

## **RAD ARCHITECTURE**

### **MIXED USE DEVELOPMENT 91-93 CANNING HIGHWAY EAST FREMANTLE**

### **SPP 5.4 NOISE MANAGEMENT PLAN**

JANUARY 2026

OUR REFERENCE: 35728-2-25472

DOCUMENT CONTROL PAGE

**SPP 5.4 NOISE MANAGEMENT PLAN  
91-93 CANNING HIGHWAY  
EAST FREMANTLE**

Job No: 25472

Document Reference: 35728-2-25472

FOR

**RAD ARCHITECTURE**

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## 1. INTRODUCTION

Herring Storer Acoustics were commissioned by RAD Architecture to carry out an acoustic study with regards to traffic related noise for the proposed residential development of 91-93 Canning Highway, East Fremantle.

The purpose of the study was to:

- Assess the noise that would be received within the development area from vehicles travelling on Canning Highway and Stirling Highway.
- Compare the results with accepted criteria and if exceedances exist, develop the framework for the management of noise.

A plan is attached in Appendix A.

## 2. ACOUSTIC CRITERIA

### 2.1 NOISE

The Western Australian Planning Commission (WAPC) released on 6<sup>th</sup> September 2019 State Planning Policy 5.4 "Road and Rail Noise". The requirements of State Planning Policy 5.4 are outlined below.

#### POLICY APPLICATION (Section 4)

##### When and where it applies (Section 4.1)

*SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:*

- a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;*
- b) New or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1, 2 and 3**); or*
- c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.*

##### Policy trigger distances (Section 4.1.2)

**Table 1** identifies the State's transport corridors and the trigger distances to which the policy applies.

*The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.*

*Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent."*

**TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES**

<b>Transport corridor classification</b>	<b>Trigger distance</b>	<b>Distance measured from</b>
<b>Roads</b>		
<b>Strategic freight and major traffic routes</b> <i>Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume</i>	300 metres	Road carriageway edge
<b>Other significant freight/traffic routes</b> <i>These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either &gt;=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)</i>	200 metres	Road carriageway edge
<b>Passenger railways</b>		
	100 metres	Centreline of the closest track
<b>Freight railways</b>		
	200 metres	Centreline of the closest track

*Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.*

#### POLICY MEASURES (Section 6)

*The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.*

#### Noise Targets (Section 6.1)

**Table 2** sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

*In the application of the noise targets the objective is to achieve:*

- *indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and*
- *a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.*

*It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.*

**TABLE 2: NOISE TARGETS**

Proposals	New/Upgrade	Noise Targets		
		Outdoor		Indoor
		Day ( $L_{Aeq}(\text{Day})$ dB) (6 am-10 pm)	Night ( $L_{Aeq}(\text{Night})$ dB) (10 pm-6 am)	( $L_{Aeq}$ dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	$L_{Aeq}$ (Day) 40(Living and work areas) $L_{Aeq}$ (Night) 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

**Notes:**

- The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.
- The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.

Noise Exposure Forecast (Section 6.2)

When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:

- no further measures is required;
- noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or
- noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan.”

### 3. NOISE LEVEL MODELLING

The noise measurements were conducted on 3 December 2025 for a short term period during peak hour to determine the  $L_{A10}$  noise level.

Utilising this measurement, reference to the DEFRA publication has been sought and the difference between the  $L_{A10,18hr}$  and the  $L_{Aeq,8hr}$  and the  $L_{Aeq,16hr}$  has been calculated. The results of the measurement and the determination of the  $L_{Aeq(Day)}$  and  $L_{Aeq(Night)}$  are shown in Table 3.1.

Noise measurements were conducted with a Larson Davis 831 Sound Level Meter. The Sound Level Meter was calibrated prior to and after use with a Bruel and Kjaer 4230 Calibrator. All equipment used is currently NATA laboratory calibrated. Calibration certificates are available on request.

**TABLE 3.1: SUMMARY OF MEASURED NOISE LEVELS**

Measurement Location	Measured/Calculated Noise Level, dB(A)		
	$L_{A10}$	$L_{Aeq, day}$ (6am to 10pm)	$L_{Aeq, night}$ (10pm to 6am)
91 Canning Highway, Canning Highway	76.1	72.4	64.7
91 Canning Highway, Stirling Highway	76.5	72.2	65.1

### 4. MODELLING

To determine the noise levels from traffic on Canning Highway and Stirling Highway, acoustic modelling was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN)<sup>1</sup> algorithms.

The input data for the model included:

- Plans supplied by client (Shown in Appendix A);
- Traffic data as per Table 4.1 (And Sourced in Appendix C from MRWA ref: 43754);
- Adjustments as listed in Table 4.2.

**TABLE 4.1 - NOISE MODELLING INPUT DATA**

Parameter	Canning Highway (Current) 2021	Canning Highway (Future) 2046	Stirling Highway (Current) 2021	Stirling Highway (Future) 2046
Traffic Volumes	13,600 vpd	26,700 vpd	25,900 vpd	44,100 vpd
Percentage traffic 0600 – 2400 hours (Assumed)	94%	94%	94%	94%
Heavy Vehicles (%) (Assumed)	12.4%	12.4%	18.9%	18.9%
Speed (km/hr)	60km/hr	60km/hr	60km/hr	60km/hr
Road Surface	Dense Graded Asphalt	Dense Graded Asphalt	Dense Graded Asphalt	Dense Graded Asphalt

**TABLE 4.2 – ADJUSTMENTS FOR NOISE MODELLING**

Description	Value
Façade Reflection Adjustment	+2.5 dB
Conversion from $L_{A10}$ (18 hour) to $L_{Aeq}$ (16 hour) (Day)	-3.7 dB / 4.3 dB *

\* Based on measured results listed in Table 3.1.

## 5. TRAFFIC NOISE ASSESSMENT

Using the data contained in Tables 4.1 and 4.2, noise modelling was conducted and the highest noise level at the development has been calculated to exceed the Noise Target. As a result, upgrades to glazing for windows as shown in Appendix B are required.

It has been assumed that the building would be made out of tilt-up concrete panel or similar, which would provide sufficient amelioration for road traffic noise. If a lightweight construction is to be used, further investigation into the details to achieved compliance is required.

It is noted that all requirements pertain to only acoustic advice in regard to *State Planning Policy 5.4* and may be superseded by other requirements (BAL, Thermal, etc).

## 6. CONCLUSION

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development of 91-93 Canning Highway, East Fremantle, from vehicles travelling on Canning Highway and Stirling Highway has been undertaken.

