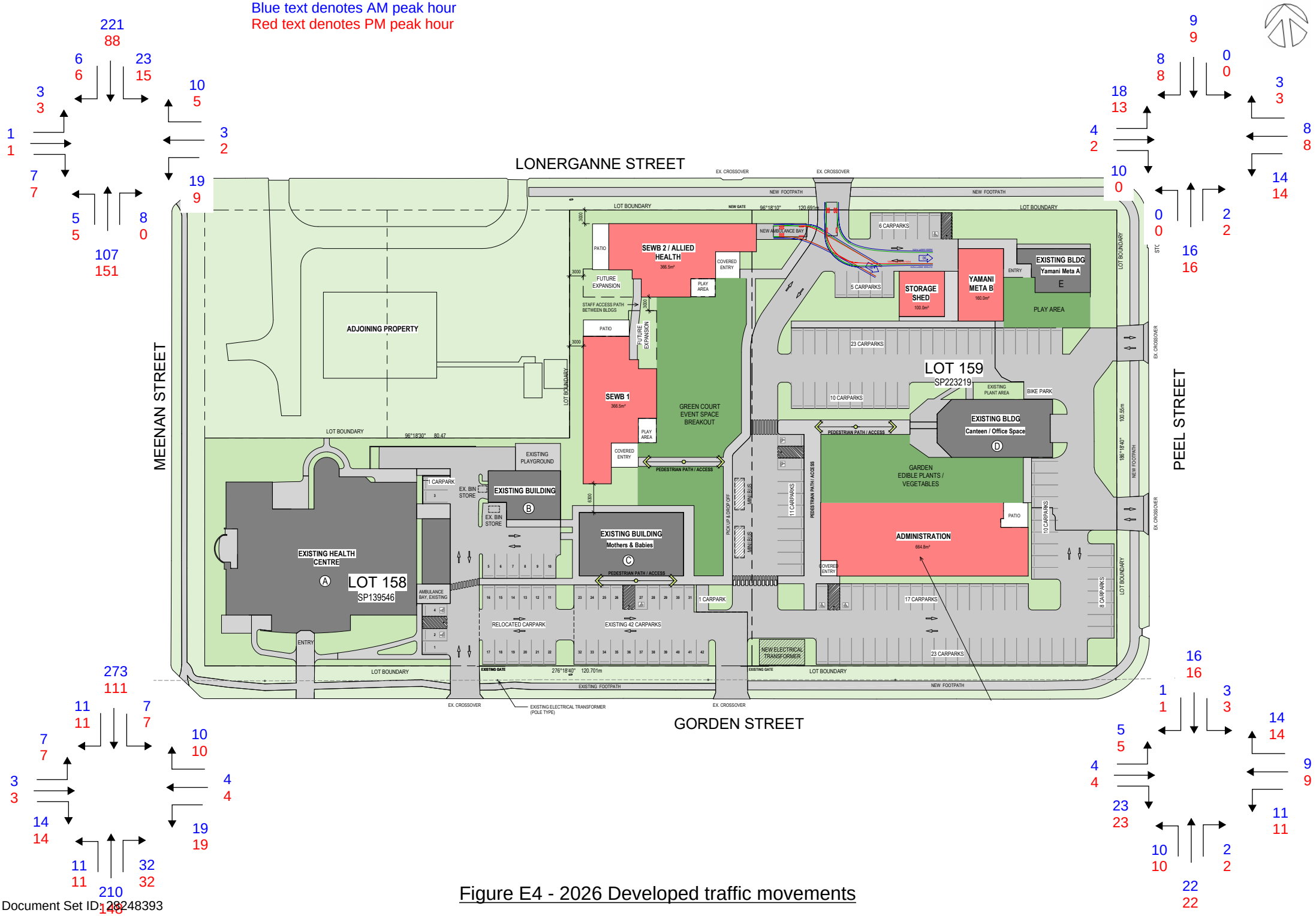


Figure E4 - 2026 Developed traffic movements

Blue text denotes AM peak hour
Red text denotes PM peak hour

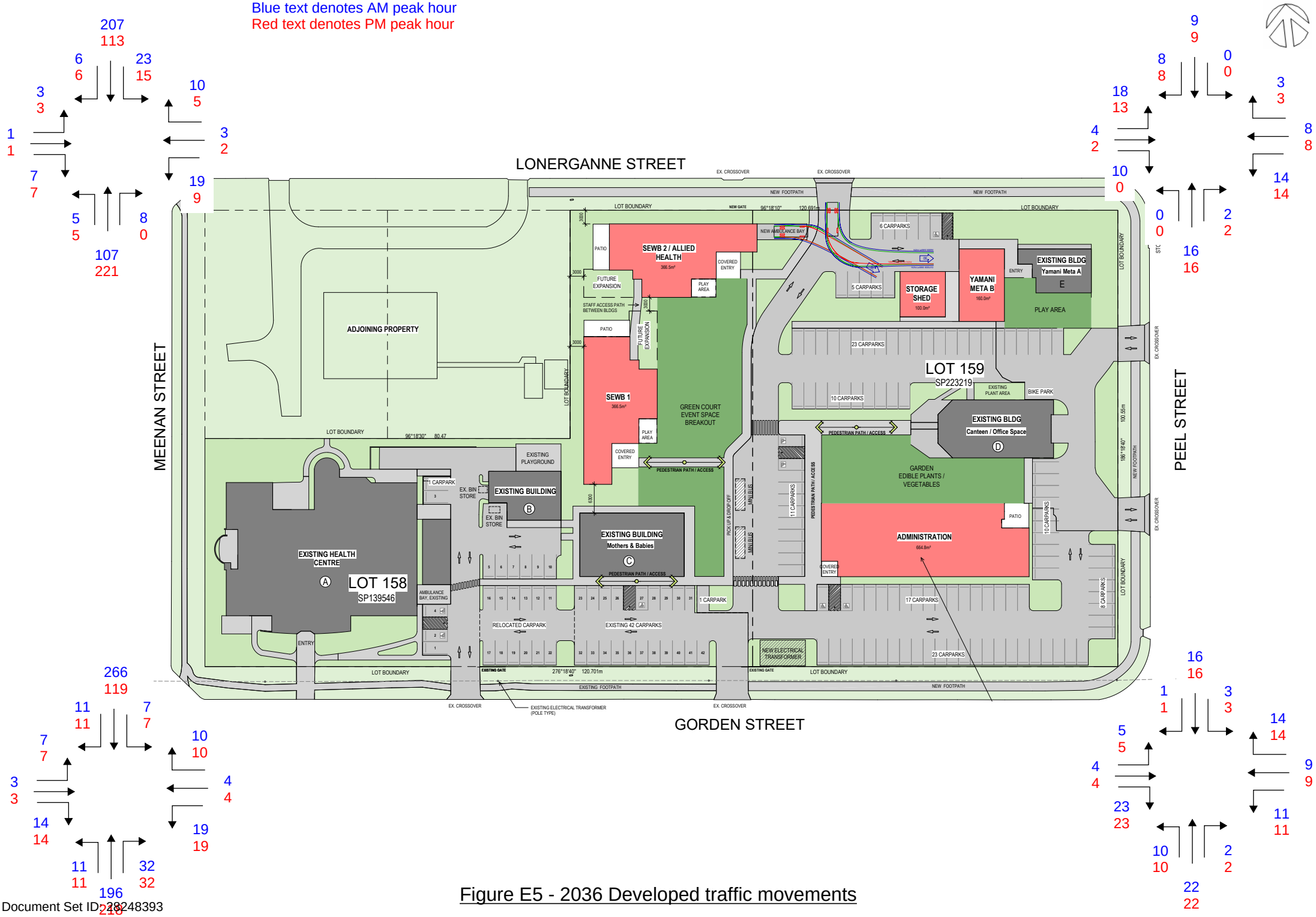


Figure E5 - 2036 Developed traffic movements

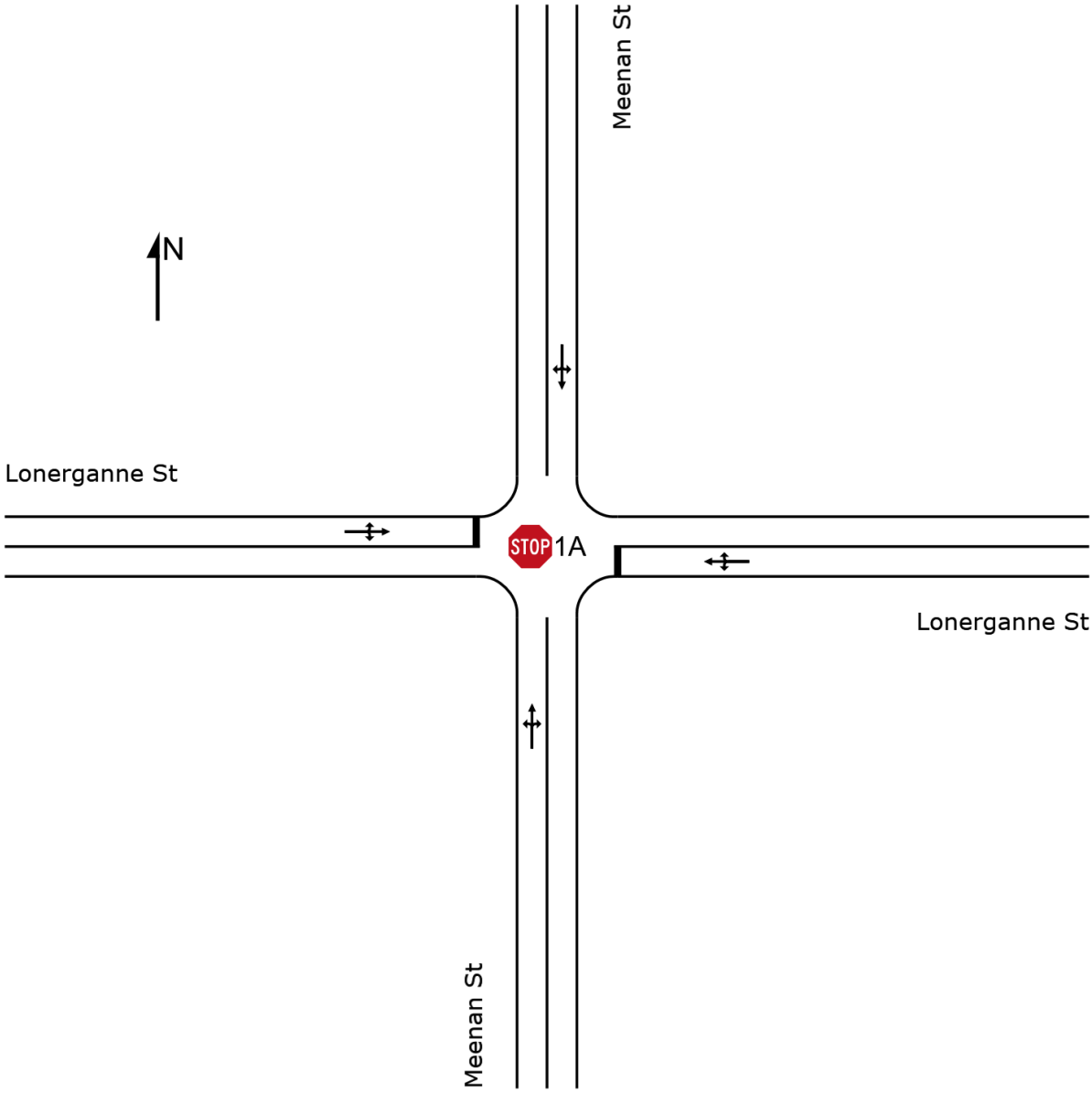
APPENDIX F
SIDRA output

SITE LAYOUT

Site: [1A] Meenan St/Lonerganne St intersection (2026 Background AM peak)

Meenan St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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



Organisation: LCJ ENGINEERS PTY LTD | Licence: PLUS / 1PC | Created: Tuesday, 4 November 2025 11:03:30 AM
Project: J:\ROSE\ROSE015 TAIHS Masterplan, 57-67 Gorden St, Garbutt\Analysis\Civil\Traffic\ROSE015-SIDRA Analysis.sipx

MOVEMENT SUMMARY

Site: [1A] Meenan St/Lonerganne St intersection (2026 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	5	6.0	5	6.0	0.066	6.1	LOS A	0.1	0.5	0.07	0.10	0.07	48.9
2	T1	All MCs	107	6.0	107	6.0	0.066	0.1	LOS A	0.1	0.5	0.07	0.10	0.07	56.1
3	R2	All MCs	8	6.0	8	6.0	0.066	6.3	LOS A	0.1	0.5	0.07	0.10	0.07	48.0
Approach			120	6.0	120	6.0	0.066	0.8	NA	0.1	0.5	0.07	0.10	0.07	54.8
East: Lonerganne St															
4	L2	All MCs	10	3.0	10	3.0	0.018	8.5	LOS A	0.1	0.4	0.36	0.86	0.36	34.7
5	T1	All MCs	1	3.0	1	3.0	0.018	9.2	LOS A	0.1	0.4	0.36	0.86	0.36	37.5
6	R2	All MCs	5	3.0	5	3.0	0.018	9.4	LOS A	0.1	0.4	0.36	0.86	0.36	34.3
Approach			16	3.0	16	3.0	0.018	8.8	LOS A	0.1	0.4	0.36	0.86	0.36	34.8
North: Meenan St															
7	L2	All MCs	8	6.0	8	6.0	0.126	5.6	LOS A	0.1	0.4	0.02	0.04	0.02	49.9
8	T1	All MCs	221	6.0	221	6.0	0.126	0.0	LOS A	0.1	0.4	0.02	0.04	0.02	58.1
9	R2	All MCs	6	6.0	6	6.0	0.126	5.6	LOS A	0.1	0.4	0.02	0.04	0.02	49.0
Approach			235	6.0	235	6.0	0.126	0.3	NA	0.1	0.4	0.02	0.04	0.02	57.3
West: Lonerganne St															
