ATTACHMENT 4

19 March 2026

North and North West Queensland
PO Box 5666
TOWNSVILLE QLD 4810
Via email: NQSARA@dsdilgp.qld.gov.au

USC Reference: USC114
Council Reference: MCU25/0052
SARA Reference: 2509-48001 SRA

Attention: Zinal Chand - Planning Officer

INFORMATION REQUEST AND FURTHER ADVICE RESPONSE 500-502 ROSS RIVER ROAD, CRANBROOK

The following correspondence provides a response to the SARA Information Request dated 23 September 2025 and SARA Advice Notice dated 23 September 2025. The correspondence has extracted each part of SARA's request and provides a subsequent response below with attached correspondence.

The project team have undertaken a detailed review of the Information Request letter and Advice Notice to deliver an amended development outcome, that is considered and seeks to address each item raised by SARA.

Revised Development

The development has been revised from 32 dwelling units to 28 dwelling units to ensure a higher-quality built form outcome and to respond constructively to Council's and SARA's design feedback (refer **Attachment 1**). This reduction has allowed for improved site planning, better building separation, enhanced communal and private open space, compliant carparking and a more legible internal layout. The amended design represents a more balanced and context responsive development that aligns with Council's and SARA's expectations and delivers a superior living environment for future residents.

SARA Information Request

Item 1 – Environmental Emissions

Issue:

The proposed development involves an accommodation use (with ground floor and above-floor requirements) that must comply with Performance Outcomes (POs) 39 - PO43 of State Code 1 of the SDAP. Noise modelling and mapping indicate that the site is subject to traffic noise levels of approximately 70 dB(A) LA10(18-hour), facade-corrected. These levels exceed

the maximum internal and free-field acoustic thresholds specified in State code 1 for accommodation activities.

In response, the applicant has proposed a 1.8m high timber fence along the site frontage. However, this measure does not meet the noise requirements of State code 1.

Action:

To demonstrate compliance with PO39 - PO41 of State code 1, you must submit a noise assessment report prepared by a suitably qualified acoustic consultant and certified by a Registered Professional Engineer of Queensland (RPEQ). The report must detail appropriate noise attenuation measures that ensure compliance with the relevant noise criteria.

The report should include mitigation strategies for predicted traffic noise levels generated on the state-controlled road impacts over a 10-year horizon from the commencement of the development use. Guidance on preparing the assessment and determining road traffic noise impacts is available in the Transport Noise Management Code of Practice.

Response

A detailed Acoustic Report has been prepared by a suitably qualified acoustic consultant and is provided in **Attachment 2.** The report includes full noise modelling in accordance with the Transport Noise Management Code of Practice and assesses predicted traffic noise levels over the required 10-year design horizon. The assessment confirms that, while the site is subject to elevated traffic noise levels, appropriate acoustic attenuation measures are available to ensure compliance with Performance Outcomes PO39–PO41 of State Code 1.

The report provides certified recommendations including a 2m high acoustic fence to achieve the internal and external acoustic criteria for accommodation uses. These measures collectively demonstrate that the development can meet the relevant noise thresholds and achieve a compliant acoustic environment for future residents.

SARA Advice Notice

Item 1 – Stormwater Management

Issue:

You have submitted a site-based stormwater management plan identifying northern and southern catchments. The southern catchment directs runoff to the local road network, while the post-development northern catchment (2,247 m²) discharges via pits and pipes into the existing stormwater system in Ross River Road during minor events. In major events, excess runoff will flow overland onto Ross River Road.

The report concludes that post-development runoff will decrease across all events from the minor (2-year ARI) to the major (100-year ARI). However, key assumptions in the calculations require further justification. The pre-development impervious area is assumed to be 0.65%, which appears to underestimate the actual impervious fraction. The post-development time of concentration is assumed to be 10 minutes, which is likely overestimated. A value of 5 minutes would be more appropriate for the northern catchment.

Action:

You are requested to provide a revised stormwater management plan that either justifies the current assumptions or updates them to reflect a more accurate impervious area and a 5-minute time of concentration for the assumptions. The revised stormwater management plan should also include rainfall intensities for the relevant design events, as referenced in the original report.

Response

A full and final response prepared by STP Consultants is provided in **Attachment 3**, Response to SARA Advice Notice and is supported by the updated Civil Engineering Services and a Site Based Stormwater Management Report in **Attachment 4**.

Conclusion

We trust that the information provided above, along with the attached supporting documentation, sufficiently addresses the items raised in the SARA Information Request and Advice Notice, to enable SARA to make a decision on the development.

Yours sincerely,

URBAN SPACE CONSULTING

Attachments:

1. Amended Architectural Plans
2. Acoustic Report
3. Response to SARA Action Notice
4. Engineering Services Report and SBSMP

ATTACHMENT 1

1 3D View 1

2 3D View 2

3 3D View 3

5 3D View 5

4 3D View 4

Sheet List		
Count	Sheet Number	Sheet Name
1	sk_01	Title page
1	sk_02	Site plan
1	sk_03	Site area layout
1	sk_04	Aerial image & detail survey
1	sk_05	Building - 1- floor plan & elevations
1	sk_06	Building - 2 - floor plan & elevations
1	sk_07	Building - 3 - floor plans
1	sk_08	Building - 3 – elevations
1	sk_09	Building - 4 - floor plans
1	sk_10	Building - 4 – elevations
1	sk_11	Gazebo

Grand total: 11

sheet size = A1

Preliminary
not to be used for construction purposes

URBAN SPACE CONSULTING

RJG BUILDERS
YOUR CHOICE FOR A PROFESSIONAL BUILD

NOTES:
THIS DRAWING IS ONLY INTENDED TO OBTAIN A LOCAL AUTHORITY BUILDING PERMIT.
COMPLY WITH ALL RELEVANT AUTHORITY REG. & BSA. FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALED MEASUREMENTS. VERIFY ALL ON SITE DIMENSIONS & LEVELS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

Revision Schedule

No	Description	Date
1	revissed site plans	23.07.20

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Invesments P/L
at:
500-505 Ross River Road
Cranbrook

Issue Date	05/20/16
Drawn	Author
scale	
sheet	sk_01

25-022

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3 site notes
1 : 100

note

1. provide hard standing area for bulk refuse or wheelie bins provide hose cock & hose

2. a/c condensers are to be located below fence lines and not located on the frontage of the buildings or on balconies and must not be visible from the street frontage or from adjoining properties.

landscaping - refer landscape consultant plans for details

PROPERTY DESCRIPTION

LOT No:	Lot 2
PLAN No:	SP 130958
SITE AREA:	6114M2
ASSES No:	2636028

gilli crescent

sheet size = A1

Preliminary
not to be used for construction purposes

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Revision Schedule

No	Description	Date

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Invesments P/L
at:
500-505 Ross River Road
Cranbrook

Issue Date	dec 2025
Drawn	Author
scale	As indicated
sheet	sk_02

25-022

printed 9/02/2026 3:48:26 PM

Gross Area Schedule

Count	Name	Area	%
building			
1	building - 1	156.24 m²	3%
1	building - 1	156.24 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 3	364.79 m²	6%
1	building - 4	365.69 m²	6%
10		1959.52 m²	32%

Gross Area Schedule

Count	Name	Area	%
hardstand			
1	driveway/parking	1989.12 m²	33%
1	driveway/parking	23.50 m²	0%
1	driveway/parking	23.69 m²	0%
1	path	4.04 m²	0%
1	path	2.10 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	8.06 m²	0%
1	path	5.04 m²	0%

Gross Area Schedule

Count	Name	Area	%
1	path	3.60 m²	0%
1	path	3.76 m²	0%
1	path	3.76 m²	0%
1	path	3.74 m²	0%
1	path	3.92 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	10.75 m²	0%
1	path	5.04 m²	0%

Gross Area Schedule

Count	Name	Area	%
1	path	5.04 m²	0%
1	path	8.10 m²	0%
1	refuse bins/msb	27.60 m²	0%
26		2175.22 m²	36%
landscape			
1	gazebo	12.08 m²	0%
1	gazebo	12.08 m²	0%
1	gazebo	12.08 m²	0%
1	landscaping	367.18 m²	6%
1	landscaping	171.17 m²	3%
1	landscaping	6.86 m²	0%
1	landscaping	16.13 m²	0%
1	landscaping	9.47 m²	0%

Gross Area Schedule

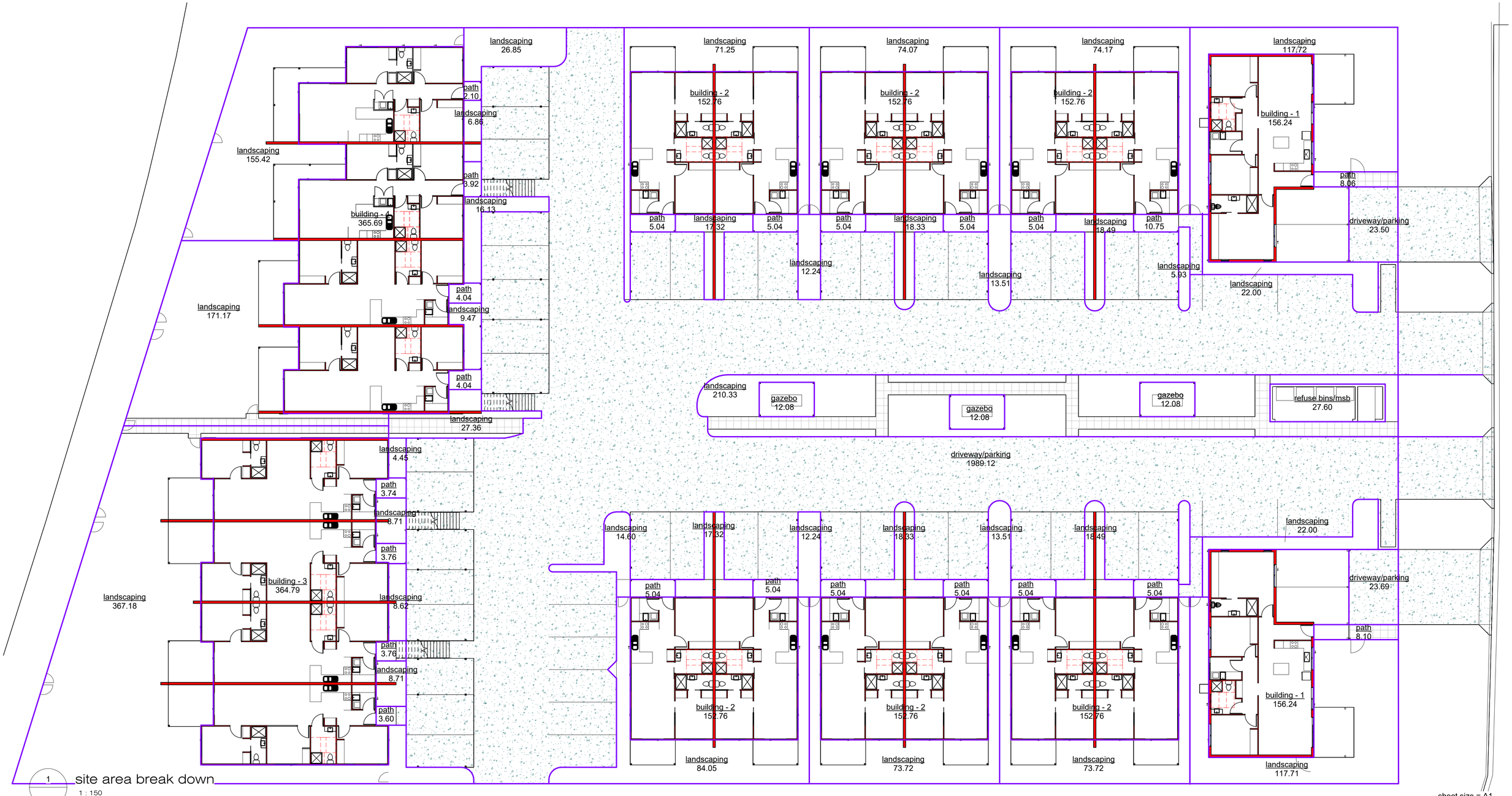
Count	Name	Area	%
1	landscaping	27.36 m²	0%
1	landscaping	4.45 m²	0%
1	landscaping	8.71 m²	0%
1	landscaping	8.62 m²	0%
1	landscaping	8.71 m²	0%
1	landscaping	71.25 m²	1%
1	landscaping	74.07 m²	1%
1	landscaping	74.17 m²	1%
1	landscaping	117.72 m²	2%
1	landscaping	22.00 m²	0%
1	landscaping	18.49 m²	0%
1	landscaping	5.93 m²	0%
1	landscaping	13.51 m²	0%

Gross Area Schedule

Count	Name	Area	%
1	landscaping	18.33 m²	0%
1	landscaping	12.24 m²	0%
1	landscaping	17.32 m²	0%
1	landscaping	210.33 m²	3%
1	landscaping	17.32 m²	0%
1	landscaping	14.60 m²	0%
1	landscaping	12.24 m²	0%
1	landscaping	18.33 m²	0%
1	landscaping	13.51 m²	0%
1	landscaping	18.49 m²	0%
1	landscaping	73.72 m²	1%
1	landscaping	73.72 m²	1%

Gross Area Schedule

Count	Name	Area	%
1	landscaping	84.05 m²	1%
1	landscaping	117.71 m²	2%
1	landscaping	155.42 m²	3%
1	landscaping	26.85 m²	0%
1	landscaping	22.00 m²	0%
38		1968.23 m²	32%
74		6102.97 m²	100%



1 site area break down
1 : 150

sheet size = A1

Preliminary
not to be used for construction purposes

URBAN SPACE CONSULTING

RJG BUILDERS
YOUR CHOICE FOR A PROFESSIONAL BUILD

NOTES:
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Revision Schedule

No	Description	Date
1	revised site plans	23.07.20

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Invesments P/L
at:
500-505 Ross River Road
Cranbrook

Issue Date	11/20/07
Drawn	Author
scale	1 : 150
sheet	sk_03

25-022

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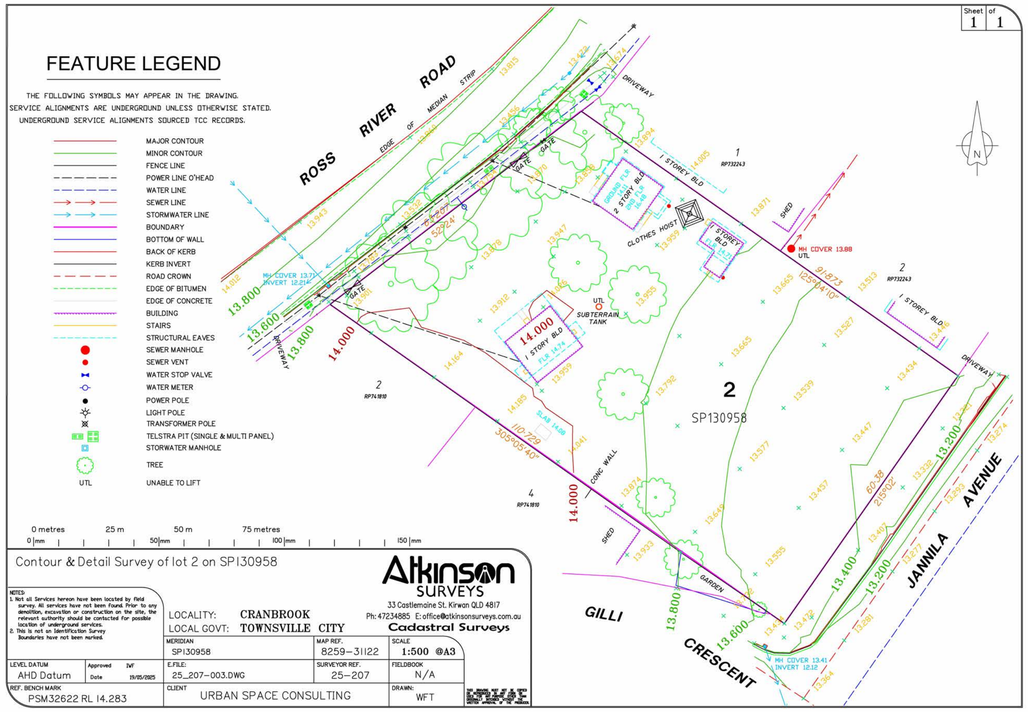

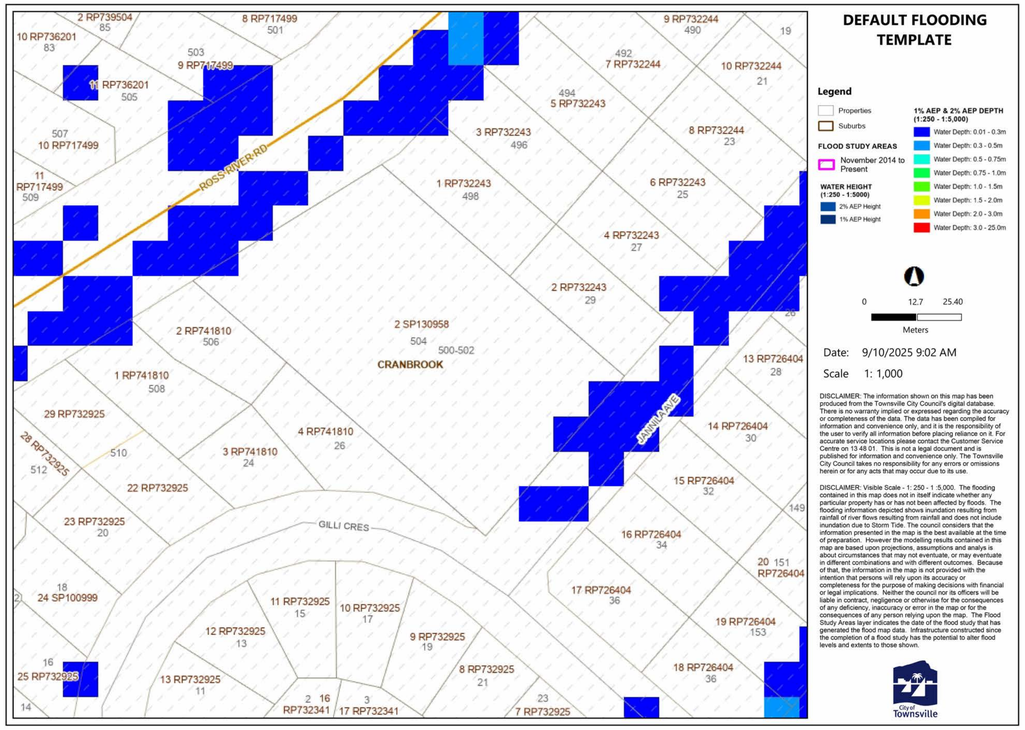

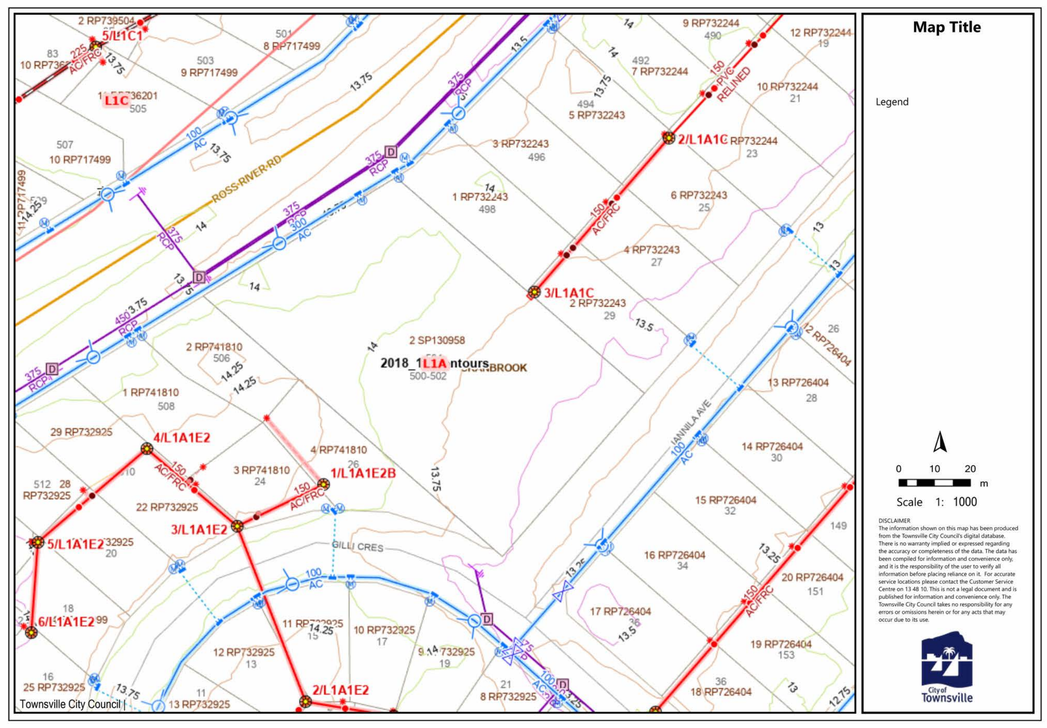

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Revision Schedule

No	Description	Date

concepts Building Design
tel: 07 4728 3228

project: Proposed Multiple Dwellings
for: Kaenetto Invesments P/L
at: 500-505 Ross River Road Cranbrook

Issue Date	01/22/23
Drawn	Author
scale	1 : 100
sheet	sk_04

25-022

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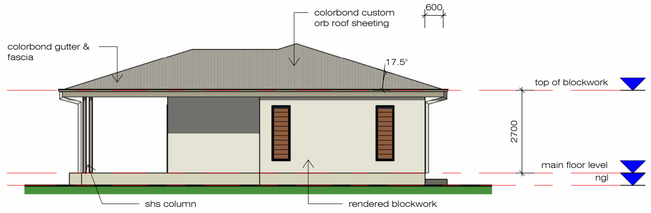

4 sk_05

front elevation

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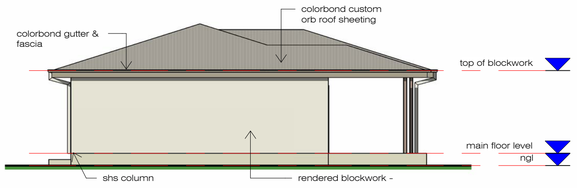
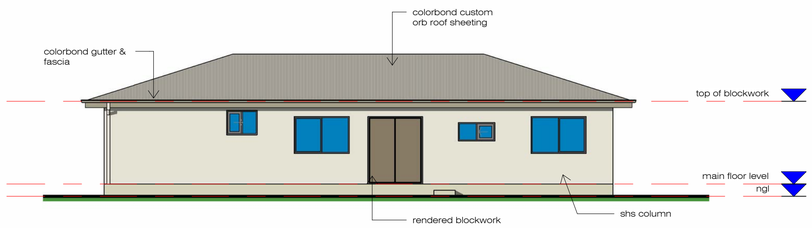


3 sk_05

rear elevation

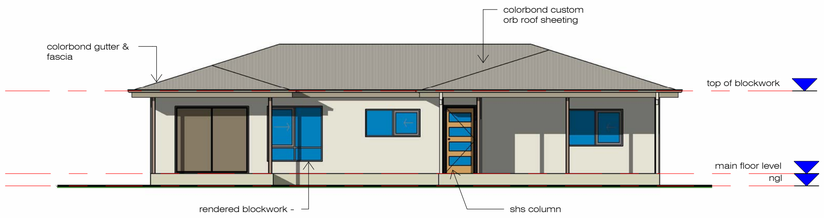
1 : 100



5 sk_05

right elevation

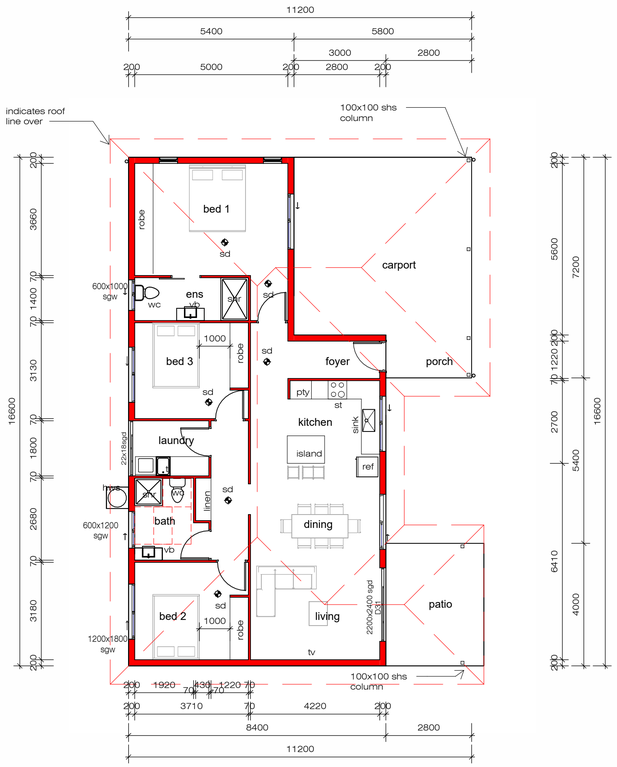
1 : 100



2 sk_05

left elevation

1 : 100



1 sk_05

floor plan

1 : 100

unit 8 mirror reversed

Area Schedule (Gross Building)			
Count	Name	Area	%
1	porch	3.92 m²	2%
1	patio	12.80 m²	7%
1	carport	33.64 m²	20%
1	living	122.04 m²	71%
4		172.40 m²	100%

units - 1 & 8

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YOUR CHOICE FOR A PROFESSIONAL BUILD

Building - 1

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Revision Schedule

No	Description	Date

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Investments P/L
at:
177-179 Francis Street
Westend

Issue Date	03/20/07
Drawn	Author
scale	1 : 100
sheet	sk_05

25-051

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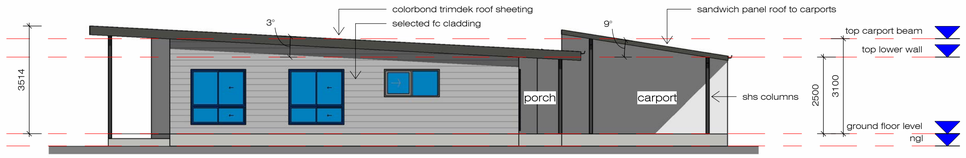
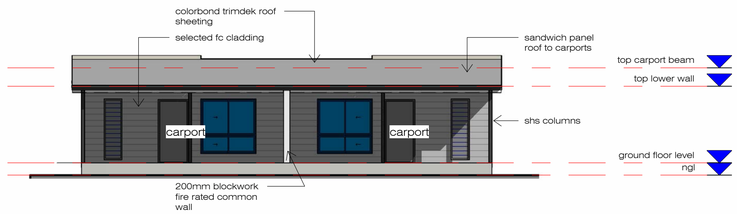
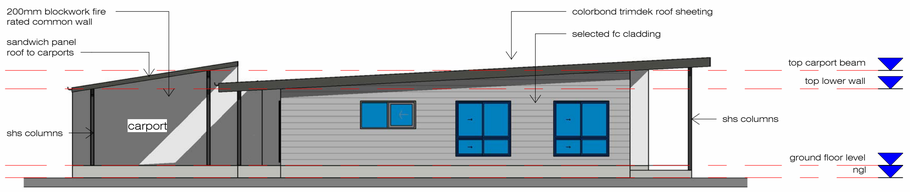


2 side-right elevation
1 : 100



3 rear elevation
1 : 100

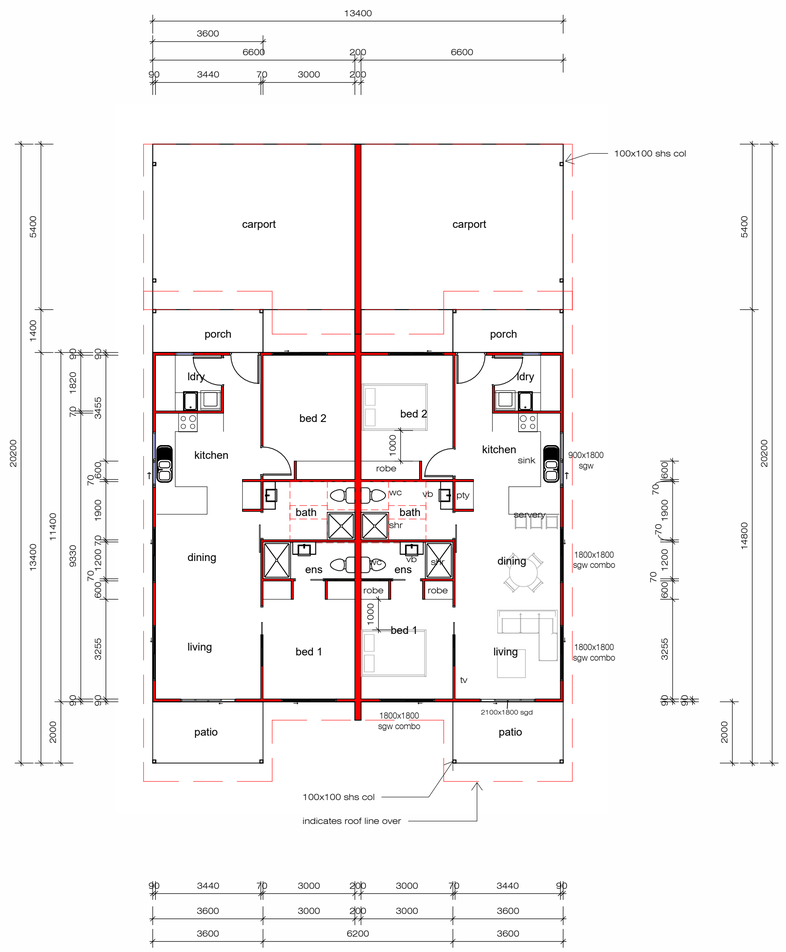


4 side-left elevation
1 : 100

5 front elevation
1 : 100

Area Schedule (building area)

Count	Name	Area	%
unit 1			
1	unit 3 living	76.38	31%
1	unit 3 patio	7.20	3%
1	unit 3 carport	36.18	14%
1	unit 3 porch	5.04	2%
4		124.80	50%
unit 2			
1	unit 4 patio	7.20	3%
1	unit 4 living	76.38	31%
1	unit 4 carport	36.18	14%
1	unit 4 porch	5.04	2%
4		124.80	50%
8		249.60	100%



1 / sk_06 ground floor level
1 : 100

units - 2, 3,4,5,6,7,11,12,13 & 14

sheet size = A1

Preliminary
not to be used for construction purposes

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RJG BUILDERS
YOUR CHOICE FOR A PROFESSIONAL BUILD

Building - 2

NOTES:
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Revision Schedule

No	Description	Date
1		

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
B & M Bennetto
at:
9 Burdekin Street, Richmond Hill
Charters Towers

Issue Date	01/09/26
Drawn	Author
scale	1 : 100
sheet	sk_06

22-047

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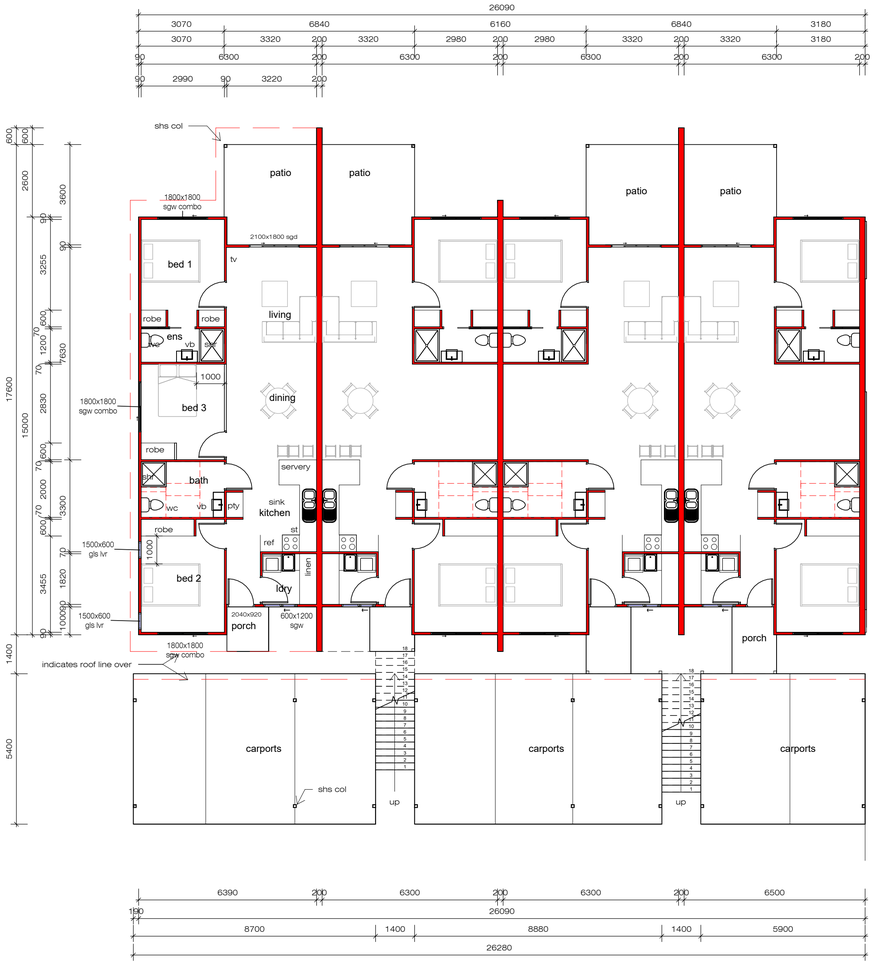
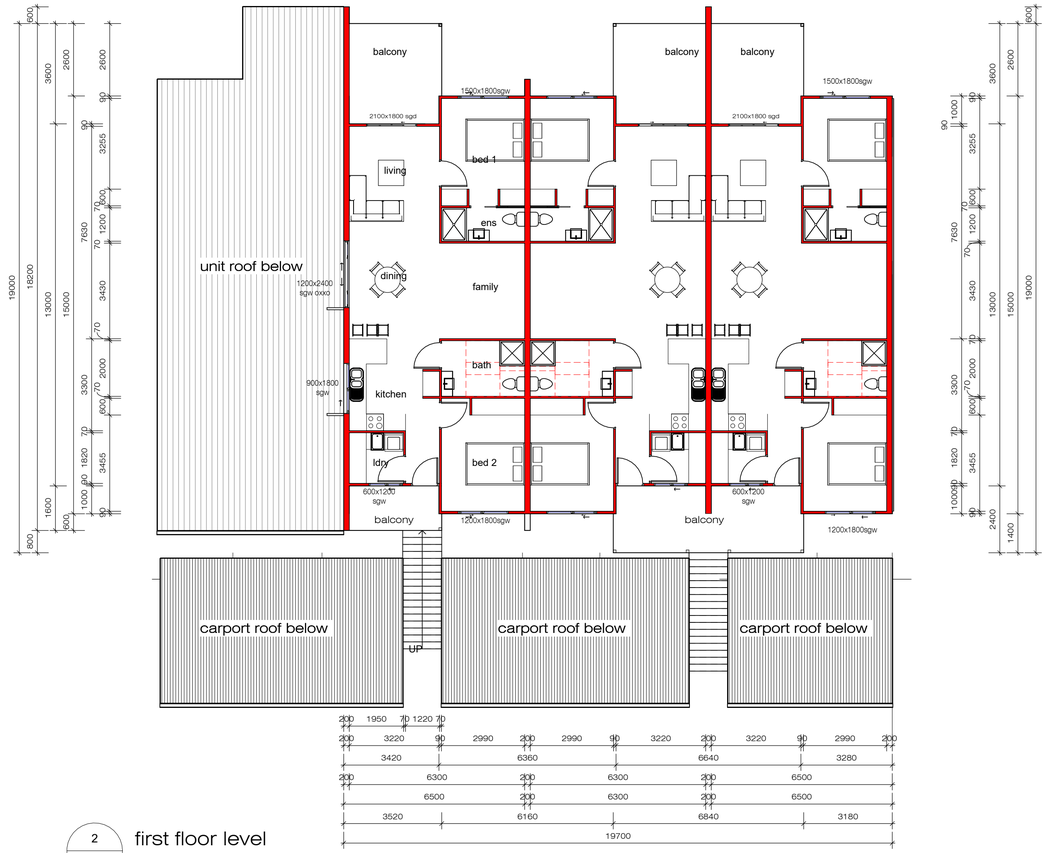
Area Schedule (Gross Building)				
count	Level	Name	Area	%
carports				
1	ground floor level	carports	46.98	5%
1	ground floor level	carports	47.95	5%
1	ground floor level	carports	31.86	4%
3			126.79	14%
unit 24				
1	ground floor level	unit 24 patio	12.21	1%
1	ground floor level	unit 24 living	92.36	10%
1	ground floor level	unit 24 porch	3.74	0%
3			108.31	12%
unit 25				
1	first floor level	unit 25 patio	12.21	1%
1	first floor level	unit 25 living	92.36	10%
1	first floor level	unit 25 porch	8.11	1%
3			112.68	13%
unit 26				
1	ground floor level	unit 26 patio	12.21	1%
1	ground floor level	unit 26 living	90.86	10%
1	ground floor level	unit 26 porch	3.76	0%
3			106.84	12%