In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

### **External**

Day	55 dB(A) $L_{Aeq}$
Night	50 dB(A) $L_{Aeq}$

### **Internal**

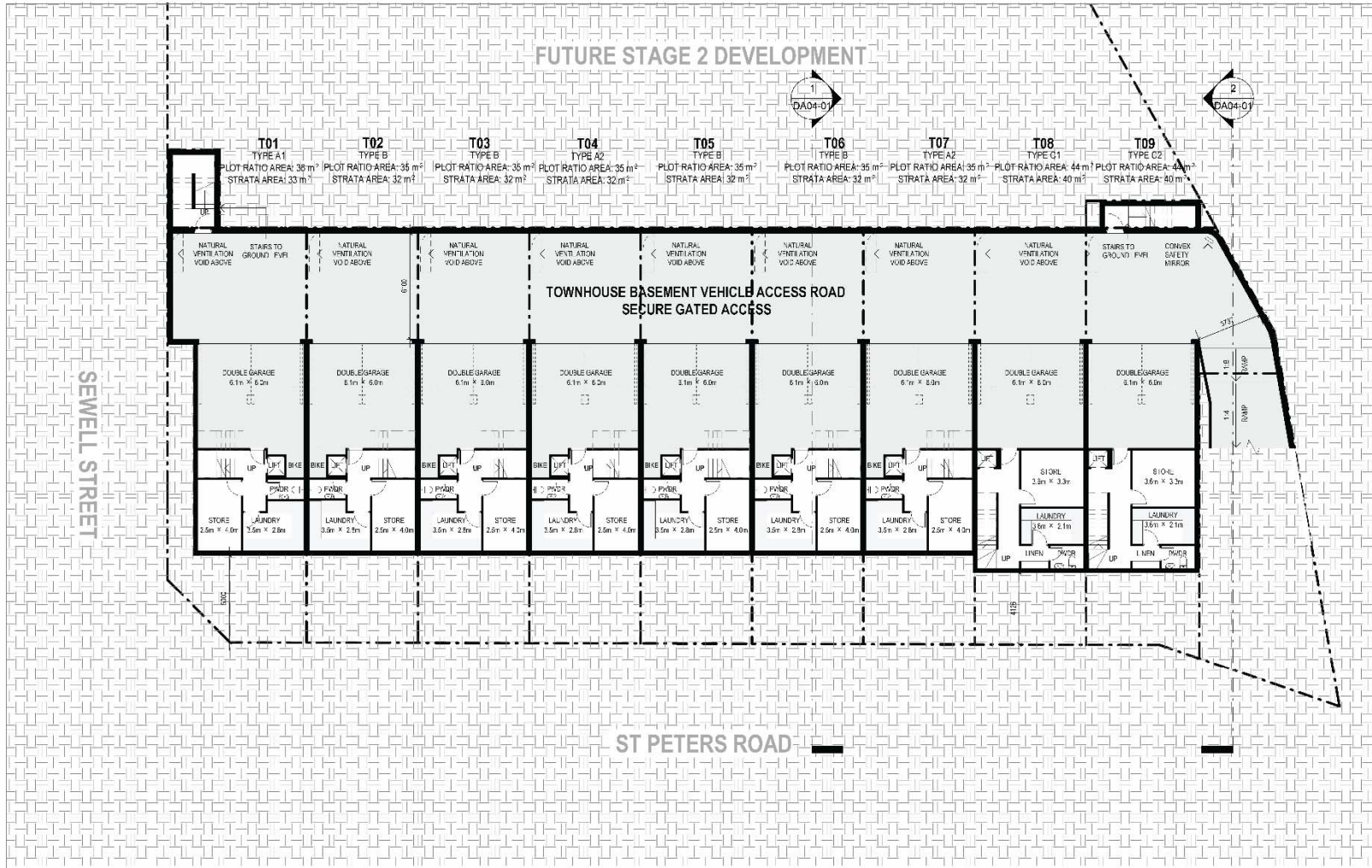
Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

The results of the acoustic assessment indicate that noise received at the development from future traffic, exceed external noise level criteria. Therefore, construction listed in Appendix B would be required to meet the requirements of *State Planning Policy 5.4*. Additionally, Notification on the Title would be required.

# **APPENDIX A**

Plans





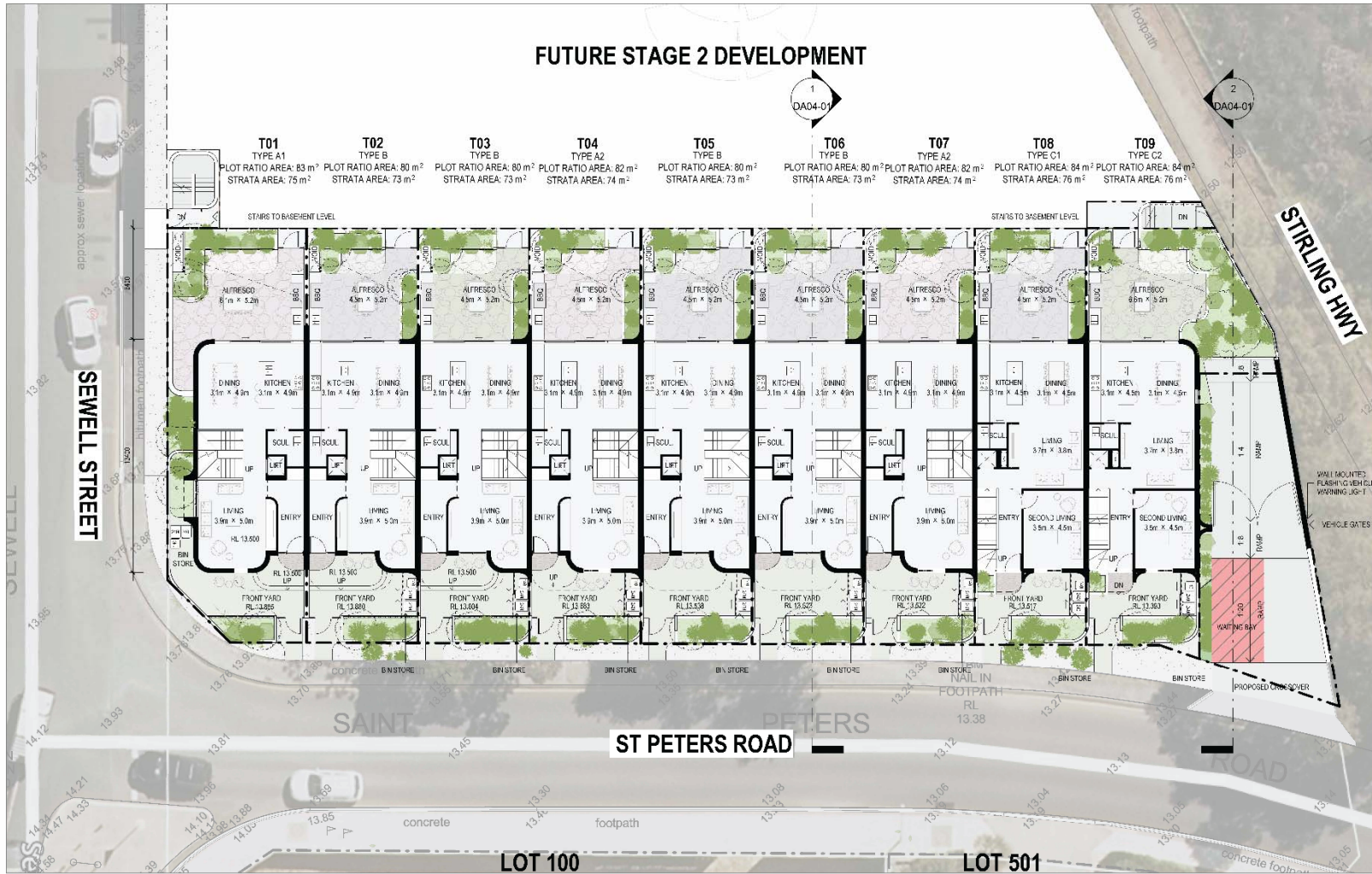
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	PROJECT NAME	TOWNHOUSE DEVELOPMENT
	CLIENT	SARACEN PROPERTIES
	51-55 CANNING HIGHWAY, EAST FREMANTLE	