10	L2	All MCs	3	3.0	3	3.0	0.014	7.9	LOS A	0.0	0.3	0.35	0.86	0.35	34.3
11	T1	All MCs	1	3.0	1	3.0	0.014	9.2	LOS A	0.0	0.3	0.35	0.86	0.35	37.2
12	R2	All MCs	7	3.0	7	3.0	0.014	9.4	LOS A	0.0	0.3	0.35	0.86	0.35	34.0
Approach			11	3.0	11	3.0	0.014	9.0	LOS A	0.0	0.3	0.35	0.86	0.35	34.4
All Vehicles			382	5.8	382	5.8	0.126	1.1	NA	0.1	0.5	0.06	0.11	0.06	53.0

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

MOVEMENT SUMMARY

Site: [1B] Meenan St/Lonerganne St intersection (2026 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	5	6.0	5	6.0	0.066	6.2	LOS A	0.1	0.5	0.07	0.10	0.07	48.8
2	T1	All MCs	107	6.0	107	6.0	0.066	0.1	LOS A	0.1	0.5	0.07	0.10	0.07	56.0
3	R2	All MCs	8	6.0	8	6.0	0.066	6.4	LOS A	0.1	0.5	0.07	0.10	0.07	48.0
Approach			120	6.0	120	6.0	0.066	0.8	NA	0.1	0.5	0.07	0.10	0.07	54.7
East: Lonerganne St															
4	L2	All MCs	19	3.0	19	3.0	0.036	8.5	LOS A	0.1	0.9	0.37	0.88	0.37	34.6
5	T1	All MCs	3	3.0	3	3.0	0.036	9.4	LOS A	0.1	0.9	0.37	0.88	0.37	37.4
6	R2	All MCs	10	3.0	10	3.0	0.036	9.6	LOS A	0.1	0.9	0.37	0.88	0.37	34.2
Approach			32	3.0	32	3.0	0.036	8.9	LOS A	0.1	0.9	0.37	0.88	0.37	34.8
North: Meenan St															
7	L2	All MCs	23	6.0	23	6.0	0.135	5.6	LOS A	0.1	0.4	0.02	0.07	0.02	49.2
8	T1	All MCs	221	6.0	221	6.0	0.135	0.0	LOS A	0.1	0.4	0.02	0.07	0.02	56.8
9	R2	All MCs	6	6.0	6	6.0	0.135	5.6	LOS A	0.1	0.4	0.02	0.07	0.02	48.4
Approach			250	6.0	250	6.0	0.135	0.7	NA	0.1	0.4	0.02	0.07	0.02	55.3
West: Lonerganne St															
10	L2	All MCs	3	3.0	3	3.0	0.014	7.9	LOS A	0.0	0.3	0.35	0.86	0.35	34.3
11	T1	All MCs	1	3.0	1	3.0	0.014	9.4	LOS A	0.0	0.3	0.35	0.86	0.35	37.2
12	R2	All MCs	7	3.0	7	3.0	0.014	9.5	LOS A	0.0	0.3	0.35	0.86	0.35	33.9
Approach			11	3.0	11	3.0	0.014	9.1	LOS A	0.0	0.3	0.35	0.86	0.35	34.4
All Vehicles			413	5.7	413	5.7	0.135	1.5	NA	0.1	0.9	0.07	0.16	0.07	50.8