Area Schedule (Gross Building)				
count	Level	Name	Area	%
unit 27				
1	first floor level	unit 27 patio	12.21	1%
1	first floor level	unit 27 living	90.86	10%
1	first floor level	unit 27 porch	8.14	1%
3			111.21	13%
unit 28				
1	ground floor level	unit 28 living	90.86	10%
1	ground floor level	unit 28 patio	12.21	1%
1	ground floor level	unit 28 porch	2.48	0%
3			105.55	12%
unit 29				
1	first floor level	unit 29 living	92.16	10%
1	first floor level	unit 29 patio	12.57	1%
1	first floor level	unit 29 porch	5.53	1%
3			110.26	12%
unit 30				
1	ground floor level	unit 30 patio	12.21	1%
1	ground floor level	unit 30 living	90.71	10%
1	ground floor level	unit 30 porch	2.40	0%
3			105.32	12%
24			886.96	100%



ground floor level

1 : 100



first floor level

1 : 100

units - 22,23,24,25,26,27 & 28

sheet size = A1

Preliminary
not to be used for construction purposes

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RJG BUILDERS
YOUR CHOICE FOR A PROFESSIONAL BUILD

Building - 3

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Revision Schedule

No	Description	Date

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Investments P/L
at:
500-502 Ross River Road, Cranbrook

Issue Date	01.09.26
Drawn	Author
scale	1 : 100
sheet	sk_07

25-022

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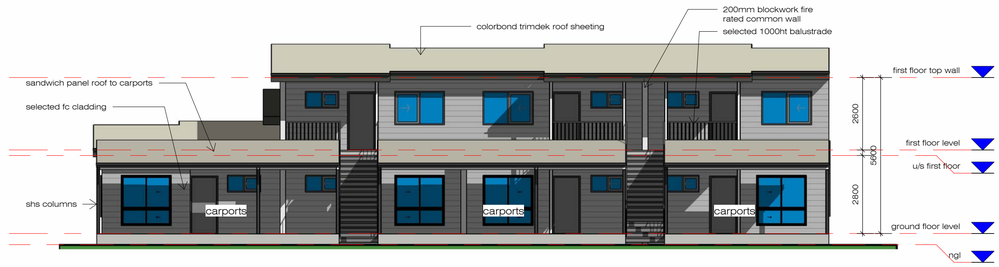
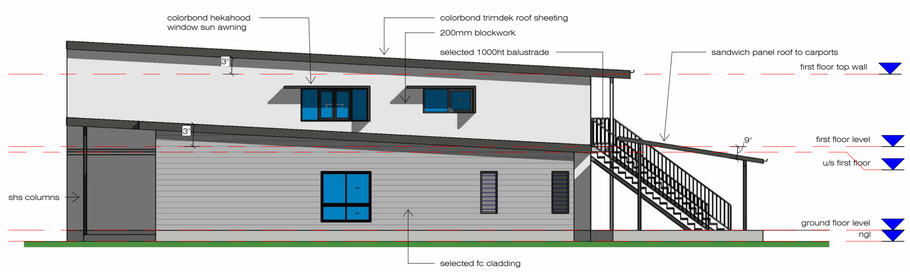
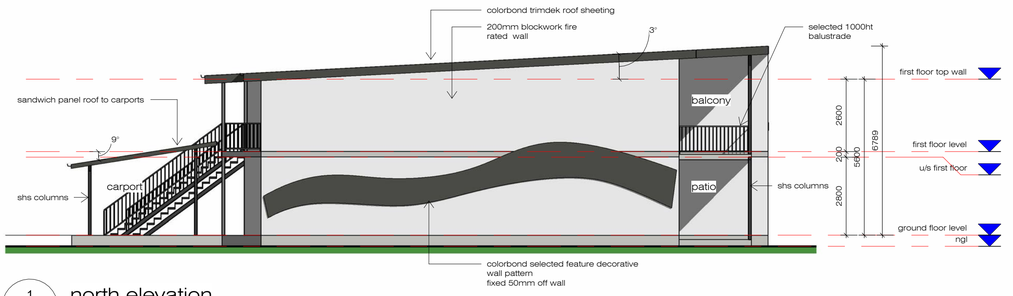
3 west elevation
1 : 100



4 east elevation
1 : 100



2 south elevation
1 : 100



1 north elevation
1 : 100

sheet size = A1

Preliminary
not to be used for construction purposes

URBAN SPACE CONSULTING

RJG BUILDERS
YOUR CHOICE FOR A PROFESSIONAL BUILD

Building - 3

NOTES:
THIS DRAWING IS ONLY INTENDED TO OBTAIN A LOCAL AUTHORITY BUILDING PERMIT.
COMPLY WITH ALL RELEVANT AUTHORITY REQ. & BSA. FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALED MEASUREMENTS. VERIFY ALL ON SITE DIMENSIONS & LEVELS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

Revision Schedule

No	Description	Date
1		

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Investments P/L
at:
500-502 Ross River Road, Cranbrook

Issue Date	01.21.23
Drawn	Author
scale	1 : 100
sheet	sk_08

25-022

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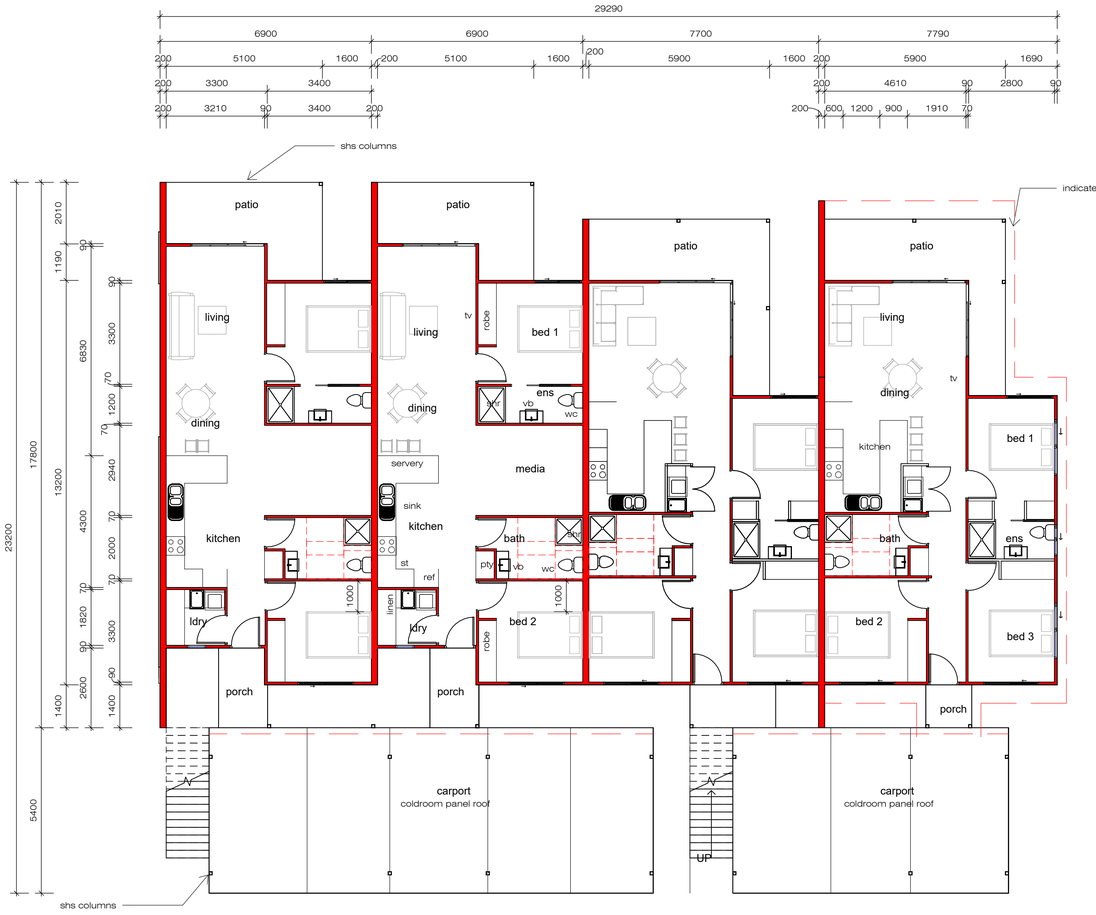
Area Schedule (building area)

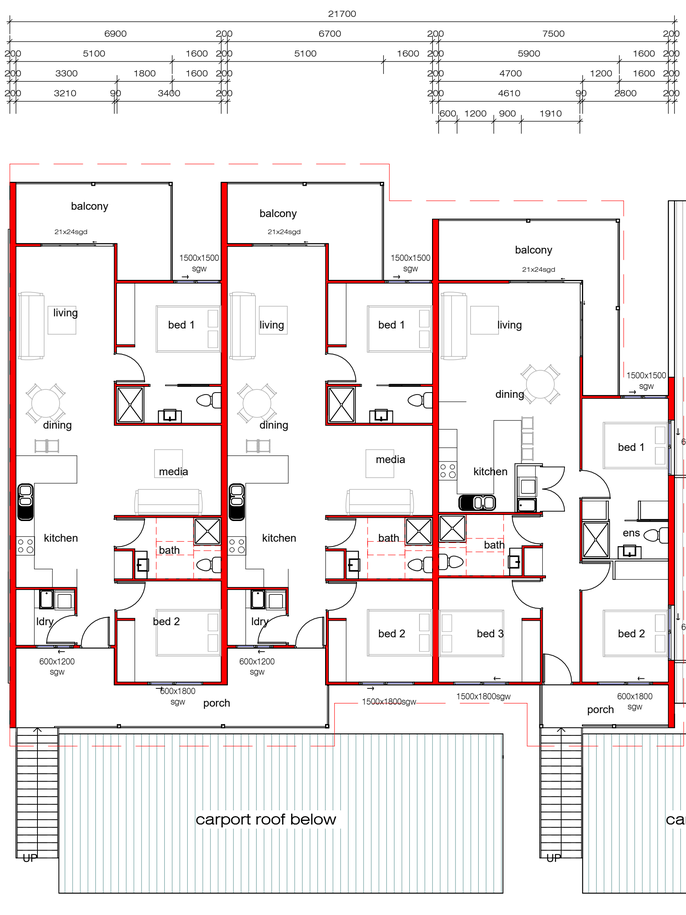
Count	Level	Name	Area	%
carport				
1	ground floor level	carports	78.30	9%
1	ground floor level	carports	48.60	5%
2			126.90	14%
unit 17				
1	ground floor level	unit 17 patio	16.71	2%
1	ground floor level	unit 17 living	91.02	10%
1	ground floor level	unit 17 porch	2.10	0%
3			109.83	12%
unit 18				
1	ground floor level	unit 18 patio	16.71	2%
1	ground floor level	unit 18 living	90.74	10%
1	ground floor level	unit 18 porch	3.92	0%
3			111.37	12%
unit 19				
1	first floor level	unit 19 patio	16.71	2%
1	first floor level	unit 19 living	91.68	10%
1	first floor level	unit 19 porch	6.16	1%
3			114.55	13%

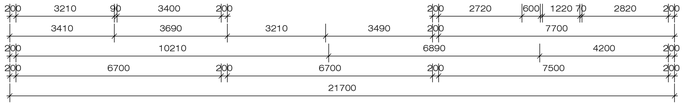
Area Schedule (building area)

Count	Level	Name	Area	%
unit 20				
1	ground floor level	unit 20 patio	12.76	1%
1	ground floor level	unit 20 living	91.31	10%
1	ground floor level	unit 20 porch	4.04	0%
3			108.11	12%
unit 21				
1	first floor level	unit 21 patio	12.76	1%
1	first floor level	unit 21 living	91.31	10%
1	first floor level	unit 21 porch	11.14	1%
3			115.21	13%
unit 22				
1	ground floor level	unit 22 living	92.63	10%
1	ground floor level	unit 22 patio	12.76	1%
1	ground floor level	unit 22 porch	4.04	0%
3			109.43	12%
unit 23				
1	first floor level	unit 23 living	92.63	10%
1	first floor level	unit 23 patio	12.76	1%
1	first floor level	unit 23 porch	11.38	1%
3			116.77	13%
23			912.16	100%



1 / sk_10 ground floor level
1 : 100





2 / sk_10 first floor level
1 : 100

units - 15, 16,17,18,19,20 & 21

sheet size = A1

Preliminary
not to be used for construction purposes

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Buiding - 4

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concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
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at:
500-502 Ross River Road, Cranbrook

Issue Date	01/09/26
Drawn	Author
scale	1 : 100
sheet	sk_09

25-022

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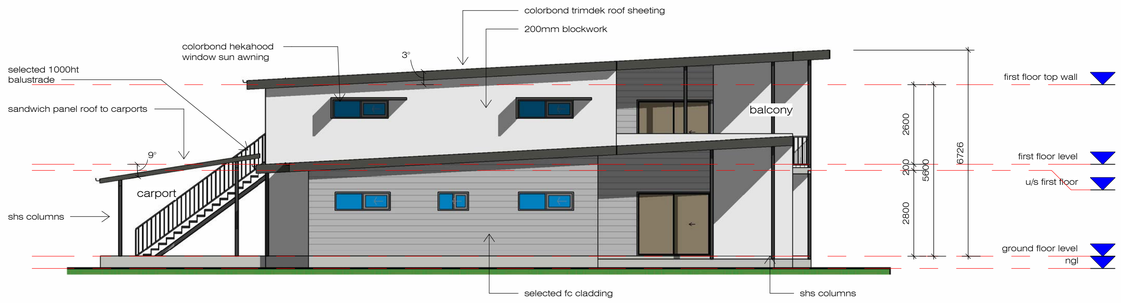
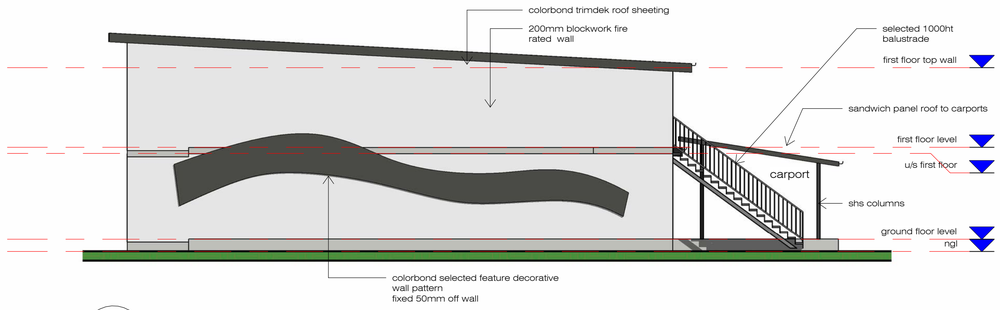


1 north elevation
1 : 100



2 south elevation
1 : 100

3 west elevation
1 : 100

4 east elevation
1 : 100

sheet size = A1

Preliminary
not to be used for construction purposes

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Buiding - 4

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scale	1 : 100
sheet	sk_10

25-022

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ATTACHMENT 2

acousticworks

Proposed Residential Units
500-502 Ross River Road
Cranbrook

ACOUSTIC REPORT




Client:
Kaenetto Investments Pty Ltd

Reference:
2026024 R01B 500-502 Ross River Road, Cranbrook RTN.docx

Date Issued:
17 March 2026

Document Information

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Report Register

Date	Revision	Author	Reviewer	Manager
13/03/26	R01A (DRAFT)	Kaitlyn Meldrum	Kayleigh Styles	ME
17/03/26	R01B	Kaitlyn Meldrum	Kayleigh Styles	ME

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TABLE INDEX

FIGURE INDEX

1. Introduction

This report is in response to a request by Kaenetto Investments Pty Ltd for a road traffic noise assessment of a proposed residential development to be located at 500-502 Ross River Road, Cranbrook. To facilitate the assessment, unattended noise monitoring was conducted to establish existing road traffic impacts to the proposed development. Based on the results of the assessment, recommendations for acoustic treatments are specified in this report.

This report (R01A) was issued in March 2026 in response to SARA information request dated 23 September 2025 (ref: 2509-48001 SRA).

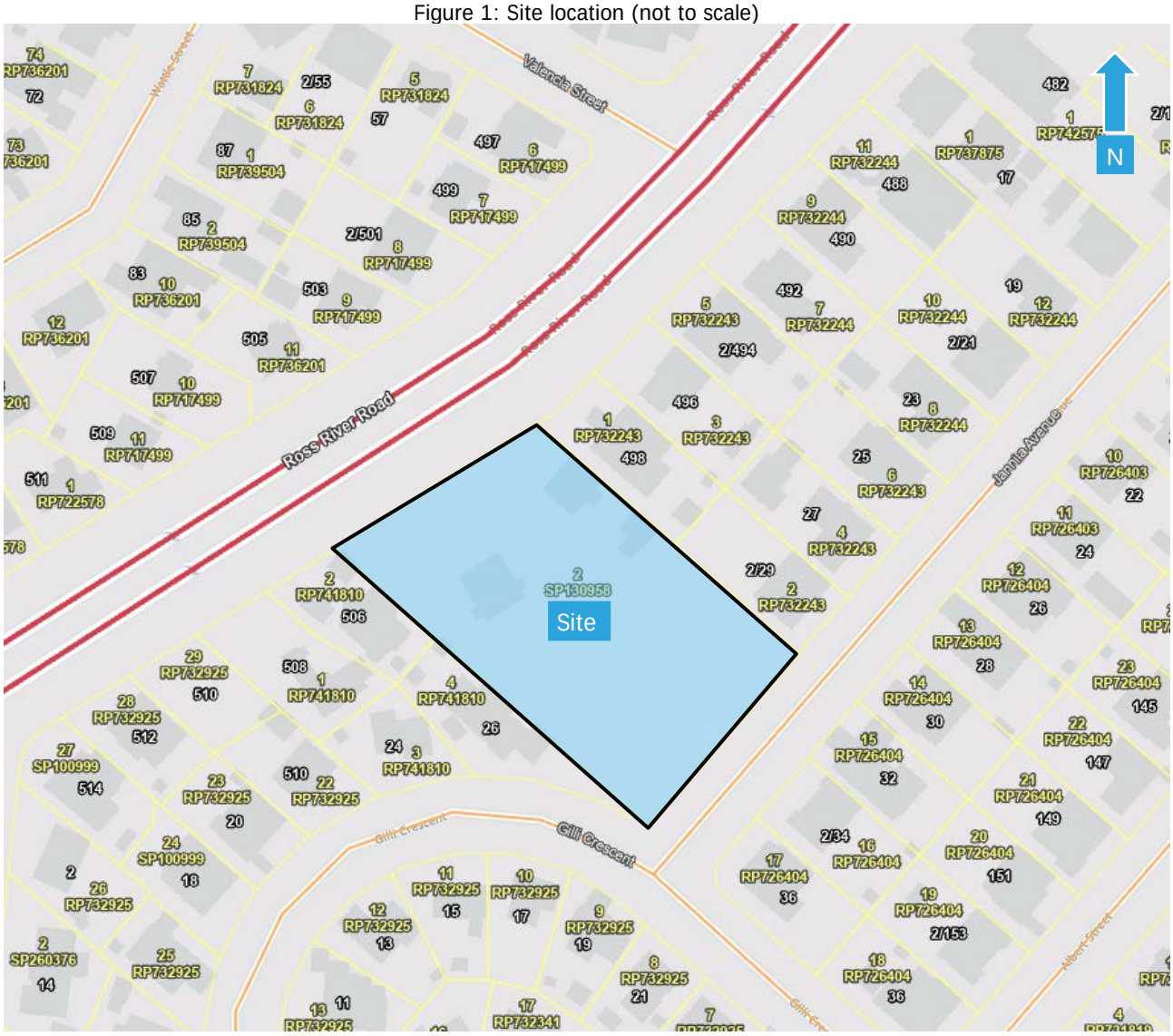
2. Site Description

2.1 Site Location

The site is described by the following;

500-502 Ross River Road, Cranbrook
Lot 2 on SP130958

Figure 1: Site location (not to scale)



A site survey was conducted on 17 February 2026 which identified the following in relation to the site;

a) The site is currently occupied by a two storey residential dwelling and will be demolished to make way for the proposed development.
b) Residential land uses bound the site to the east and west.
c) Ross River Road bounds the site to the north, separating the site from residential dwellings.
d) Jannila Avenue is located adjacent to the southern boundary of the site, separating it from residential land uses.

2.2 Proposal

The proposal is to construct 28 residential units comprised of the following;

- Total site area: 6,115m^2.
- 14 residential units across 6 two storey buildings and 22 single storey residential units
- Site access via Jannila Avenue and Gilli Crescent

2.3 Acoustic Environment

The ambient noise environment at the site is primarily affected by road traffic noise from Ross River Road.

3. Equipment

The following equipment was used to record noise levels:

- 1x Rion NL42 Environmental Noise Monitor
- Pulsar Model 105 Sound Calibrator

The sound measuring equipment holds current NATA Laboratory Certification and was field calibrated before and after the monitoring period with no significant drift from the reference signal recorded.

4. Noise Monitoring

4.1 Unattended Noise Monitoring

4.1.1 Road Traffic Noise Monitoring

A Rion NL42 road traffic noise monitor was placed at 558 Ross River Road, 11m from the nearest lane of the Ross River Road to measure road traffic noise levels. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground surface level. The monitor was set to record noise levels between 17 February and 10 March 2026.

The road traffic noise monitor was set to record noise levels in "A" weighting, fast response using 1-hour statistical intervals. Road traffic noise monitoring was conducted in accordance with Australian Standard *AS2702:1984 'Acoustics - Methods for the measurement of road traffic noise'*.

Refer to Figure 3 for noise monitoring location.

Figure 2: Site Location

Figure 3: Site and Noise Monitoring Location

5. Measured Noise Levels

The following tables present the measured traffic noise levels from the unattended noise surveys. Any periods of inclement weather or extraneous noise were omitted from the measured data prior to determining the results.

5.1 Meteorological Conditions

Meteorological observations during the unattended noise monitoring survey were obtained from the Bureau of Meteorology website (http://www.bom.gov.au/climate/data), shown in Table 1 below.

Table 1: Meteorological Conditions – Townsville

Day	Date	Rainfall (mm)	Wind			
			9am		3pm	
			Direction	Speed (km/h)	Direction	Speed (km/h)
Tuesday	17/02/2026	7.2	ESE	11	8	ENE
Wednesday	18/02/2026	31.6	SSE	17	8	E
Thursday	19/02/2026	66.8	-	Calm	3	NNE
Friday	20/02/2026	73.8	ENE	9	8	WNW
Saturday	21/02/2026	11.6	E	6	8	ENE
Sunday	22/02/2026	18	SE	13	8	ENE
Monday	23/02/2026	0	SSW	6	-	NE
Tuesday	24/02/2026	1.6	SE	15	8	E
Wednesday	25/02/2026	0	S	13	2	ENE
Thursday	26/02/2026	0	ESE	17	8	ESE
Friday	27/02/2026	0.8	SW	6	-	NE
Saturday	28/02/2026	0.6	SE	17	-	ENE
Sunday	1/03/2026	1	SSE	11	E	33
Monday	2/03/2026	12	ESE	24	ESE	24
Tuesday	3/03/2026	0.4	SSE	19	E	31
Wednesday	4/03/2026	4.8	SSE	17	E	24
Thursday	5/03/2026	0	SSE	20	SE	24
Friday	6/03/2026	5.8	S	13	E	19
Saturday	7/03/2026	27.2	N	26	N	26
Sunday	8/03/2026	23	N	20	N	22
Monday	9/03/2026	7	NNW	17	5	N
Tuesday	10/03/2026	10.8	NW	17	NW	8

5.2 Road Traffic Noise Levels

The measured road traffic noise levels at the monitoring locations were as follows:

Table 2: Measured ambient and road noise levels – all time periods

Day	Date	L10(18h)	Leq(1h) Day	Leq(1h) Night	L90(8h)	L90(18h)
Tuesday*	17/02/2026	67.7	70.8	59.4	50.8	55.2
Wednesday*	18/02/2026	68.1	70.1	66.6	51.0	56.5
Thursday*	19/02/2026	68.5	67.8	73.9	54.4	56.4
Friday*	20/02/2026	70.0	73.8	73.1	51.5	58.5
Saturday^	21/02/2026	67.7	71.1	65.5	50.1	54.5
Sunday^	22/02/2026	66.0	65.0	64.5	51.8	53.6
Monday	23/02/2026	66.6	67.5	62.7	49.9	54.2
Tuesday	24/02/2026	66.7	70.7	68.0	50.5	54.8
Wednesday	25/02/2026	66.5	67.5	62.7	49.8	53.9
Thursday	26/02/2026	67.4	71.1	62.6	50.1	55.2
Friday	27/02/2026	66.8	71.3	63.1	49.6	53.3
Saturday^	28/02/2026	66.6	68.4	60.9	49.6	52.9
Sunday^	1/03/2026	66.5	71.8	60.6	50.3	53.7
Monday	2/03/2026	66.8	67.8	62.9	49.6	54.5
Tuesday	3/03/2026	67.2	68.2	63.4	49.4	54.3
Wednesday*	4/03/2026	66.8	69.5	63.1	49.6	53.8
Thursday	5/03/2026	66.0	65.3	62.7	49.7	53.1
Friday	6/03/2026	68.9	69.2	64.0	50.4	55.7
Saturday^	7/03/2026	67.8	69.4	63.4	51.5	53.9
Sunday^	8/03/2026	66.7	66.5	64.8	50.9	52.8
Monday*	9/03/2026	67.2	69.9	62.5	51.1	55.0
Tuesday*	10/03/2026	69.5	70.9	63.3	49.8	54.6
Overall value		67.3	69.1	63.2	50.0	54.4

*Note rainfall 18-20 February and 4 and 9 March for all time periods was found to affect the measurements, therefore the data was omitted for the affected time periods.

^The proposed development is located within a state-controlled transport noise corridor overlay. To be consistent with the advice in Section 4.3.1.2 of the Transport Noise Management Code of Practice, road traffic data for weekend periods and public holidays was not utilised in the assessment. The code specifies that measurements of traffic noise shall not be conducted during periods of atypical traffic flows. Periods of atypical traffic flows and patterns generally include weekends, school and public holidays.

Refer to the appendix for a graphical representation of the noise monitoring.

6. Noise Criteria

6.1 Road Traffic Noise Criteria

As the development is located near a state-controlled road (Ross River Road), the *State Development Assessment Provisions (SDAP)* criteria detailed in Section 6.1.1 applies.

6.1.1 State Development Assessment Provisions (SDAP)

The criteria applied are in accordance with the *SDAP* Version 3.5 dated 12 December 2025 by the Department of State Development, Manufacturing, Infrastructure and Planning. The SDAP *State Code 1: Development in a state-controlled road environment* sets out matters of interest for the assessment of developments near state-controlled roads or multi-modal corridors. The applicable criteria for the development in the year 2035 (ten-year planning horizon) requires road traffic noise to be assessed in accordance with Table 1.5 of the policy statement as follows;

Table 3: SDAP Road Traffic Noise Criteria

Material change of use (accommodation activity)	
Ground floor level requirements adjacent to a state-controlled road or type 1 multi-modal corridor	
PO39 Development minimises noise intrusion from a state-controlled road in private open space.	AO39.1 Development provides a noise barrier or earth mound which is designed, sited and constructed: 1. to achieve the maximum free field acoustic levels in reference table 2 (item 2.2) for private open space at the ground floor level; 2. in accordance with: a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR AO39.2 Development achieves the maximum free field acoustic level in reference table 2 (item 2.2) for private open space by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.
PO40 Development (excluding a relevant residential building or relocated building) minimises noise intrusion from a state controlled road in habitable rooms at the facade.	AO40.1 Development (excluding a relevant residential building or relocated building) provides a noise barrier or earth mound which is designed, sited and constructed: 1. to achieve the maximum building façade acoustic level in reference table 1 (item 1.1) for habitable rooms; 2. in accordance with: a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR AO40.2 Development (excluding a relevant residential building or relocated building) achieves the maximum building façade acoustic level in reference table 1 (item 1.1) for habitable rooms by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.

PO41 Habitable rooms (excluding a relevant residential building or relocated building) are designed and constructed using materials to achieve the maximum internal acoustic level in reference table 3 (item 3.1).	No acceptable outcome is provided.
Above ground floor level requirements (accommodation activity) adjacent to a state-controlled road or type 1 multi-modal corridor	
PO42 Balconies, podiums, and roof decks include: 1. a continuous solid gap-free structure or balustrade (excluding gaps required for drainage purposes to comply with the Building Code of Australia); 2. highly acoustically absorbent material treatment for the total area of the soffit above balconies, podiums, and roof decks.	No acceptable outcome is provided.
PO43 Habitable rooms (excluding a relevant residential building or relocated building) are designed and constructed using materials to achieve the maximum internal acoustic level in reference table 3 (item 3.1).	No acceptable outcome is provided.

Table 4: Table 1 of SDAP Maximum Building Façade Acoustic Levels (Table 1)

Applicable use	Acoustic levels
1.1: Accommodation activity	a. ≤60 dB(A) L10 (18 hour) façade corrected (measured L90 (8 hour) free field between 10pm and 6am ≤40 dB(A)) OR b. ≤63 dB(A) L10 (18 hour) façade corrected (measured L90 (8 hour) free field between 10pm and 6am > 40 dB(A))

Table 5: Table 2 of SDAP Maximum Free Field Acoustic Levels (Table 2)

Applicable use	Acoustic levels
2.2: Private open space for an accommodation activity (including lots created for a future accommodation activity)	a. ≤57 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight ≤45 dB(A)) OR b. ≤60 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight >45 dB(A))

Table 6: Table 3 of SDAP Maximum Internal Acoustic Levels (Table 3)

Applicable use	Acoustic levels
3.1: Habitable rooms in an accommodation activity (excluding uses addressed in QDC MP4.4)	≤35 dB(A) Leq (1 hour) (maximum hour over 24 hours)

6.1.2 Queensland Design Code MP4.4

To determine the minimum design requirements for any new residential buildings located in a transport noise corridor, the Queensland Development Code Part 4.4 may be applied if no alternative solutions are provided. In accordance with MP4.4, the noise categories are stated in Table 7.

Table 7: Queensland Development Code Noise Categories

Category	Noise level L10 (18hr) dBA (including façade correction)
Category 4	≥ 73
Category 3	68-72
Category 2	63-67
Category 1	58-62
Category 0	≤ 57

The building treatment for any future development onsite shall be determined at Building Approval stage, in general accordance with the Queensland Development Code. Alternative solution may be provided on request.

7. Road Traffic Assessment

Road traffic noise associated with Ross River Road for a ten-year planning horizon was assessed at the development to determine compliance with SDAP criteria (refer to Section 6.1.1) and any requirements for acoustic treatments.

7.1 Traffic Volumes

Traffic volume for Ross River Road was obtained from Transport and Main Roads Traffic Census and is presented in Table 8, with a growth rate of 1% used to predict the future AADT.

Table 8: Traffic Volumes

Location	2024 AADT	2026 Predicted AADT	2036 Predicted AADT	Percentage of Heavy Vehicles
Ross River Road	18,421	18,791	20,757	4.64%

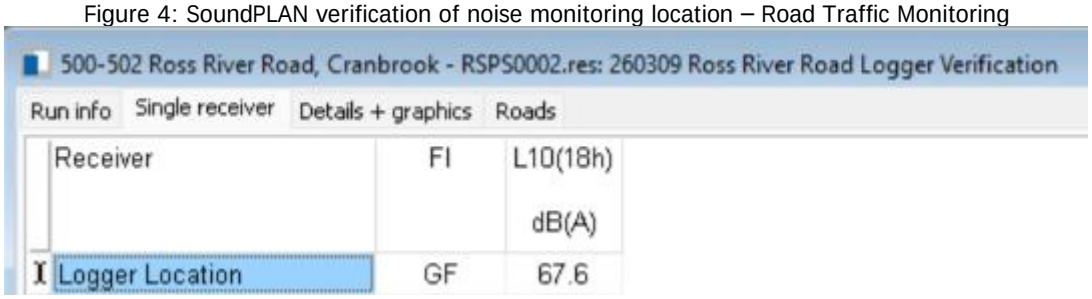
7.2 Road Traffic Noise Verification

To ensure the CoRTN noise model is accurate, a verification model of the predicted $L_{A10(18hr)}$ was created and compared to the measured noise level. The CoRTN method allows a 2dB(A) variation from the predicted and measured level, if the variation exceeds 2dB(A) a correction to the predicted level is required.