DRAWING NAME	BASEMENT PLAN
SUBJECT	SCHEMATIC DESIGN

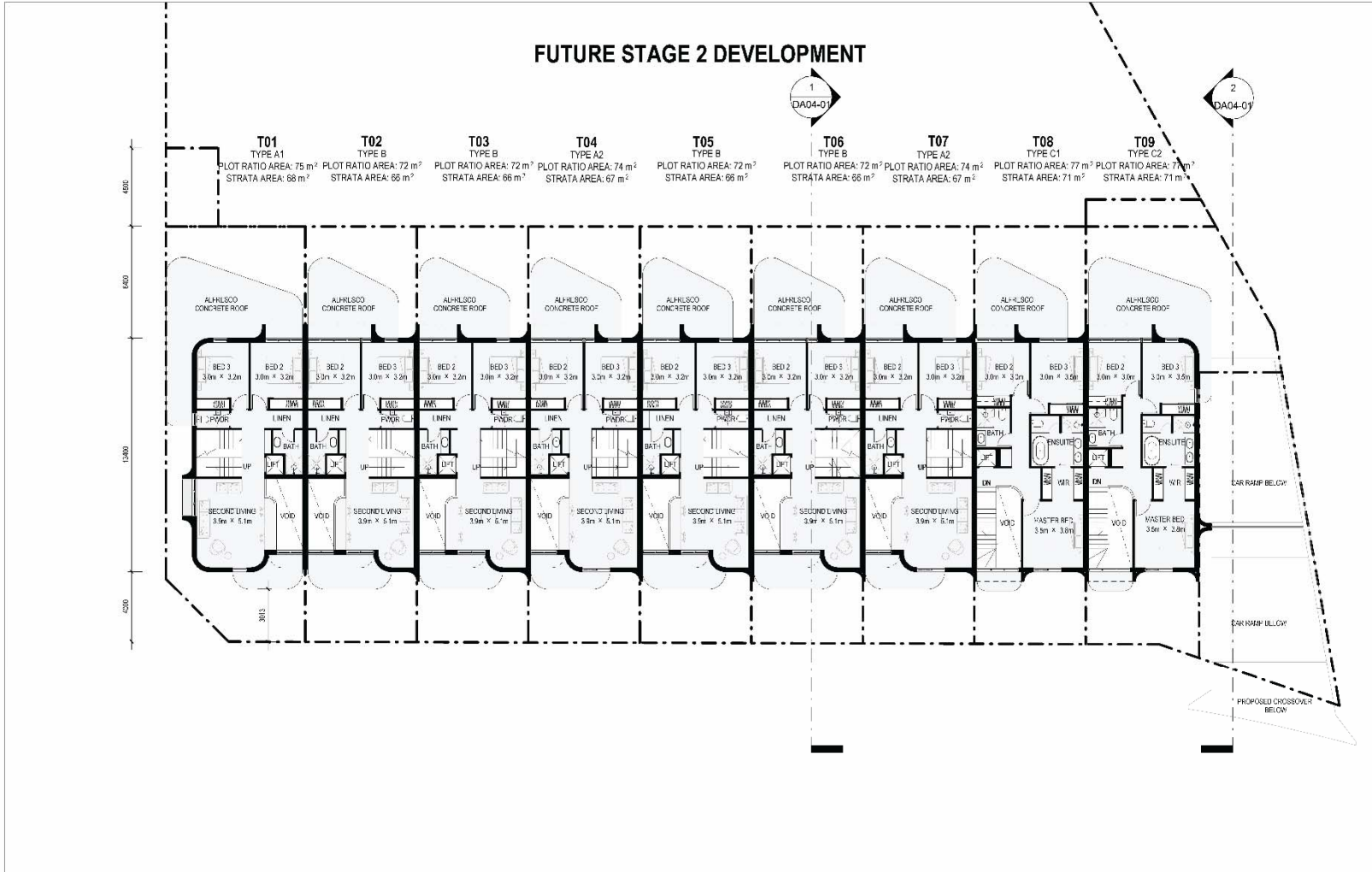
SCALE 1 : 200 (A3)		
PROJECT NO:	DRAWING NO:	REV
25-10	DA01-01	E
DRAWN BY		SP

30/01/2026	E	ISSUE FOR CONSULTANT	
15/12/2025	D	ISSUE FOR CONSULTANT	
12/12/2025	C	ISSUE FOR REVIEW	
26/11/2025	B	ISSUE FOR REVIEW	
10/11/2025	A	ISSUE FOR REVIEW	
DDMMYY	REV	DESCRIPTION	CHECKED



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	<b>PROJECT NAME</b> TOWNHOUSE DEVELOPMENT <small>51-55 CANNING HIGHWAY EAST FREMANTLE</small>	<b>DRAWING NAME</b> GROUND PLAN	<b>SCALE</b> 1 : 200 (A3)																										
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	PROJECT NAME <b>TOWNHOUSE DEVELOPMENT</b> 51-55 CANNING HIGHWAY, EAST FREMANTLE	DRAWING NAME <b>LEVEL 1 PLAN</b>	SCALE <b>1 : 200 (A3)</b>	
	CLIENT <b>SARACEN PROPERTIES</b>	SCHEMATIC DESIGN	PROJECT NO. <b>25-10</b>	DRAWING NO. <b>DA01-03</b>
		DRAWN BY <b>SP</b>		30/01/2026 15/12/2025 12/12/2025 26/11/2025 10/11/2025
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## **APPENDIX B**