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

MOVEMENT SUMMARY

Site: [1C] Meenan St/Lonerganne St intersection (2036 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	5	6.0	5	6.0	0.066	6.1	LOS A	0.1	0.5	0.06	0.09	0.06	48.9
2	T1	All MCs	107	6.0	107	6.0	0.066	0.1	LOS A	0.1	0.5	0.06	0.09	0.06	56.1
3	R2	All MCs	8	6.0	8	6.0	0.066	6.2	LOS A	0.1	0.5	0.06	0.09	0.06	48.1
Approach			120	6.0	120	6.0	0.066	0.7	NA	0.1	0.5	0.06	0.09	0.06	54.8
East: Lonerganne St															
4	L2	All MCs	10	3.0	10	3.0	0.017	8.4	LOS A	0.1	0.4	0.35	0.86	0.35	34.8
5	T1	All MCs	1	3.0	1	3.0	0.017	9.1	LOS A	0.1	0.4	0.35	0.86	0.35	37.6
6	R2	All MCs	5	3.0	5	3.0	0.017	9.3	LOS A	0.1	0.4	0.35	0.86	0.35	34.4
Approach			16	3.0	16	3.0	0.017	8.7	LOS A	0.1	0.4	0.35	0.86	0.35	34.9
North: Meenan St															
7	L2	All MCs	8	6.0	8	6.0	0.119	5.6	LOS A	0.1	0.4	0.02	0.04	0.02	49.8
8	T1	All MCs	207	6.0	207	6.0	0.119	0.0	LOS A	0.1	0.4	0.02	0.04	0.02	58.0
9	R2	All MCs	6	6.0	6	6.0	0.119	5.6	LOS A	0.1	0.4	0.02	0.04	0.02	49.0
Approach			221	6.0	221	6.0	0.119	0.4	NA	0.1	0.4	0.02	0.04	0.02	57.1
West: Lonerganne St															
10	L2	All MCs	3	3.0	3	3.0	0.014	7.9	LOS A	0.0	0.3	0.34	0.86	0.34	34.4
11	T1	All MCs	1	3.0	1	3.0	0.014	9.1	LOS A	0.0	0.3	0.34	0.86	0.34	37.3
12	R2	All MCs	7	3.0	7	3.0	0.014	9.3	LOS A	0.0	0.3	0.34	0.86	0.34	34.1
Approach			11	3.0	11	3.0	0.014	8.9	LOS A	0.0	0.3	0.34	0.86	0.34	34.5
All Vehicles			368	5.8	368	5.8	0.119	1.1	NA	0.1	0.5	0.06	0.12	0.06	52.8

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

MOVEMENT SUMMARY

Site: [1D] Meenan St/Lonerganne St intersection (2036 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	5	6.0	5	6.0	0.066	6.1	LOS A	0.1	0.5	0.07	0.10	0.07	48.9
2	T1	All MCs	107	6.0	107	6.0	0.066	0.1	LOS A	0.1	0.5	0.07	0.10	0.07	56.1
3	R2	All MCs	8	6.0	8	6.0	0.066	6.3	LOS A	0.1	0.5	0.07	0.10	0.07	48.0
Approach			120	6.0	120	6.0	0.066	0.8	NA	0.1	0.5	0.07	0.10	0.07	54.7
East: Lonerganne St															
4	L2	All MCs	19	3.0	19	3.0	0.035	8.4	LOS A	0.1	0.9	0.36	0.88	0.36	34.7
5	T1	All MCs	3	3.0	3	3.0	0.035	9.3	LOS A	0.1	0.9	0.36	0.88	0.36	37.5
6	R2	All MCs	10	3.0	10	3.0	0.035	9.4	LOS A	0.1	0.9	0.36	0.88	0.36	34.3
Approach			32	3.0	32	3.0	0.035	8.8	LOS A	0.1	0.9	0.36	0.88	0.36	34.9
North: Meenan St															
7	L2	All MCs	23	6.0	23	6.0	0.127	5.6	LOS A	0.1	0.4	0.02	0.08	0.02	49.1
8	T1	All MCs	207	6.0	207	6.0	0.127	0.0	LOS A	0.1	0.4	0.02	0.08	0.02	56.6
9	R2	All MCs	6	6.0	6	6.0	0.127	5.6	LOS A	0.1	0.4	0.02	0.08	0.02	48.3
Approach			236	6.0	236	6.0	0.127	0.7	NA	0.1	0.4	0.02	0.08	0.02	55.1
West: Lonerganne St															
10	L2	All MCs	3	3.0	3	3.0	0.014	7.9	LOS A	0.0	0.3	0.35	0.86	0.35	34.4
11	T1	All MCs	1	3.0	1	3.0	0.014	9.3	LOS A	0.0	0.3	0.35	0.86	0.35	37.2
12	R2	All MCs	7	3.0	7	3.0	0.014	9.4	LOS A	0.0	0.3	0.35	0.86	0.35	34.0
Approach			11	3.0	11	3.0	0.014	9.0	LOS A	0.0	0.3	0.35	0.86	0.35	34.4
All Vehicles			399	5.7	399	5.7	0.127	1.6	NA	0.1	0.9	0.07	0.17	0.07	50.6

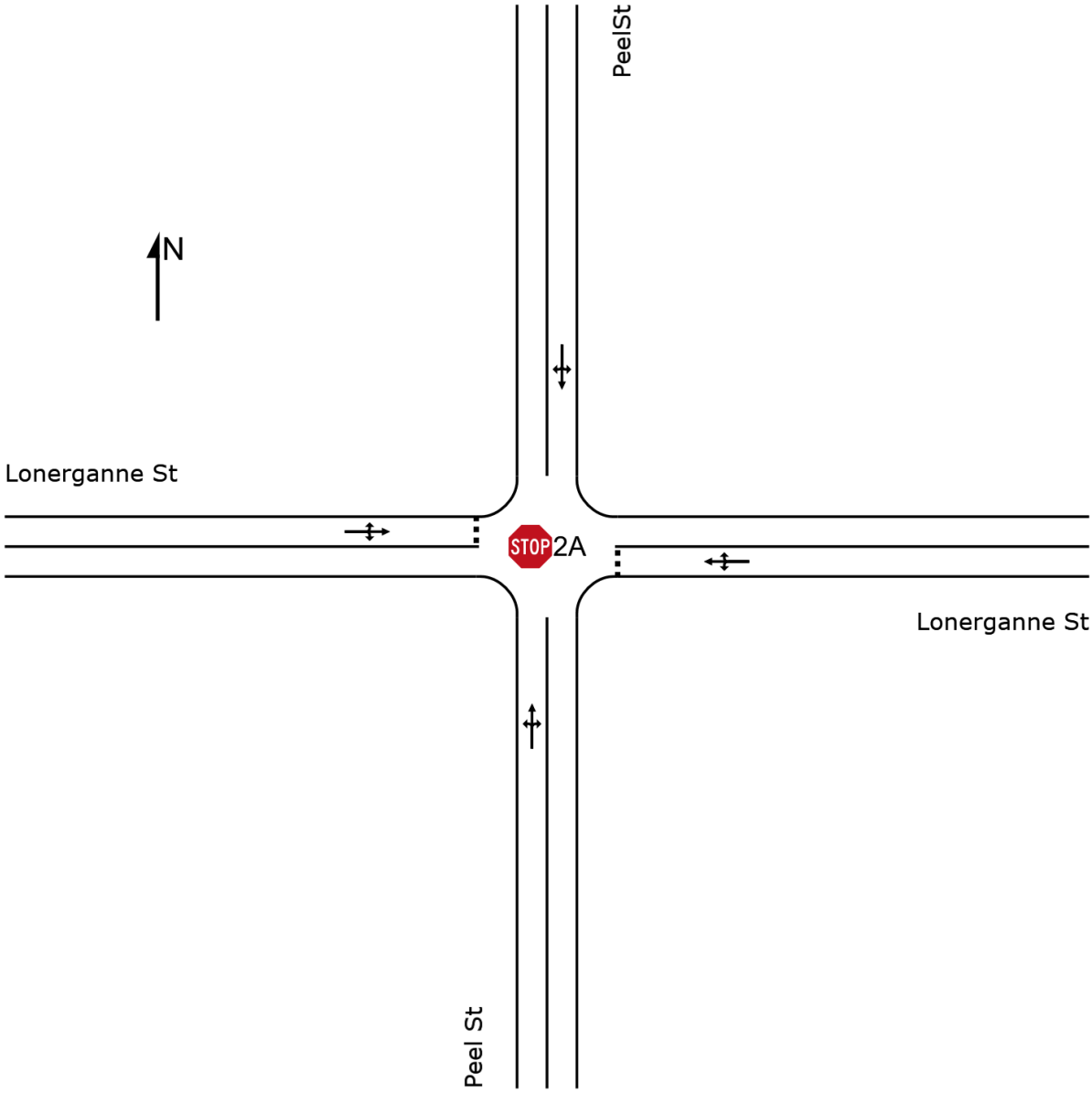
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: [2A] Peel St/Lonerganne St intersection (2026 Background AM peak)