Table 9: Comparison of measured and predicted noise levels

Location	Measured LA10(18hr) dB(A)	Predicted LA10(18hr) dB(A)	Correction
Ross River Road	67.3	67.6	0

Figure 4: SoundPLAN verification of noise monitoring location – Road Traffic Monitoring



Inputs applied in the verification of the noise modelling are as follows:

- Speed: 60km/hr
- Road Surface correction: 0dBA, as per the Transport Noise Code of Practice the road surface was identified as Bitumen Dense Graded Asphalt.
- Width of each Lane: 3.5m.
- -0.7 free field correction.

7.3 Predicted Road Traffic Noise Levels - 2036

Road traffic noise modelling for the proposed development was based on the following information:

- Site layout provided by Concepts Building Design dated December 2025.
- Ross River Road speed limit of 60km/h.
- Receiver heights were based on 1.6m above finished floor level.
- +2.5dB(A) Façade correction.
- -0.7dBA free field correction and -1.7dBA façade correction for Queensland conditions.

Table 10: Predicted Road Traffic Noise Impacts 2036

Floor	Unit	Room	Predicted Road Traffic Noise Levels	
			L10 (18h) dB(A)	QDC Noise Category
U1	GF	Bed 1	47	0
U1	GF	Bed 2	48	0
U1	GF	Bed 3	49	0
U1	GF	Living/Kitchen/Dining	49	0
U2	GF	Bed 1	50	0
U2	GF	Bed 2	48	0
U2	GF	Living/Kitchen/Dining	50	0
U3	GF	Bed 1	51	0
U3	GF	Bed 2	48	0
U3	GF	Living/Kitchen/Dining	51	0
U4	GF	Bed 1	51	0
U4	GF	Bed 2	49	0
U4	GF	Living/Kitchen/Dining	51	0
U5	GF	Bed 1	51	0
U5	GF	Bed 2	49	0
U5	GF	Living/Kitchen/Dining	51	0
U6	GF	Bed 1	52	0
U6	GF	Bed 2	49	0
U6	GF	Living/Kitchen/Dining	52	0
U7	GF	Bed 1	52	0
U7	GF	Bed 2	49	0
U7	GF	Living/Kitchen/Dining	52	0
U8	GF	Bed 1	47	0
U8	GF	Bed 2	47	0
U8	GF	Bed 3	49	0
U8	GF	Living/Kitchen/Dining	39	0
U9	GF	Bed 1	51	0
U9	GF	Bed 2	49	0
U9	GF	Living/Kitchen/Dining	50	0
U10	GF	Bed 1	51	0
U10	GF	Bed 2	49	0
U10	GF	Living/Kitchen/Dining	51	0
U11	GF	Bed 1	51	0
U11	GF	Bed 2	49	0
U11	GF	Living/Kitchen/Dining	51	0
U12	GF	Bed 1	51	0
U12	GF	Bed 2	49	0
U12	GF	Living/Kitchen/Dining	52	0
U13	GF	Bed 1	52	0
U13	GF	Bed 2	49	0
U13	GF	Living/Kitchen/Dining	52	0
U14	GF	Bed 1	53	0
U14	GF	Bed 2	50	0
U14	GF	Living/Kitchen/Dining	53	0
U15	GF	Bed 1	59	1
U15	GF	Bed 2	49	0

Floor	Unit	Room	Predicted Road Traffic Noise Levels	
			L10 (18h) dB(A)	QDC Noise Category
U15	GF	Bed 3	60	1
U15	GF	Living/Kitchen/Dining	61	1
U16	GF	Bed 1	56	0
U16	GF	Bed 2	44	0
U16	GF	Bed 3	44	0
U16	GF	Living/Kitchen/Dining	61	1
U18	GF	Bed 1	60	1
U18	GF	Bed 2	44	0
U18	GF	Bed 3	44	0
U18	GF	Living/Kitchen/Dining	60	1
U20	GF	Bed 1	58	1
U20	GF	Bed 2	44	0
U20	GF	Living/Kitchen/Dining	59	1
U22	GF	Bed 1	61	1
U22	GF	Bed 2	52	0
U22	GF	Living/Kitchen/Dining	60	1
U22	GF	Media	57	0
U24	GF	Bed 1	61	1
U24	GF	Bed 2	44	0
U24	GF	Living/Kitchen/Dining	60	1
U26	GF	Bed 1	61	1
U26	GF	Bed 2	44	0
U26	GF	Living/Kitchen/Dining	59	1
U28	GF	Bed 1	60	1
U28	GF	Bed 2	56	0
U28	GF	Bed 3	55	0
U28	GF	Living/Kitchen/Dining	59	1
U17	F 1	Bed 1	66	2
U17	F 1	Bed 2	49	0
U17	F 1	Bed 3	50	0
U17	F 1	Living/Kitchen/Dining	68	2
U19	F 1	Bed 1	67	2
U19	F 1	Bed 2	49	0
U19	F 1	Bed 3	49	0
U19	F 1	Living/Kitchen/Dining	67	2
U21	F 1	Bed 1	65	2
U21	F 1	Bed 2	49	0
U21	F 1	Living/Kitchen/Dining	66	2
U23	F 1	Bed 1	68	3
U23	F 1	Bed 2	56	0
U23	F 1	Living/Kitchen/Dining	67	2
U23	F 1	Media	64	2
U25	F 1	Bed 1	68	2
U25	F 1	Bed 2	49	0
U25	F 1	Living/Kitchen/Dining	67	2
U27	F 1	Bed 1	67	2
U27	F 1	Bed 2	49	0
U27	F 1	Living/Kitchen/Dining	65	2

Based on the predicted noise impacts, additional facade treatments are required in accordance with QDC MP4.4. Refer to Section 8 for further recommendations.

The 3D SoundPLAN CoRTN noise model predicts $L_{A10,18hour}$ levels as shown Figure 5 and Figure 6.

Figure 5: Predicted Year 2036 Traffic Noise Levels – Ground Level (Façade Corrected)

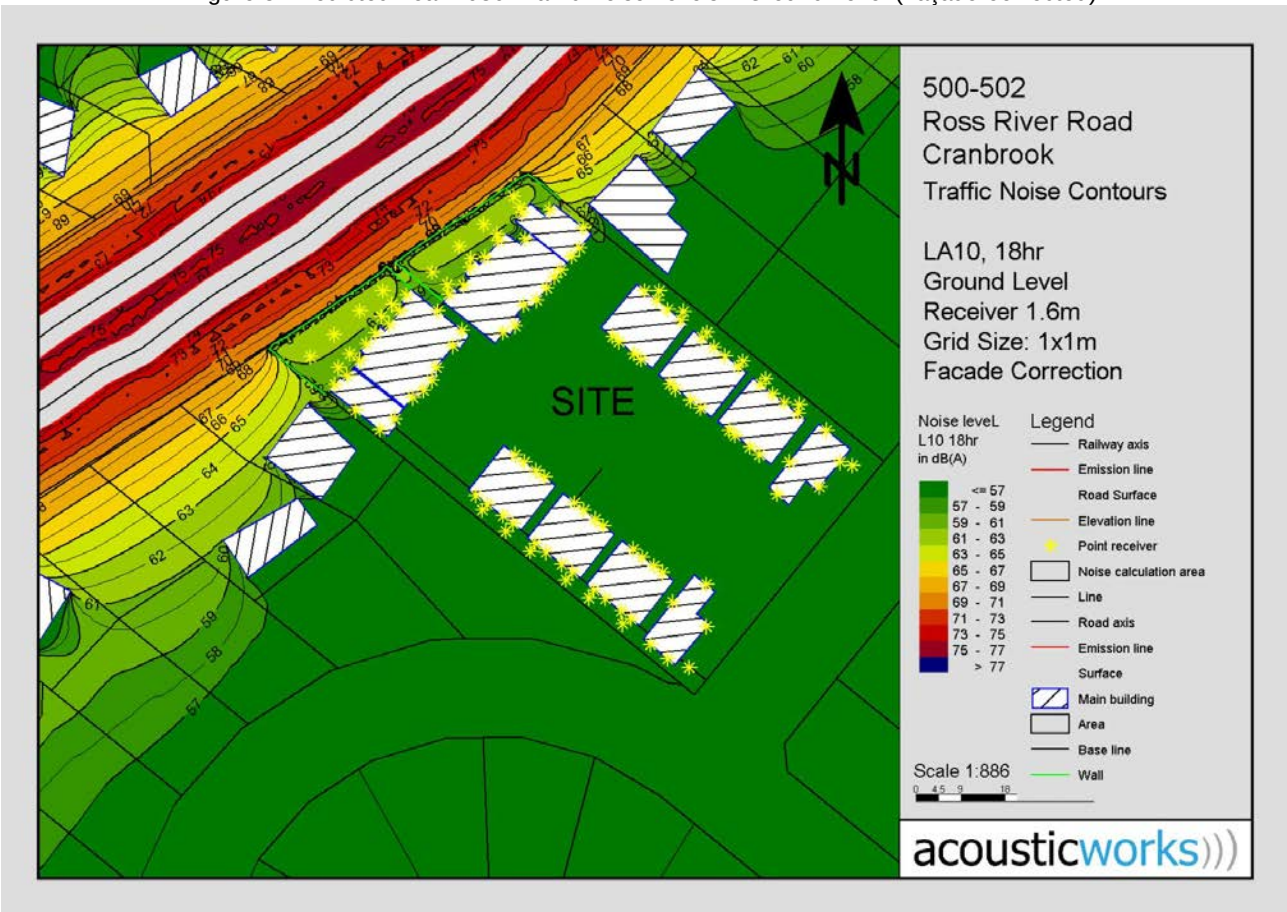
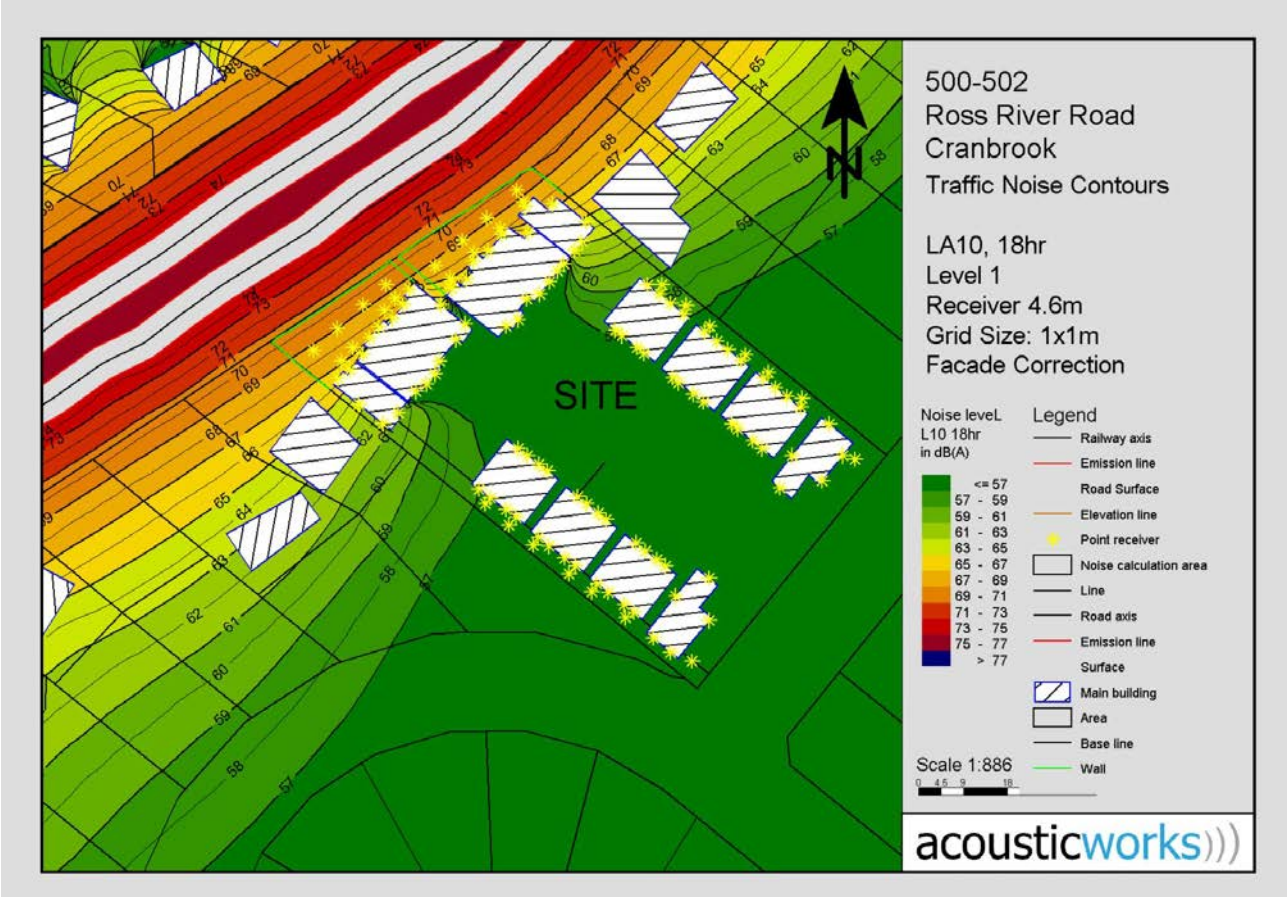


Figure 6: Predicted Year 2036 Traffic Noise Levels – Level 1 (Façade Corrected)



Noise impacts to passive recreation areas are presented in the following table:

Table 11: Road Traffic Noise Impacts to Passive Recreation Areas

Location			Predicted Road Traffic Noise Impacts (Free Field) 2036	Compliance to SDAP Criteria <60dB(A) (yes/no)
Floor	Unit	Area	$L_{A10(18hr)}$ dB(A)	
U1	GF	Yard	45	Yes
U2	GF	Yard	50	Yes
U3	GF	Yard	50	Yes
U4	GF	Yard	50	Yes
U5	GF	Yard	51	Yes
U6	GF	Yard	51	Yes
U7	GF	Yard	51	Yes
U8	GF	Yard	40	Yes
U9	GF	Yard	49	Yes
U10	GF	Yard	50	Yes
U11	GF	Yard	50	Yes
U12	GF	Yard	51	Yes
U13	GF	Yard	51	Yes
U14	GF	Yard	52	Yes
U15	F 1	Balcony	67	No
U15	GF	Yard	60	Yes
U16	GF	Yard	60	Yes
U17	F 1	Balcony	67	No
U18	GF	Yard	60	Yes
U19	F 1	Balcony	66	No
U20	GF	Yard	59	Yes
U21	F 1	Balcony	65	No
U22	GF	Yard	60	Yes
U23	F 1	Balcony	67	No
U24	GF	Yard	60	Yes
U25	F 1	Balcony	67	No
U25	GF	Yard	60	Yes
U27	F 1	Balcony	66	No
U28	F 1	Balcony	66	No
U28	GF	Yard	60	Yes

For recreation areas above the criteria, in accordance with AO24.3 of "*State Code 1: Development in a state-controlled environment*", we recommend that balconies have continuous solid gap-free balustrades installed.

The 3D SoundPLAN CoRTN noise model predicts $L_{A10,18hour}$ levels as shown Figure 7 and Figure 8.

Figure 7: Predicted Year 2036 Traffic Noise Levels – Ground Level (Free Field)

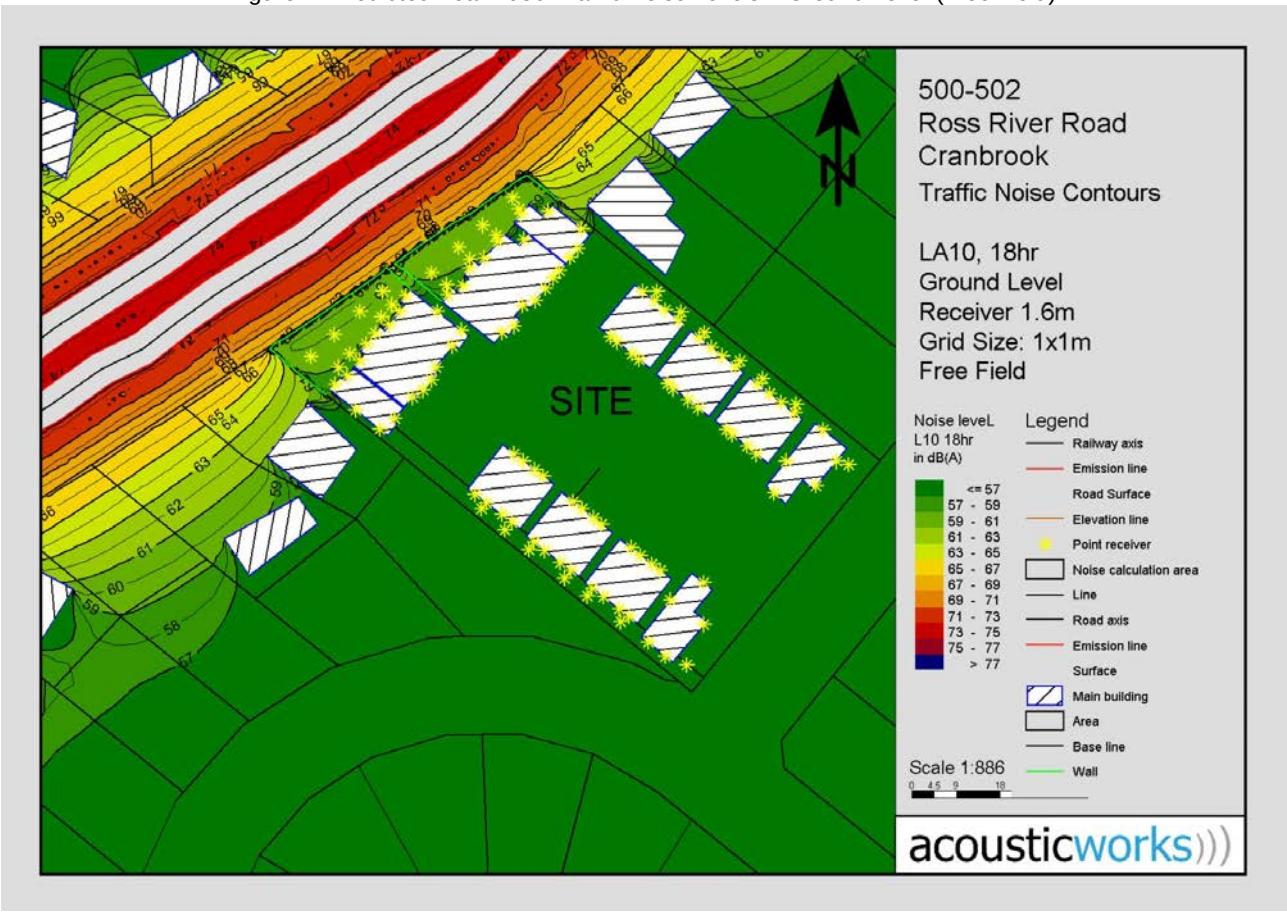
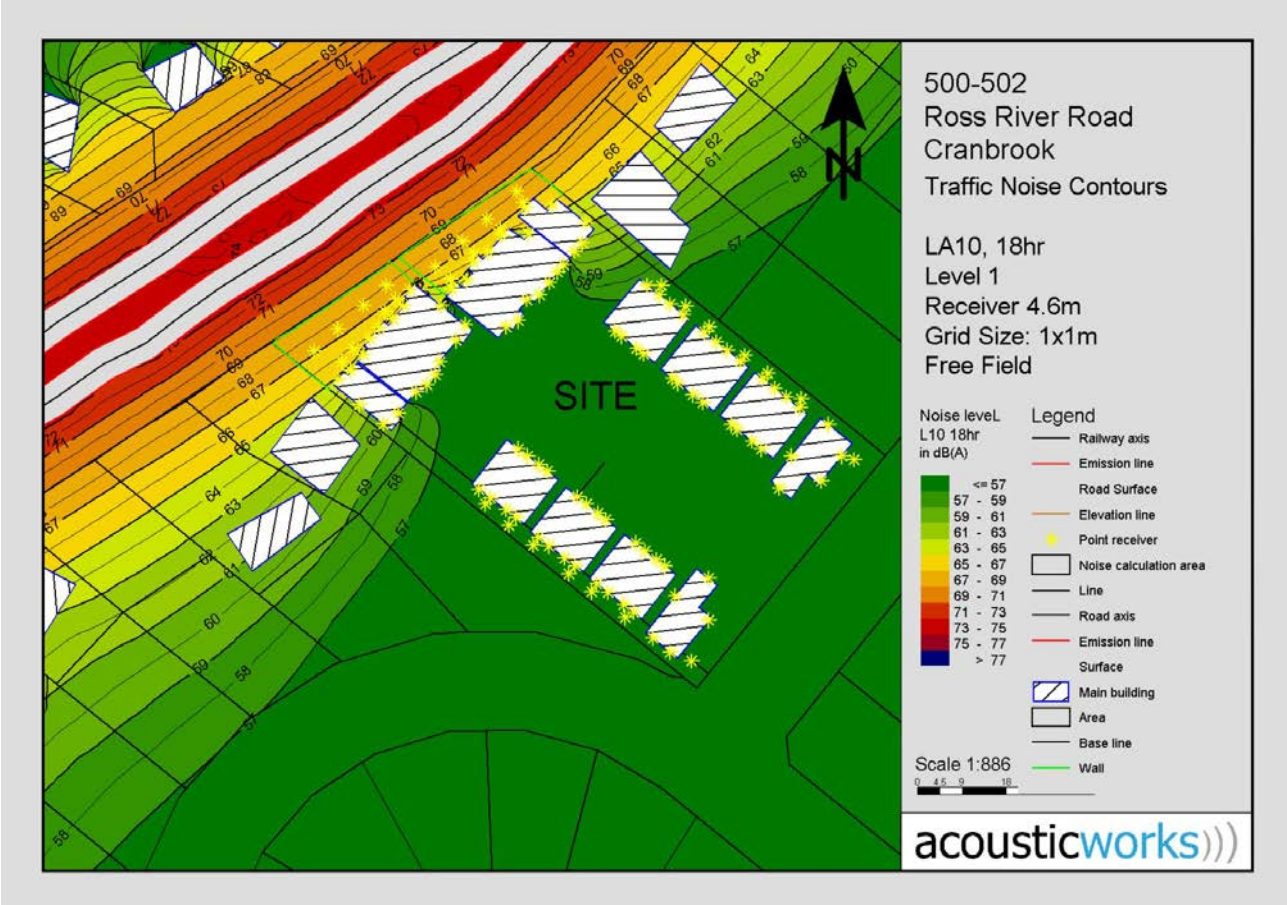


Figure 8: Predicted Year 2036 Traffic Noise Levels – Level 1 (Free Field)



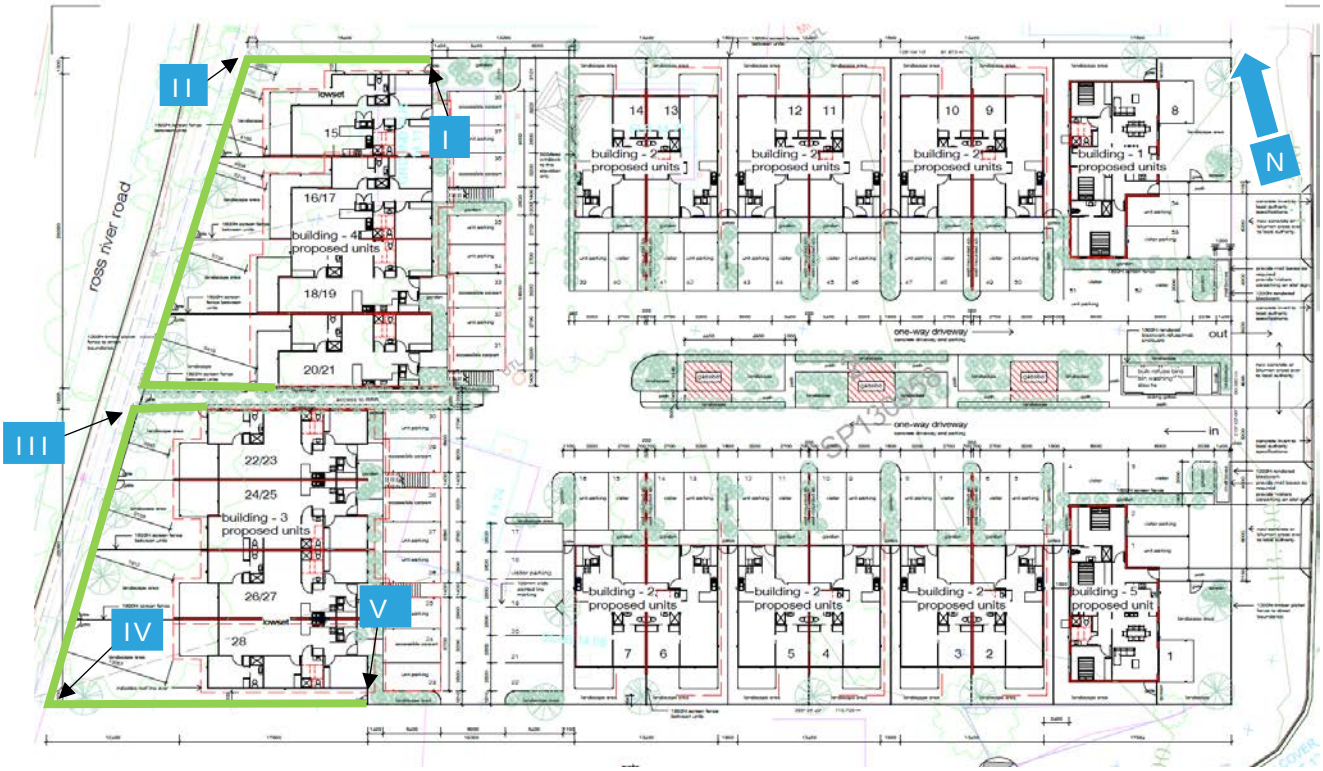
8. Recommendations

8.1 Acoustic Barriers

Acoustic barriers are recommended to be constructed along the passive recreational boundaries of units 15 to 20 and 22 to 28 as shown in Figure 9 below. The barriers are recommended to be built to a height of 2.0 metres above the finished recreational level or boundary level (whichever is higher).

The barrier shall be constructed using materials that achieve a minimum surface density of 15kg/m². The barriers shall be constructed in accordance with Main Roads Standard Specification MRTS15 *"Noise Fences"*. The barrier shall be free of gaps and holes.

Figure 9: TMR Acoustic Barriers



Acoustic barrier 2.0m high above finished recreational level or ground level (whichever is higher)

Table 12: Recommended Acoustic Barrier Height

Reference Point	Approximate Finished Recreational Level (m)	Recommended Barrier Height (m)	Approximate Finished Top Barrier Level (m)
I	14.0	2.0	16.0
II	14.0	2.0	16.0
III	14.0	2.0	16.0
IV	14.0	2.0	16.0
V	14.0	2.0	16.0

8.2 Road Traffic Noise

8.2.1 Glazing

The minimum glazing treatments are required to comply with the following:

- The minimum glass thickness specified shall not be reduced regardless of the R_w performance of the glass unless the glazier can provider a specific (non-generic) NATA Test report proving the proposed glazing system complies (the test report must be based on the same configuration proposed for the development). Note an estimation or calculated performance will not be accepted.
- If compliance cannot be achieved with the minimum R_w ratings, the glazing system shall be upgraded until compliance is achieved.
- Glazing specified with acoustic seals requires a seal that has been tested with a glazing system or door to achieve an Rw rating in accordance with AS/NZS ISO 717.1 (Q-lon seals or an equivalent product), mohair seals are not acceptable.
- The glazier shall provide NATA test reports on request to verify compliance with the minimum R_w ratings. Generic reports are not acceptable.
- Living areas are defined as habitable rooms other than bedrooms (excluding garages, kitchens, bathrooms & hallways).

Table 13: Required façade acoustic ratings

Floor	Unit	Room	QDC Noise Category	QDC Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing	Minimum Construction Requirements	
U1	GF	Bed 1	0	-	-	-	Standard	no
U1	GF	Bed 2	0	-	-	-	Standard	no
U1	GF	Bed 3	0	-	-	-	Standard	no
U1	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U2	GF	Bed 1	0	-	-	-	Standard	no
U2	GF	Bed 2	0	-	-	-	Standard	no
U2	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U3	GF	Bed 1	0	-	-	-	Standard	no
U3	GF	Bed 2	0	-	-	-	Standard	no
U3	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U4	GF	Bed 1	0	-	-	-	Standard	no
U4	GF	Bed 2	0	-	-	-	Standard	no
U4	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U5	GF	Bed 1	0	-	-	-	Standard	no
U5	GF	Bed 2	0	-	-	-	Standard	no
U5	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U6	GF	Bed 1	0	-	-	-	Standard	no
U6	GF	Bed 2	0	-	-	-	Standard	no
U6	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U7	GF	Bed 1	0	-	-	-	Standard	no
U7	GF	Bed 2	0	-	-	-	Standard	no
U7	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U8	GF	Bed 1	0	-	-	-	Standard	no
U8	GF	Bed 2	0	-	-	-	Standard	no
U8	GF	Bed 3	0	-	-	-	Standard	no
U8	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U9	GF	Bed 1	0	-	-	-	Standard	no
U9	GF	Bed 2	0	-	-	-	Standard	no

Floor	Unit	Room	QDC Noise Category	QDC Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing	Minimum Construction Requirements	
U9	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U10	GF	Bed 1	0	-	-	-	Standard	no
U10	GF	Bed 2	0	-	-	-	Standard	no
U10	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U11	GF	Bed 1	0	-	-	-	Standard	no
U11	GF	Bed 2	0	-	-	-	Standard	no
U11	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U12	GF	Bed 1	0	-	-	-	Standard	no
U12	GF	Bed 2	0	-	-	-	Standard	no
U12	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U13	GF	Bed 1	0	-	-	-	Standard	no
U13	GF	Bed 2	0	-	-	-	Standard	no
U13	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U14	GF	Bed 1	0	-	-	-	Standard	no
U14	GF	Bed 2	0	-	-	-	Standard	no
U14	GF	Living/Kitchen/Dining	0	-	-	-	Standard	no
U15	GF	Bed 1	1	35	35	27	4mm float	yes
U15	GF	Bed 2	0	-	-	-	Standard	no
U15	GF	Bed 3	1	35	35	27	4mm float	yes
U15	GF	Living/Kitchen/Dining	1	35	35	27	4mm float	yes
U16	GF	Bed 1	0	-	-	-	Standard	no
U16	GF	Bed 2	0	-	-	-	Standard	no
U16	GF	Bed 3	0	-	-	-	Standard	no
U16	GF	Living/Kitchen/Dining	1	35	-	27	4mm float	yes
U18	GF	Bed 1	1	35	-	27	4mm float	yes
U18	GF	Bed 2	0	-	-	-	Standard	no
U18	GF	Bed 3	0	-	-	-	Standard	no
U18	GF	Living/Kitchen/Dining	1	35	-	27	4mm float	yes
U20	GF	Bed 1	1	35	-	27	4mm float	yes
U20	GF	Bed 2	0	-	-	-	Standard	no
U20	GF	Living/Kitchen/Dining	1	35	-	27	4mm float	yes
U22	GF	Bed 1	1	35	-	27	4mm float	yes
U22	GF	Bed 2	0	-	-	-	Standard	no
U22	GF	Living/Kitchen/Dining	1	35	-	27	4mm float	yes
U22	GF	Media	0	-	-	-	Standard	no
U24	GF	Bed 1	1	35	-	27	4mm float	yes
U24	GF	Bed 2	0	-	-	-	Standard	no
U24	GF	Living/Kitchen/Dining	1	35	-	27	4mm float	yes
U26	GF	Bed 1	1	35	-	27	4mm float	yes
U26	GF	Bed 2	0	-	-	-	Standard	no
U26	GF	Living/Kitchen/Dining	1	35	-	27	4mm float	yes
U28	GF	Bed 1	1	35	-	27	4mm float	yes
U28	GF	Bed 2	0	-	-	-	Standard	no
U28	GF	Bed 3	0	-	-	-	Standard	no
U28	GF	Living/Kitchen/Dining	1	35	35	27	4mm float	yes
U17	F 1	Bed 1	2	41	38	35	10.38 lam	yes
U17	F 1	Bed 2	0	-	-	-	Standard	no
U17	F 1	Bed 3	0	-	-	-	Standard	no
U17	F 1	Living/Kitchen/Dining	2	41	38	35	10.38 lam	yes
U19	F 1	Bed 1	2	41	38	35	10.38 lam	yes
U19	F 1	Bed 2	0	-	-	-	Standard	no
U19	F 1	Bed 3	0	-	-	-	Standard	no

Floor	Unit	Room	QDC Noise Category	QDC Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing	Minimum Construction Requirements	
U19	F 1	Living/Kitchen/Dining	2	41	38	35	10.38 lam	yes
U21	F 1	Bed 1	2	41	38	35	10.38 lam	yes
U21	F 1	Bed 2	0	-	-	-	Standard	no
U21	F 1	Living/Kitchen/Dining	2	41	38	35	10.38 lam	yes
U23	F 1	Bed 1	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	yes
U23	F 1	Bed 2	0	-	-	-	Standard	no
U23	F 1	Living/Kitchen/Dining	2	41	38	35	10.38 lam	yes
U23	F 1	Media	2	41	38	35	10.38 lam	yes
U25	F 1	Bed 1	2	-	-	-	Standard	no
U25	F 1	Bed 2	0	-	-	-	Standard	no
U25	F 1	Living/Kitchen/Dining	2	41	38	35	10.38 lam	yes
U27	F 1	Bed 1	2	41	38	35	10.38 lam	yes
U27	F 1	Bed 2	0	-	-	-	Standard	no
U27	F 1	Living/Kitchen/Dining	2	41	38	35	10.38 lam	yes

Any locations not identified in Table 13 shall require standard construction, with minimum 4mm float for windows (minimum Rw 22) and 4mm toughened for sliding doors (minimum Rw 23).

8.2.2 Alternative Ventilation

We recommend that all locations nominated in Table 13 as QDC Noise Category 1-3 have the provision for an alternative ventilation system similar to air-conditioning or mechanical ventilation to allow doors and windows to be closed. Penetrations through the wall or ceiling shall not reduce the overall acoustic performance of the installed system.

8.2.3 Balcony Balustrades

In accordance with Performance Outcome PO42 of *"State Code 1: Development in a state-controlled environment"*, all balconies exceeding the free field criteria shall be constructed with a solid balustrade.