Calculated Noise Levels and Required  $R_w + C_{tr}$  Ratings

Calculated Noise Levels and Required $R_w$ and $C_{tr}$ Ratings			
Location	Level	$R_w + C_{tr}$	
		Bedrooms	Living Rooms
R1 North GF	62	30	25
R1 North F 1	64	31	26
R1 North F 2	66	34	29
R1 South GF	57	24	23
R1 South F 1	58	25	23
R1 South F 2	59	26	23
R2 North GF	63	31	26
R2 North F 1	64	32	27
R2 North F 2	66	34	29
R2 South GF	57	25	23
R2 South F 1	58	26	23
R2 South F 2	59	27	23
R3 North GF	64	32	27
R3 North F 1	65	33	28
R3 North F 2	66	34	29
R3 South GF	57	25	23
R3 South F 1	58	26	23
R3 South F 2	59	27	23
R4 North GF	65	32	27
R4 North F 1	66	33	28
R4 North F 2	67	35	30
R4 South GF	58	26	23
R4 South F 1	59	27	23
R4 South F 2	60	27	23
R5 North GF	66	33	28
R5 North F 1	67	34	29
R5 North F 2	67	35	30
R5 South GF	58	26	23
R5 South F 1	59	27	23
R5 South F 2	60	28	23
R6 North GF	66	34	29
R6 North F 1	67	35	30
R6 North F 2	68	36	31
R6 South GF	59	27	23
R6 South F 1	60	28	23
R6 South F 2	61	28	23
R7 North GF	67	35	30
R7 North F 1	68	36	31
R7 North F 2	69	36	31
R7 South GF	60	27	23
R7 South F 1	60	28	23
R7 South F 2	61	29	24
R8 North GF	68	36	31
R8 North F 1	69	37	32
R8 North F 2	69	37	32
R8 South GF	60	28	23
R8 South F 1	61	29	24
R8 South F 2	62	30	25
R9 North GF	69	37	32
R9 North F 1	70	38	33
R9 North F 2	70	38	33
R9 South GF	61	29	24
R9 South F 1	62	30	25
R9 South F 2	63	31	26

Notes: The required  $R_w$  rating can be reduced by reducing the area of glazing. Assessment has been undertaken on the assumption of a 0.4 window: floor ratio. Requirements pertain to only acoustic advice in regard to State Planning Policy 5.4 and may be superseded by other requirements (BAL, Thermal, etc).

## **APPENDIX C**

MRWA Traffic Flows

*Keeping  
WA Moving*



# Stirling Hwy & Canning Hwy East Fremantle Noise Assessment

#43574

Transport Modelling Section

Enquiries: [TMS@mainroads.wa.gov.au](mailto:TMS@mainroads.wa.gov.au)

26 November 2025

## 2021 ROM24 Scenario

ROM24 Multi-Modal Model V4.40  
24-Hour Traffic Volumes (Factor X 100)

- 1 Lane Each Direction
- 2 Lanes Each Direction
- 3 Lanes Each Direction
- 4 Lanes Each Direction
- 5 Lanes Each Direction
- - - >=6 Lanes Each Direction
- - - Zone Connector

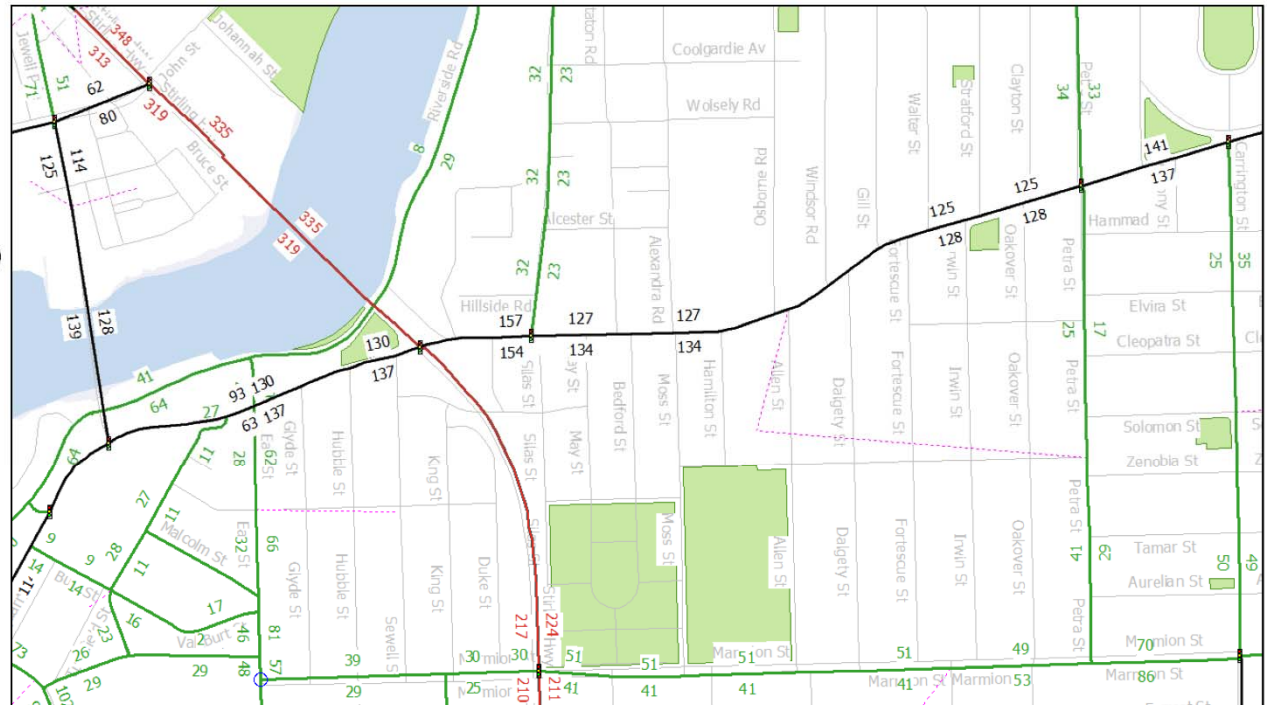


MRWA Traffic Modelling Data, as supplied to approved clients, is confidential and is not to be made available to unauthorised persons or organisations.

## 2046 ROM24 Scenario

ROM24 Multi-Modal Model V4.40  
24-Hour Traffic Volumes (Factor X 100)

- 1 Lane Each Direction
- 2 Lanes Each Direction
- 3 Lanes Each Direction
- 4 Lanes Each Direction
- 5 Lanes Each Direction
- - - >=6 Lanes Each Direction
- - - Zone Connector



MRWA Traffic Modelling Data, as supplied to approved clients, is confidential and is not to be made available to unauthorised persons or organisations.