Peel St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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



Organisation: LCJ ENGINEERS PTY LTD | Licence: PLUS / 1PC | Created: Tuesday, 4 November 2025 11:03:31 AM
Project: J:\ROSE\ROSE015 TAIHS Masterplan, 57-67 Gorden St, Garbutt\Analysis\Civil\Traffic\ROSE015-SIDRA Analysis.sipx

MOVEMENT SUMMARY

Site: [2A] Peel St/Lonerganne St intersection (2026 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	1	3.0	1	3.0	0.003	4.6	LOS A	0.0	0.0	0.01	0.22	0.01	42.7
2	T1	All MCs	3	3.0	3	3.0	0.003	0.0	LOS A	0.0	0.0	0.01	0.22	0.01	44.5
3	R2	All MCs	1	3.0	1	3.0	0.003	4.6	LOS A	0.0	0.0	0.01	0.22	0.01	42.2
Approach			5	3.0	5	3.0	0.003	1.8	NA	0.0	0.0	0.01	0.22	0.01	43.5
East: Lonerganne St															
4	L2	All MCs	6	3.0	6	3.0	0.007	4.6	LOS A	0.0	0.2	0.02	0.52	0.02	38.8
5	T1	All MCs	1	3.0	1	3.0	0.007	3.2	LOS A	0.0	0.2	0.02	0.52	0.02	41.7
6	R2	All MCs	3	3.0	3	3.0	0.007	4.6	LOS A	0.0	0.2	0.02	0.52	0.02	38.3
Approach			10	3.0	10	3.0	0.007	4.5	LOS A	0.0	0.2	0.02	0.52	0.02	39.0
North: PeelSt															
7	L2	All MCs	1	3.0	1	3.0	0.002	4.6	LOS A	0.0	0.0	0.02	0.27	0.02	42.0
8	T1	All MCs	2	3.0	2	3.0	0.002	0.0	LOS A	0.0	0.0	0.02	0.27	0.02	43.3
9	R2	All MCs	1	3.0	1	3.0	0.002	4.6	LOS A	0.0	0.0	0.02	0.27	0.02	41.4
Approach			4	3.0	4	3.0	0.002	2.3	NA	0.0	0.0	0.02	0.27	0.02	42.3
West: Lonerganne St															
10	L2	All MCs	5	3.0	5	3.0	0.014	4.6	LOS A	0.0	0.3	0.04	0.52	0.04	38.7
11	T1	All MCs	2	3.0	2	3.0	0.014	3.2	LOS A	0.0	0.3	0.04	0.52	0.04	41.7
12	R2	All MCs	10	3.0	10	3.0	0.014	4.6	LOS A	0.0	0.3	0.04	0.52	0.04	38.3
Approach			17	3.0	17	3.0	0.014	4.4	LOS A	0.0	0.3	0.04	0.52	0.04	38.9
All Vehicles			36	3.0	36	3.0	0.014	3.8	NA	0.0	0.3	0.03	0.45	0.03	39.7

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

MOVEMENT SUMMARY

Site: [2B] Peel St/Lonerganne St intersection (2026 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	1	3.0	1	3.0	0.010	4.6	LOS A	0.0	0.1	0.01	0.09	0.01	44.6
2	T1	All MCs	16	3.0	16	3.0	0.010	0.0	LOS A	0.0	0.1	0.01	0.09	0.01	47.6
3	R2	All MCs	2	3.0	2	3.0	0.010	4.6	LOS A	0.0	0.1	0.01	0.09	0.01	44.0
Approach			19	3.0	19	3.0	0.010	0.7	NA	0.0	0.1	0.01	0.09	0.01	46.8
East: Lonerganne St															
4	L2	All MCs	14	3.0	14	3.0	0.018	4.6	LOS A	0.1	0.5	0.06	0.49	0.06	39.0
5	T1	All MCs	8	3.0	8	3.0	0.018	3.3	LOS A	0.1	0.5	0.06	0.49	0.06	41.9
6	R2	All MCs	3	3.0	3	3.0	0.018	4.7	LOS A	0.1	0.5	0.06	0.49	0.06	38.6
Approach			25	3.0	25	3.0	0.018	4.2	LOS A	0.1	0.5	0.06	0.49	0.06	40.0
North: PeelSt															
7	L2	All MCs	1	3.0	1	3.0	0.010	4.6	LOS A	0.0	0.3	0.06	0.27	0.06	41.7
8	T1	All MCs	9	3.0	9	3.0	0.010	0.0	LOS A	0.0	0.3	0.06	0.27	0.06	42.9
9	R2	All MCs	8	3.0	8	3.0	0.010	4.6	LOS A	0.0	0.3	0.06	0.27	0.06	41.2
Approach			18	3.0	18	3.0	0.010	2.3	NA	0.0	0.3	0.06	0.27	0.06	41.9
West: Lonerganne St															
10	L2	All MCs	18	3.0	18	3.0	0.024	4.6	LOS A	0.1	0.6	0.08	0.51	0.08	38.5
11	T1	All MCs	4	3.0	4	3.0	0.024	3.3	LOS A	0.1	0.6	0.08	0.51	0.08	41.5
12	R2	All MCs	10	3.0	10	3.0	0.024	4.8	LOS A	0.1	0.6	0.08	0.51	0.08	38.1
Approach			32	3.0	32	3.0	0.024	4.5	LOS A	0.1	0.6	0.08	0.51	0.08	38.8
All Vehicles			94	3.0	94	3.0	0.024	3.3	NA	0.1	0.6	0.06	0.37	0.06	40.8

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

MOVEMENT SUMMARY

Site: [2C] Peel St/Lonerganne St intersection (2036 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	1	3.0	1	3.0	0.003	4.6	LOS A	0.0	0.0	0.01	0.22	0.01	42.7
2	T1	All MCs	3	3.0	3	3.0	0.003	0.0	LOS A	0.0	0.0	0.01	0.22	0.01	44.5
3	R2	All MCs	1	3.0	1	3.0	0.003	4.6	LOS A	0.0	0.0	0.01	0.22	0.01	42.2
Approach			5	3.0	5	3.0	0.003	1.8	NA	0.0	0.0	0.01	0.22	0.01	43.5
East: Lonerganne St															
4	L2	All MCs	6	3.0	6	3.0	0.007	4.6	LOS A	0.0	0.2	0.02	0.52	0.02	38.8
5	T1	All MCs	1	3.0	1	3.0	0.007	3.2	LOS A	0.0	0.2	0.02	0.52	0.02	41.7
6	R2	All MCs	3	3.0	3	3.0	0.007	4.6	LOS A	0.0	0.2	0.02	0.52	0.02	38.3
Approach			10	3.0	10	3.0	0.007	4.5	LOS A	0.0	0.2	0.02	0.52	0.02	39.0
North: PeelSt															
7	L2	All MCs	1	3.0	1	3.0	0.002	4.6	LOS A	0.0	0.0	0.02	0.27	0.02	42.0
8	T1	All MCs	2	3.0	2	3.0	0.002	0.0	LOS A	0.0	0.0	0.02	0.27	0.02	43.3
9	R2	All MCs	1	3.0	1	3.0	0.002	4.6	LOS A	0.0	0.0	0.02	0.27	0.02	41.4
Approach			4	3.0	4	3.0	0.002	2.3	NA	0.0	0.0	0.02	0.27	0.02	42.3
West: Lonerganne St															
10	L2	All MCs	5	3.0	5	3.0	0.014	4.6	LOS A	0.0	0.3	0.04	0.52	0.04	38.7
11	T1	All MCs	2	3.0	2	3.0	0.014	3.2	LOS A	0.0	0.3	0.04	0.52	0.04	41.7
12	R2	All MCs	10	3.0	10	3.0	0.014	4.6	LOS A	0.0	0.3	0.04	0.52	0.04	38.3
Approach			17	3.0	17	3.0	0.014	4.4	LOS A	0.0	0.3	0.04	0.52	0.04	38.9
All Vehicles			36	3.0	36	3.0	0.014	3.8	NA	0.0	0.3	0.03	0.45	0.03	39.7