Table 14: Recreation areas – Solid gap-free balustrades

Level	Unit	Location	Solid Balustrade Required Yes/No
U1	GF	Yard	No
U2	GF	Yard	No
U3	GF	Yard	No
U4	GF	Yard	No
U5	GF	Yard	No
U6	GF	Yard	No
U7	GF	Yard	No
U8	GF	Yard	No
U9	GF	Yard	No
U10	GF	Yard	No
U11	GF	Yard	No
U12	GF	Yard	No
U13	GF	Yard	No
U14	GF	Yard	No
U15	F 1	Balcony	Yes
U15	GF	Yard	No
U16	GF	Yard	No
U17	F 1	Balcony	Yes
U18	GF	Yard	No
U19	F 1	Balcony	Yes
U20	GF	Yard	No
U21	F 1	Balcony	Yes
U22	GF	Yard	No
U23	F 1	Balcony	Yes
U24	GF	Yard	No
U25	F 1	Balcony	Yes
U25	GF	Yard	No
U27	F 1	Balcony	Yes
U28	F 1	Balcony	Yes
U28	GF	Yard	No

8.2.4 Wall Construction

The wall construction recommendations from QDC MP4.4 are included in the table below. Note that these are not the only allowable methods of construction for the development, and alternative constructions to achieve the required Rw ratings may also be provided.

Table 15: QDC typical wall construction

QDC Noise Category	Wall Rw	QDC Acceptable forms of construction
3	47	Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m3 or 50mm thick polyester insulation with a density of 20kg/m3 in the cavity. OR Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) at least 13mm thick cement render on each face. OR Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m3 positioned between studs; and (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs. OR Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging. OR 1 layer of 9mm FC, 90mm timber stud with 75mm glasswool batts (density 11kg/m^3) and 2 layers of 13mm fire rated plasterboard.
2	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves OR Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m3 positioned between studs; and (iii) One layer of plasterboard at least 10mm thick fixed to outside face of studs OR Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face OR Concrete brickwork at least 110mm thick OR In-situ concrete at least 100mm thick OR Precast concrete at least 100mm thick and without joints. OR 1 layer of 9mm FC, 90mm timber stud with 75mm glasswool batts (density 11kg/m^3) and 1 layer of 13mm plasterboard internally.
1	35	Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs OR Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.
0	N/A	Standard Construction

8.2.5 Roof/ceiling Construction

The roof/ceiling construction recommendations from QDC MP4.4 are included in the table below. Note that these are not the only allowable methods of construction for the development, and alternative constructions to achieve the required Rw ratings may also be provided.

Table 16: QDC typical roof construction

QDC Noise Category	Roof Rw	QDC Acceptable forms of construction
3	41	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m3 or polyester insulation at least 50mm thick with a density of at least 20kg/m3 in the cavity. OR Concrete suspended slab at least 100mm thick.
2	38	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m3.
1	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity.
0	n/a	Standard Construction

9. Conclusion

A traffic noise assessment has been conducted for the proposed residential development to be located at 500-502 Ross River Road, Cranbrook. On condition the recommendations in Section 8 are implemented, compliance is predicted with SDAP criteria.

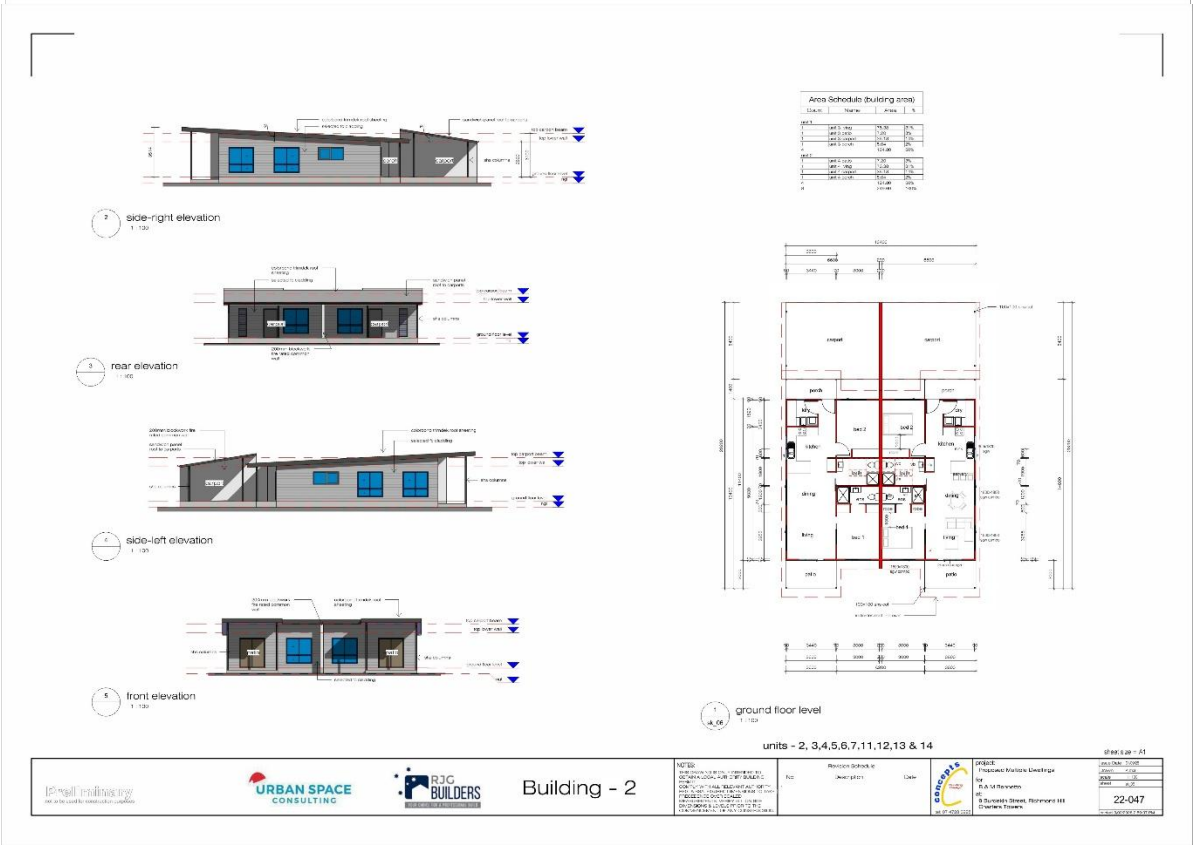
If you should have any queries please do not hesitate to contact us.

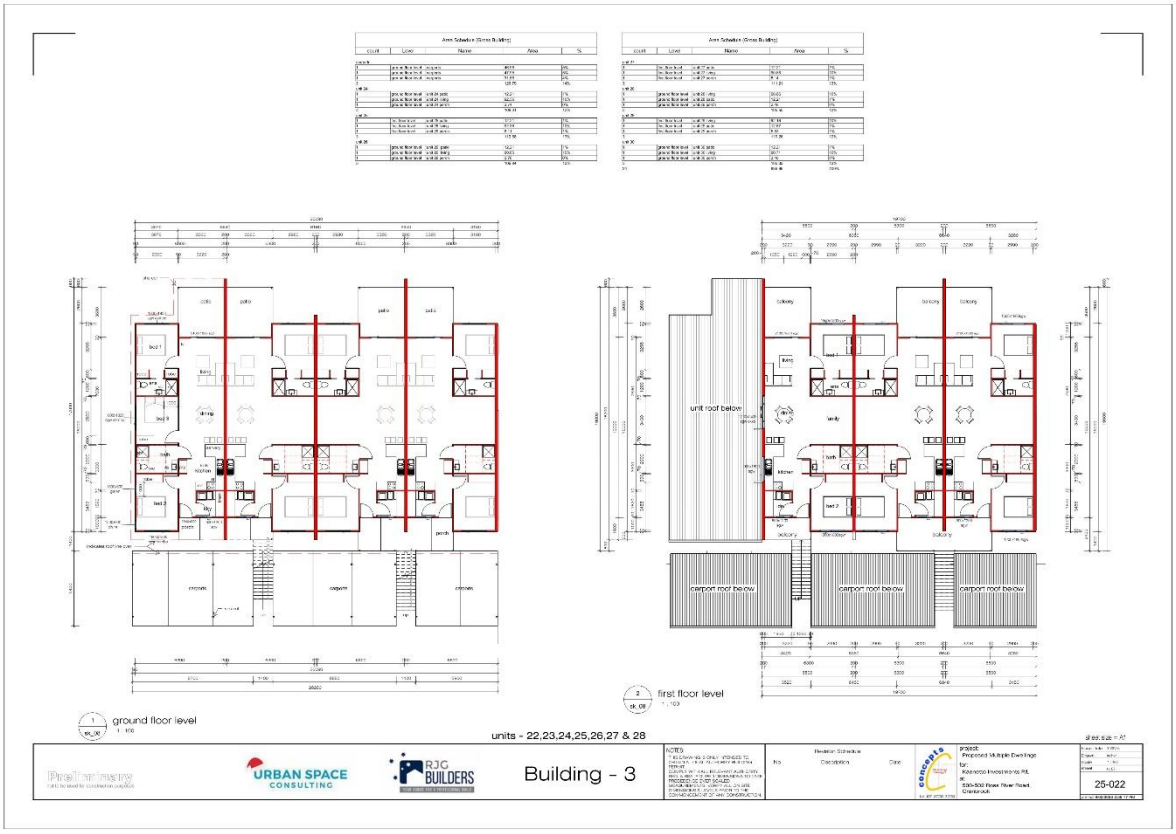
Report Prepared by:

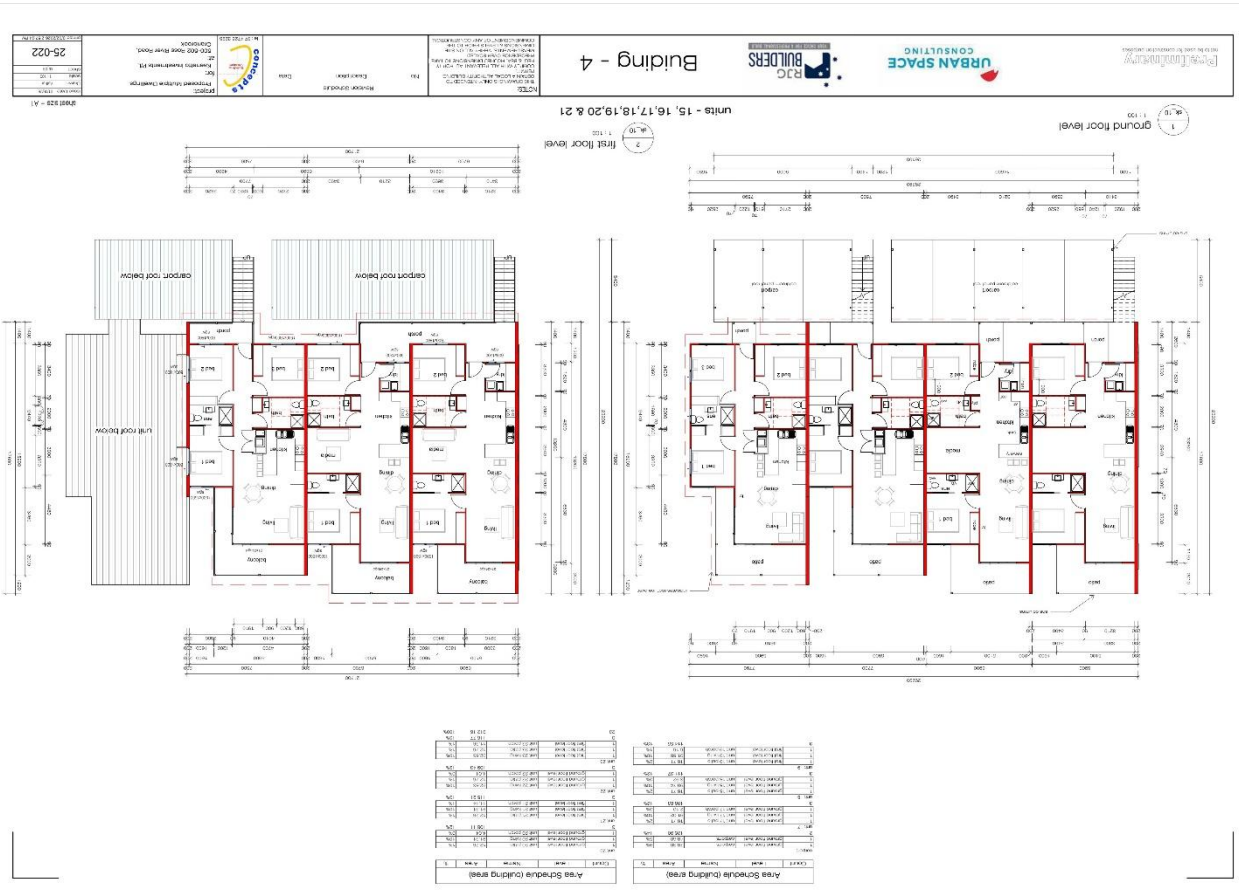
Kaitlyn Meldrum
Acoustic Consultant
acousticworks)))