## Surface Detail



Road	Start SLK	End SLK	CMV	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
H013	13.55	13.57	S	13.55	13.57	SULA	L1	3.4	2018	Asphalt Dense Graded	Granite				30	
						SULA	L2	3.3	2018	Asphalt Dense Graded	Granite			30		
						SULA	R1	4.6	2018	Asphalt Dense Graded	Granite			30		
						SULA	R2	3.4	2018	Asphalt Dense Graded	Granite			30		
	13.57	13.66	S	13.57	13.66	SULA	L1	3.4	2018	Asphalt Intersection Mix	Granite				40	
						SULA	L2	3.3	2018	Asphalt Intersection Mix	Granite			40		
						SULA	R1	4.6	2018	Asphalt Intersection Mix	Granite			40		
						SULA	R2	3.4	2018	Asphalt Intersection Mix	Granite			40		
	13.66	13.75	S	13.66	13.75	SULA	L1	3.4	2018	Asphalt Intersection Mix	Granite				40	
						SULA	L2	3.4	2018	Asphalt Intersection Mix	Granite			40		
						SULA	R1	4.0	2018	Asphalt Intersection Mix	Granite			40		
						SULA	R2	3.4	2018	Asphalt Intersection Mix	Granite			40		
	13.75	13.78	S	13.75	13.78	SULA	L1	3.4	1996	Asphalt Dense Graded	Granite				40	
						SULA	L2	3.4	1996	Asphalt Dense Graded	Granite			40		
						SULA	R1	4.0	1996	Asphalt Dense Graded	Granite			30		
						SULA	R2	3.4	1996	Asphalt Dense Graded	Granite			30		
	13.78	13.90	S	13.78	13.90	SULA	L1	3.5	1996	Asphalt Dense Graded	Granite				40	
						SULA	L2	3.5	1996	Asphalt Dense Graded	Granite			40		
						SULA	R1	3.5	1996	Asphalt Dense Graded	Granite			30		
						SULA	R2	3.5	1996	Asphalt Dense Graded	Granite			30		
13.90	13.98	S	13.90	13.98	SULA	L1	3.5	1996	Asphalt Dense Graded	Granite				40		
					SULA	L2	3.5	1996	Asphalt Dense Graded	Granite			40			
					SULA	R1	3.5	1996	Asphalt Dense Graded	Granite			40			
					SULA	R2	3.5	1996	Asphalt Dense Graded	Granite			40			
13.98	14.04	S	13.98	14.04	SULA	L1	3.0	1996	Asphalt Dense Graded	Granite				40		
					SULA	L2	2.9	1996	Asphalt Dense Graded	Granite			40			
					SULA	R1	3.1	1996	Asphalt Dense Graded	Granite			40			
					SULA	R2	2.9	1996	Asphalt Dense Graded	Granite			40			
14.04	14.08	S	14.04	14.08	SULA	L1	3.0	1996	Asphalt Dense Graded	Granite				30		
					SULA	L2	2.9	1996	Asphalt Dense Graded	Granite			30			
					SULA	R1	3.1	1996	Asphalt Dense Graded	Granite			30			
					SULA	R2	2.9	2006	Asphalt Intersection Mix	Granite		170	40			
14.08	14.10	S	14.08	14.10	SULA	L1	3.1	1996	Asphalt Dense Graded	Granite				30		

## Surface Detail



Road	Start SLK	End SLK	CMF	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
						SULA L2		2.8	1996	Asphalt Dense Graded	Granite				30	
						SULA R1		3.1	1996	Asphalt Dense Graded	Granite				30	
						SULA R2		3.0	2006	Asphalt Intersection Mix	Granite			170	40	
	14.10	14.25	S	14.10	14.25	SULA L1		3.1	1996	Asphalt Dense Graded	Granite				30	
						SULA L2		2.8	1996	Asphalt Dense Graded	Granite				30	
						SULA R1		3.1	1996	Asphalt Dense Graded	Granite				30	
						SULA R2		3.0	1996	Asphalt Dense Graded	Granite				30	
	14.25	14.55	S	14.25	14.55	SULA L1		3.2	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		2.9	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		3.1	1994	Asphalt Dense Graded	Granite				30	
						SULA R2		3.1	1994	Asphalt Dense Graded	Granite				30	
	14.55	14.79	S	14.55	14.79	SULA L1		3.8	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		3.1	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		4.1	1994	Asphalt Dense Graded	Granite				30	
						SULA R2		3.4	1994	Asphalt Dense Graded	Granite				30	
	14.79	15.16	S	14.79	15.16	SULA L1		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		3.0	1994	Asphalt Dense Graded	Granite				30	
						SULA R2		3.2	1994	Asphalt Dense Graded	Granite				30	
	15.16	15.18	S	15.16	15.18	SULA L1		3.3	2019	Asphalt Intersection Mix	Granite				40	
						SULA L2		3.3	2019	Asphalt Intersection Mix	Granite				40	
						SULA R1		3.0	2019	Asphalt Intersection Mix	Granite				40	
						SULA R2		3.2	2019	Asphalt Intersection Mix	Granite				40	
	15.18	15.20	S	15.18	15.20	SULA L1		3.3	2019	Asphalt Intersection Mix	Granite				40	
						SULA L2		3.3	2019	Asphalt Intersection Mix	Granite				40	
						SULA R1		3.0	2019	Asphalt Intersection Mix	Granite				40	
						SULA R2		3.2	2019	Asphalt Intersection Mix	Granite				40	
						SULA RL1		3.0	2019	Asphalt Intersection Mix	Granite				40	
	15.20	15.25	S	15.20	15.25	SULA L1		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		3.0	1994	Asphalt Dense Graded	Granite				30	
						SULA R2		3.2	1994	Asphalt Dense Graded	Granite				30	
						SULA RL1		3.0	1994	Asphalt Dense Graded	Granite				30	