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

MOVEMENT SUMMARY

Site: [2D] Peel St/Lonerganne St intersection (2036 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Lonerganne St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	1	3.0	1	3.0	0.010	4.6	LOS A	0.0	0.1	0.01	0.09	0.01	44.6
2	T1	All MCs	16	3.0	16	3.0	0.010	0.0	LOS A	0.0	0.1	0.01	0.09	0.01	47.6
3	R2	All MCs	2	3.0	2	3.0	0.010	4.6	LOS A	0.0	0.1	0.01	0.09	0.01	44.0
Approach			19	3.0	19	3.0	0.010	0.7	NA	0.0	0.1	0.01	0.09	0.01	46.8
East: Lonerganne St															
4	L2	All MCs	14	3.0	14	3.0	0.018	4.6	LOS A	0.1	0.5	0.06	0.49	0.06	39.0
5	T1	All MCs	8	3.0	8	3.0	0.018	3.3	LOS A	0.1	0.5	0.06	0.49	0.06	41.9
6	R2	All MCs	3	3.0	3	3.0	0.018	4.7	LOS A	0.1	0.5	0.06	0.49	0.06	38.6
Approach			25	3.0	25	3.0	0.018	4.2	LOS A	0.1	0.5	0.06	0.49	0.06	40.0
North: PeelSt															
7	L2	All MCs	1	3.0	1	3.0	0.010	4.6	LOS A	0.0	0.3	0.06	0.27	0.06	41.7
8	T1	All MCs	9	3.0	9	3.0	0.010	0.0	LOS A	0.0	0.3	0.06	0.27	0.06	42.9
9	R2	All MCs	8	3.0	8	3.0	0.010	4.6	LOS A	0.0	0.3	0.06	0.27	0.06	41.2
Approach			18	3.0	18	3.0	0.010	2.3	NA	0.0	0.3	0.06	0.27	0.06	41.9
West: Lonerganne St															
10	L2	All MCs	18	3.0	18	3.0	0.024	4.6	LOS A	0.1	0.6	0.08	0.51	0.08	38.5
11	T1	All MCs	4	3.0	4	3.0	0.024	3.3	LOS A	0.1	0.6	0.08	0.51	0.08	41.5
12	R2	All MCs	10	3.0	10	3.0	0.024	4.8	LOS A	0.1	0.6	0.08	0.51	0.08	38.1
Approach			32	3.0	32	3.0	0.024	4.5	LOS A	0.1	0.6	0.08	0.51	0.08	38.8
All Vehicles			94	3.0	94	3.0	0.024	3.3	NA	0.1	0.6	0.06	0.37	0.06	40.8

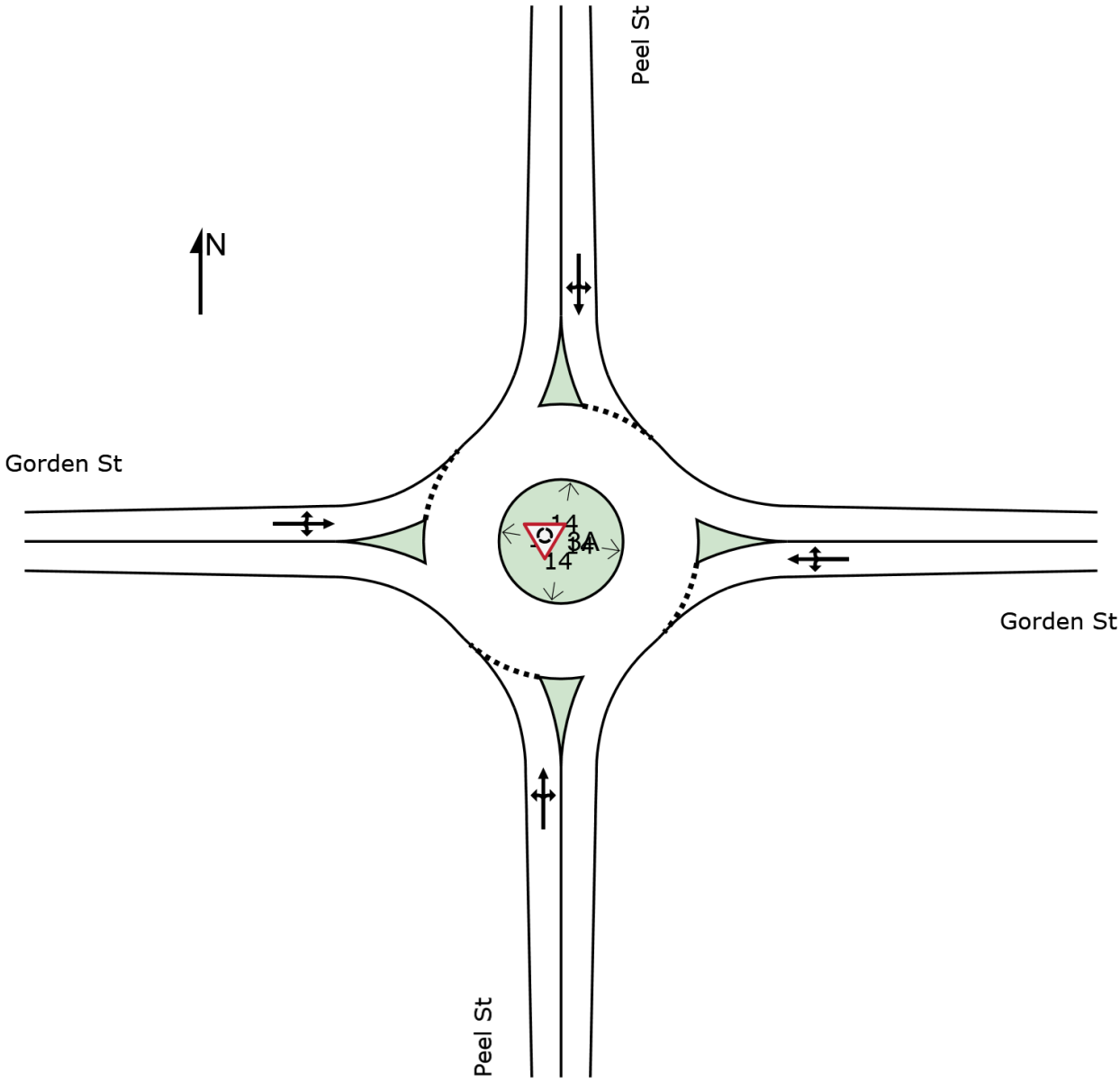
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: [3A] Peel St/Gorden St intersection (2026 Background AM peak)

Peel St/Gorden St intersection
Site Category: Existing Design
Roundabout
Site Scenario: 1 | Local Volumes

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



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Project: J:\ROSE\ROSE015 TAIHS Masterplan, 57-67 Gorden St, Garbutt\Analysis\Civil\Traffic\ROSE015-SIDRA Analysis.sipx

MOVEMENT SUMMARY

Site: [3A] Peel St/Gorden St intersection (2026 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Gorden St intersection
Site Category: Existing Design
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	2	3.0	2	3.0	0.014	3.3	LOS A	0.1	0.5	0.06	0.40	0.06	40.8
2	T1	All MCs	15	3.0	15	3.0	0.014	3.3	LOS A	0.1	0.5	0.06	0.40	0.06	38.3
3	R2	All MCs	2	3.0	2	3.0	0.014	7.1	LOS A	0.1	0.5	0.06	0.40	0.06	40.0
Approach			19	3.0	19	3.0	0.014	3.7	LOS A	0.1	0.5	0.06	0.40	0.06	38.9
East: Gorden St															
4	L2	All MCs	11	3.0	11	3.0	0.014	3.3	LOS A	0.1	0.5	0.08	0.49	0.08	39.5
5	T1	All MCs	2	3.0	2	3.0	0.014	3.3	LOS A	0.1	0.5	0.08	0.49	0.08	42.1
6	R2	All MCs	6	3.0	6	3.0	0.014	7.2	LOS A	0.1	0.5	0.08	0.49	0.08	35.4
Approach			19	3.0	19	3.0	0.014	4.5	LOS A	0.1	0.5	0.08	0.49	0.08	38.4
North: Peel St															
7	L2	All MCs	1	3.0	1	3.0	0.004	3.3	LOS A	0.0	0.1	0.08	0.43	0.08	40.2
8	T1	All MCs	3	3.0	3	3.0	0.004	3.3	LOS A	0.0	0.1	0.08	0.43	0.08	37.6
9	R2	All MCs	1	3.0	1	3.0	0.004	7.2	LOS A	0.0	0.1	0.08	0.43	0.08	39.5
Approach			5	3.0	5	3.0	0.004	4.1	LOS A	0.0	0.1	0.08	0.43	0.08	38.6
West: Gorden St															
10	L2	All MCs	5	3.0	5	3.0	0.013	3.4	LOS A	0.1	0.4	0.10	0.53	0.10	38.2
11	T1	All MCs	2	3.0	2	3.0	0.013	3.4	LOS A	0.1	0.4	0.10	0.53	0.10	41.0
12	R2	All MCs	10	3.0	10	3.0	0.013	7.2	LOS A	0.1	0.4	0.10	0.53	0.10	38.0
Approach			17	3.0	17	3.0	0.013	5.6	LOS A	0.1	0.4	0.10	0.53	0.10	38.5
All Vehicles			60	3.0	60	3.0	0.014	4.5	LOS A	0.1	0.5	0.08	0.47	0.08	38.6