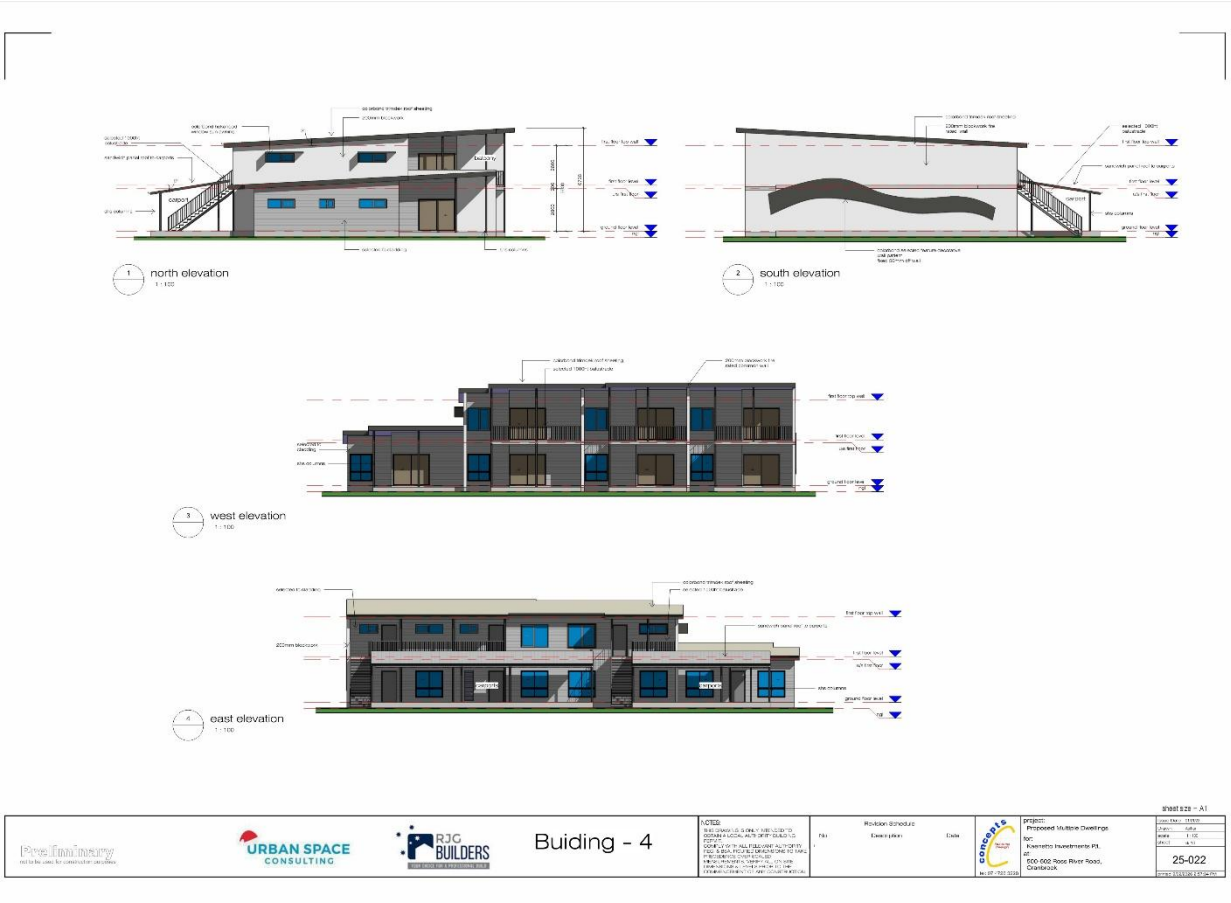
10. Appendices

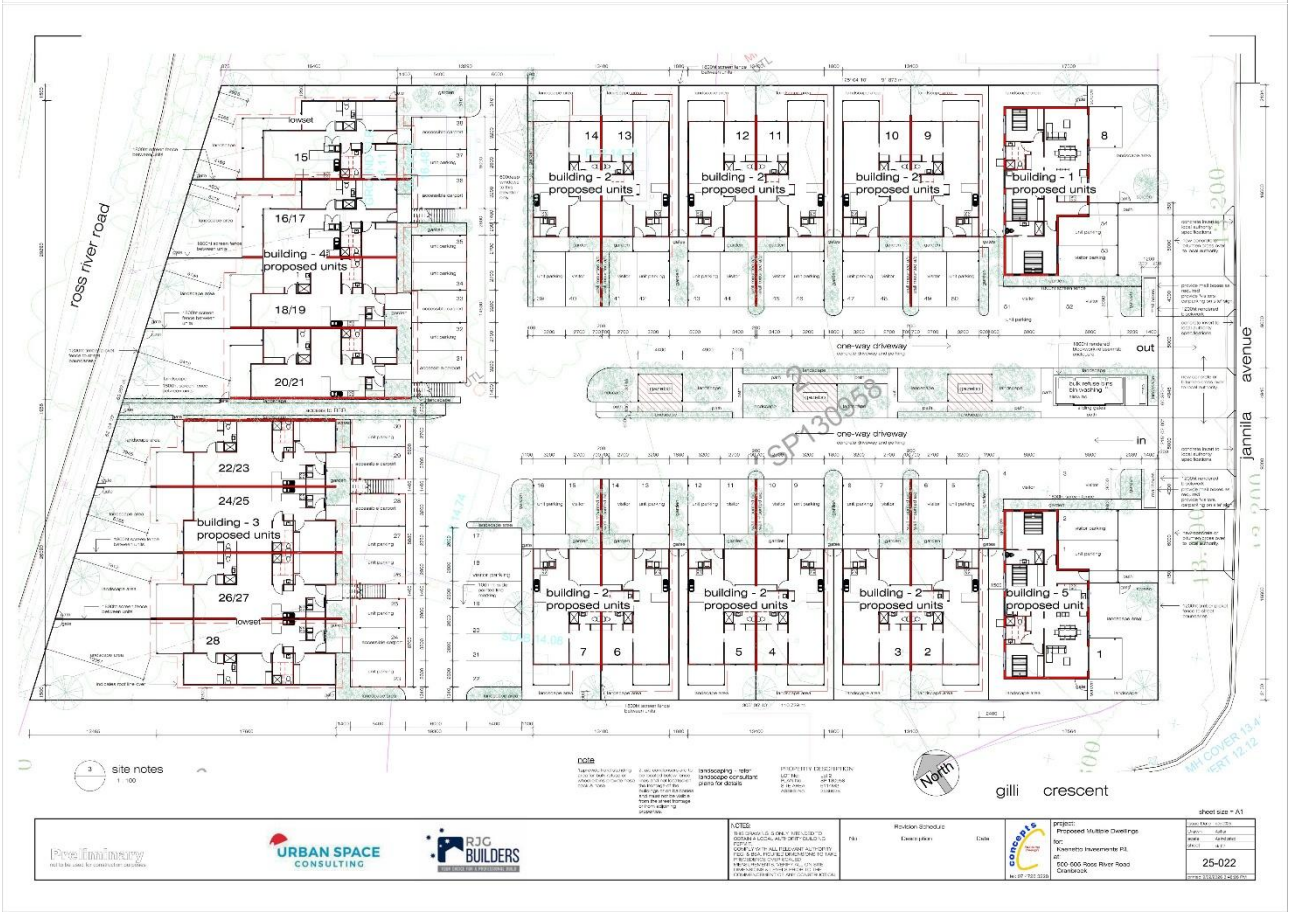
10.1 Development Plans

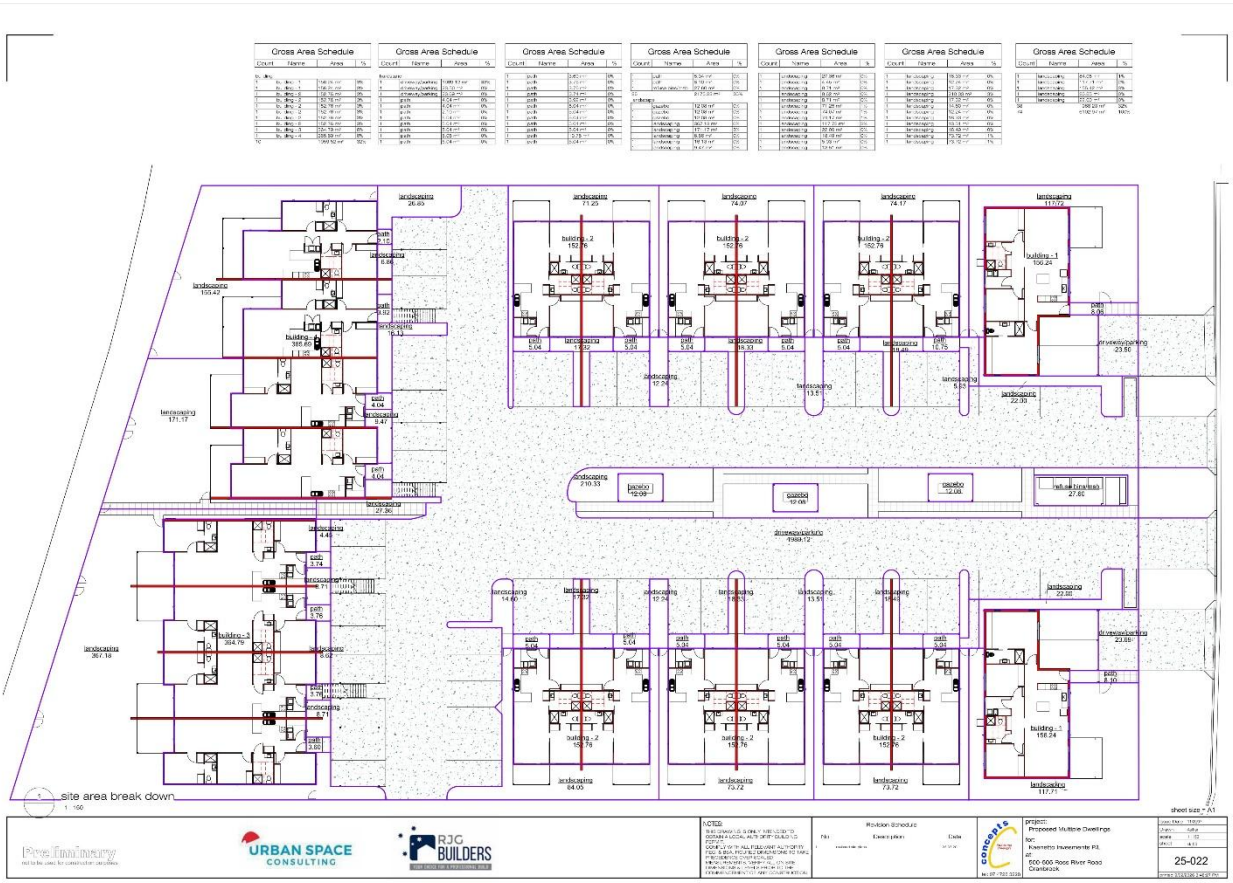


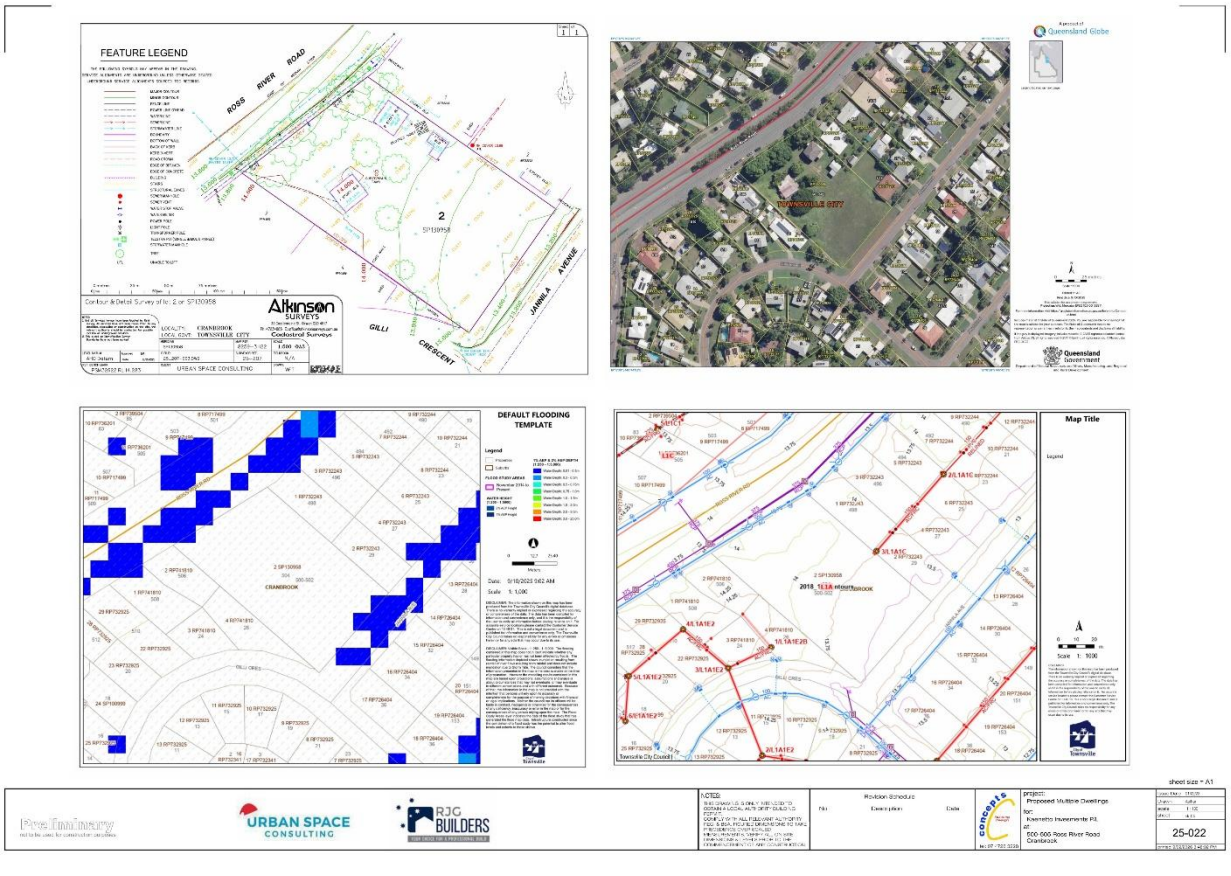






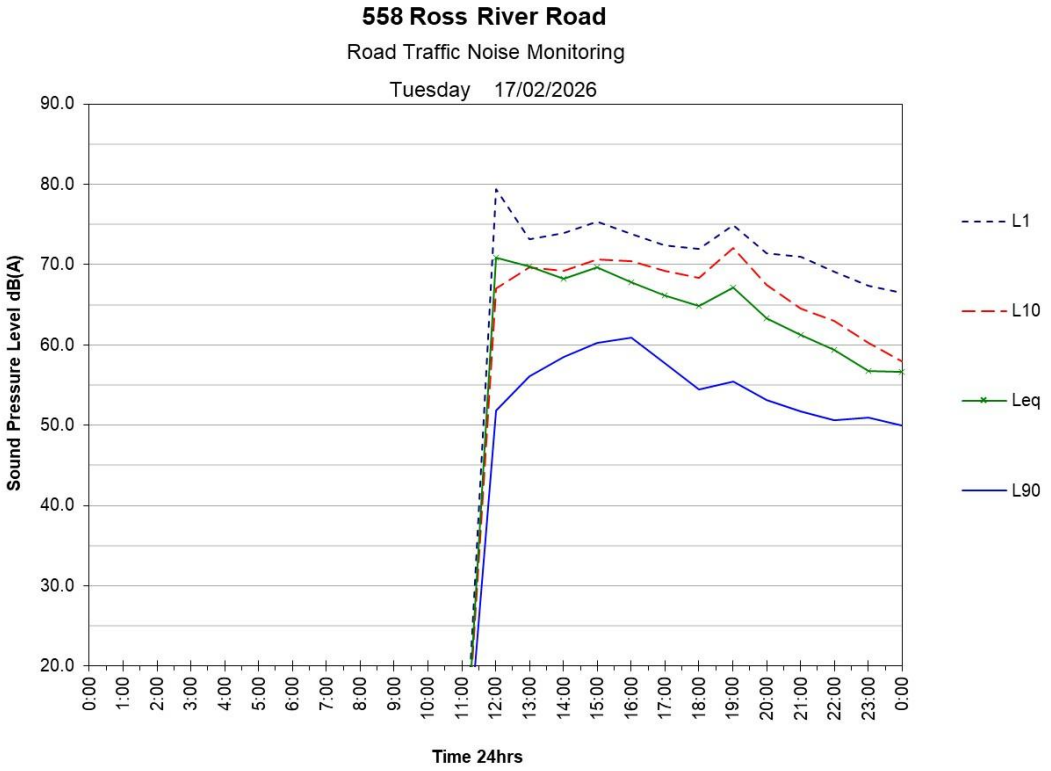


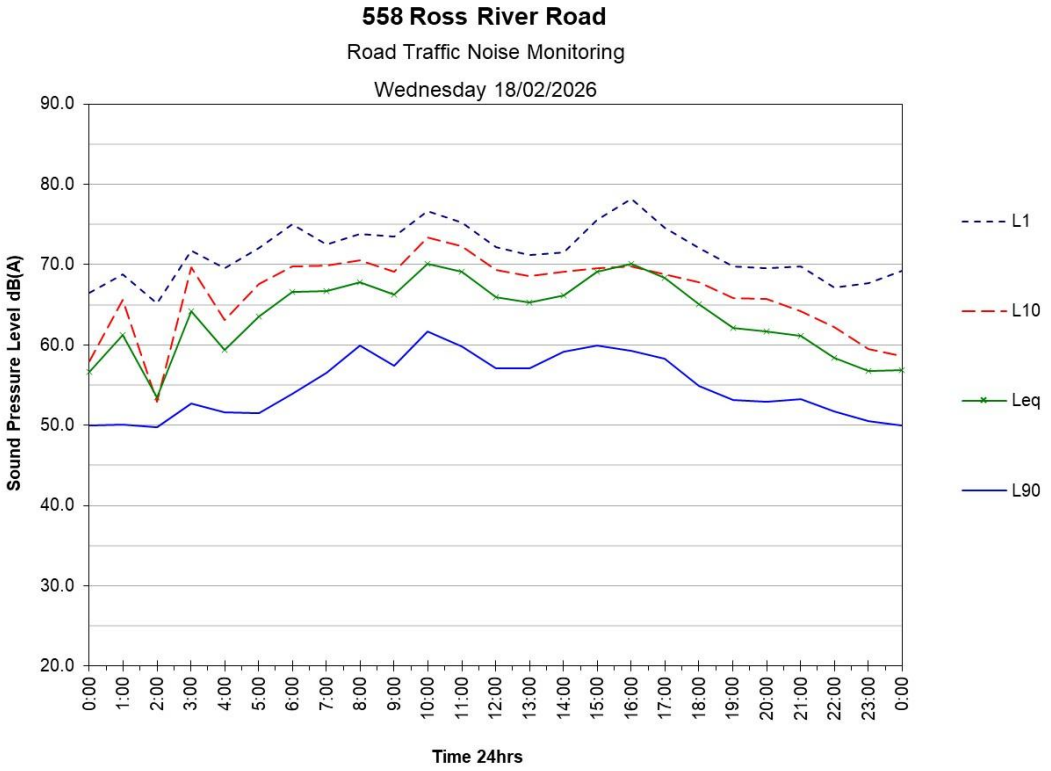


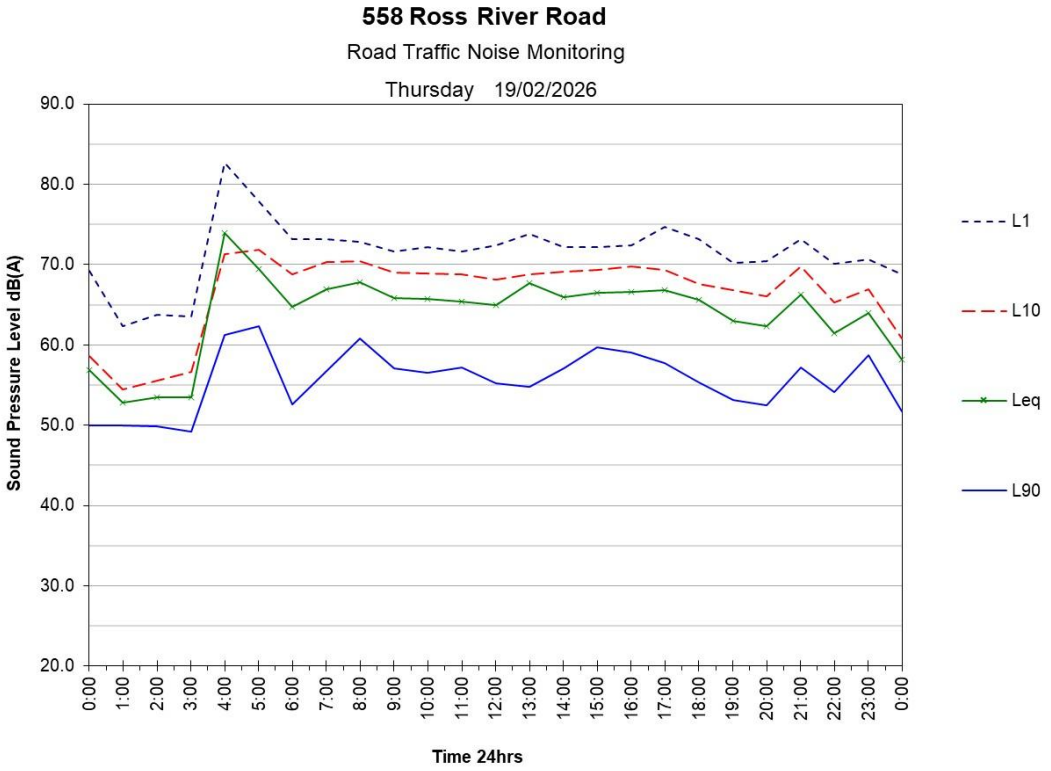


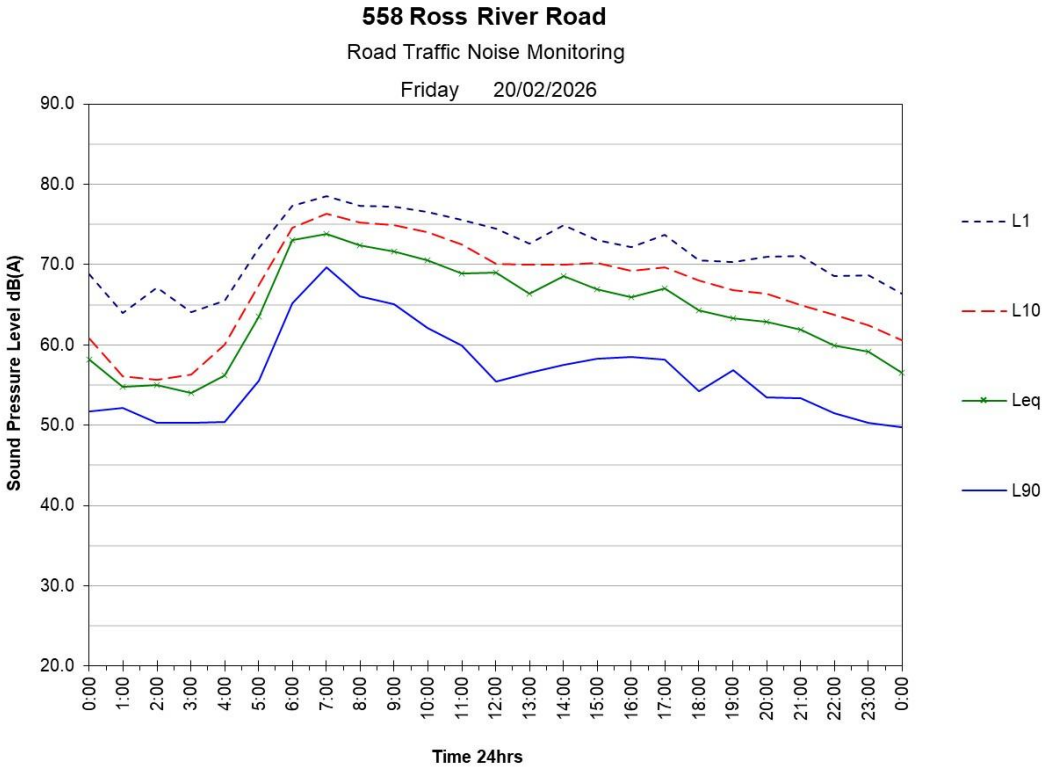
10.2 Noise Monitoring Charts

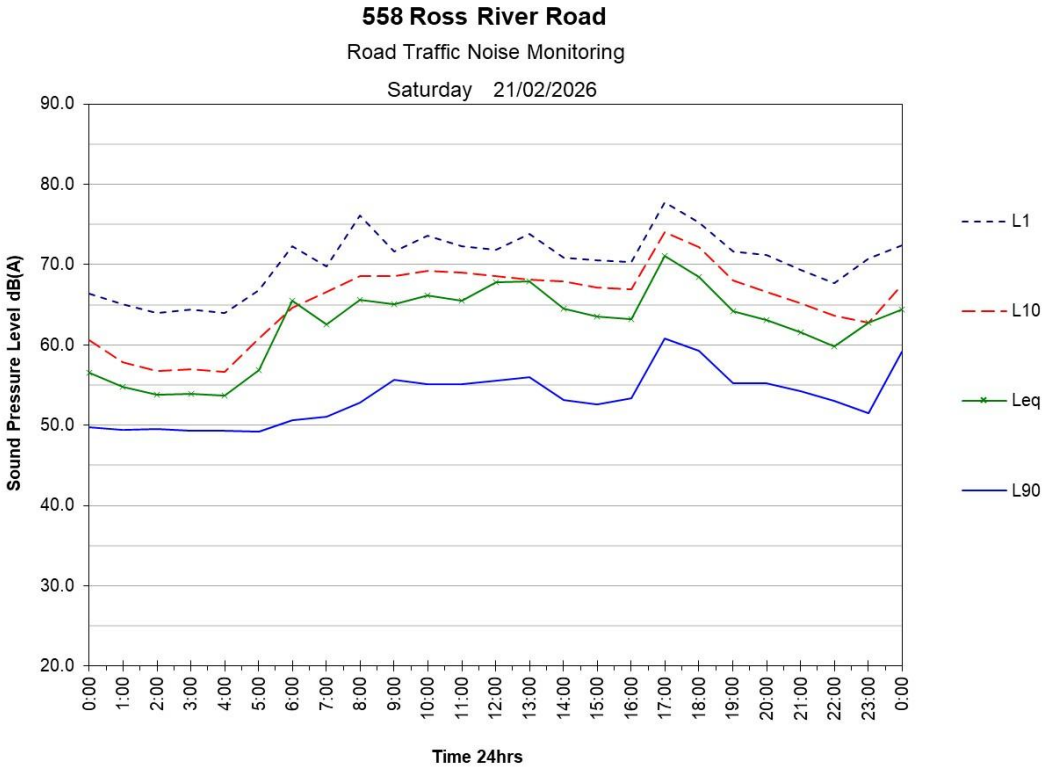
10.2.1 Road Traffic Noise Monitoring

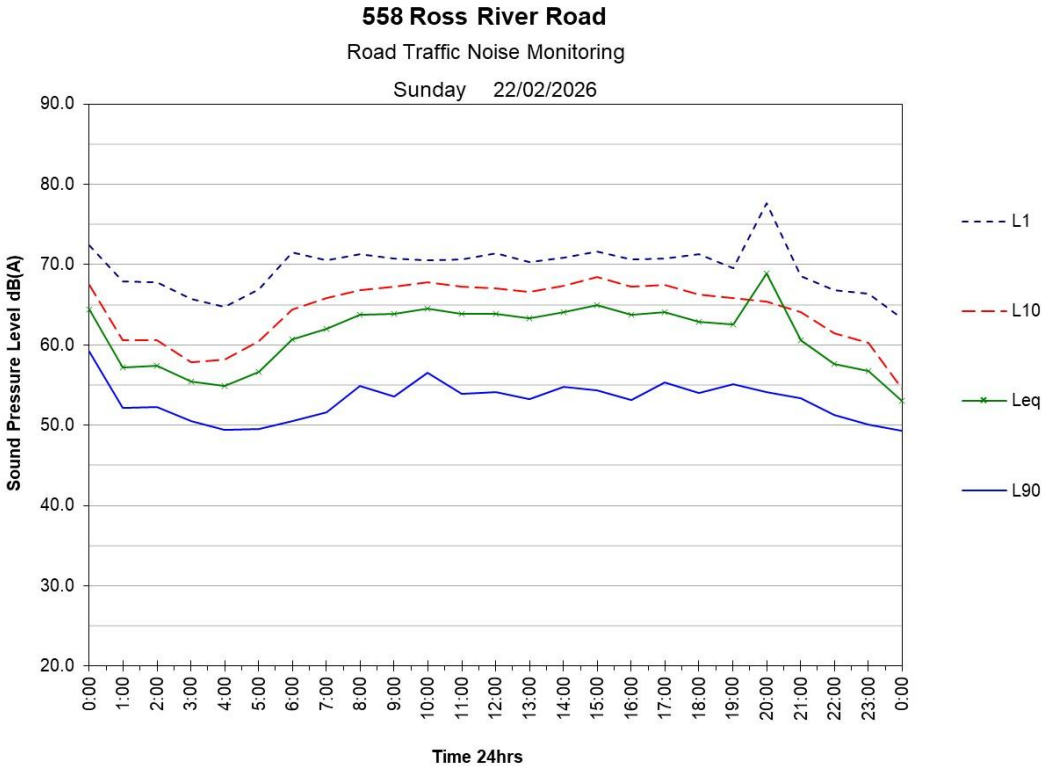


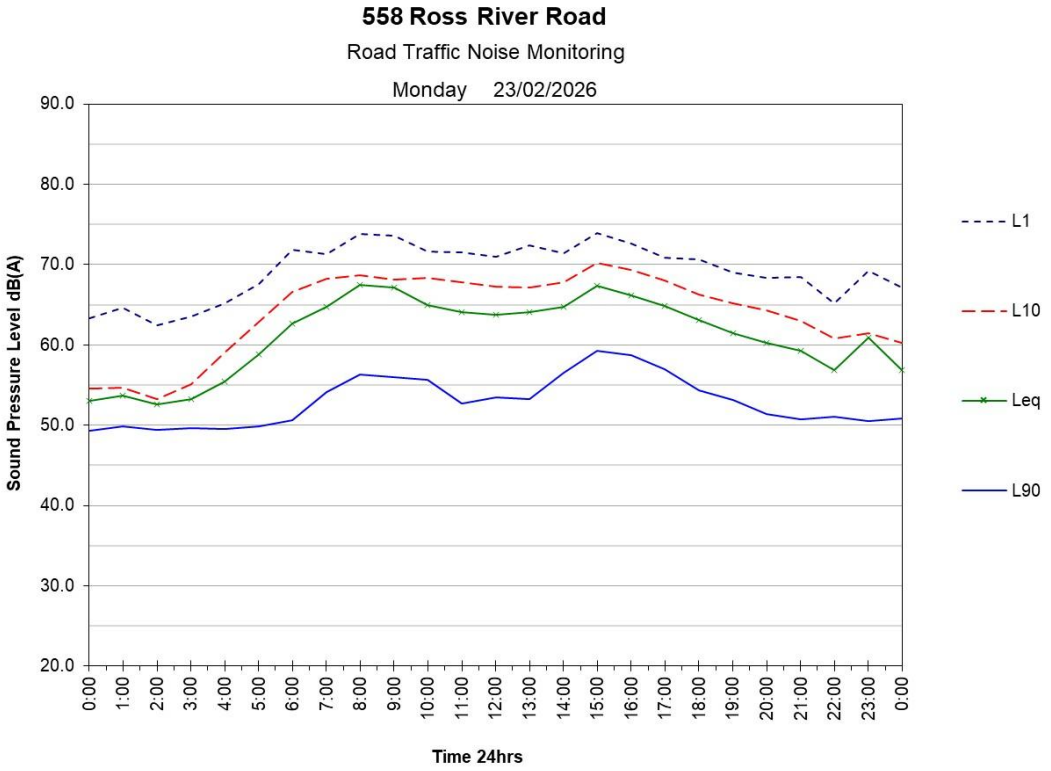


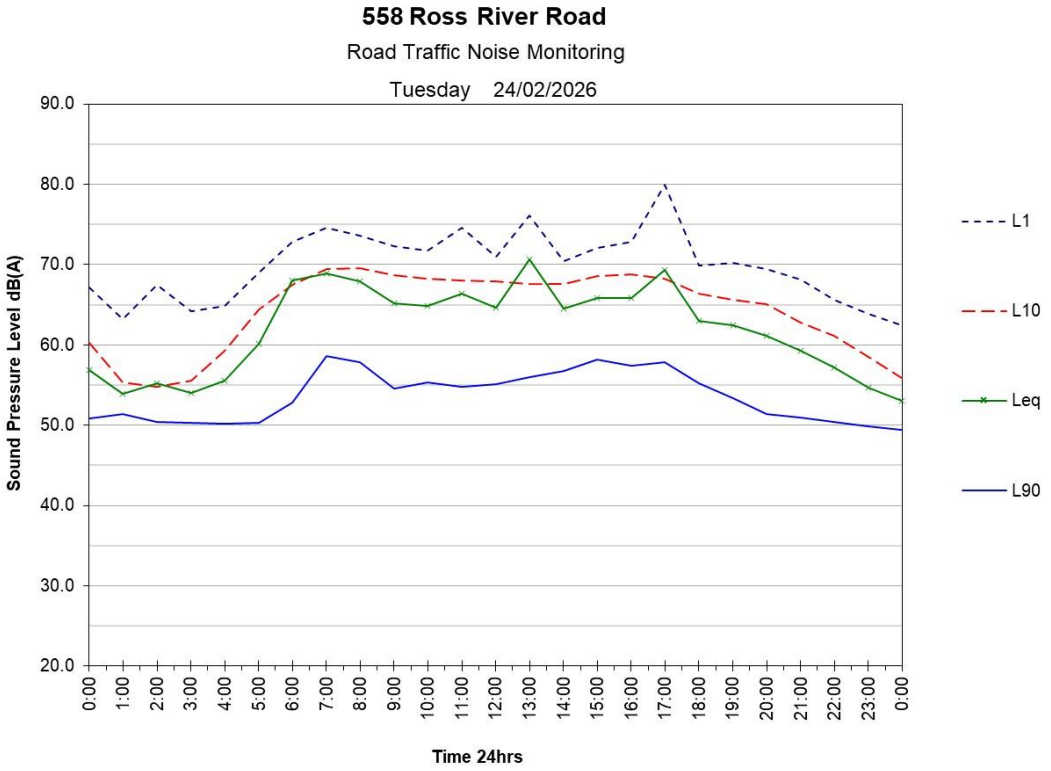


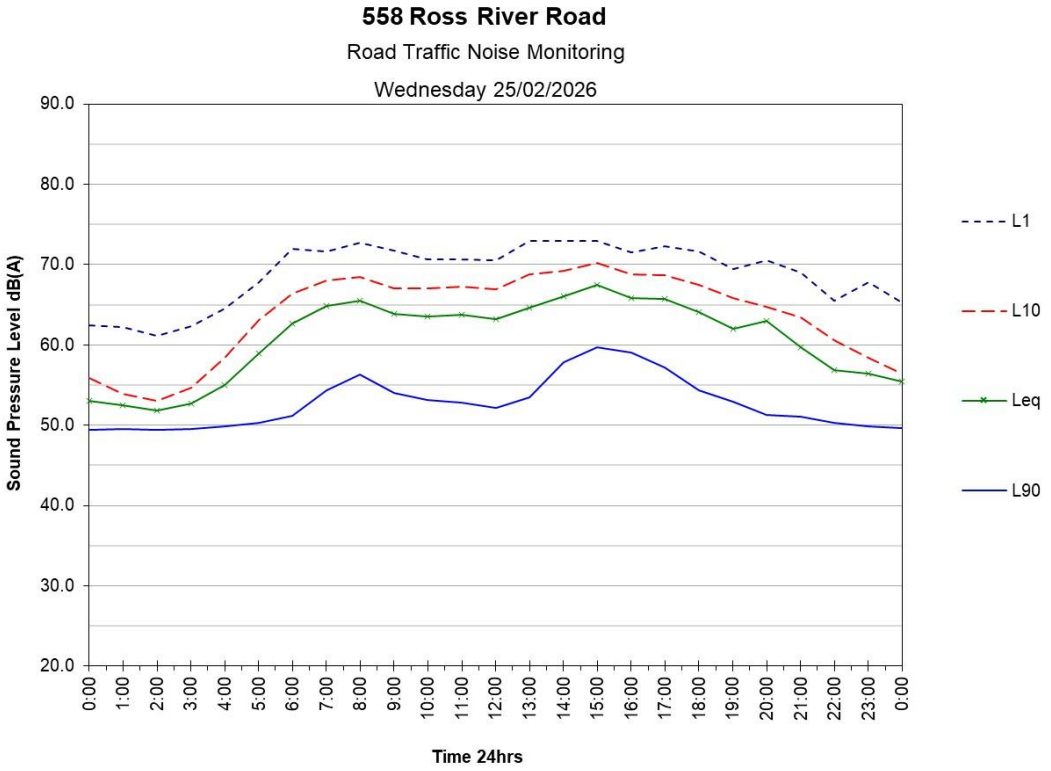


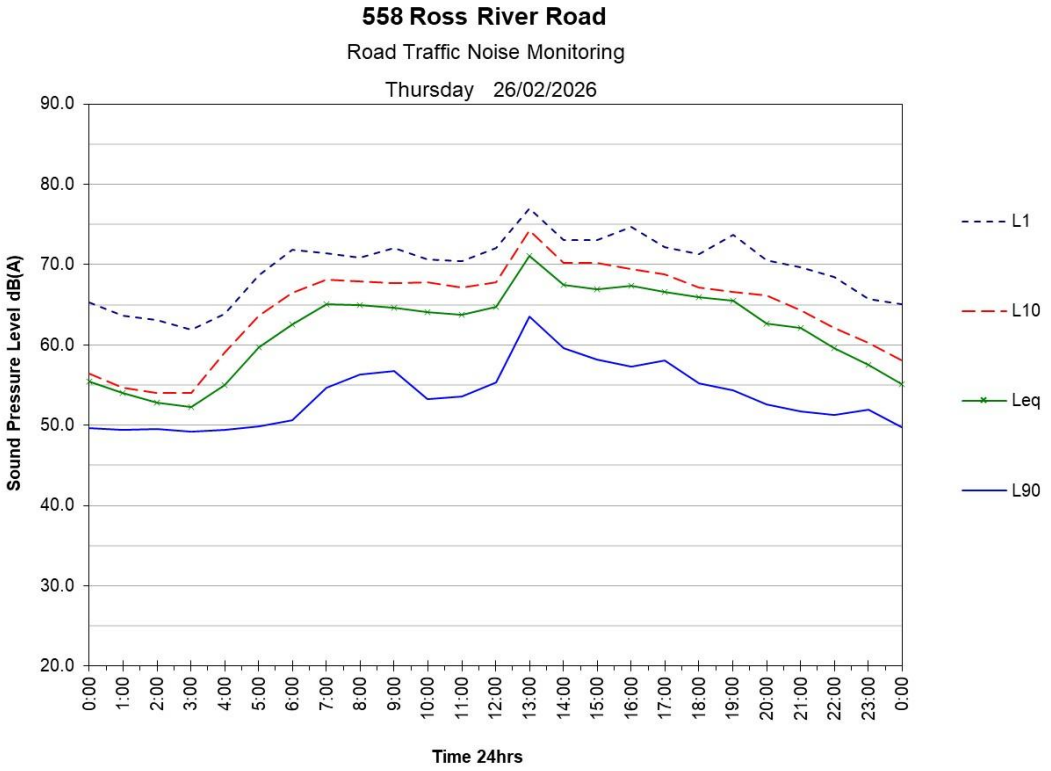


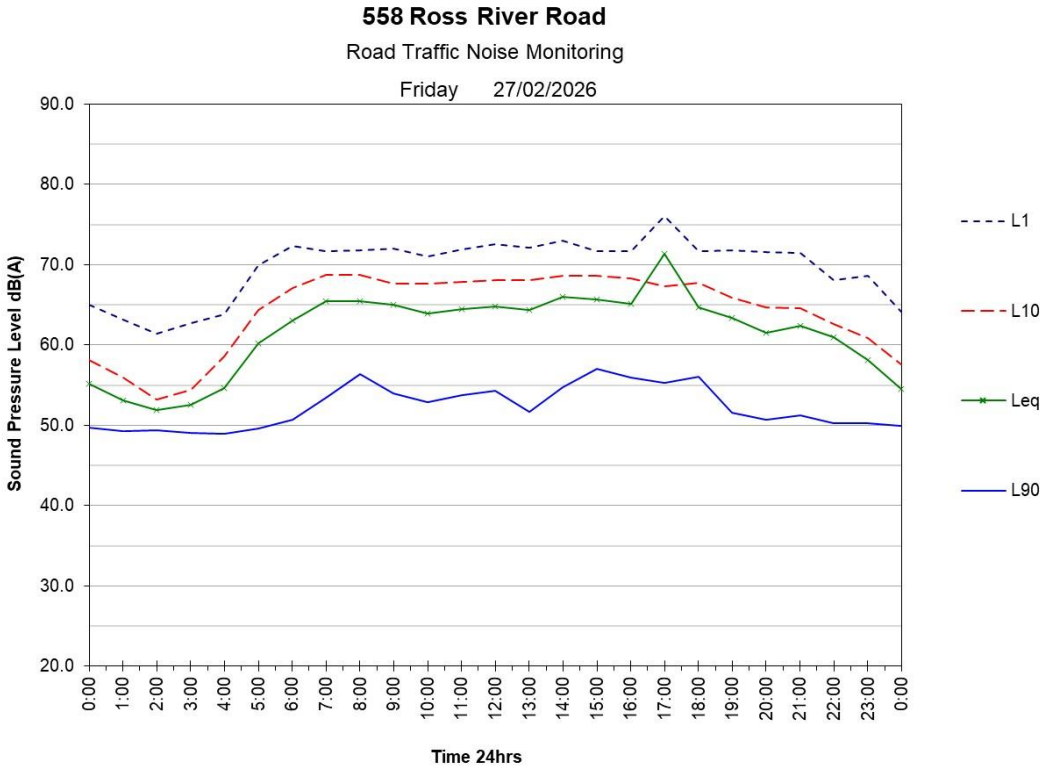


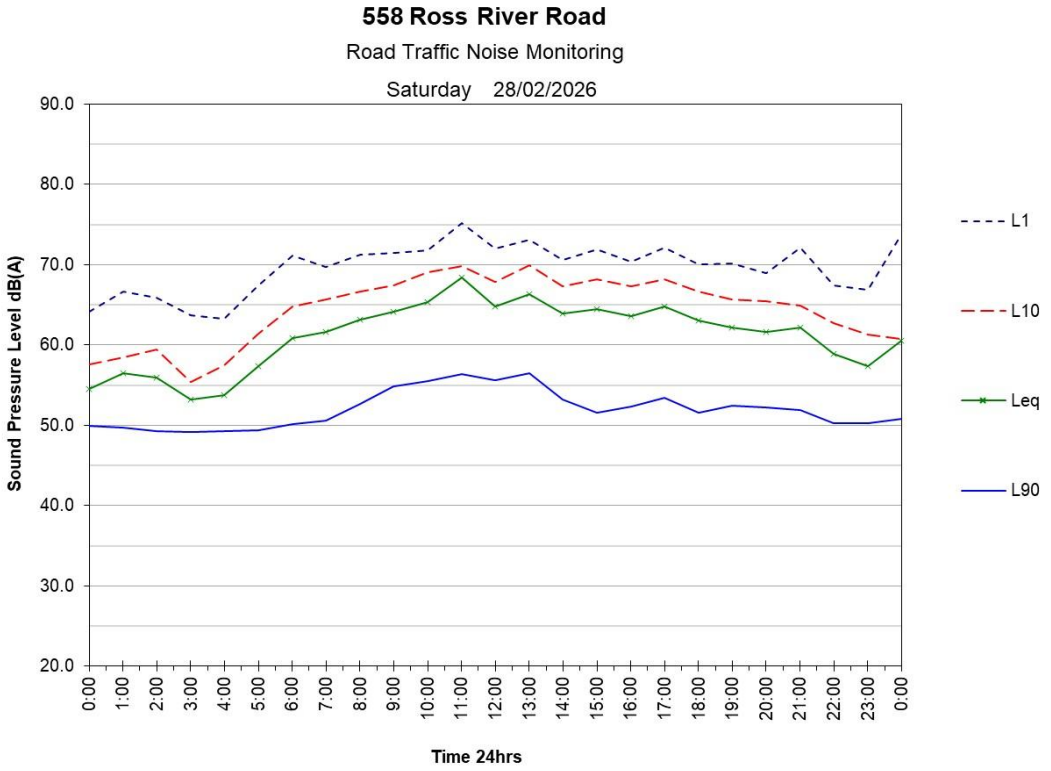


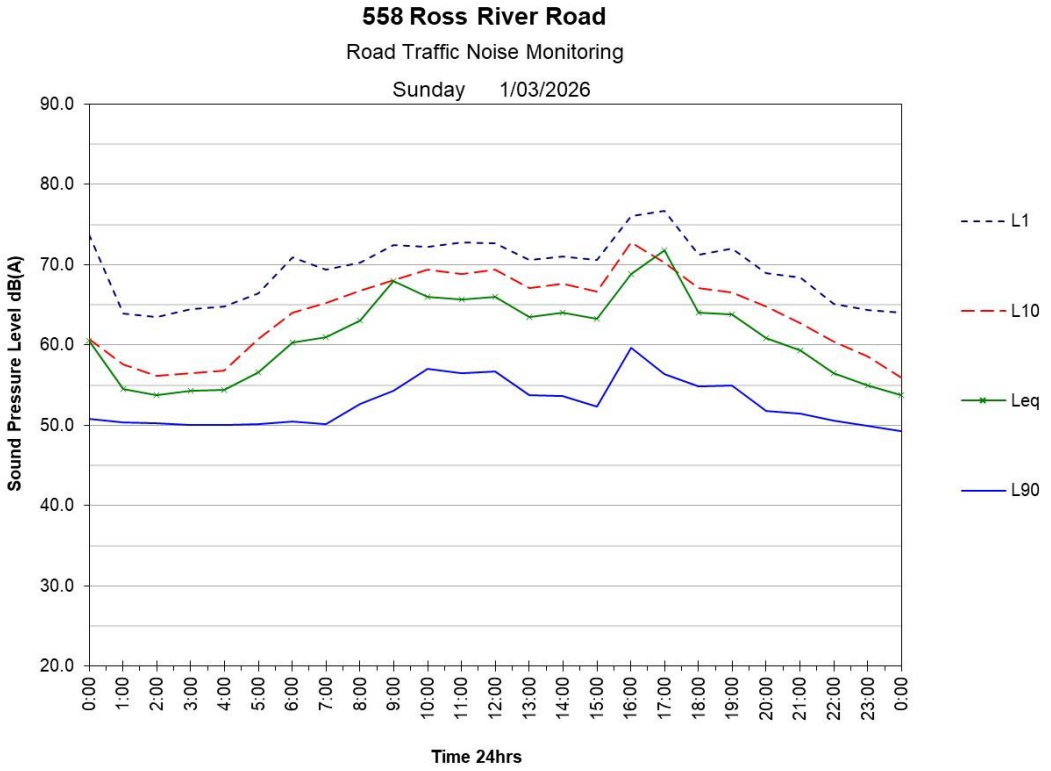


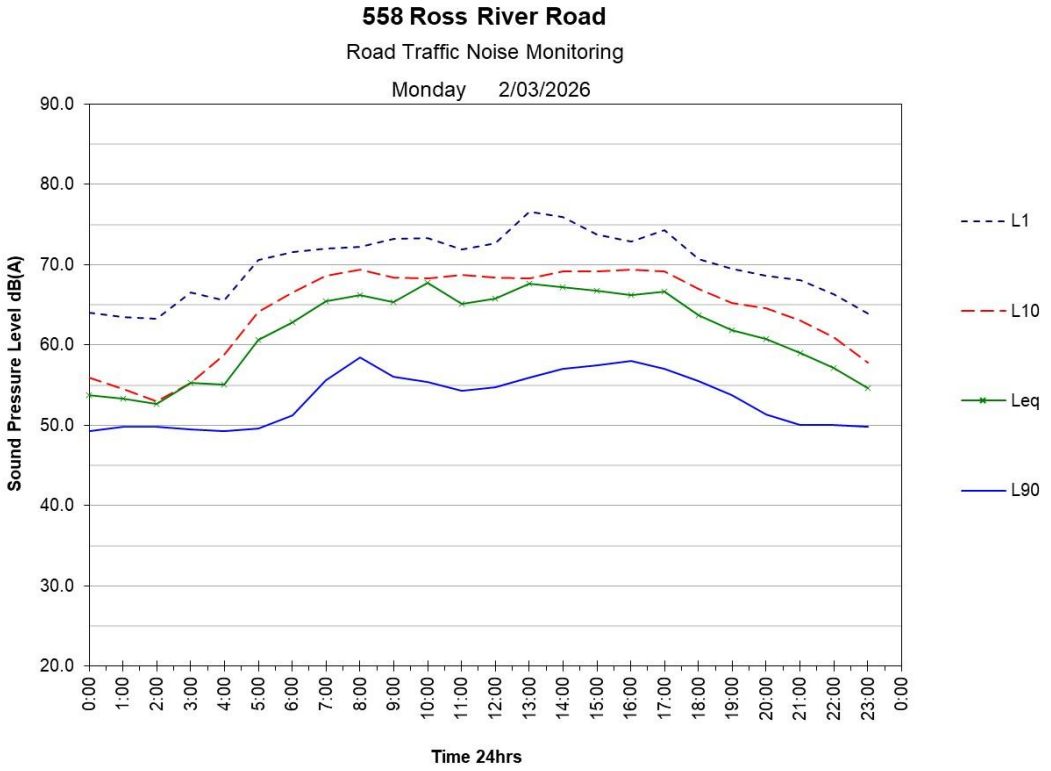


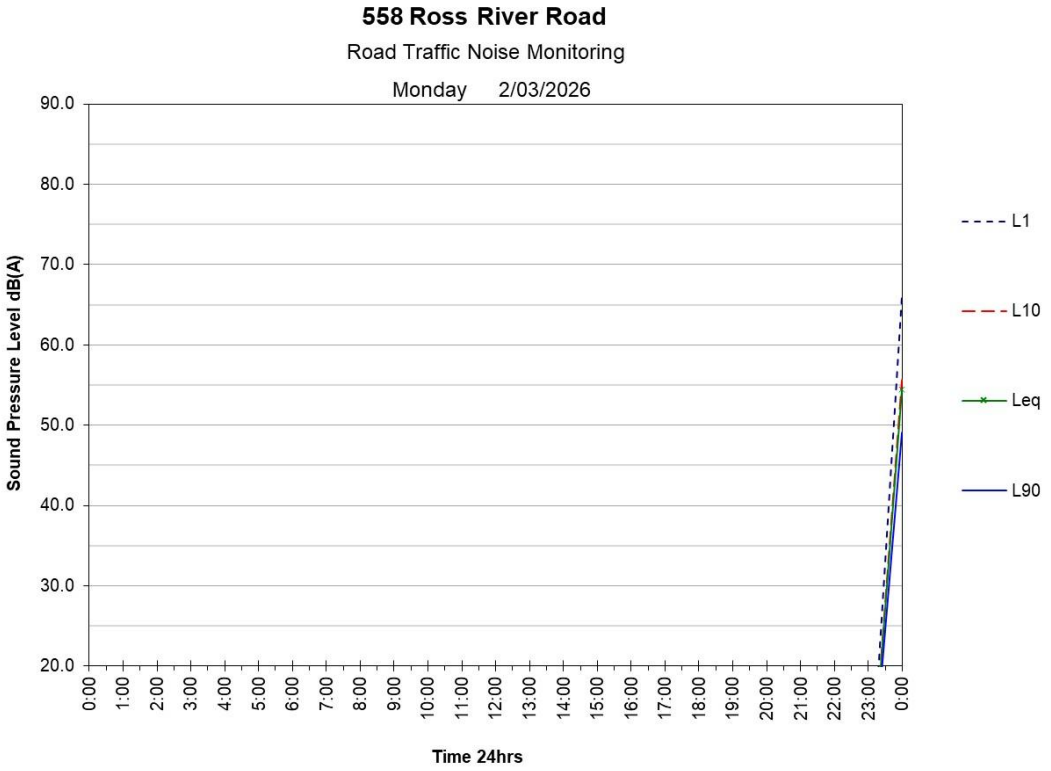


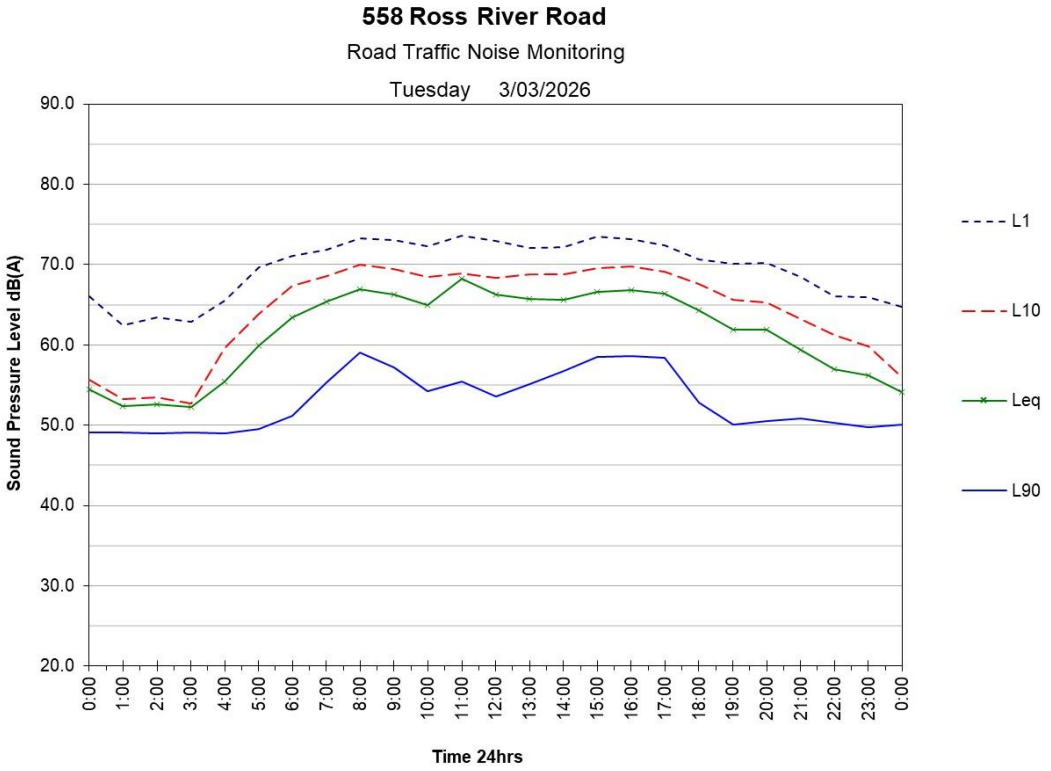


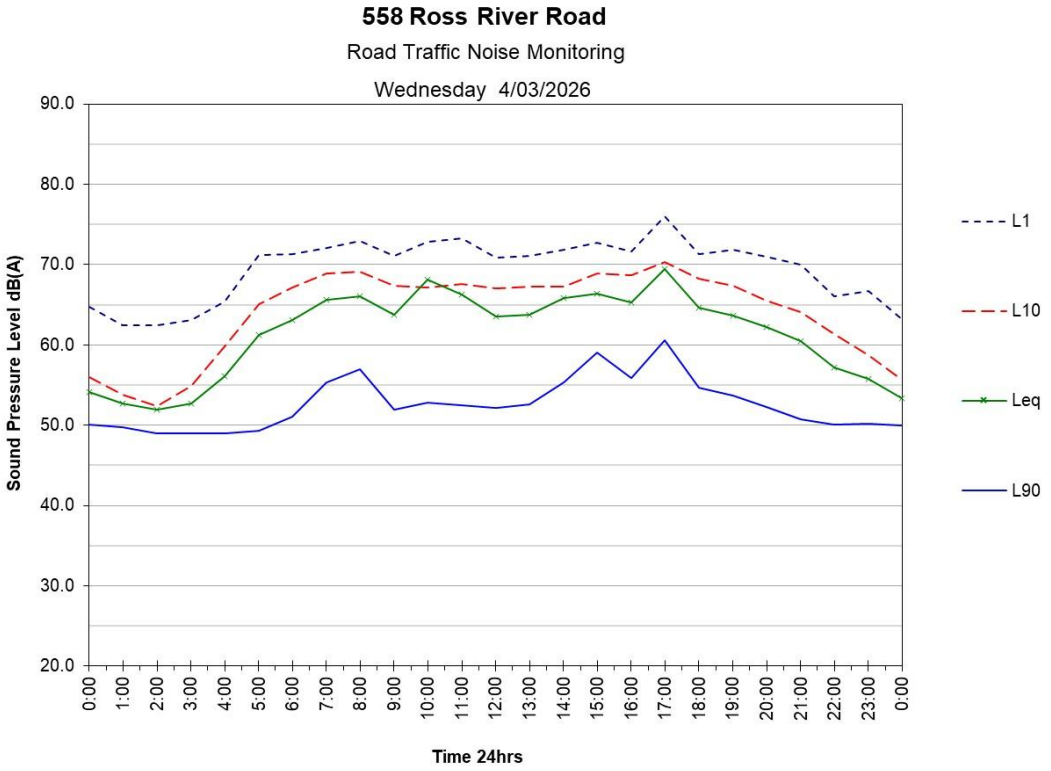


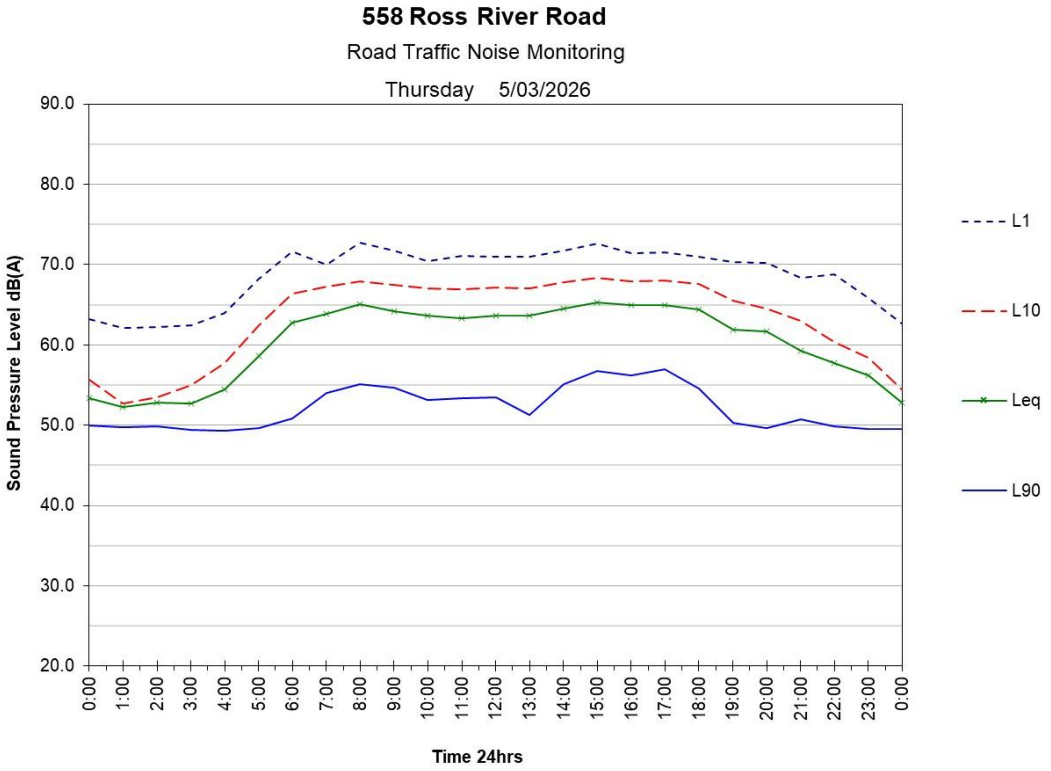


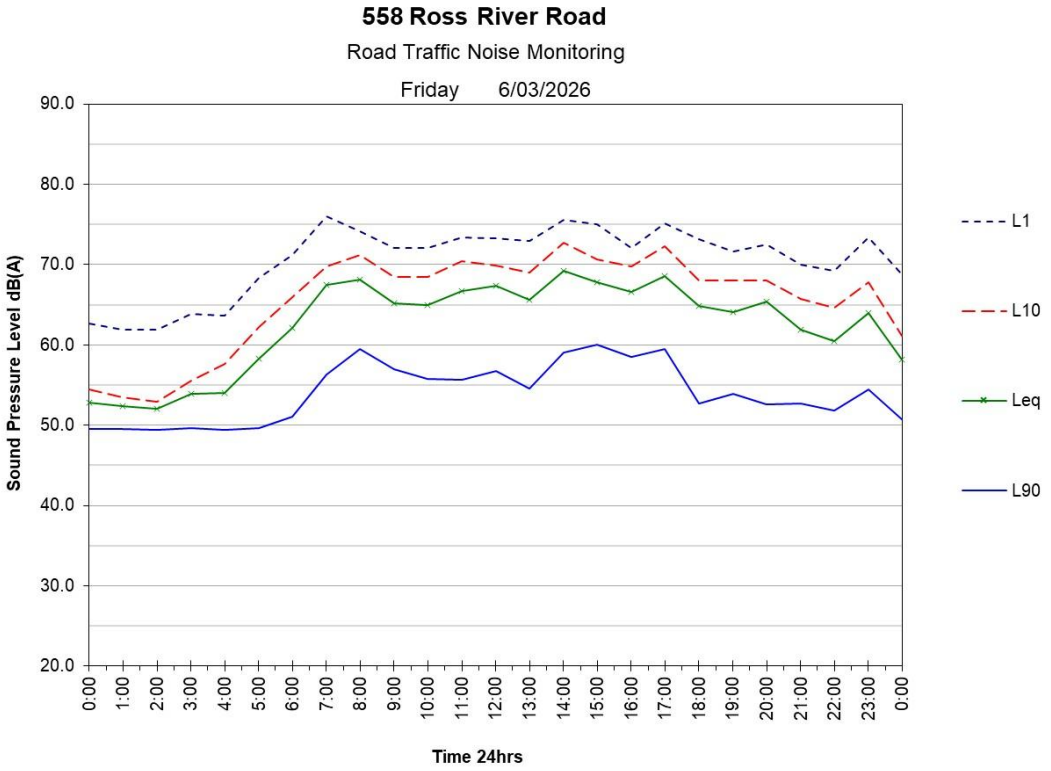


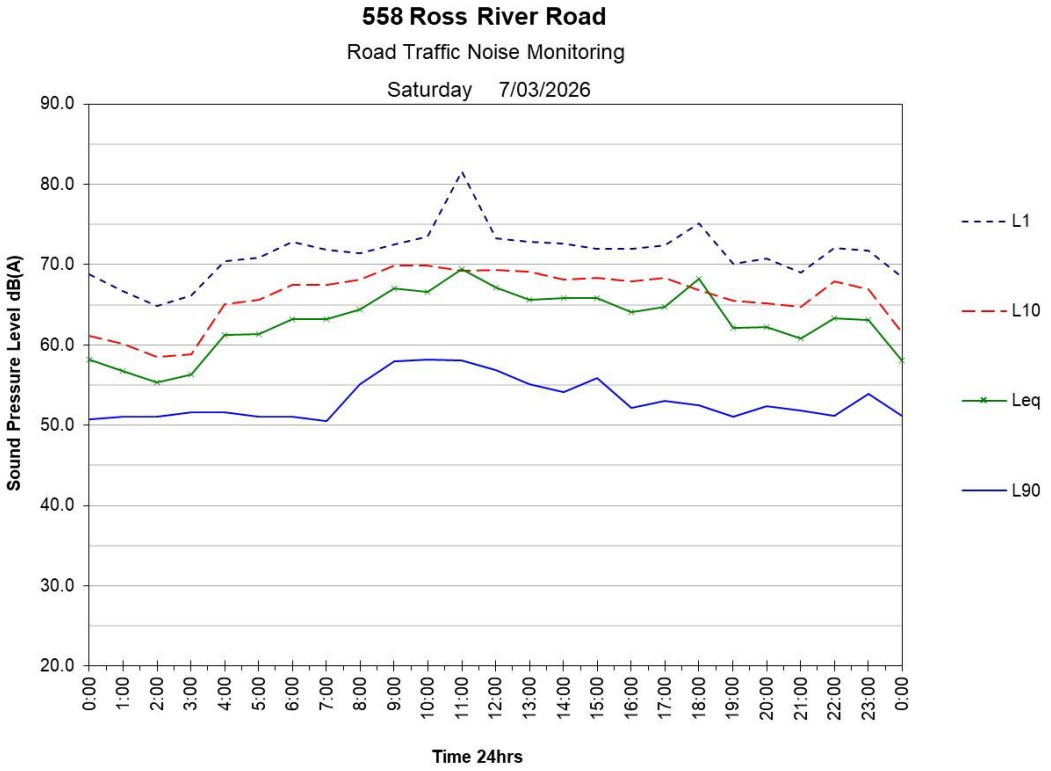


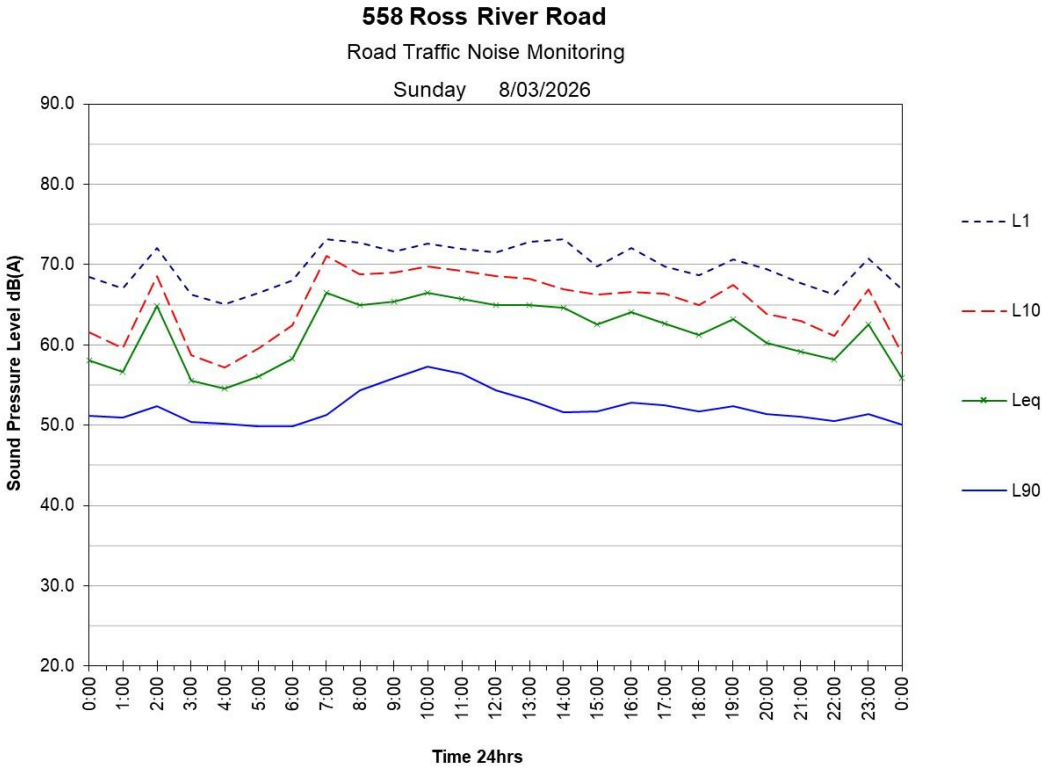


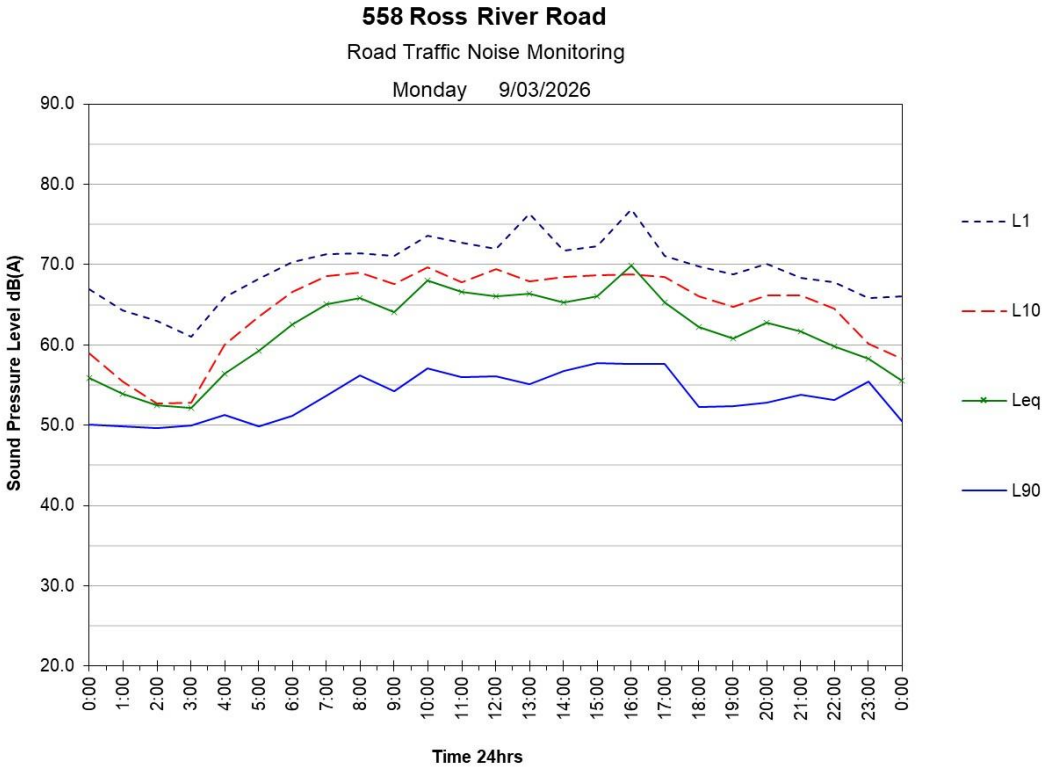


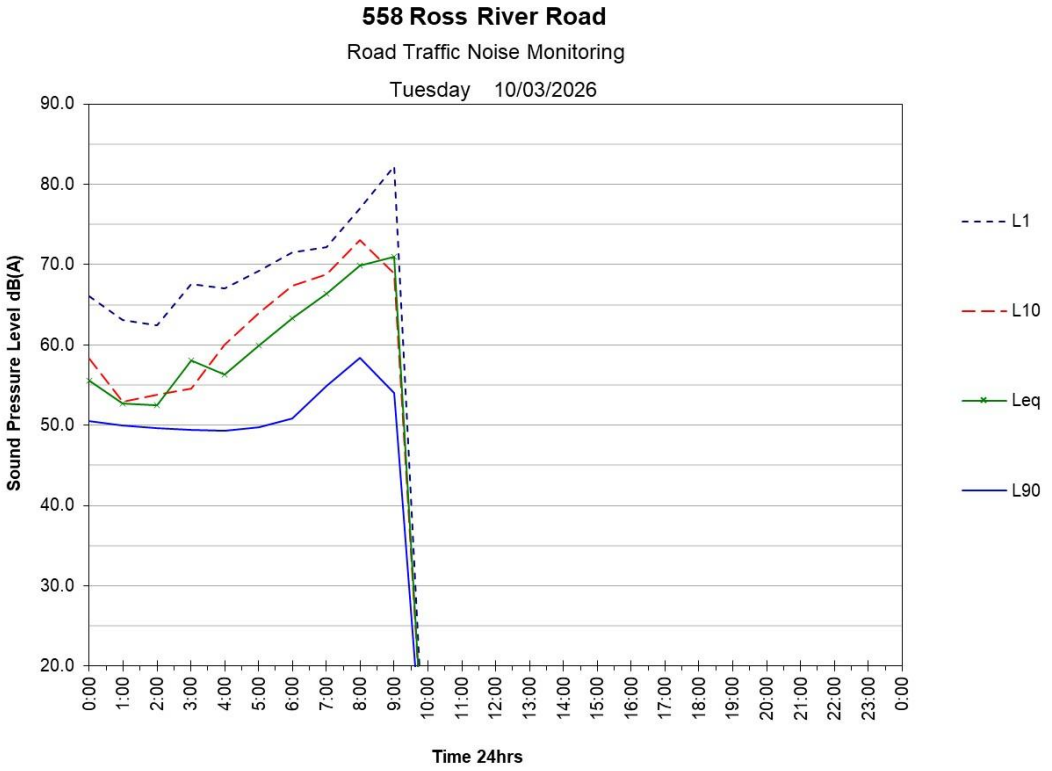












ATTACHMENT 3

PARTNERS
TREVOR SLOGROVE
MATT WHITTERING
ANTHONY FLORENCE
BRIAN MAYER
JEREMY LINDSAY
CRAIG TURNER
LEIGH STEGEMAN
TRENT GRAHAM
BEN MADSEN
GIL GRIFFITHS

STRUCTURAL
CIVIL
MECHANICAL
ELECTRICAL
HYDRAULIC
FIRE
SEISMIC
SECTION J
ENGINEERS

STP CONSULTANTS

9 March 2026
Ref: STP25-0597

Department of State Development - Infrastructure and Planning
North and Northwest Regional Office
PO Box 5666
Townsville, QLD 4810

Attention: Kirsty Geaney

Dear Madam,

RESPONSE TO SARA ADVICE NOTICE – 500-502 ROSS RIVER ROAD, QUEENSLAND
SARA Reference : 2509-48001 SRA

We acknowledge receipt of the Sara Advice Notice, dated 23 September 2025 and provide the following additional information to clarify the matters raised: -

Stormwater Management

Pre-development Impervious area

- The subject land is currently zoned *Low Density Residential*
- The Townsville City Council Planning Scheme assigns a fraction impervious of 0.65 for land zoned *Low Density Residential.*
- The Defined Flood Level reported for Ross River Road, in accordance with the Townsville City Council flood modelling, utilises the *Low-Density Residential* zoning fraction impervious of the subject land in the modelling, as it does for the adjacent neighbouring allotments.
- The subject site can build a house that covers 50% of the site with a driveway and pathways making up the balance of the allowed 65% impervious area. These works would be considered acceptable development and are allowed to be undertaken in accordance with the Townsville City Council Planning Scheme.
- The Townsville City Council Planning Scheme assigns a fraction impervious of 0.70 for land zoned *Medium Density Residential*. The subject site is seeking a Material Change of Use to be zoned *Medium Density Residential*.
- It is appropriate to determine the change in the subject site's peak discharge from pre-development to post-development, based on the assigned fraction impervious for the land zoning in accordance with the Townsville City Council Planning Scheme. Clause 5.5.5 of the Queensland Urban Design Manual (QUDM) confirms the development should be designed such that the peak site discharge from the site does not increase above that which would be expected from the development based on an urban density or percentage impervious surface area.

- Given that the site has been zoned *Low Density Residential* for many years then the expected peak runoff would coincide the fraction impervious assigned to the site for *Low Density Residential* land and the design of the existing stormwater drainage system would have taken this into account.

- Adopting the actual existing fraction impervious of the subject site to calculate the pre-development peak discharge is not in accordance with the Council Planning Scheme for stormwater design and is considered unreasonable.

- The stormwater infrastructure designed in Ross River Road recognised that the zoning of the land was *Low Density Residential* and used the assigned fraction impervious to design the stormwater infrastructure and did not use the actual fraction impervious of each individual allotment at the time of the design.

Time of Concentration

- The Queensland Urban Drainage Manual (QUDM), Clause 4.6.4, recommends the use of standard inlet times for developed catchments.

- QUDM Table 4.6.2, has the recommended standard inlet time of an urban residential areas where the average slope at the top of the catchment is up to 3% as 15 minutes. This is the applicable standard time of concentration for the subject site.

- We have conservatively adopted a 10-minute time of concentration for the subject site in the pre and post development scenarios, as in this instance the gutter flow component of the time of concentration is not applicable.

- A 5-minute time of concentration is appropriate for the design of the roof water system only.

We are of the opinion that the information in the Report is satisfactory, and the above additional information clarifies the outcomes within the Report.

Should you require any further information in respect to this matter please do not hesitate to contact Paul Petersen on telephone 0432 285 867.

Yours faithfully,
STP Consultants

PAUL PETERSEN MTech, MIEAust, NER, RPEQ 13231

Senior Civil Engineer
P. 07 3539 8350 **P.** 0432 285 867 **E.** paulp@stpconsultants.com.au

Cc Mr Will Cruze, Urban Space Consulting

ATTACHMENT 4

STRUCTURAL
CIVIL
ELECTRICAL
MECHANICAL
HYDRAULIC
FIRE
VERTICAL TRANSPORT
SEISMIC

STP CONSULTANTS

Proposed 28 Unit Development

500-504 ROSS RIVER ROAD, CRANBROOK

CIVIL ENGINEERING SERVICES AND A SITE BASED STORMWATER MANAGEMENT REPORT

KAENETTO INVESTMENTS

STP25-0597

DOCUMENT STATUS

Rev.	Issue	Author	Approved for Issue		
			Approved by	Signature	Date
A	Preliminary Issue	Paul Petersen	Paul Petersen RPEQ 13231		26 June 2025
B	Revised Layout / RFI response	Paul Petersen	Paul Petersen RPEQ 13231		9 March 2026

CONTENTS

1. Introduction

Urban Space Consulting, on behalf of Kaenetto Investments, has engaged STP Consultants to produce a Civil Engineering Services and a Site Based Stormwater Management Plan Report in support of a Material Change of Use Development Application over the subject site.

This Civil Engineering Services Report focuses on the impact of the development in the following areas:

- Earthworks
- Flood Hazard Assessment
- Stormwater Management
- Stormwater Quality
- Water supply
- Sewerage connection

1.1 Limitations

This report provides a desktop assessment of services and stormwater investigation from the information obtained from the following sources.