## Surface Detail



Road	Start SLK	End SLK	CMF	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
	15.25	15.26	S	15.25	15.26	SULA L1		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		3.0	1994	Asphalt Dense Graded	Granite				30	
						SULA R2		3.2	1994	Asphalt Dense Graded	Granite				30	
	15.26	15.28	S	15.26	15.28	SULA L1		3.4	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		3.4	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		3.3	1994	Asphalt Dense Graded	Granite				30	
						SULA R2		3.3	1994	Asphalt Dense Graded	Granite				30	
	15.28	15.33	S	15.28	15.33	SULA L1		3.4	1994	Asphalt Dense Graded	Granite				40	
						SULA L2		3.4	1994	Asphalt Dense Graded	Granite				40	
						SULA R1		3.3	1994	Asphalt Dense Graded	Granite				40	
						SULA R2		3.2	1994	Asphalt Dense Graded	Granite				40	
	15.33	15.35	S	15.33	15.35	SULA LR1		3.8	1994	Asphalt Dense Graded	Granite				30	
						SULA L1		3.7	1994	Asphalt Dense Graded	Granite				30	
						SULA L2		3.7	1994	Asphalt Dense Graded	Granite				30	
						SULA R1		3.7	1994	Asphalt Dense Graded	Granite				40	
						SULA R2		4.4	1994	Asphalt Dense Graded	Granite				40	
	15.35	15.36	S	15.35	15.36	SULA LR1		3.8	1994	Asphalt Dense Graded	Granite				40	
						SULA L1		3.7	1994	Asphalt Dense Graded	Granite				40	
						SULA L2		3.7	1994	Asphalt Dense Graded	Granite				40	
						SULA R1		3.7	1994	Asphalt Dense Graded	Granite				40	
						SULA R2		4.4	1994	Asphalt Dense Graded	Granite				40	
	15.36	15.40	S	15.36	15.40	SULA LR1		3.8	2021	Asphalt Intersection Mix					40	
						SULA L1		3.7	2021	Asphalt Intersection Mix					40	
						SULA L2		3.7	2021	Asphalt Intersection Mix					40	
						SULA R1		3.7	2021	Asphalt Intersection Mix					40	
						SULA R2		4.4	2021	Asphalt Intersection Mix					40	
	15.40	15.42	S	15.40	15.42	SULA L1		3.6	2021	Asphalt Intersection Mix					40	
						SULA L2		3.8	2021	Asphalt Intersection Mix					40	
						SULA RR1		3.5	2021	Asphalt Intersection Mix					40	
						SULA R1		3.5	2021	Asphalt Intersection Mix					40	
						SULA R2		3.6	2021	Asphalt Intersection Mix					40	
	15.42	15.45	S	15.42	15.45	SULA L1		3.4	2006	Asphalt Intersection Mix	Granite			170	40	

## Surface Detail



Road	Start SLK	End SLK	CMF	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
						SULA	L2	3.5	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	RR1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.6	2021	Asphalt Intersection Mix					40	
	15.45	15.50	S	15.45	15.50	SULA	L1	3.4	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	L2	3.5	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R1	3.5	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R2	3.6	2006	Asphalt Intersection Mix	Granite			170	40	
	15.50	15.93	S	15.50	15.93	SULA	L1	3.4	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	L2	3.5	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R1	3.6	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R2	3.5	2006	Asphalt Intersection Mix	Granite			170	40	
	15.93	16.01	S	15.93	16.01	SULA	L1	3.4	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	L2	6.5	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R1	3.6	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R2	3.5	2006	Asphalt Intersection Mix	Granite			170	40	
	16.01	16.06	S	16.01	16.06	SULA	LR1	3.3	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	L1	3.4	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	L2	3.3	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R1	3.6	2006	Asphalt Intersection Mix	Granite			170	40	
						SULA	R2	3.5	2006	Asphalt Intersection Mix	Granite			170	40	

## Surface Detail



Road	Start SLK	End SLK	CMV	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year					
H014	14.81	15.02	L	14.54	14.75	SULA	L1	3.7	1999	Asphalt Dense Graded											
						SULA	L2	3.7	1999	Asphalt Dense Graded											
	15.02	15.05	L	14.75	14.78	SULA	LR1	3.7	1999	Asphalt Dense Graded											
						SULA	L1	3.7	1999	Asphalt Dense Graded											
	15.05	15.10	L	14.78	14.83	SULA	LR1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40						
	15.10	15.13	L	14.83	14.86	SULA	LR1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	LL1	4.2	2021	Asphalt Intersection Mix	Granite				40						
	15.13	15.14	L	14.86	14.87	SULA	LR1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40						
	15.14	15.37	L	14.87	15.10	SULA	L1	3.7	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40						
						15.37	15.42	S	15.10	15.15	SULA	L1	4.5	2021	Asphalt Intersection Mix	Granite				40	
											SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40	
	15.42	15.44	S	15.15	15.17	SULA	R1	3.8	2023	Asphalt Gap Graded Rubberised					40						
						SULA	R2	3.8	2023	Asphalt Gap Graded Rubberised					40						
						SULA	L1	3.6	2021	Asphalt Intersection Mix	Granite				40						
						SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40						
	15.44	15.85	S	15.17	15.58	SULA	R1	3.6	2023	Asphalt Gap Graded Rubberised					40						
						SULA	R2	3.7	2023	Asphalt Gap Graded Rubberised					40						
						SULA	L1	3.6	1999	Asphalt Dense Graded											
	15.85	15.87	S	15.58	15.60	SULA	L2	3.7	1999	Asphalt Dense Graded											
						SULA	R1	3.6	1999	Asphalt Dense Graded											
						SULA	R2	3.7	1999	Asphalt Dense Graded											
						SULA	L1	3.6	2021	Asphalt Intersection Mix						40					
						SULA	L2	3.7	2021	Asphalt Intersection Mix						40					
SULA						R1	3.6	2021	Asphalt Intersection Mix						30						
					SULA	R2	3.7	2021	Asphalt Intersection Mix						30						

## Surface Detail



Road	Start SLK	End SLK	CMF	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
	15.87	15.88	S	15.60	15.61	SULA	L1	3.6	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.6	2021	Asphalt Intersection Mix					40	
						SULA	R1	3.6	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.7	2021	Asphalt Intersection Mix					30	
	15.88	15.94	S	15.61	15.67	SULA	L1	3.6	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.6	2021	Asphalt Intersection Mix					40	
						SULA	LL1	3.3	2021	Asphalt Intersection Mix					40	
						SULA	R1	3.6	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.7	2021	Asphalt Intersection Mix					30	
	15.94	15.97	L	15.67	15.70	SULA	L1	3.6	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.6	2021	Asphalt Intersection Mix					40	
	15.97	15.99	L	15.70	15.72	SULA	L1	3.6	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.5	2021	Asphalt Intersection Mix					40	
	15.99	16.54	L	15.72	16.27	SULA	L1	3.5	2021	Asphalt Dense Graded					30	
						SULA	L2	3.5	2021	Asphalt Dense Graded					30	
	16.54	16.59	L	16.27	16.32	SULA	L1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.5	2021	Asphalt Intersection Mix					40	
	16.59	16.68	L	16.32	16.41	SULA	LR1	3.0	2021	Asphalt Intersection Mix					40	
						SULA	L1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.5	2021	Asphalt Intersection Mix					40	
						SULA	LL1	3.1	2021	Asphalt Intersection Mix					40	
	16.68	16.72	L	16.41	16.45	SULA	L1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	L2	3.5	2021	Asphalt Intersection Mix					40	
	16.72	16.77	L	16.45	16.50	SULA	L1	3.5	2021	Asphalt Dense Graded					30	
						SULA	L2	3.5	2021	Asphalt Dense Graded					30	
	16.77	16.90	L	16.50	16.63	SULA	L1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	LL1	3.5	2021	Asphalt Intersection Mix					40	
	16.90	16.97	L	16.63	16.70	SULA	L1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	LL1	3.5	2021	Asphalt Intersection Mix					40	
						SUSH	L	2.0	2021	Asphalt Intersection Mix					40	
	14.81	14.98	R	14.54	14.71	SULA	R1	3.6	1974	Asphalt Dense Graded						
						SULA	R2	3.7	1974	Asphalt Dense Graded						
	14.98	15.07	R	14.71	14.80	SULA	RR1	3.6	1974	Asphalt Dense Graded						