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: [3B] Peel St/Gorden St intersection (2026 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Gorden St intersection
Site Category: Existing Design
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	10	3.0	10	3.0	0.026	3.4	LOS A	0.1	0.9	0.11	0.40	0.11	40.6
2	T1	All MCs	22	3.0	22	3.0	0.026	3.4	LOS A	0.1	0.9	0.11	0.40	0.11	38.1
3	R2	All MCs	2	3.0	2	3.0	0.026	7.2	LOS A	0.1	0.9	0.11	0.40	0.11	39.9
Approach			34	3.0	34	3.0	0.026	3.6	LOS A	0.1	0.9	0.11	0.40	0.11	39.1
East: Gorden St															
4	L2	All MCs	11	3.0	11	3.0	0.026	3.4	LOS A	0.1	0.9	0.14	0.49	0.14	38.7
5	T1	All MCs	9	3.0	9	3.0	0.026	3.5	LOS A	0.1	0.9	0.14	0.49	0.14	41.5
6	R2	All MCs	14	3.0	14	3.0	0.026	7.3	LOS A	0.1	0.9	0.14	0.49	0.14	34.9
Approach			34	3.0	34	3.0	0.026	5.0	LOS A	0.1	0.9	0.14	0.49	0.14	37.9
North: Peel St															
7	L2	All MCs	3	3.0	3	3.0	0.015	3.4	LOS A	0.1	0.5	0.12	0.38	0.12	40.6
8	T1	All MCs	16	3.0	16	3.0	0.015	3.4	LOS A	0.1	0.5	0.12	0.38	0.12	38.1
9	R2	All MCs	1	3.0	1	3.0	0.015	7.2	LOS A	0.1	0.5	0.12	0.38	0.12	39.8
Approach			20	3.0	20	3.0	0.015	3.6	LOS A	0.1	0.5	0.12	0.38	0.12	38.7
West: Gorden St															
10	L2	All MCs	5	3.0	5	3.0	0.025	3.4	LOS A	0.1	0.8	0.14	0.55	0.14	37.5
11	T1	All MCs	4	3.0	4	3.0	0.025	3.5	LOS A	0.1	0.8	0.14	0.55	0.14	40.4
12	R2	All MCs	23	3.0	23	3.0	0.025	7.3	LOS A	0.1	0.8	0.14	0.55	0.14	37.3
Approach			32	3.0	32	3.0	0.025	6.2	LOS A	0.1	0.8	0.14	0.55	0.14	37.8
All Vehicles			120	3.0	120	3.0	0.026	4.7	LOS A	0.1	0.9	0.13	0.46	0.13	38.3

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: [3C] Peel St/Gorden St intersection (2036 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Gorden St intersection
Site Category: Existing Design
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	2	3.0	2	3.0	0.014	3.3	LOS A	0.1	0.5	0.06	0.40	0.06	40.8
2	T1	All MCs	15	3.0	15	3.0	0.014	3.3	LOS A	0.1	0.5	0.06	0.40	0.06	38.3
3	R2	All MCs	2	3.0	2	3.0	0.014	7.1	LOS A	0.1	0.5	0.06	0.40	0.06	40.0
Approach			19	3.0	19	3.0	0.014	3.7	LOS A	0.1	0.5	0.06	0.40	0.06	38.9
East: Gorden St															
4	L2	All MCs	11	3.0	11	3.0	0.014	3.3	LOS A	0.1	0.5	0.08	0.49	0.08	39.5
5	T1	All MCs	2	3.0	2	3.0	0.014	3.3	LOS A	0.1	0.5	0.08	0.49	0.08	42.1
6	R2	All MCs	6	3.0	6	3.0	0.014	7.2	LOS A	0.1	0.5	0.08	0.49	0.08	35.4
Approach			19	3.0	19	3.0	0.014	4.5	LOS A	0.1	0.5	0.08	0.49	0.08	38.4
North: Peel St															
7	L2	All MCs	1	3.0	1	3.0	0.004	3.3	LOS A	0.0	0.1	0.08	0.43	0.08	40.2
8	T1	All MCs	3	3.0	3	3.0	0.004	3.3	LOS A	0.0	0.1	0.08	0.43	0.08	37.6
9	R2	All MCs	1	3.0	1	3.0	0.004	7.2	LOS A	0.0	0.1	0.08	0.43	0.08	39.5
Approach			5	3.0	5	3.0	0.004	4.1	LOS A	0.0	0.1	0.08	0.43	0.08	38.6
West: Gorden St															
10	L2	All MCs	5	3.0	5	3.0	0.013	3.4	LOS A	0.1	0.4	0.10	0.53	0.10	38.2
11	T1	All MCs	2	3.0	2	3.0	0.013	3.4	LOS A	0.1	0.4	0.10	0.53	0.10	41.0
12	R2	All MCs	10	3.0	10	3.0	0.013	7.2	LOS A	0.1	0.4	0.10	0.53	0.10	38.0
Approach			17	3.0	17	3.0	0.013	5.6	LOS A	0.1	0.4	0.10	0.53	0.10	38.5
All Vehicles			60	3.0	60	3.0	0.014	4.5	LOS A	0.1	0.5	0.08	0.47	0.08	38.6

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: [3D] Peel St/Gorden St intersection (2036 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Peel St/Gorden St intersection
Site Category: Existing Design
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Peel St															
1	L2	All MCs	10	3.0	10	3.0	0.026	3.4	LOS A	0.1	0.9	0.11	0.40	0.11	40.6
2	T1	All MCs	22	3.0	22	3.0	0.026	3.4	LOS A	0.1	0.9	0.11	0.40	0.11	38.1
3	R2	All MCs	2	3.0	2	3.0	0.026	7.2	LOS A	0.1	0.9	0.11	0.40	0.11	39.9
Approach			34	3.0	34	3.0	0.026	3.6	LOS A	0.1	0.9	0.11	0.40	0.11	39.1
East: Gorden St															
4	L2	All MCs	11	3.0	11	3.0	0.026	3.4	LOS A	0.1	0.9	0.14	0.49	0.14	38.7
5	T1	All MCs	9	3.0	9	3.0	0.026	3.5	LOS A	0.1	0.9	0.14	0.49	0.14	41.5
6	R2	All MCs	14	3.0	14	3.0	0.026	7.3	LOS A	0.1	0.9	0.14	0.49	0.14	34.9
Approach			34	3.0	34	3.0	0.026	5.0	LOS A	0.1	0.9	0.14	0.49	0.14	37.9
North: Peel St															
7	L2	All MCs	3	3.0	3	3.0	0.015	3.4	LOS A	0.1	0.5	0.12	0.38	0.12	40.6
8	T1	All MCs	16	3.0	16	3.0	0.015	3.4	LOS A	0.1	0.5	0.12	0.38	0.12	38.1
9	R2	All MCs	1	3.0	1	3.0	0.015	7.2	LOS A	0.1	0.5	0.12	0.38	0.12	39.8
Approach			20	3.0	20	3.0	0.015	3.6	LOS A	0.1	0.5	0.12	0.38	0.12	38.7
West: Gorden St															
10	L2	All MCs	5	3.0	5	3.0	0.025	3.4	LOS A	0.1	0.8	0.14	0.55	0.14	37.5
11	T1	All MCs	4	3.0	4	3.0	0.025	3.5	LOS A	0.1	0.8	0.14	0.55	0.14	40.4
12	R2	All MCs	23	3.0	23	3.0	0.025	7.3	LOS A	0.1	0.8	0.14	0.55	0.14	37.3
Approach			32	3.0	32	3.0	0.025	6.2	LOS A	0.1	0.8	0.14	0.55	0.14	37.8
All Vehicles			120	3.0	120	3.0	0.026	4.7	LOS A	0.1	0.9	0.13	0.46	0.13	38.3