- Architectural Plans.
- Survey of site provided by Atkinson Surveys.
- Townsville City Council Infrastructure Mapping Information.
- Townsville City Council Flood Map Overlays.
- QUDM 4th Edition 2017
- MUSIC Modelling Guidelines November 2018 (Water by Design)
- Rainfall and Meteorological Data by the Australia Bureau of Meteorology.
- Queensland Globe

2. Site Description

The site is located at 500-504 Ross River Road, Cranbrook and described as Lot 2 on SP130958 with a land area of 6,115m2. The site is currently zoned Low Density Residential within the Townsville City Council local government area and currently has three existing buildings/sheds on site.

Figure 2.1 – Locality Plan, cadastral boundaries and easement (Queensland Globe)

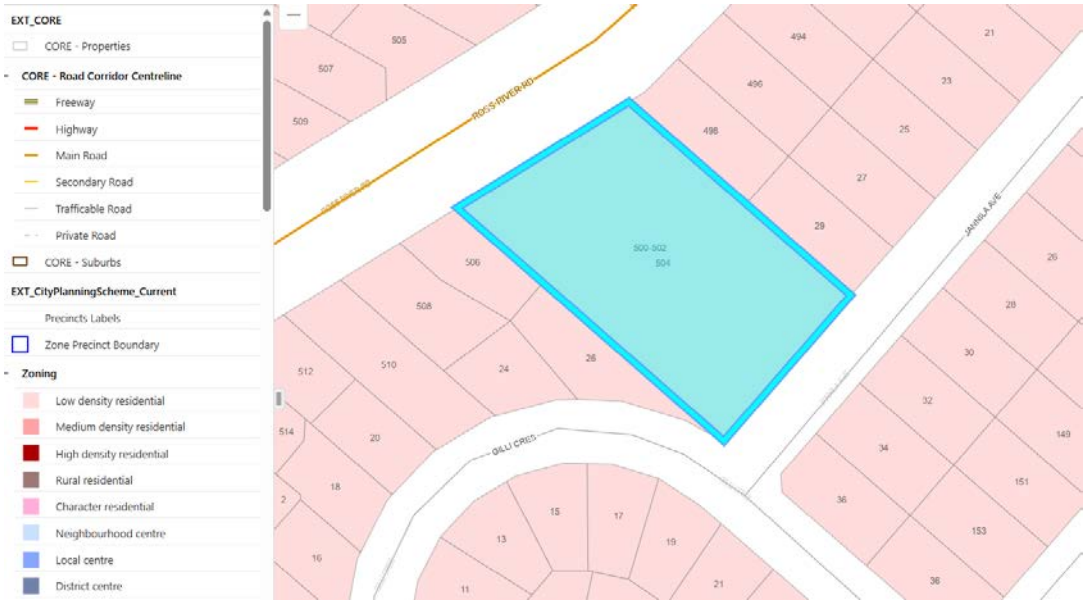


Figure 2.2 – Planning Zones (Townsville Maps – City Plan)

2.1 Easements

There are currently no easements that encumber the subject allotment.
There are currently no proposed road resumptions over the subject allotment.

2.2 Proposed Development

A copy of the Architectural drawings for the proposed development is provided in Appendix A.

The proposed 28 Unit Development consists of the following civil works: -

- minor earthworks for the new building pads, landscape areas, driveway and car parks including retaining walls
- the construction of the new 28 Units
- the construction of the new concrete pavement for the driveway and car parking accessing from Jannila Avenue
- the construction of the site's stormwater drainage system including stormwater quality improvement devices; and
- the construction of the landscaped areas.

3. Earthworks

3.1 Existing Earthworks

A detailed survey has been undertaken by Atkinson Surveys for the extent of the proposed development area, and a copy is provided in Appendix B.

The subject allotment's lowest level is approximately 13.35m AHD on the southern boundary of the property adjacent to Jannila Avenue and the highest level of approximately 14.20m AHD is approximately 35m in from the northern boundary adjacent to Ross River Road.

Approximately a third of the subject site slopes gently to the north from the ridgeline to Ross River Road. The balance two thirds of the allotment slopes gently south from the ridgeline to Jannila Avenue.

The adjacent allotments on the eastern and western side boundaries of the subject allotment, grade directly to Ross River Road or Jannila Avenue and therefore no provisions for accepting external runoff onto the subject allotment are required.

3.2 Proposed Site Earthworks

A copy of the Preliminary Engineering Services drawing for the proposed development is provided in Appendix C.

A Geotechnical Report was not available at the time of preparing this document.

Preliminary earthworks are based on the existing levels surveyed and the preliminary finished surface levels shown on the Preliminary Engineering Services drawing. The proposed levels shown on the drawing, when compared to the surveyed levels, indicate that generally there will be no more than 300mm cut or fill on site for the proposed housing development, driveway, car parks and landscaping, thereby negating the need for significant site earthworks.

The subject allotment is proposed to be developed with a concrete pavement (car parks and aisles) that will generally be provided with 2% crossfalls and longitudinal grading at 0.5% to stormwater drainage pits.

The landscaping buffer zones adjacent to the car parking will need to grade at a minimum of 1% back onto the driveway or kerbing to be collected by the proposed drainage system.

Geotechnical testing for CBR values for pavement design can be undertaken prior to construction commencing to confirm the pavement design.

3.3 Minimum Floor Levels

As indicated on the Townsville City Council flooding maps, the site is not subject to inundation from flooding in the defined flood event of 1% AEP. The Defined Flood Event Levels adjacent to the subject site are as follows: -

Ross River Road -

- Western side boundary - AEP 1% Flood – RL13.93m AHD
- Eastern side boundary - AEP 1% Flood – RL13.81m AHD

Janilla Avenue-

- Western side boundary - AEP 1% Flood – RL13.31m AHD
- Eastern side boundary – AEP 1% Flood – RL 13.30m AHD

Habitable floor levels for the units should be set a minimum of 300mm above the relevant Defined Flood Event (DFE).

4. Roadworks and Traffic Impacts

A Traffic Impact Assessment report will be provided under separate cover for this MCU Development Application.

5. Stormwater Management Plan

5.1 Flood Hazard Overlay

In accordance with the Townsville City Plan – Flood Hazard Overlay (OM-06.1) the subject site is just on the edge of a low hazard category due to the coarseness of the grid used to undertake the modelling. The subject site is not subject to flooding in the 1% AEP event as the surveyed levels of the land confirm.

Figure 5.1 – AEP 1% Flood Hazard Overlay (OM-06.1) (TownsvilleMAPS – Townsville City Plan)

5.2 Coastal Hazard Overlay

In accordance with the Coastal Environment Overlay Code of the Townsville City Council Planning Scheme, the Defined Storm Tide Event (DSTE) level is RL4.5m AHD, within 100m of the coastline or RL3.9m AHD in other areas. Therefore, the subject allotment is not affected by DSTE as the minimum ground level on the site is RL13.3m AHD.

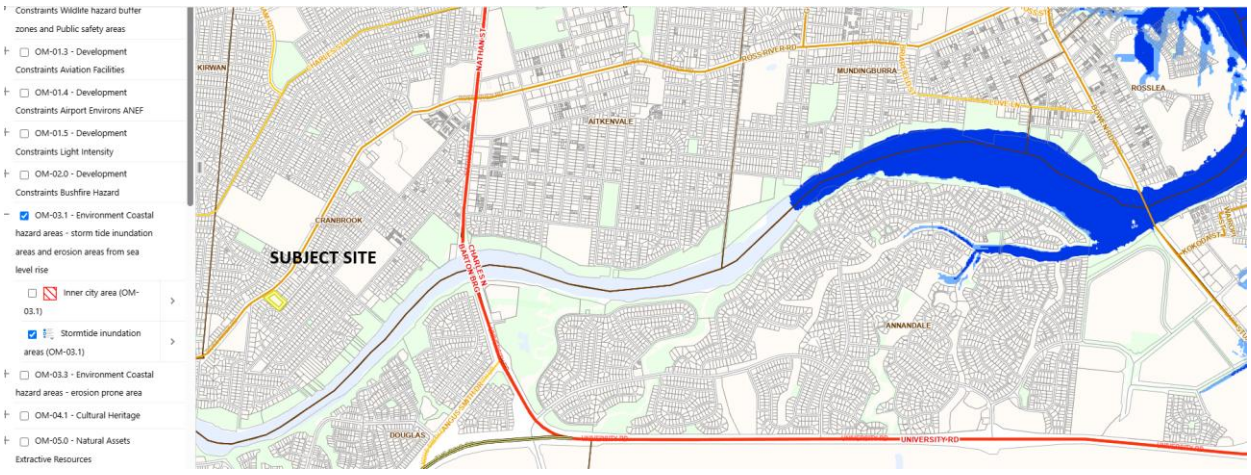


Figure 5.2 – Environment Coastal hazard areas – Storm Tide inundation (OM-03.1) (TownsvilleMAPS – Townsville City Plan)

5.3 Existing Stormwater Infrastructure

The Lawful Points of Discharge for the subject site will be the Ross River Road and Jannila Avenue road reserves.

There is an existing 375mm dia. reinforced concrete stormwater pipe in Ross River Road with a USIL of 11.92m and a DSIL 11.7m. This stormwater pipe is in the shared parking and bike lane of Ross River Road. The stormwater pipe is connected to a side inlet drainage pit which is adjacent to the western boundary of the subject site. There is an existing stormwater manhole adjacent to the eastern side boundary of the subject site.

There is no existing stormwater infrastructure in Jannila Avenue as the subject allotment is at the top of the stormwater catchment. The first stormwater pit in Jannila Avenue is 140m to the east of the site.

There is an existing stormwater inlet pit in Gilli Crescent with an invert level of 12.12m that discharges into a 375mm stormwater pipe. However, this stormwater pipe services a different stormwater catchment than the subject allotment.

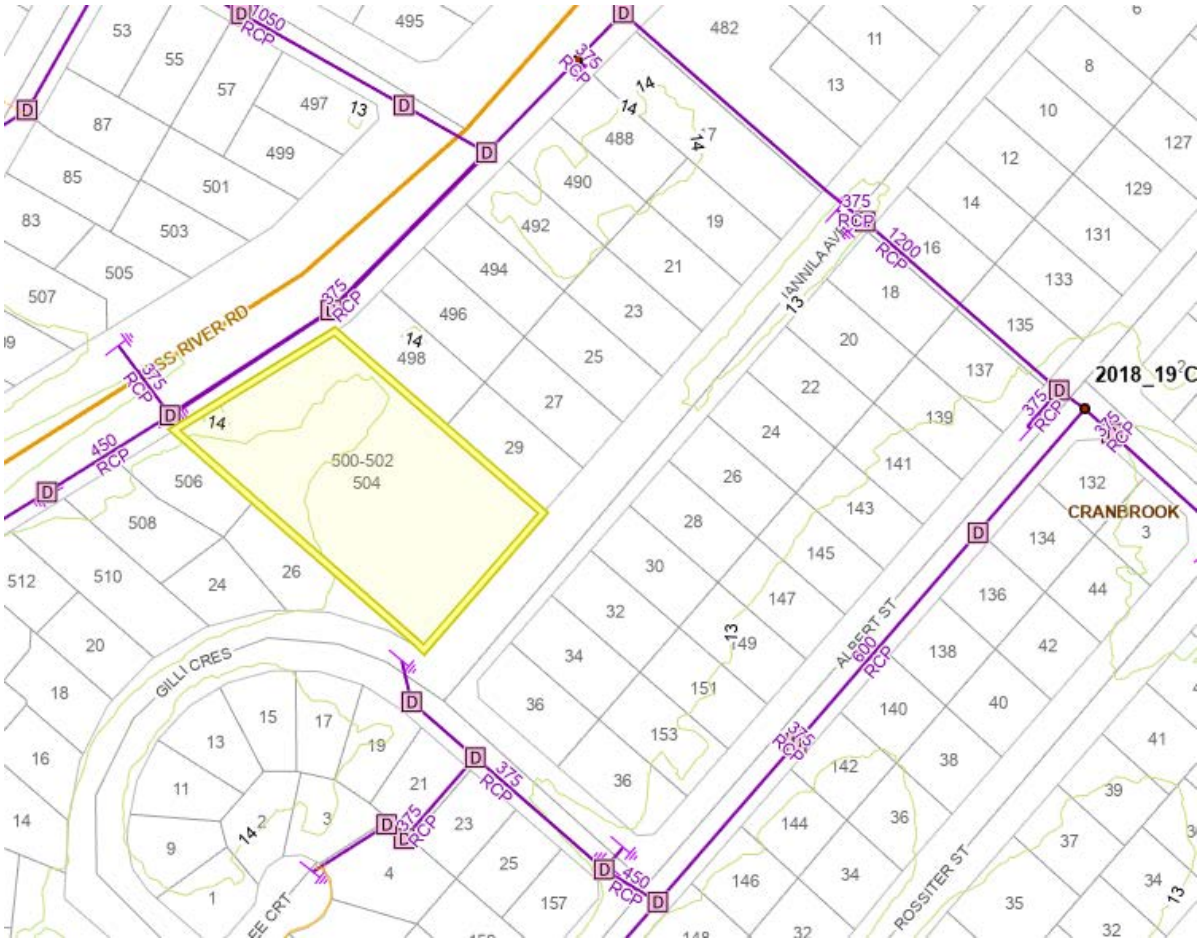


Figure 5.3 – Existing Stormwater Infrastructure (TownsvilleMAPS - Community)

There is an existing northern stormwater catchment of 2,285m2 that discharges onto Ross River Road via overland flow and there is an existing southern stormwater catchment of 3,830m2 that discharges onto Jannila Avenue via overland flow.