## Surface Detail



Road	Start SLK	End SLK	CMF	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
						SULA R1		3.6	1974	Asphalt Dense Graded						
						SULA R2		3.7	1974	Asphalt Dense Graded						
	15.07	15.09	R	14.80	14.82	SULA R1		3.6	1974	Asphalt Dense Graded						
						SULA R2		3.7	1974	Asphalt Dense Graded						
	15.09	15.14	R	14.82	14.87	SULA R1		3.6	2023	Asphalt Gap Graded Rubberised					40	
						SULA R2		3.7	2023	Asphalt Gap Graded Rubberised					40	
	15.14	15.16	R	14.87	14.89	SULA RR1		3.5	2023	Asphalt Gap Graded Rubberised					40	
						SULA R1		3.6	2023	Asphalt Gap Graded Rubberised					40	
						SULA R2		3.7	2023	Asphalt Gap Graded Rubberised					40	
						SULA RL1		3.5	1974	Asphalt Intersection Mix						
						SULA RL2		3.4	1974	Asphalt Intersection Mix						
	15.16	15.23	R	14.89	14.96	SULA RR1		3.5	2023	Asphalt Gap Graded Rubberised					40	
						SULA R1		3.6	2023	Asphalt Gap Graded Rubberised					40	
						SULA R2		3.7	2023	Asphalt Gap Graded Rubberised					40	
						SULA RL1		3.5	2023	Asphalt Gap Graded Rubberised					40	
						SULA RL2		3.4	2023	Asphalt Gap Graded Rubberised					40	
	15.23	15.26	R	14.96	14.99	SULA R1		3.6	2023	Asphalt Gap Graded Rubberised					40	
						SULA R2		3.7	2023	Asphalt Gap Graded Rubberised					40	
						SULA RL1		3.5	2023	Asphalt Gap Graded Rubberised					40	
						SULA RL2		3.4	2014	Asphalt Intersection Mix	Granite				40	
	15.26	15.37	R	14.99	15.10	SULA R1		3.6	2023	Asphalt Gap Graded Rubberised					40	
						SULA R2		3.7	2023	Asphalt Gap Graded Rubberised					40	
						SULA RL1		3.5	2023	Asphalt Gap Graded Rubberised					40	
	15.94	16.01	R	15.67	15.74	SULA RR1		3.1	2021	Asphalt Intersection Mix					40	
						SULA R1		3.6	2021	Asphalt Intersection Mix	Granite				40	
						SULA R2		3.3	2021	Asphalt Intersection Mix					40	
						SULA RL1		3.1	2021	Asphalt Intersection Mix					40	
	16.01	16.04	R	15.74	15.77	SULA R1		3.6	2021	Asphalt Intersection Mix	Granite				40	
						SULA R2		3.5	2021	Asphalt Intersection Mix					40	
	16.04	16.63	R	15.77	16.36	SULA R1		3.5	2021	Asphalt Dense Graded					30	
						SULA R2		3.5	2021	Asphalt Dense Graded					30	
	16.63	16.68	R	16.36	16.41	SULA R1		3.5	2021	Asphalt Intersection Mix					40	
						SULA R2		3.5	2021	Asphalt Intersection Mix					40	

## Surface Detail



Road	Start SLK	End SLK	CMV	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
	16.68	16.77	R	16.41	16.50	SULA	RR1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.5	2021	Asphalt Intersection Mix					40	
	16.77	16.90	R	16.50	16.63	SULA	R1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.5	2021	Asphalt Intersection Mix					40	
						SUSH	R	1.0	2021	Asphalt Intersection Mix					40	
	16.90	16.93	R	16.63	16.66	SULA	R1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.5	2021	Asphalt Intersection Mix					40	
						SULA	ER	4.0	2021	Asphalt Intersection Mix					40	
						SUSH	R	1.0	2021	Asphalt Intersection Mix					40	
	16.93	17.02	R	16.66	16.75	SULA	R1	3.5	2021	Asphalt Intersection Mix					40	
						SULA	R2	3.5	2021	Asphalt Intersection Mix					40	
						SULA	ER	4.0	2021	Asphalt Intersection Mix					40	

**RAD ARCHITECTURE**

**91 – 93 CANNING HIGHWAY  
EAST FREMANTLE**

**DEVELOPMENT APPLICATION  
ACOUSTIC REPORT**

JANUARY 2026

OUR REFERENCE: 35740-2-25472

DOCUMENT CONTROL PAGE

**DA ACOUSTIC REPORT**  
91 – 93 CANNING HIGHWAY  
EAST FREMANTLE

Job No: 25472

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FOR

**RAD ARCHITECTURE**

**DOCUMENT INFORMATION**

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This report has been prepared in accordance with the scope of services and on the basis of information and documents provided to Herring Storer Acoustics by the client. To the extent that this report relies on data and measurements taken at or under the times and conditions specified within the report and any findings, conclusions or recommendations only apply to those circumstances and no greater reliance should be assumed. The client acknowledges and agrees that the reports or presentations are provided by Herring Storer Acoustics to assist the client to conduct its own independent assessment.

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## APPENDICIES

A	DEVELOPMENT APPLICATION PLANS
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## 1.0 INTRODUCTION

Herring Storer Acoustics was commissioned through RAD Architecture to conduct a preliminary review of the proposed development at 91 – 93 Canning Highway East Fremantle.

It is noted that this report is for Stage 1 of the development only.

This report has been based on the Development Application drawings provided.

## 2.0 PROPOSED DEVELOPMENT

The proposed development site is located at 91 – 93 Canning Highway, east Fremantle.

The development is proposed to consist of basement parking and nine townhouses on the south side of the development area.

Future stages of the development are on the northern side of the area and is understood to be subject of a separate development application at a later date.

Each townhouse consists of four floors – basement, ground, first and second.

## 3.0 CRITERIA

### 3.1 NCC PROVISIONS

For Class 2 or 3 buildings, the appropriate sections of Part F7 “Sound transmission and insulation” relating to the acoustic criteria are attached in Appendix B for information. Table 3.1 summarises the deemed to satisfy requirements of Part F7.