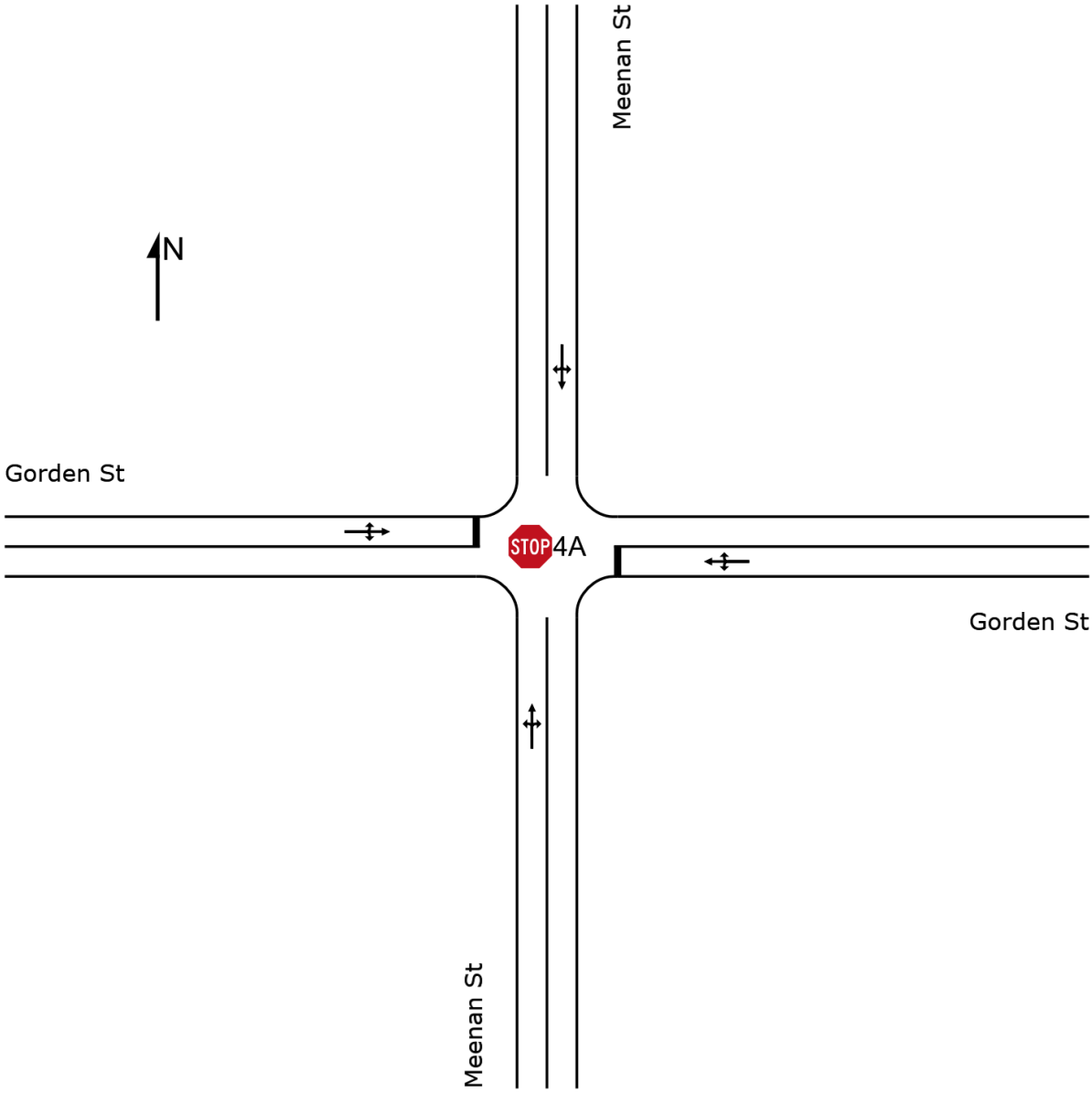
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay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

SITE LAYOUT

Site: [4A] Meenan St/Gorden St intersection (2026 Background AM peak)

Meenan St/Gorden St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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



Organisation: LCJ ENGINEERS PTY LTD | Licence: PLUS / 1PC | Created: Tuesday, 4 November 2025 11:03:34 AM
Project: J:\ROSE\ROSE015 TAIHS Masterplan, 57-67 Gorden St, Garbutt\Analysis\Civil\Traffic\ROSE015-SIDRA Analysis.sipx

MOVEMENT SUMMARY

Site: [4A] Meenan St/Gorden St intersection (2026 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Gorden St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	11	6.0	11	6.0	0.124	6.0	LOS A	0.1	0.6	0.04	0.07	0.04	49.5
2	T1	All MCs	210	6.0	210	6.0	0.124	0.1	LOS A	0.1	0.6	0.04	0.07	0.04	57.2
3	R2	All MCs	7	6.0	7	6.0	0.124	6.6	LOS A	0.1	0.6	0.04	0.07	0.04	48.6
Approach			228	6.0	228	6.0	0.124	0.5	NA	0.1	0.6	0.04	0.07	0.04	56.2
East: Gorden St															
4	L2	All MCs	10	3.0	10	3.0	0.022	8.7	LOS A	0.1	0.6	0.43	0.87	0.43	34.0
5	T1	All MCs	2	3.0	2	3.0	0.022	10.6	LOS B	0.1	0.6	0.43	0.87	0.43	36.9
6	R2	All MCs	5	3.0	5	3.0	0.022	11.1	LOS B	0.1	0.6	0.43	0.87	0.43	33.6
Approach			17	3.0	17	3.0	0.022	9.6	LOS A	0.1	0.6	0.43	0.87	0.43	34.3
North: Meenan St															
7	L2	All MCs	7	6.0	7	6.0	0.158	6.2	LOS A	0.1	0.8	0.04	0.06	0.04	49.7
8	T1	All MCs	273	6.0	273	6.0	0.158	0.1	LOS A	0.1	0.8	0.04	0.06	0.04	57.7
9	R2	All MCs	11	6.0	11	6.0	0.158	6.3	LOS A	0.1	0.8	0.04	0.06	0.04	48.8
Approach			291	6.0	291	6.0	0.158	0.4	NA	0.1	0.8	0.04	0.06	0.04	56.8
West: Gorden St															
10	L2	All MCs	7	3.0	7	3.0	0.038	8.4	LOS A	0.1	0.9	0.46	0.89	0.46	33.3
11	T1	All MCs	3	3.0	3	3.0	0.038	10.6	LOS B	0.1	0.9	0.46	0.89	0.46	36.3
12	R2	All MCs	14	3.0	14	3.0	0.038	11.2	LOS B	0.1	0.9	0.46	0.89	0.46	32.9
Approach			24	3.0	24	3.0	0.038	10.3	LOS B	0.1	0.9	0.46	0.89	0.46	33.5
All Vehicles			560	5.8	560	5.8	0.158	1.2	NA	0.1	0.9	0.07	0.12	0.07	52.8

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

MOVEMENT SUMMARY

Site: [4B] Meenan St/Gorden St intersection (2026 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Gorden St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	11	6.0	11	6.0	0.143	6.5	LOS A	0.3	2.2	0.14	0.17	0.14	47.5
2	T1	All MCs	210	6.0	210	6.0	0.143	0.2	LOS A	0.3	2.2	0.14	0.17	0.14	53.6
3	R2	All MCs	32	6.0	32	6.0	0.143	6.6	LOS A	0.3	2.2	0.14	0.17	0.14	46.8
Approach			253	6.0	253	6.0	0.143	1.3	NA	0.3	2.2	0.14	0.17	0.14	51.9
East: Gorden St															
4	L2	All MCs	19	3.0	19	3.0	0.044	8.8	LOS A	0.2	1.1	0.44	0.89	0.44	33.8
5	T1	All MCs	4	3.0	4	3.0	0.044	10.9	LOS B	0.2	1.1	0.44	0.89	0.44	36.7
6	R2	All MCs	10	3.0	10	3.0	0.044	11.5	LOS B	0.2	1.1	0.44	0.89	0.44	33.4
Approach			33	3.0	33	3.0	0.044	9.9	LOS A	0.2	1.1	0.44	0.89	0.44	34.1
North: Meenan St															
7	L2	All MCs	7	6.0	7	6.0	0.158	6.2	LOS A	0.1	0.8	0.04	0.06	0.04	49.7
8	T1	All MCs	273	6.0	273	6.0	0.158	0.1	LOS A	0.1	0.8	0.04	0.06	0.04	57.7
9	R2	All MCs	11	6.0	11	6.0	0.158	6.3	LOS A	0.1	0.8	0.04	0.06	0.04	48.8
Approach			291	6.0	291	6.0	0.158	0.4	NA	0.1	0.8	0.04	0.06	0.04	56.8
West: Gorden St															
10	L2	All MCs	7	3.0	7	3.0	0.039	8.4	LOS A	0.1	0.9	0.47	0.89	0.47	33.0
11	T1	All MCs	3	3.0	3	3.0	0.039	10.9	LOS B	0.1	0.9	0.47	0.89	0.47	36.0
12	R2	All MCs	14	3.0	14	3.0	0.039	11.6	LOS B	0.1	0.9	0.47	0.89	0.47	32.7
Approach			24	3.0	24	3.0	0.039	10.6	LOS B	0.1	0.9	0.47	0.89	0.47	33.3
All Vehicles			601	5.7	601	5.7	0.158	1.7	NA	0.3	2.2	0.12	0.19	0.12	50.2