Figure 5.4 – Existing Northern and Southern Stormwater Catchments

5.4 Site Stormwater Drainage

The preliminary stormwater drainage layout is illustrated on the Preliminary Engineering Services drawing provided in Appendix C.

The roofs, car parks, driveway and landscaped areas in the northern portion of the development are to be collected in a grated stormwater inlet pits containing Atlan Stormsacks and conveyed via stormwater pipes to an Atlan FlowFilter (1200/3 series) prior to discharging into the back of the existing side inlet pit in Ross River Road.

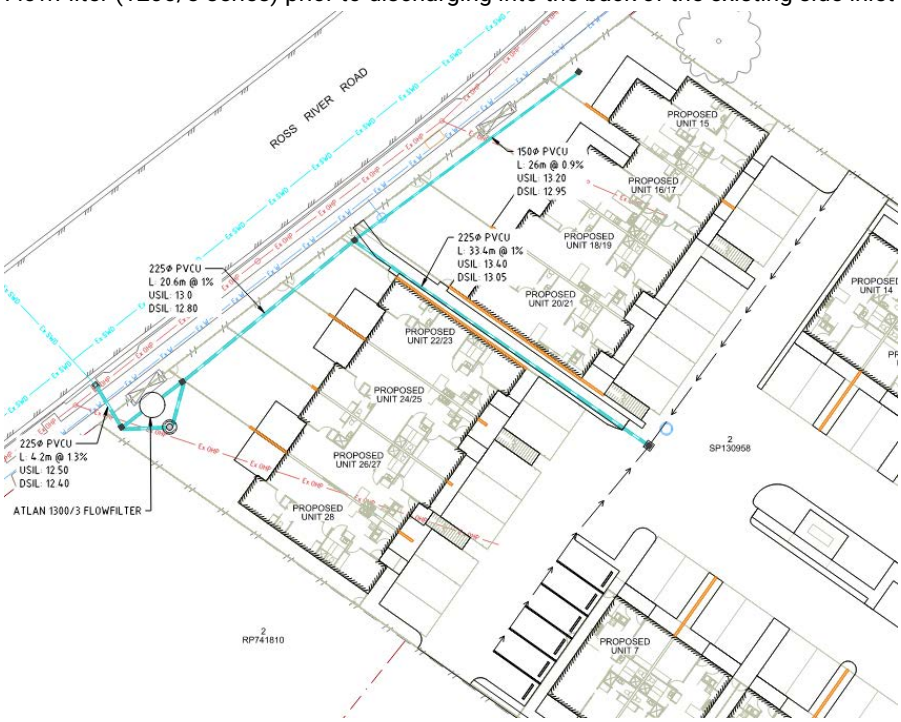


Figure 5.5 – Northern Catchment – Proposed Stormwater Drainage

The roofs, car parks, driveway and community areas centrally located within the southern stormwater catchment are to be collected via overland flow into a trench grate containing Atlan FlowGuards and then discharged to the kerb and channel Jannila Avenue via galvanised RHS.

The roofs of the units and the landscaped areas at the rear of the units (eastern and western boundaries) located within the southern stormwater catchment are to be collected via overland flow into a kerb and channel containing Atlan FlowGuards and then discharged to the kerb and channel in Jannila Avenue via galvanised RHS.

Figure 5.6 – Southern Catchment – Proposed Stormwater Drainage

Full hydraulic design in accordance with QUDM will be undertaken during the detailed design phase for all the proposed stormwater infrastructure.

5.5 Stormwater Runoff and Detention

The Townsville City Plan, *Schedule 6.4 Development Manual Planning Scheme Policy, SC6.4.9.3 Major and Minor system design,* prescribes the design parameters of an Urban Residential development to be 2-year ARI event for a Minor system and to be 100-year ARI for the Major system.

The 1-hour rainfall intensity for the 10-year ARI at the subject location in Townsville is 74mm/h.

In accordance with QUDM clause 4.6.4 the Standard Inlet for the developed catchment is unchanged for the pre-development (low density residential) and the post development (medium density residential) proposed Housing Development – 10 minutes.

The Townsville City Plan, *Schedule 6.4 Development Manual Planning Scheme Policy, Table SC6.4.9.2 – Fraction impervious for Land Use Zones,* prescribes the fraction impervious for Low Density Residential zoning of 0.65 and for a fraction impervious of 0.70 for a Medium Density Residential zoning.

With reference to the Architectural drawings 'Area Schedule for Landscaping' the grassed areas and garden beds make up 32% of the land area, giving a fraction impervious for the subject site 68%, which is slightly less than assigned 70% for a Medium Density Residential zoned site in accordance with the Townsville City Council Planning Scheme.

The pre-development (low density residential) Coefficient of Discharge (C_{10}) for the subject site, in accordance with QUDM Table *4.5.3 – Table of C_{10} Values,* based on a fraction impervious of 0.65 is 0.83.

The post-development (medium density residential) Coefficient of Discharge (C_{10}) for the subject site, in accordance with QUDM Table *4.5.3 – Table of C_{10} Values,* based on a fraction impervious of 70% is 0.84.

The post development northern stormwater catchment of 2,241m2 will discharge via pits and pipes, directly into the existing stormwater system in Ross River Road during minor events. During major events the excess runoff will discharge onto Ross River Road via overland flow.

The post development southern stormwater catchment of 3,874m2 will discharge via overland flow in kerbs and concrete pavement, be collected in trench grates and pits, and discharged directly into the existing kerb and channel in Jannila Avenue during minor events. The southern catchment will be split into four smaller catchments to ensure at no time during the minor event is more than 30l/s discharged into the kerb and channel at one location. During major events the excess runoff will discharge onto Jannila Avenue via overland flow.

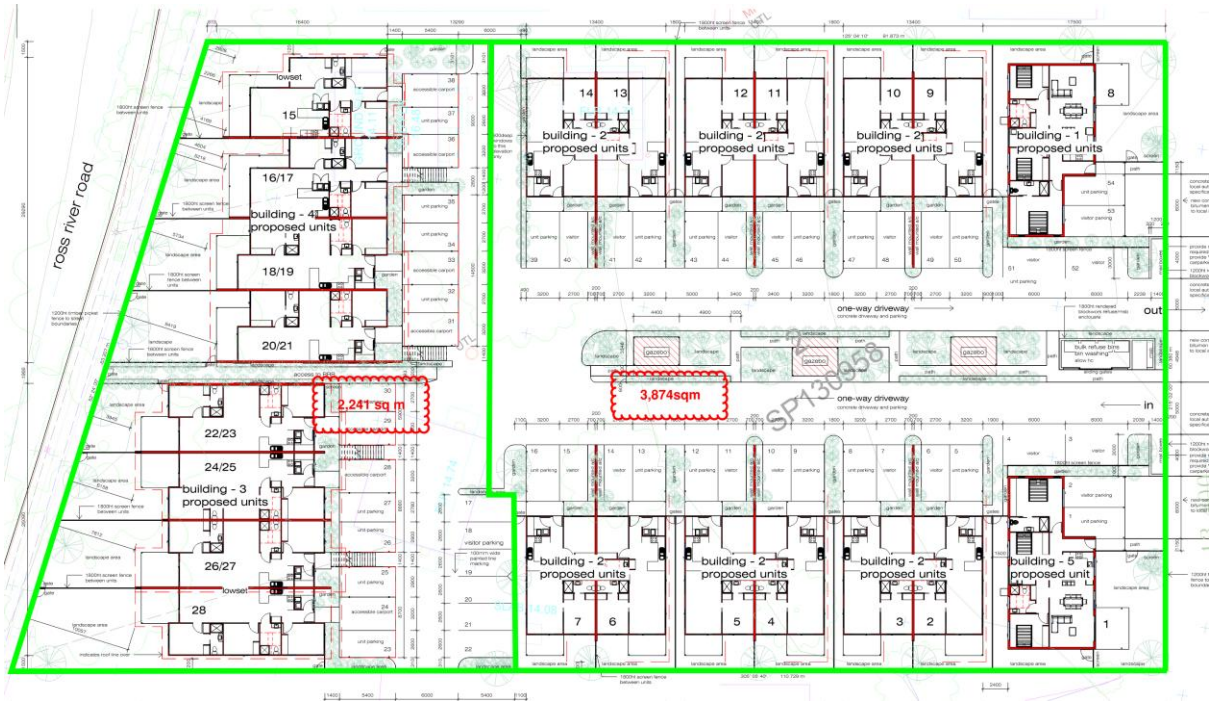


Figure 5.5 – Post Development - Northern and Southern Stormwater Catchments

Based on the above information the pre-development and post-development discharge volumes from the subject site are provided below: -

Northern Catchment Pre-Development and Post-Development

Northern Catchment - Predevelopment								
Area (m^2)	(ha)	Impervious Area (%)		C_{10}	Time of Concentration (min)			
2285	0.229	0.65		0.83	10			
	C_1	C_2	C_5	C_{10}	C_{20}	C_{50}	C_{100}	
	0.664	0.7055	0.7885	0.83	0.8715	0.9545	0.996	
	I_1	I_2	I_5	I_{10}	I_{20}	I_{50}	I_{100}	
	89.5	102	140	164	187	215	236	mm/hr
	Q_1	Q_2	Q_5	Q_{10}	Q_{20}	Q_{50}	Q_{100}	
	0.038	0.046	0.070	0.086	0.103	0.130	0.149	m^3/s

Northern Catchment - Post-development								
Area (m^2)	(ha)	Impervious Area (%)		C_{10}	Time of Concentration (min)			
2241	0.224	0.7		0.84	10			
	C_1	C_2	C_5	C_{10}	C_{20}	C_{50}	C_{100}	
	0.672	0.714	0.798	0.84	0.882	0.966	1	
	I_1	I_2	I_5	I_{10}	I_{20}	I_{50}	I_{100}	
	89.5	102	140	164	187	215	236	mm/hr
	Q_1	Q_2	Q_5	Q_{10}	Q_{20}	Q_{50}	Q_{100}	
	0.037	0.045	0.070	0.086	0.103	0.129	0.147	m^3/s

With reference to the above stormwater runoff calculations for the northern catchment, it is noted that there is a decrease in post development runoff from the site of 1.0l/s in the minor event (2-year ARI) or a 2% decrease.

In the major event (100-year ARI) it is noted that there is a decrease in the post development runoff of 2.0l/s from the site or a 1.5% decrease.

As there is no increase in runoff from the proposed development in the northern catchment, stormwater detention measures are not required, as the peak discharges from the site are slightly less than that of pre-development.

Southern catchment Pre-Development and Post-Development

Southern Catchment - Pre-development							
Area (m^2)	(ha)	Impervious Area (%)		C_{10}	Time of Concentration (min)		
3830	0.383	0.65		0.83	10		
	C_1	C_2	C_5	C_{10}	C_{20}	C_{50}	C_{100}
	0.664	0.7055	0.7885	0.83	0.8715	0.9545	0.996
	I_1	I_2	I_5	I_{10}	I_{20}	I_{50}	I_{100}
	89.5	102	140	164	187	215	236 mm/hr
	Q_1	Q_2	Q_5	Q_{10}	Q_{20}	Q_{50}	Q_{100}
	0.063	0.077	0.117	0.145	0.173	0.218	0.250 m^3/s

Southern Catchment - Post-development							
Area (m^2)	(ha)	Impervious Area (%)		C_{10}	Time of Concentration (min)		
3874	0.387	0.7		0.84	10		
	C_1	C_2	C_5	C_{10}	C_{20}	C_{50}	C_{100}
	0.672	0.714	0.798	0.84	0.882	0.966	1
	I_1	I_2	I_5	I_{10}	I_{20}	I_{50}	I_{100}
	89.5	102	140	164	187	215	236 mm/hr
	Q_1	Q_2	Q_5	Q_{10}	Q_{20}	Q_{50}	Q_{100}
	0.065	0.078	0.120	0.148	0.177	0.223	0.254 m^3/s

With reference to the above stormwater runoff calculations for the southern catchment, it is noted that there is an increase in post development runoff from the site of just 1.0l/s in the minor event (2-year ARI) or a 1.3% increase.

In the major event (100-year ARI) it is noted that there is an increase in the post development runoff from the site of just 4.0l/s or a 1.6% increase.

Given the increase in stormwater runoff from the southern catchment is minimal and the stormwater runoff must discharge into the kerb and channel in Jannila Avenue, as there is no existing stormwater infrastructure, stormwater detention measures are not considered necessary for this development.

6. Stormwater Quality Management

In accordance with the requirements of the State Planning Policy – July 2017, the Assessment Benchmarks for Water Quality, the proposed development site is greater than 2,500m2 in size and will result in 6 or more dwellings. Therefore, the proposed development site exceeds the criteria for requiring permanent methods of stormwater quality control.

Assessment benchmarks – water quality

These performance outcomes apply to the following development applications, to the extent the SPP has not been identified in a local planning instrument as being appropriately integrated.

For receiving waters, a development application for:

(1) a material change of use for an urban purpose that involves premises 2500 metres² or greater in size and;

(a) will result in six or more dwellings; or

(b) will result in an impervious area greater than 25 per cent of the net developable area; or

(2) reconfiguring a lot for an urban purpose that involves premises 2500 metres² or greater in size and will result in six or more lots; or

(3) operational works for an urban purpose that involves disturbing a land area 2500 metres² or greater in size.

For water supply buffer areas, a development application:

(4) located wholly outside an urban area and relating to premises that is within, or partly within, a water supply buffer area, that involves:

(a) a material change of use for the intensive animal industry, medium and high-impact industry, noxious and hazardous industry, extractive industry, utility installation that involves sewerage services, drainage or stormwater services, waste management facilities, or motor sport facility; or

(b) reconfiguring a lot to create five or more additional lots if any resultant lot is less than 16 hectares in size, and any of the lots created will rely on on-site wastewater treatment.

The following requirements are assessment benchmarks for the development:

(1) Development is located, designed, constructed and operated to avoid or minimise adverse impacts on environmental values arising from:

(a) altered stormwater quality and hydrology

(b) waste water

(c) the creation or expansion of non-tidal artificial waterways

(d) the release and mobilisation of nutrients and sediments.

(2) Development achieves the applicable stormwater management design objectives outlined in tables A and B (appendix 2)

(3) Development in a water supply buffer area avoids adverse impacts on drinking water supply environmental values.

Further information in relation to these requirements is detailed in the water quality guidance material.

Figure 6.1 – State Planning Policy – Assessment Benchmarks

An Erosion and Sediment Control Plan (ESCP) for the site will be required during construction to minimise the risk of soil leaving the site. The ESCP and associated devices will be required to be implemented/installed prior to commencement of the new building and associated infrastructure until the landscaping is completed.

6.1 Pollutants of Concern

The Townsville City Council Development Manual, SC6.4.10 Stormwater Quality, provides guidance on the types of pollutants likely to be generated from different developments. The pollutants most likely to be of concern for Commercial/Industrial developments are identified in the table below.

Pollutant	Development Phase	
	Construction	Operation
Litter	✓	✓
Sediment	✓	unlikely
Hydrocarbons (including oil and grease)	✓	✓
Toxic materials (e.g. cement slurry, asphalt primer, solvents)	✓	unlikely
pH altering substances (e.g. cement slurry and wash waters)	✓	unlikely
Oxygen demanding substances (organic and chemical matter)	possibly	unlikely
Nutrients (nitrogen and phosphorus)	✓	✓
Pathogens / Faecal coliforms (bacteria and viruses)	unlikely	unlikely
Heavy metals (often associated with fine sediment	unlikely	unlikely
Surfactants (e.g. detergents from car washing)	unlikely	possibly
Thermal pollution (heat)	unlikely	unlikely

Table 6.1 Pollutants likely to be of most concern

6.2 Design Objectives for Water Management

The Water Quality Objectives for the proposed development in Townsville are listed in the table below.

Parameter	Statistic	Load Based Reduction	Water Quality Objectives
Total Suspended Solids (TSS)	Mean Range	80%	Less than 5mg/L
Total Phosphorous (TP)	Mean Range	65%	Less than 0.01 to 0.05mg/L
Total Nitrogen (TN)	Mean Range	40%	Less than 0.2 to 0.5mg/L
Gross Pollutants	-	90%	Retention of litter greater than 50mm for flows up to the 3-month ARI peak flow
PH	Mean Range	-	Between 7 and 8

Table 6.2 Water Quality Objectives for Townsville City Council – Dry Tropics (TCC Development Manual SC6.4.10.2(3)

6.3 Proposed Stormwater Treatment Train analysis

The proposed 28 Unit development site has sufficient area available to dedicate to stormwater quality improvement devices.

Northern Catchment

The roofs, car parks, driveway and landscaped areas in the northern portion of the development are to be collected in a grated stormwater inlet pits containing Atlan Stormsacks and conveyed via stormwater pipes to an Atlan FlowFilter (1200/3 series) prior to discharging into the back of the existing side inlet pit in Ross River Road.

Southern Catchment

The roofs, car parks, driveway and community areas centrally located within the southern stormwater catchment are to be collected via overland flow into a trench grate containing Atlan FlowGuards and then discharged to the kerb and channel Jannila Avenue via galvanised RHS.

The roofs of the units and the landscaped areas at the rear of the units (eastern and western boundaries) located within the southern stormwater catchment are to be collected via overland flow into a kerb and channel containing Atlan FlowGuards and then discharged to the kerb and channel in Jannila Avenue via galvanised RHS.

The proprietary stormwater treatment devices included above in the design solutions, have been independently verified by Stormwater Australia SQIDEP (Verification Certificate) and the certified performance metrics are reflected in the MUSIC modelling.

6.4 Music Model Parameters

6.4.1 Model Parameters

Input	Data Used
Rainfall Station	32040 TOWNSVILLE
Rainfall Period	01/01/1995 – 31/12/2005
Mean Annual Rainfall (mm)	976mm
Evapotranspiration	1201mm
Model Timestep	6 minutes

Table 6.3 - Basic MUSIC Model Parameters

6.4.2 Rainfall & Runoff Parameters

Parameter	Roof/ Road/Ground Level
Rainfall Threshold (mm/day)	1
Soil Storage Capacity (mm)	400
Soil Initial Storage (% of Capacity)	10
Field Capacity (mm)	200
Infiltration Capacity coefficient - a	211
Infiltration Capacity exponent - b	5.0
Initial Depth (mm)	50
Daily Recharge Rate (%)	28
Daily Baseflow Rate (%)	27
Daily Deep Seepage Rate (%)	0

Table 6.4 - Water by Design recommended MUSIC Rainfall – Runoff Parameters (Urban Residential SEQ - Table A1.2) – adopted for Townsville

6.4.3 Pollution Generation

In MUSIC, stormwater quality is characterised by event mean concentrations (EMC) for storm flows and base flows. In this study, the EMC's were adopted from Water by Design MUSIC Modelling Guidelines. The pollutants of concern that were assessed include total suspended solids (TSS), total phosphorous (TP) and total nitrogen (TN). The quality of stormwater runoff is characterised by inputting event mean concentrations (EMC) for storm flow and base flow conditions as well as the standard deviation of each EMC.

Pollutant concentrations are based on Urban Residential land use parameters.

Flow Type	Surface Type	TSS (log_{10} values)		TP (log_{10} values)		TN (log_{10} values)	
		Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Urban Residential	Baseflow	1.00	0.34	-0.97	0.31	0.20	0.20
	Stormflow	2.18	0.39	-0.47	0.32	0.26	0.23

Table 6.5 Water by Design MUSIC Modelling Pollutant Export Parameters for Lumped Catchment Land Uses – MUSIC Modelling Guidelines - Table 3.8

6.4.4 Results

Northern Catchment

The indicative layout of the MUSIC model, treatment train parameters and results for the northern catchment are shown below.

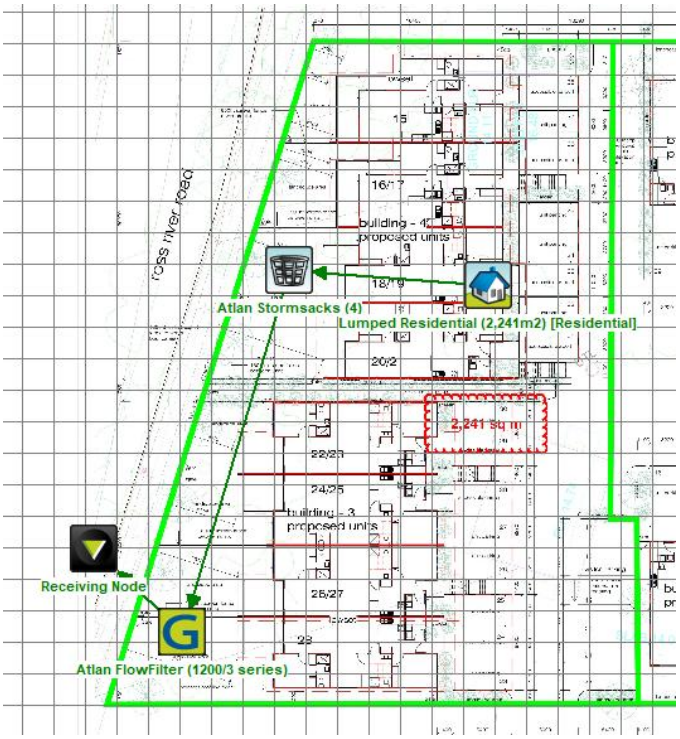


Figure 6.2 MUSIC Model (Northern Catchment)

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.7	1.7	0
Total Suspended Solids (kg/yr)	376	52.4	86.1
Total Phosphorus (kg/yr)	0.755	0.267	64.7
Total Nitrogen (kg/yr)	3.58	1.33	62.7
Gross Pollutants (kg/yr)	31.5	0.033	99.9

Figure 6.3 MUSIC Modelling – Treatment Train Effectiveness (northern catchment)

The proposed treatment train for the northern catchment consists of 4 Atlan Stormsacks (one in each proposed inlet pits) and an Atlan FlowFilter (1200/3) containing 3 cartridges capable of processing 4l/s each or 12l/s total with a high flow bypass.

Southern Catchment

The indicative layout of the MUSIC model, treatment train parameters and results for the southern catchment are shown below.

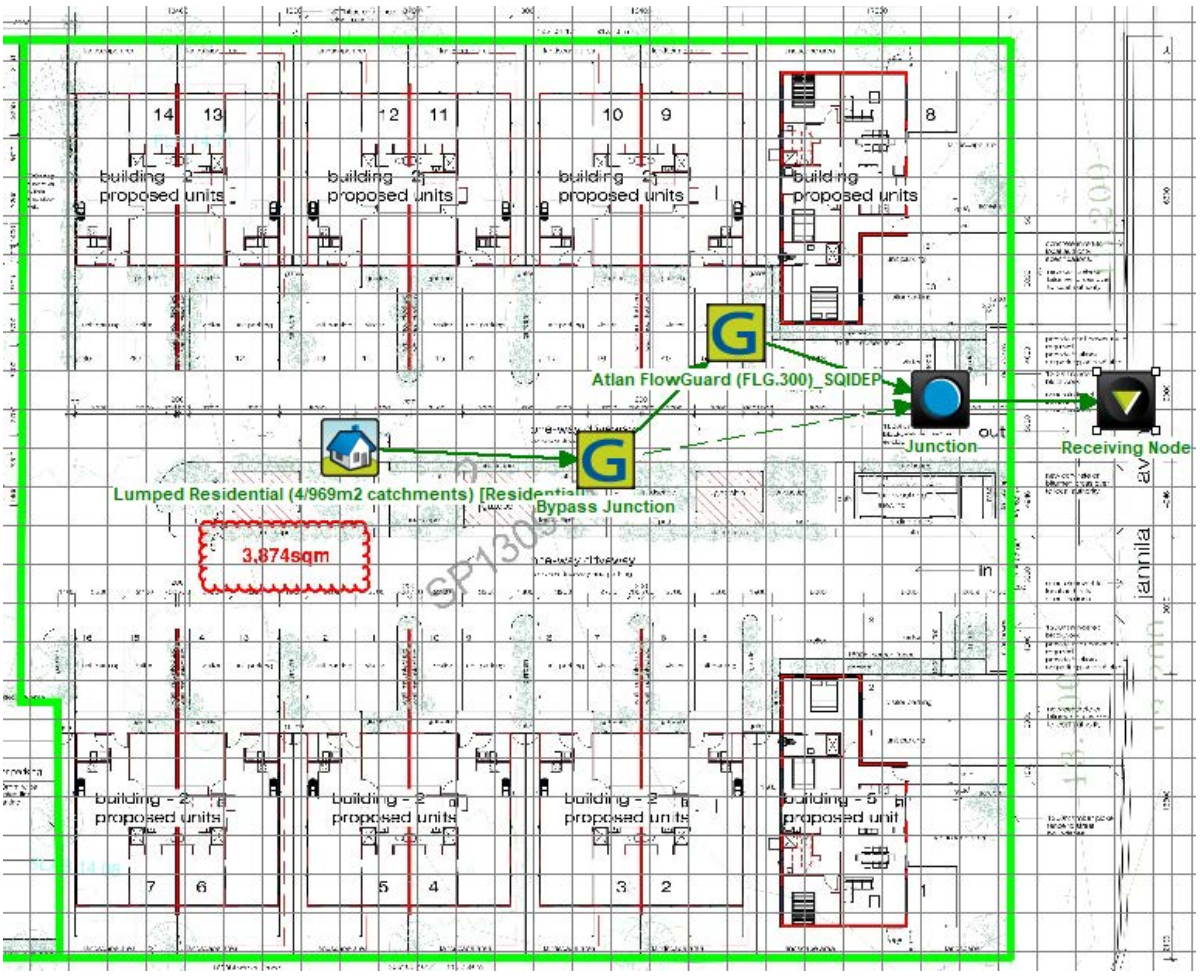


Figure 6.4 MUSIC Model (Southern Catchment)

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.94	2.94	0
Total Suspended Solids (kg/yr)	642	124	80.6
Total Phosphorus (kg/yr)	1.29	0.477	63.1
Total Nitrogen (kg/yr)	6.28	2.44	61.2
Gross Pollutants (kg/yr)	54.3	0.765	98.6

Figure 6.5 MUSIC Modelling – Treatment Train Effectiveness (southern catchment)

The proposed treatment train for the southern catchment consists of 84m of Atlan FlowGuard (300mm) which will be separated into 4 separate catchments (21m of FlowGuard in each catchment).

While the modelled treatment trains indicate that the stormwater quality outcomes for Townsville City Council can be achieved for the proposed 28 Unit development, equivalent alternative proprietary products may be investigated and adopted during detailed design, provided the required outcomes are achieved.

The proposed treatment trains will reduce pollutant loadings to the extent specified by the Townsville City Council Stormwater Quality Guidelines.

7. Water and Sewerage

7.1 Water Connection

In accordance with the information provided on TownsvilleMAPS – Community, the subject site is serviced by an existing DN20mm water service on the northern boundary which in turn is connected to the existing DN300mm water main in Ross River Road.

During the detailed design phase of the project, the Hydraulic Consultant will confirm the size of the larger water connection required for the proposed housing development based on the actual site water demands.

A fire hydrant exists on the 300mm water main in the verge of Ross River Road and is generally central to the subject allotment.

Another fire hydrant exists on the 100mm reticulation main on the opposite side of Jannila Avenue and is slightly west of central to the subject allotment.

The location of the existing water connection and fire hydrants is provided on the Preliminary Engineering Services drawing provided in Appendix C.

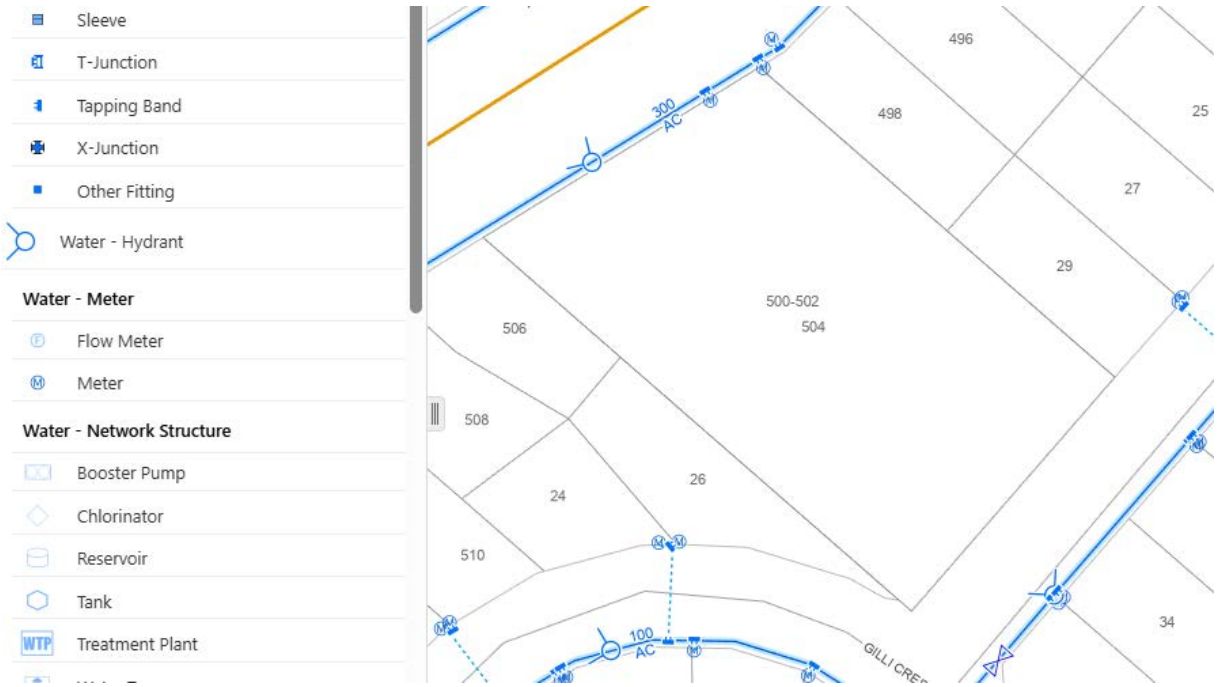


Figure 7.1 – TownsvilleMAPS existing water layout

A water network analysis has been undertaken for the proposed development in accordance with SC6.4.11 of the Townsville City Plan and the analysis demonstrates that the existing water network infrastructure has sufficient capacity to cope with the proposed development. The water network analysis is provided in Appendix D.

7.2 Sewer Connection

In accordance with the information provided on the TownsvilleMAPS - Community, the subject site is currently serviced from a 100mm house connection from the existing sewer manhole 3/L1A1C which is contained in the adjacent easterly allotment which fronts onto Jannila Avenue.

Sewer manhole 3/L1A1C is the top of the sewer catchment and connects to an existing 150mm AC/FRC sewer with an USIL of 11.884m.

A new 150mm dia. stub connection is required to service the proposed housing development and will replace the existing 100mm house connection.

Given the minimum Finished Floor Level of RL13.60 for the proposed houses adjacent to Jannila Avenue and the invert level of the new 150mm sewer connection will be IL 11.94m, there is sufficient depth to grade the internal sewers at 1 in 60 to the proposed new sewer connection.

The Hydraulic Consultant will determine the final layout of the internal sewers to service the proposed housing development during the detailed design phase of the proposed development.

The location of the existing sewer, the existing sewer manhole 3/L1A1C and the proposed new sewer connection are provided on the Preliminary Engineering Services drawing provided in Appendix C.

Figure 7.2 – TownsvilleMAPS existing sewerage layout

A sewer network analysis has been undertaken for the proposed development in accordance with SC6.4.11 of the Townsville City Plan and the analysis demonstrates that the existing sewer network infrastructure has sufficient capacity to cope with the proposed development. The sewer network analysis is provided in Appendix D.

8. Discussion / Conclusion

As demonstrated within the Report, the proposed Housing development can be undertaken, and a summary of the requirements are as follows: -

- The subject site is not affected by the Defined Flood Event.
- The subject allotment is not affected by the Defined Storm Tide Event (DSTE) – 3.9m.
- The Housing development minimum finished floor levels (FFL) are: -
  - Houses fronting Ross River Road – 13.93m + 0.3m = 14.23m.
  - Houses fronting Jannila Avenue – 13.31m + 0.3m = 13.61m.
- The Minor Design Event is ARI 2 year.
- The Major Design Event is ARI 100 year.
- No detention is required.
- The site does require Stormwater Quality Treatment as per the State Planning Policy.
- The Legal Points of Discharge is Ross River Road and Jannila Avenue road reserves.
- The existing water and sewer networks have sufficient capacity to accommodate the proposed development.

Based on our investigative works, we consider that Council has no impediment to the approval of this development within the context of engineering issues. We therefore recommend that Council approves the application subject to reasonable, relevant, equitable and justifiable conditions.

APPENDIX A – Architects - Proposed Development Layout

1 3D View 1

2 3D View 2

3 3D View 3

5 3D View 5

4 3D View 4

Sheet List		
Count	Sheet Number	Sheet Name
1	sk_01	Title page
1	sk_02	Site plan
1	sk_03	Site area layout
1	sk_04	Aerial image & detail survey
1	sk_05	Building - 1- floor plan & elevations
1	sk_06	Building - 2 - floor plan & elevations
1	sk_07	Building - 3 - floor plans
1	sk_08	Building - 3 – elevations
1	sk_09	Building - 4 - floor plans
1	sk_10	Building - 4 – elevations
1	sk_11	Gazebo

Grand total: 11

sheet size = A1

Preliminary
not to be used for construction purposes

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NOTES:
THIS DRAWING IS ONLY INTENDED TO OBTAIN A LOCAL AUTHORITY BUILDING PERMIT.
COMPLY WITH ALL RELEVANT AUTHORITY REG. & BSA. FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALED MEASUREMENTS. VERIFY ALL ON SITE DIMENSIONS & LEVELS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

Revision Schedule

No	Description	Date
1	revised site plans	23.07.20

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Invesments P/L
at:
500-505 Ross River Road
Cranbrook

Issue Date	05/2016
Drawn	Author
scale	
sheet	sk_01

25-022

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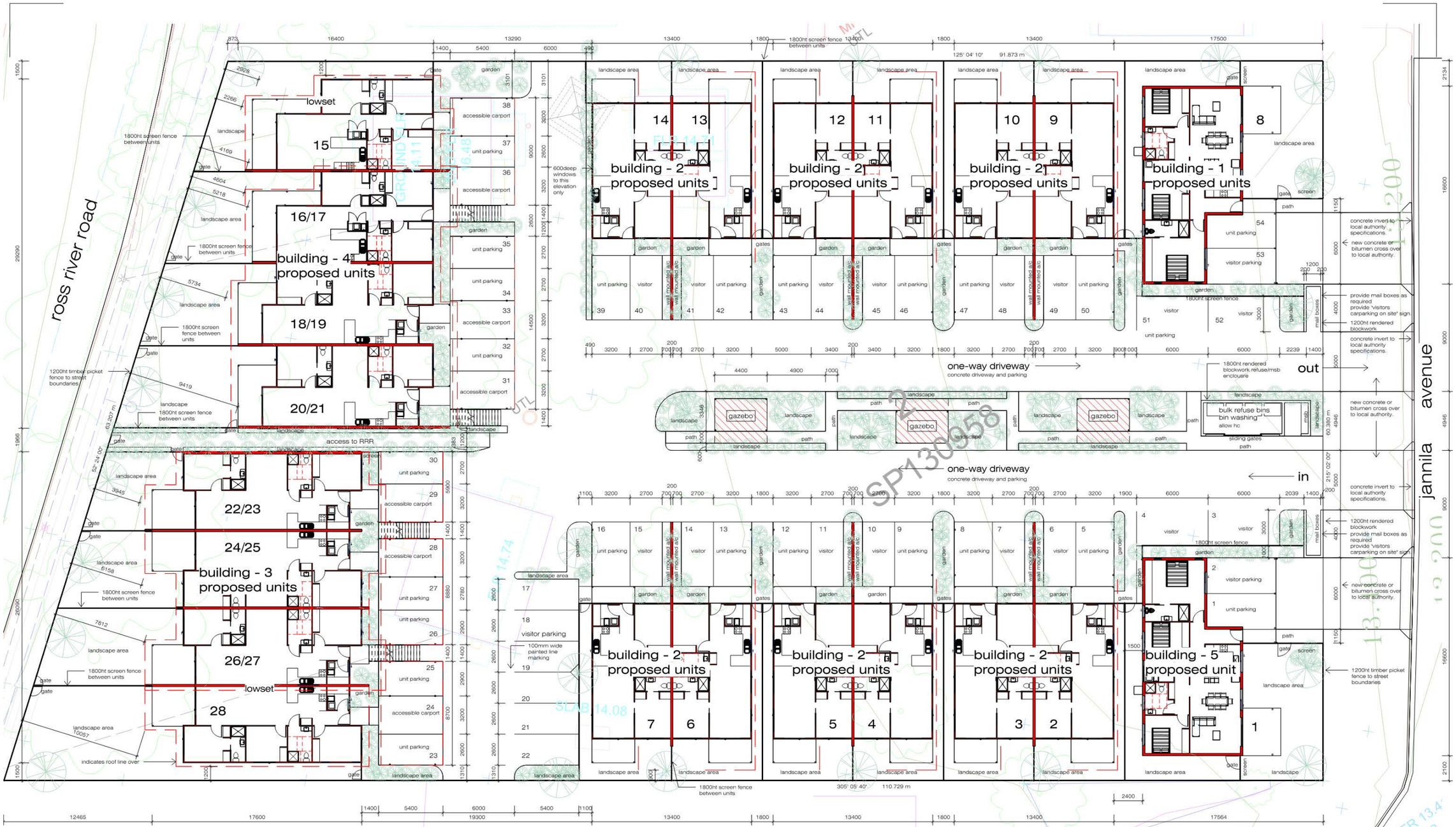

3 site notes
1 : 100

note

1. provide hard standing area for bulk refuse or wheelie bins provide hose cock & hose
2. a/c condensers are to be located below fence lines and not located on the frontage of the buildings or on balconies and must not be visible from the street frontage or from adjoining properties.

landscaping - refer landscape consultant plans for details

PROPERTY DESCRIPTION
LOT No: Lot 2
PLAN No: SP 130958
SITE AREA: 6114M2
ASSES No: 2636028

sheet size = A1

Preliminary
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Revision Schedule

No	Description	Date

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Invesments P/L
at:
500-505 Ross River Road
Cranbrook

Issue Date	dec 2025
Drawn	Author
scale	As indicated
sheet	sk 02
25-022	
printed	9/02/2026 3:48:26 PM

Gross Area Schedule

Count	Name	Area	%
building			
1	building - 1	156.24 m²	3%
1	building - 1	156.24 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 2	152.76 m²	3%
1	building - 3	364.79 m²	6%
1	building - 4	365.69 m²	6%
10		1959.52 m²	32%

Gross Area Schedule

Count	Name	Area	%
hardstand			
1	driveway/parking	1989.12 m²	33%
1	driveway/parking	23.50 m²	0%
1	driveway/parking	23.69 m²	0%
1	path	4.04 m²	0%
1	path	4.04 m²	0%
1	path	2.10 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	8.06 m²	0%
1	path	5.04 m²	0%

Gross Area Schedule

Count	Name	Area	%
1	path	3.60 m²	0%
1	path	3.76 m²	0%
1	path	3.76 m²	0%
1	path	3.74 m²	0%
1	path	3.92 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	5.04 m²	0%
1	path	10.75 m²	0%
1	path	5.04 m²	0%

Gross Area Schedule

Count	Name	Area	%
1	path	5.04 m²	0%
1	path	8.10 m²	0%
1	refuse bins/msb	27.60 m²	0%
26		2175.22 m²	36%
landscape			
1	gazebo	12.08 m²	0%
1	gazebo	12.08 m²	0%
1	gazebo	12.08 m²	0%
1	landscaping	367.18 m²	6%
1	landscaping	171.17 m²	3%
1	landscaping	6.86 m²	0%
1	landscaping	16.13 m²	0%
1	landscaping	9.47 m²	0%

Gross Area Schedule

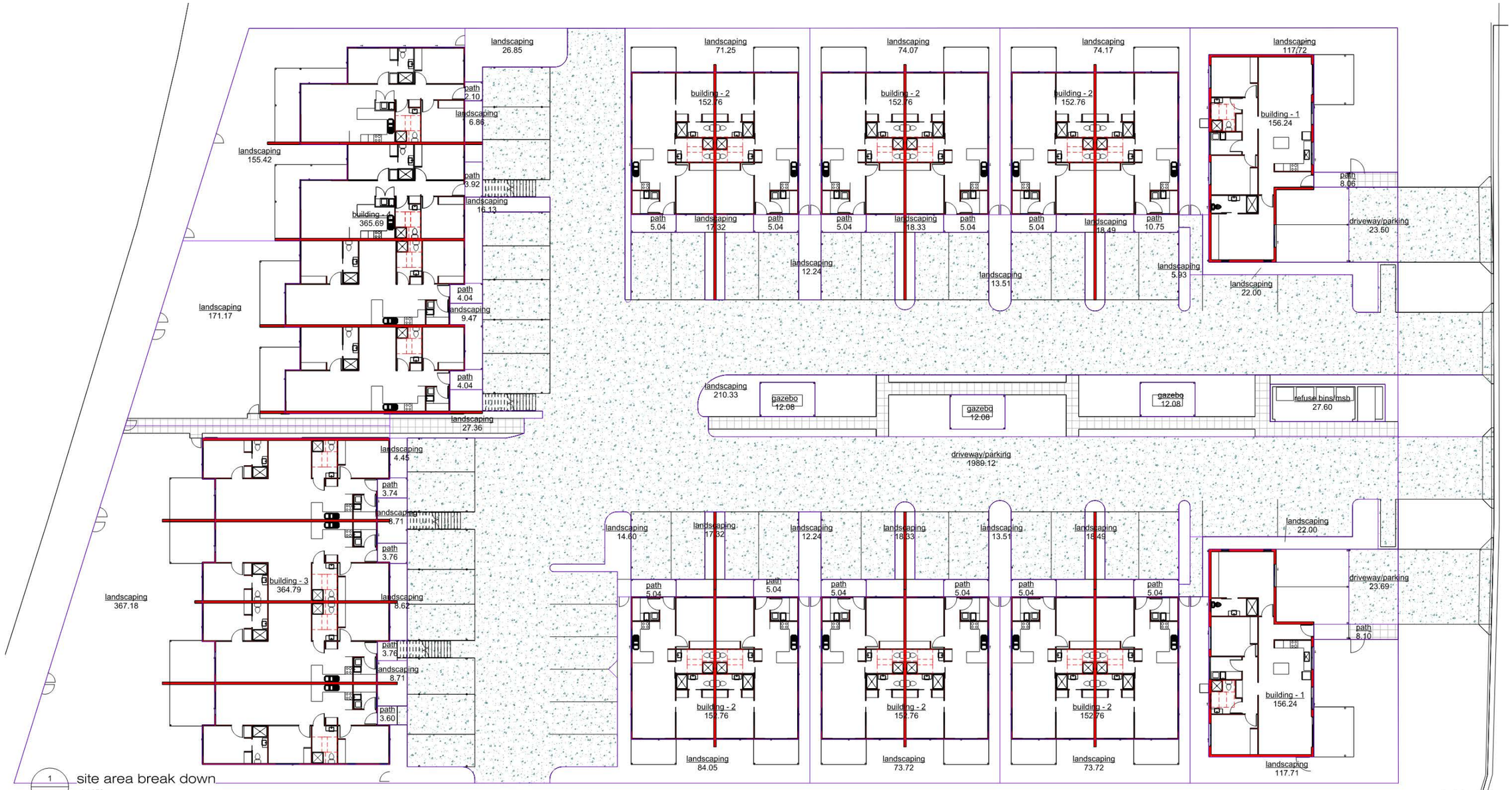
Count	Name	Area	%
1	landscaping	27.36 m²	0%
1	landscaping	4.45 m²	0%
1	landscaping	8.71 m²	0%
1	landscaping	8.62 m²	0%
1	landscaping	8.71 m²	0%
1	landscaping	71.25 m²	1%
1	landscaping	74.07 m²	1%
1	landscaping	74.17 m²	1%
1	landscaping	117.72 m²	2%
1	landscaping	22.00 m²	0%
1	landscaping	18.49 m²	0%
1	landscaping	5.93 m²	0%
1	landscaping	13.51 m²	0%

Gross Area Schedule

Count	Name	Area	%
1	landscaping	18.33 m²	0%
1	landscaping	12.24 m²	0%
1	landscaping	17.32 m²	0%
1	landscaping	210.33 m²	3%
1	landscaping	17.32 m²	0%
1	landscaping	14.60 m²	0%
1	landscaping	12.24 m²	0%
1	landscaping	18.33 m²	0%
1	landscaping	12.24 m²	0%
1	landscaping	18.33 m²	0%
1	landscaping	13.51 m²	0%
1	landscaping	18.49 m²	0%
1	landscaping	73.72 m²	1%
1	landscaping	73.72 m²	1%

Gross Area Schedule

Count	Name	Area	%
1	landscaping	84.05 m²	1%
1	landscaping	117.71 m²	2%
1	landscaping	155.42 m²	3%
1	landscaping	26.85 m²	0%
1	landscaping	22.00 m²	0%
38		1968.23 m²	32%
74		6102.97 m²	100%



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sheet size = A1

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Revision Schedule

No	Description	Date
1	revised site plans	23.07.20

concepts Building Design
tel: 07 4728 3228

project:
Proposed Multiple Dwellings
for:
Kaenetto Invesments P/L
at:
500-505 Ross River Road
Cranbrook

Issue Date	11/20/07
Drawn	Author
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sheet	sk_03

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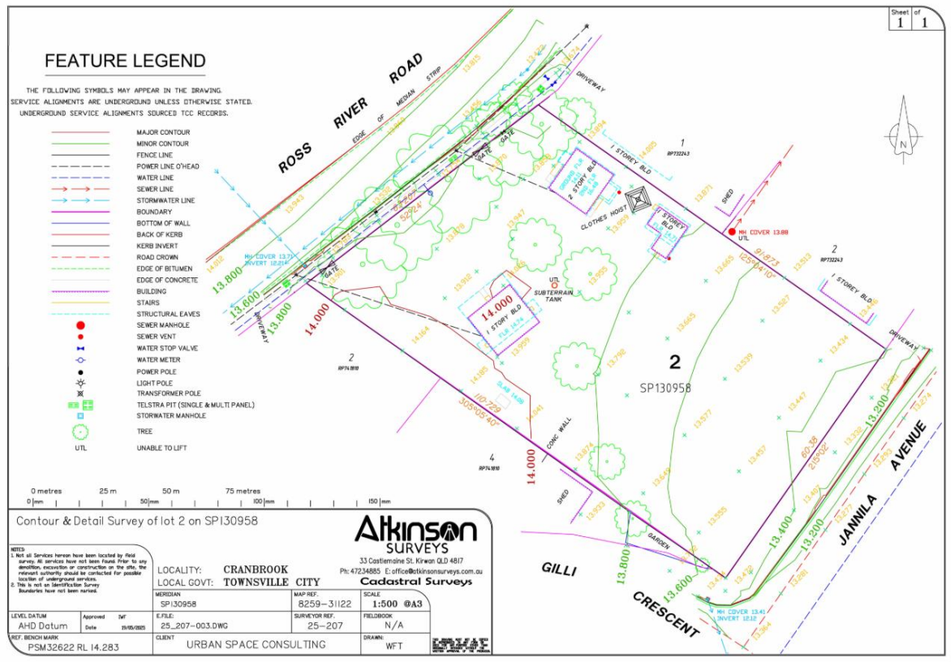

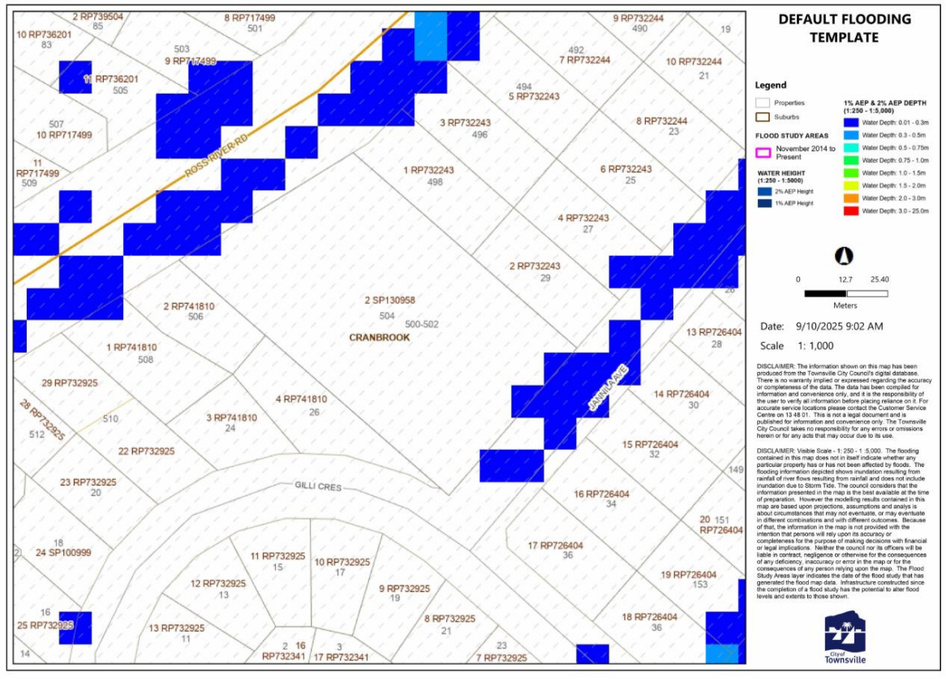

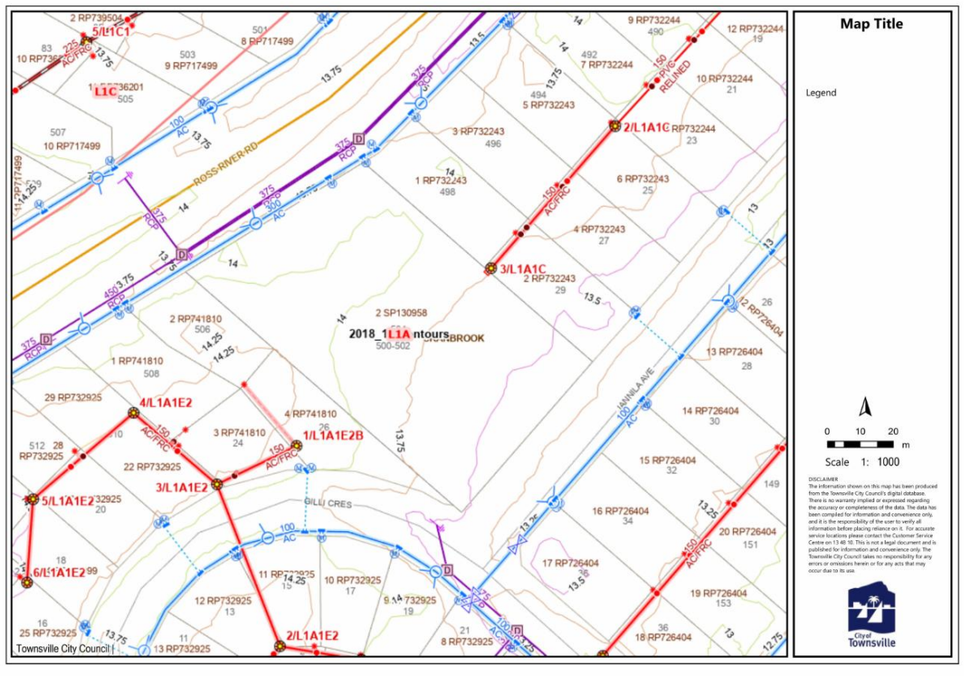

sheet size = A1

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Revision Schedule

No	Description	Date

concepts Building Design
tel: 07 4728 3228

project: Proposed Multiple Dwellings
for: Kaenetto Invesments P/L
at: 500-505 Ross River Road Cranbrook

Issue Date	01/22/23
Drawn	Author
scale	1 : 100
sheet	sk_04

25-022

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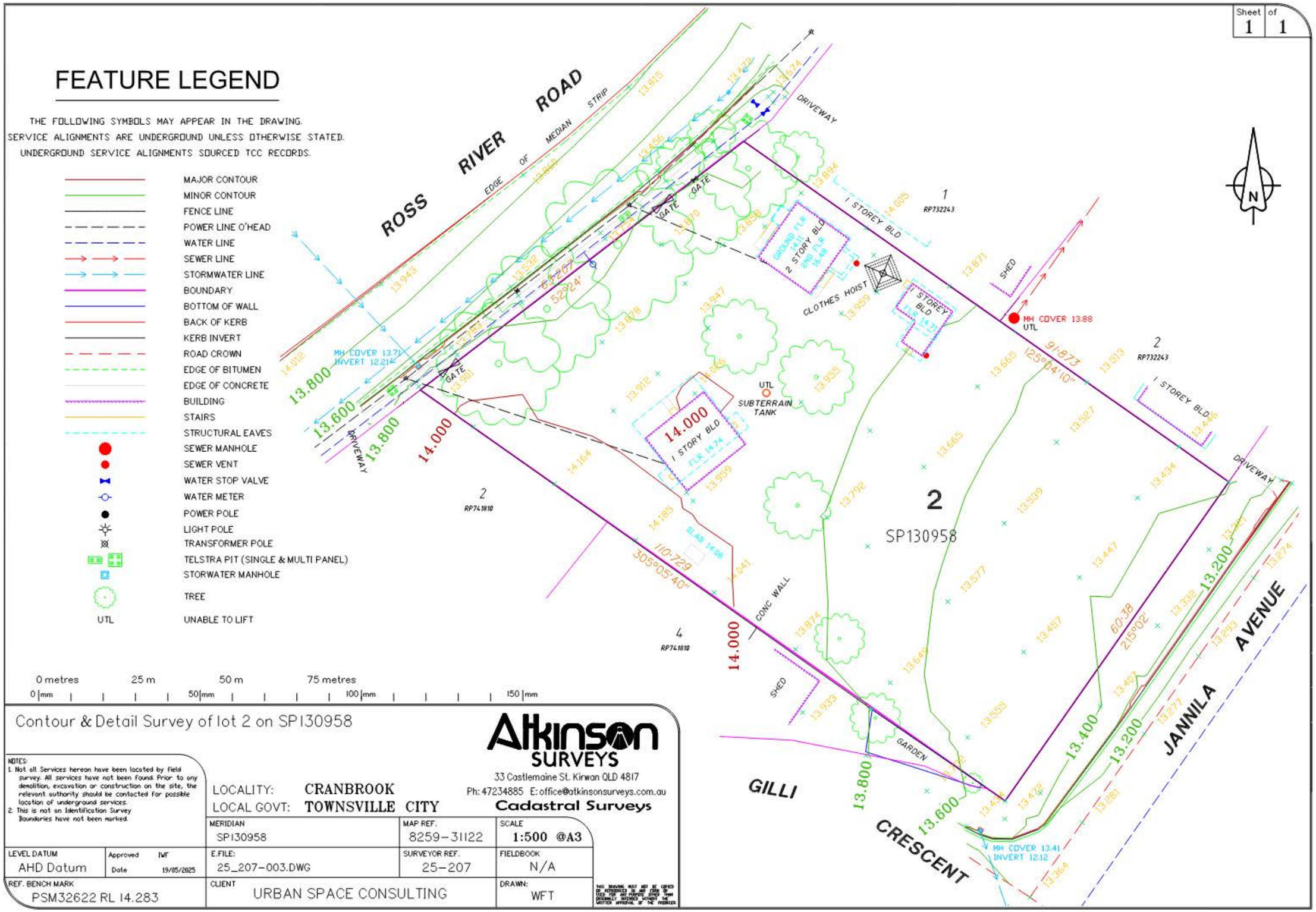
APPENDIX B – Detailed Survey



APPENDIX C – Preliminary Engineering Services Drawing

NOTES:

FOR OVERARCHING NOTES REFER PROJECT NOTES.

LEGEND:

- EXISTING OVERHEAD ELECTRICITY
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWER MAIN
- EXISTING LOT BOUNDARY
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN
- EXISTING FENCE
- EXISTING BUILDING
- PROPOSED OVERLAND FLOW
- PROPOSED BUILDING
- PROPOSED STORMWATER DRAINAGE, REFER STORMWATER LAYOUT PLAN FOR DETAILS
- PROPOSED EXTERNAL WALL REFER STRUCTURAL DRAWING FOR DETAILS
- ●PLXX.XX SPOT LEVEL AT PAVEMENT
- ●ExXX.XX SPOT LEVEL AT EXISTING
- BKC PROPOSED BARRIER KERB AND CHANNEL

HATCHING LEGEND:

- EXTENT OF CONCRETE PATHWAY, REFER PROJECT NOTES FOR DETAILS.
- EXTENT OF CONCRETE PAVEMENT - MEDIUM DUTY, REFER PROJECT NOTES FOR DETAILS.
- EXTENT OF LANDSCAPING AREA, REFER TO ARCHITECTS PLANS FOR DETAILS.
- EXTENT OF PROPOSED BUILDING, REFER ARCHITECTS PLANS FOR DETAILS.

MINIMUM FINISHED FLOOR LEVELS:

ROSS RIVER ROAD SIDE:
300mm ABOVE THE 1% AEP FLOOD LEVEL.
13.930m + 0.300m = 14.230m AHD

JANILLA AVENUE SIDE:
300mm ABOVE THE 1% AEP FLOOD LEVEL.
13.310m + 0.300m = 13.610m AHD

ATTENTION: FOR BEST RESULTS AND ACCURATE UNDERSTANDING OF THESE DRAWINGS, PLEASE PRINT IN COLOUR

LEVEL DATUM

PSM32622
LEVEL DATUM RL14.283 AHD DERIVED
SITE COORDINATES E473479.212 N7864859.714

AMENDMENTS

Rev:	Date:	Description:	By:	Appd:
A	06.03.26	REVISED SD ISSUE	LJM	PP

IN ASSOCIATION WITH

KAENETTO INVESTMENTS

500 ROSS RIVER ROAD CRANBROOK
500 - 504 ROSS RIVER RD, CRANBROOK

GENERAL ARRANGEMENT

STP CONSULTANTS
BRISBANE CAIRNS ROCKHAMPTON
TOWNSVILLE MACKAY WHITSUNDAYS
www.stpconsultants.com.au 07 3539 8300

Design: PP
Drawn: LJM
Approved: PP
RPEQ No: 13231

1:250 0 2.5 5 7.5 10 12.5m A1

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Job No:	Drawing No:	Rev:
STP25-0597	C103	A

NOT FOR CONSTRUCTION

File Path: C:\Project Files\STP25\STP25-0597 500 Ross River Road Cranbrook\Drawings\STP25-0597-04.dwg

NOTES:

FOR OVERARCHING NOTES REFER PROJECT SPECIFICATIONS

LEGEND:

- EXISTING UNDERGROUND ELECTRICITY
- EXISTING OVERHEAD ELECTRICITY
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- EXISTING UNDERGROUND NBN
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWER MAIN
- EXISTING LOT BOUNDARY
- EXISTING LOT EASEMENT
- EXISTING OVERLAND FLOW
- EXISTING TOE OF BATTER
- EXISTING TOP OF BATTER
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN
- EXISTING FENCE
- EXISTING BUILDING
- PROPOSED OVERLAND FLOW
- PROPOSED TOE OF BATTER
- PROPOSED TOP OF BATTER
- PROPOSED BUILDING
- PROPOSED STORMWATER DRAINAGE, REFER STORMWATER LAYOUT PLAN FOR DETAILS
- PROPOSED WATER MAIN REFER HYDRAULIC DRAWINGS FOR DETAILS
- PROPOSED SEWER MAIN, REFER SEWER RETICULATION DRAWINGS FOR DETAILS
- DENOTES CONCRETE GRATED INLET PIT REFER MISCELLANEOUS DRAWINGS FOR DETAILS
- DENOTES POLYPROPYLENE (PE) GRATED INLET PIT REFER MISCELLANEOUS DRAWINGS FOR DETAILS
- DENOTES CATCHMENT BOUNDARY
- X/X 0.000ha — DENOTES CATCHMENT LABEL
- X/X — DENOTES PIT NUMBER

ATTENTION: FOR BEST RESULTS AND ACCURATE UNDERSTANDING OF THESE DRAWINGS, PLEASE PRINT IN COLOUR.

LEVEL DATUM

PSM32622
LEVEL DATUM RL14.283 AHD DERIVED
SITE COORDINATES E473479.212 N7864859.714

AMENDMENTS

Rev:	Date:	Description:	By:	Appd:
A	26.06.25	SD ISSUE	LJM	PP
B	06.03.26	REVISED SD ISSUE	LJM	PP

IN ASSOCIATION WITH

KAENETTO INVESTMENTS

500 ROSS RIVER ROAD CRANBROOK
500 - 504 ROSS RIVER RD, CRANBROOK

STORMWATER DRAINAGE PLAN

STP CONSULTANTS
BRISBANE CAIRNS ROCKHAMPTON TOWNSVILLE MACKAY WHITSUNDAYS
www.stpconsultants.com.au 07 3539 8300

Design: PP
Drawn: LJM
Approved: PP
RPEQ No: 13231

1:250 0 2.5 5 7.5 10 12.5m A1

CIVIL

Job No: STP25-0597
Drawing No: C501
Rev: B

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File Path: Q:\Project Files\STP25\STP25-0597 500 Ross River Road Cranbrook\Drawings\STP25-0597-SWD.dwg

APPENDIX D – Water and Sewer Network Analysis

500-504 ROSS RIVER RD, CRANBROOK UNIT DEVELOPMENT

WATER SUPPLY & SEWERAGE PLANNING REPORT

Date: 4 March 2026
(Revision A)

TABLE OF CONTENTS

APPENDICES

REPORT AUTHORISATION				
Revision	**Revision Date**	**Details**	**Prepared by**	**Signature**
A	04/03/2026	Original Report	Desmond Moseley (RPEQ 7565)	

1 INTRODUCTION

A residential unit development is proposed at 500 to 504 Ross River Rd, Cranbrook. This site is located on the south/eastern side of Ross River Rd and near the intersection with Louise St. The southern boundary of the site has a frontage on Jannila Ave.

The site is illustrated on the extract from Queensland Globe below.

Figure 1.1 – Development Site Location

The proposed residential unit development will have a combination of single and two story residential units. There is proposed to be a total of 28 residential units on the development site. Figure 1.2 below illustrates the proposed development layout. The development plans are provided in Appendix A.

To ensure the development can be adequately serviced with a potable water supply and sewage system in accordance with Council standards, an assessment of the system capacities have been undertaken. This report summarises the assessment of the existing water and sewerage network with this illustrating:

- The water modelling shows the existing DN300 PVC water main along the southern side of Ross River Rd and the frontage of the development site is adequately sized to service the development. The assessment has been based on the water supply being off the existing DN300 water main on the Ross River Rd frontage of the development site. This is because the existing water service connection to the site and the other adjacent residential properties are already off the existing DN300 water main.
- There is an existing DN150 gravity sewer that services the development site. The existing DN150 sewer extends to the north east before increasing to a DN300 sewer that continues

onto existing PS L1A (Barellan St). The SewerGEMS network modelling illustrates that the existing gravity sewer system has sufficient capacity to service the development.

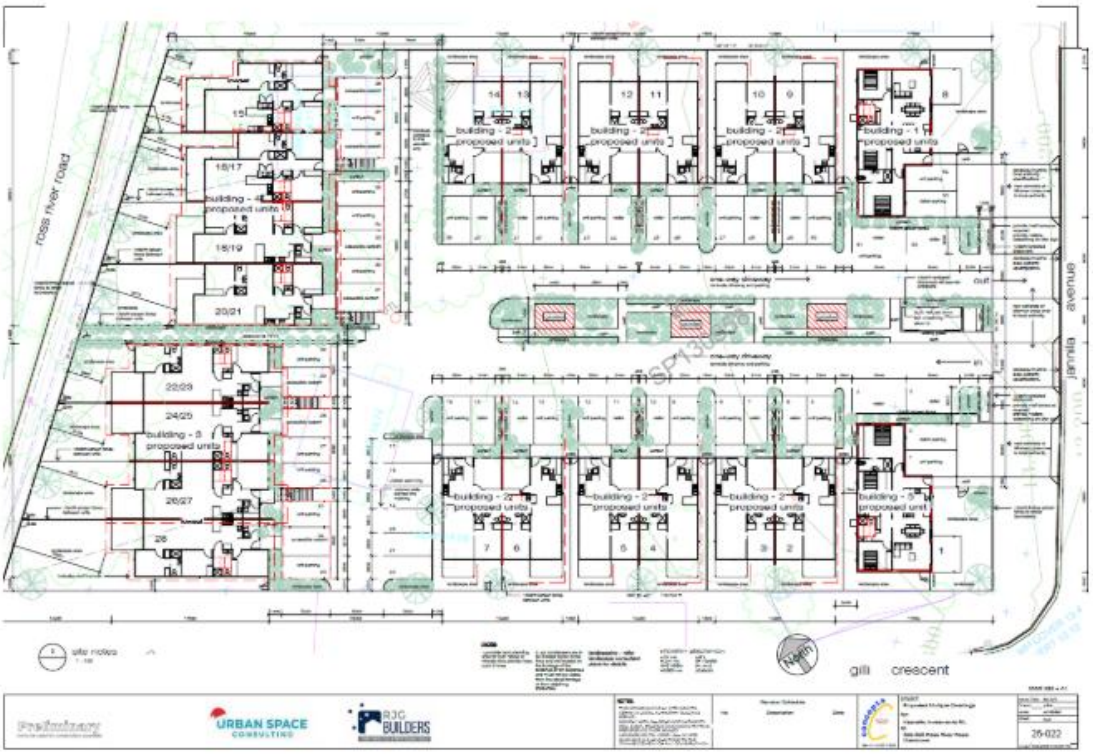

Figure 1.2 – Development Layout Plan

The water network modelling and sewer system capacity assessment undertaken for the proposed residential unit development is summarised in the following report sections.

2 POPULATION ASSESSMENT

The following Table 2.1 provides the equivalent population assessment for the proposed residential unit development on 500 to 504 Ross River Rd. The equivalent population for each residential unit is in accordance with the CTM Code.

Table 2.1 –Population Assessment

	Number	Rate	EP
Residential Units	28 units	1.8 EP/lot	50.4 EP

The above equivalent has been used in the water & sewer infrastructure capacity assessment.

3 WATER SUPPLY PLANNING

3.1 Water Demand

Water demands have been calculated in accordance with Townsville City Council planning scheme and CTM Code. The following table provides the "residential" water demand parameters from the CTM Code for each equivalent person (EP).

Table 3.1 - Water Supply Unit Demand Parameters

Parameter	Unit Demand	Peaking Factor
Average Day (AD)	600 L/day/EP	
Mean Day Max Month (MDMM)	900 L/day/EP	1.5 AD
Peak Day (PD)	1125 L/day/EP	1.25 MDMM
Peak Hour (PH)	0.033 L/s/EP	2.56 PD

The peak hour residential water demands have been applied to the proposed unit development, giving a peak water demand of 50.4 EP x 0.033 l/s/EP = 1.68 l/s.

In addition to the above, as the development is residential, the 15 l/s residential fire flow is applicable in accordance with the CTM Code. This fire flow has been used to assess the theoretical performance of the water network.

3.2 Water Supply Assessment & Network Modelling

The existing site for the proposed residential unit development is on the south of Ross River Rd in Cranbrook. The existing water infrastructure that services the site includes:

- A 300 AC water main along the southern footpath of Ross River Rd. This is along the frontage of the proposed development.
- The DN300 AC water main on Ross River Rd transitions to a DN300 CI trunk water main that continues along the southern side of Ross River Rd.
- The existing DN300 CI water main extends to the intersection of Nathan St where it connects to a DN600 AC water main that runs along Nathan St.
- The DN600 AC trunk water main is supplied water from the 2 x 40 ML Douglas 1A/1B reservoirs.

The following extract from the Council GIS illustrates the existing water infrastructure that services the Ross River Rd and Nathan St area of Cranbrook.

The water assessment has been based on the water supply to the residential unit development being off the existing DN300 water main on the Ross River Rd frontage of the development site. This is because the existing water service connection to the site and the other adjacent residential properties are already off the existing DN300 water main.