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

MOVEMENT SUMMARY

Site: [4C] Meenan St/Gorden St intersection (2036 Background AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Gorden St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	11	6.0	11	6.0	0.116	6.0	LOS A	0.1	0.5	0.04	0.07	0.04	49.4
2	T1	All MCs	196	6.0	196	6.0	0.116	0.1	LOS A	0.1	0.5	0.04	0.07	0.04	57.1
3	R2	All MCs	7	6.0	7	6.0	0.116	6.5	LOS A	0.1	0.5	0.04	0.07	0.04	48.5
Approach			214	6.0	214	6.0	0.116	0.6	NA	0.1	0.5	0.04	0.07	0.04	56.0
East: Gorden St															
4	L2	All MCs	10	3.0	10	3.0	0.022	8.7	LOS A	0.1	0.5	0.42	0.87	0.42	34.1
5	T1	All MCs	2	3.0	2	3.0	0.022	10.4	LOS B	0.1	0.5	0.42	0.87	0.42	37.0
6	R2	All MCs	5	3.0	5	3.0	0.022	10.9	LOS B	0.1	0.5	0.42	0.87	0.42	33.7
Approach			17	3.0	17	3.0	0.022	9.5	LOS A	0.1	0.5	0.42	0.87	0.42	34.4
North: Meenan St															
7	L2	All MCs	7	6.0	7	6.0	0.154	6.1	LOS A	0.1	0.8	0.04	0.06	0.04	49.6
8	T1	All MCs	266	6.0	266	6.0	0.154	0.0	LOS A	0.1	0.8	0.04	0.06	0.04	57.6
9	R2	All MCs	11	6.0	11	6.0	0.154	6.3	LOS A	0.1	0.8	0.04	0.06	0.04	48.8
Approach			284	6.0	284	6.0	0.154	0.4	NA	0.1	0.8	0.04	0.06	0.04	56.7
West: Gorden St															
10	L2	All MCs	7	3.0	7	3.0	0.037	8.4	LOS A	0.1	0.9	0.45	0.89	0.45	33.4
11	T1	All MCs	3	3.0	3	3.0	0.037	10.4	LOS B	0.1	0.9	0.45	0.89	0.45	36.4
12	R2	All MCs	14	3.0	14	3.0	0.037	11.0	LOS B	0.1	0.9	0.45	0.89	0.45	33.1
Approach			24	3.0	24	3.0	0.037	10.1	LOS B	0.1	0.9	0.45	0.89	0.45	33.7
All Vehicles			539	5.8	539	5.8	0.154	1.2	NA	0.1	0.9	0.07	0.13	0.07	52.6

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

MOVEMENT SUMMARY

Site: [4D] Meenan St/Gorden St intersection (2036 Developed AM peak)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Meenan St/Gorden St intersection
Site Category: Existing Design
Stop (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Meenan St															
1	L2	All MCs	11	6.0	11	6.0	0.135	6.5	LOS A	0.3	2.1	0.14	0.18	0.14	47.4
2	T1	All MCs	196	6.0	196	6.0	0.135	0.2	LOS A	0.3	2.1	0.14	0.18	0.14	53.3
3	R2	All MCs	32	6.0	32	6.0	0.135	6.6	LOS A	0.3	2.1	0.14	0.18	0.14	46.6
Approach			239	6.0	239	6.0	0.135	1.4	NA	0.3	2.1	0.14	0.18	0.14	51.5
East: Gorden St															
4	L2	All MCs	19	3.0	19	3.0	0.043	8.7	LOS A	0.2	1.1	0.43	0.89	0.43	33.9
5	T1	All MCs	4	3.0	4	3.0	0.043	10.7	LOS B	0.2	1.1	0.43	0.89	0.43	36.8
6	R2	All MCs	10	3.0	10	3.0	0.043	11.3	LOS B	0.2	1.1	0.43	0.89	0.43	33.5
Approach			33	3.0	33	3.0	0.043	9.7	LOS A	0.2	1.1	0.43	0.89	0.43	34.2
North: Meenan St															
7	L2	All MCs	7	6.0	7	6.0	0.154	6.1	LOS A	0.1	0.8	0.04	0.06	0.04	49.6
8	T1	All MCs	266	6.0	266	6.0	0.154	0.0	LOS A	0.1	0.8	0.04	0.06	0.04	57.6
9	R2	All MCs	11	6.0	11	6.0	0.154	6.3	LOS A	0.1	0.8	0.04	0.06	0.04	48.8
Approach			284	6.0	284	6.0	0.154	0.4	NA	0.1	0.8	0.04	0.06	0.04	56.7
West: Gorden St															
10	L2	All MCs	7	3.0	7	3.0	0.038	8.4	LOS A	0.1	0.9	0.46	0.89	0.46	33.2
11	T1	All MCs	3	3.0	3	3.0	0.038	10.7	LOS B	0.1	0.9	0.46	0.89	0.46	36.2
12	R2	All MCs	14	3.0	14	3.0	0.038	11.4	LOS B	0.1	0.9	0.46	0.89	0.46	32.8
Approach			24	3.0	24	3.0	0.038	10.4	LOS B	0.1	0.9	0.46	0.89	0.46	33.4
All Vehicles			580	5.7	580	5.7	0.154	1.8	NA	0.3	2.1	0.12	0.19	0.12	50.0

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

APPENDIX G
Traffic impact assessment certification

Certification of Traffic Impact Assessment Report

Registered Professional Engineer of Queensland

For

Project Title	TAIHS Gorden Street Precinct Masterplanning

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the Professional Engineers Act 2002 as competent in my areas of nominated expertise, I understand and recognise:

- the significant role of engineering as a profession, and that
- the community has a legitimate expectation that my certification affixed to this engineering work can be trusted, and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

(i) I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the Guide to Traffic Impact Assessment published by the Queensland Department of Transport and Main Roads and using sound engineering principles, and
(ii) where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment, and that
(iii) the outcomes of this traffic impact assessment are a true reflection of results of assessment, and that
(iv) I believe the strategies recommended for mitigating impacts by this traffic impact assessment, embrace contemporary practice initiatives and will deliver the desired outcomes.

Name:	Daniel Eric Johnstone
RPEQ No:	5892
RPEQ competencies:	Civil
Signature:	
Date:	12/11/25
Postal address:	PO Box 1498 Aitkenvale Qld 4814
Email:	djohnstone@lcjengineers.com.au

Traffic impact assessment components to which this certification applies	
1. Introduction	
Background	✓
Scope and study area	✓
Pre-lodgement meeting notes	
2. Existing Conditions	
Land use and zoning	✓
Adjacent land uses / approvals	✓
Surrounding road network details	✓
Traffic volumes	✓
Intersection and network performance	
Road safety issues	✓
Site access	✓
Public transport (if applicable)	✓
Active transport (if applicable)	
Parking (if applicable)	
Pavement (if applicable)	
Transport infrastructure (if applicable)	
3. Proposed Development Details	
Development site plan	✓
Operational details (including year of opening of each stage and any relevant catchment / market analysis)	✓
Proposed access and parking	✓
4. Development Traffic	
Traffic generation (by development stage if relevant and considering light and heavy vehicle trips)	✓
Trip distribution	✓
Development traffic volumes on the network	✓
5. Impact Assessment and Mitigation	
With and without development traffic volumes	✓
Construction traffic impact assessment and mitigation (if applicable)	
Road safety impact assessment and mitigation	✓
Access and frontage impact assessment and mitigation	✓
Intersection delay impact assessment and mitigation	
Road link capacity assessment and mitigation	
Pavement impact assessment and mitigation	

Traffic impact assessment components to which this certification applies	
Transport infrastructure impact assessment and mitigation	
Other impacts assessment relevant to the specific development type / location (if applicable)	
6. Conclusions and Recommendations	
Summary of impacts and mitigation measures proposed	✓
Certification statement and authorisation	✓

APPENDIX F
Water and Sewer Report

TAIHS GORDEN STREET MASTER PLANNING

TOWNSVILLE ABORIGINAL & ISLANDER HEALTH SERVICE (TAIHS) 57-59 GORDEN STREET, GARBUTT

WATER SUPPLY & SEWERAGE PLANNING REPORT

Date: 2 April 2026
(Revision C)

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APPENDICES

REPORT AUTHORISATION

Revision	Revision Date	Details	Prepared by	Signature
A	02/12/2025	Original Report	Desmond Moseley (RPEQ 7565)	
B	04/12/2025	Updated Report (Minor Adjustments)	Desmond Moseley (RPEQ 7565)	
C	02/04/2026	Updated Report (Revised Population & Strategy)	Desmond Moseley (RPEQ 7565)