**TABLE 3.1 – SUMMARY OF NCC REQUIREMENTS**

Space of separation	Acoustic Rating	Discontinuous Construction Required
<b>WALLS</b>		
Wet to wet	$R_W + C_{tr}$ not less than 50 dB	NO
Living to living	$R_W + C_{tr}$ not less than 50 dB	NO
Wet to living	$R_W + C_{tr}$ not less than 50 dB	YES
Kitchens to living	$R_W + C_{tr}$ not less than 50 dB	YES
Unit to plantroom, stairway Public corridor / lobby or alike	$R_W$ not less than 50 dB.	NO
Unit to Lift shaft	$R_W$ not less than 50 dB.	YES
<b>FLOORS</b>		
Between Sole Occupancy Units	$R_W + C_{tr}$ not less than 50 dB.	N/A
	$L_{n,w}$ not more than 55 dB is recommended	N/A
<b>SERVICE RISERS / STORM WATER DOWN PIPES</b>		
to Habitable Rooms	$R_W + C_{tr}$ not less than 40 dB.	NO
to Non-Habitable Rooms	$R_W + C_{tr}$ not less than 25 dB	NO
<b>DOORS</b>		
Doors to Sole Occupancy Units	$R_W$ not less than 30 dB	NO

Notes:

- 1 Where kitchens are part of an open living area, kitchens are considered to be part of the living area and in these cases discontinuous construction is required. This also includes cases where kitchens are back-to-back, however, discontinuous construction is only required on one side.
- 2 Wet area include bathrooms, ensuites, sanitary compartments/powder rooms, laundries and kitchens.
- 3 For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and—
  - (a) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and
  - (b) for other than masonry, there is no mechanical linkage between leaves except at the periphery.

### 3.2 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. The allowable or assigned noise levels for noise sensitive premises are determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.2. For commercial premises, the allowable or assigned noise levels are the same for all hours of the day. Table 3.2 also lists the assigned noise levels for commercial premises.

**TABLE 3.2 – ASSIGNED NOISE LEVELS**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A 10</sub>	L <sub>A 1</sub>	L <sub>A max</sub>
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF

Note: The L<sub>A10</sub> noise level is the noise that is exceeded for 10% of the time.  
 The L<sub>A1</sub> noise level is the noise that is exceeded for 1% of the time.  
 The L<sub>Amax</sub> noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

**“impulsiveness”** means a variation in the emission of a noise where the difference between L<sub>Apeak</sub> and L<sub>Amax Slow</sub> is more than 15dB when determined for a single representative event;

**“modulation”** means a variation in the emission of noise that –

- (a) is more than 3dB L<sub>A Fast</sub> or is more than 3dB L<sub>A Fast</sub> in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

**“tonality”**

means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as  $L_{Aeq,T}$  levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as  $L_{A\ slow}$  levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

**TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS**

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

Figure 1 shows the development location and surrounds.



**FIGURE 1 – AERIAL OF DEVELOPMENT LOCATION AND SURROUNDS**

From a review of the development, the influencing factor for the premises identified in proximity to the development would be 9 dB, based on the following :

<b>Major Roads within inner circle;</b>	
Canning Highway	
Stirling Highway	+ 6 dB
<b>Commercial Premises within the inner circle;</b>	
30 %	+ 1.5 dB
<b>Commercial Premises within the outer circle;</b>	
10 %	+ 0.5 dB
<b>Total IF</b>	<b>+ 9 dB</b>

Hence the influencing factor would be + 9 dB and the assigned noise levels would be as listed in Table 3.3.

**TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	54	64	74
	0900 - 1900 hours Sunday and Public Holidays	49	59	74
	1900 - 2200 hours all days	49	59	64
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	44	54	64

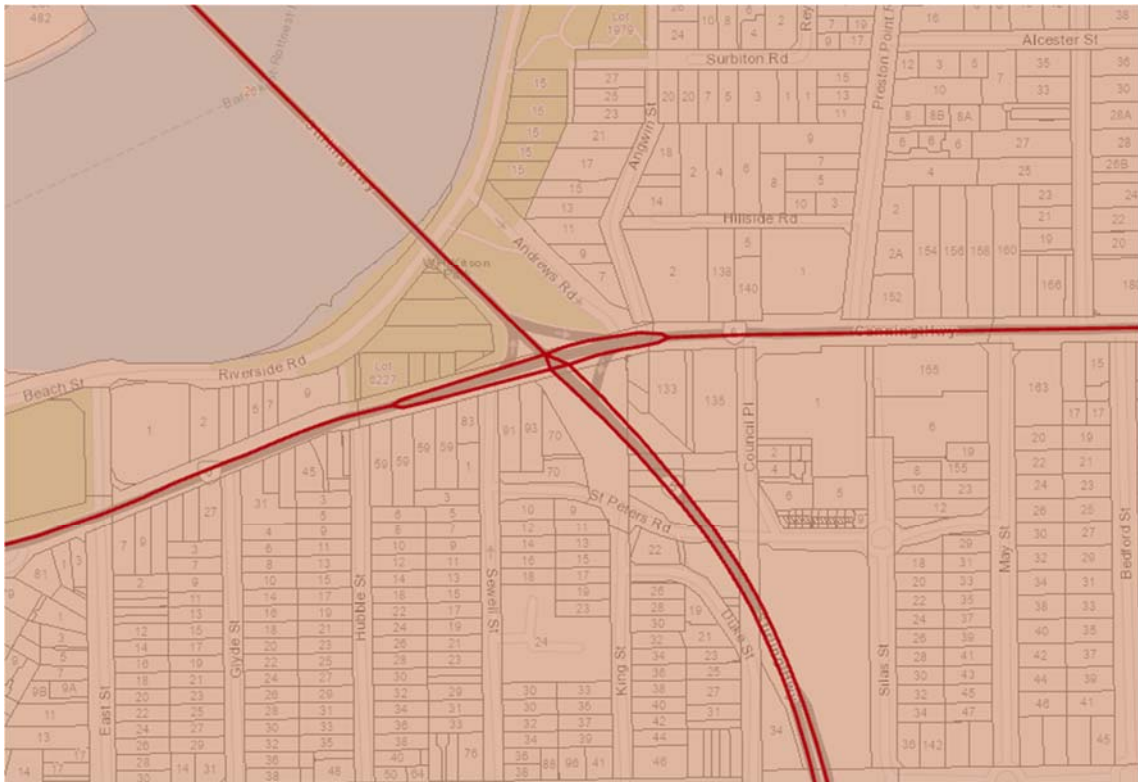
Note: L<sub>A10</sub> is the noise level exceeded for 10% of the time.  
 L<sub>A1</sub> is the noise level exceeded for 1% of the time.  
 L<sub>Amax</sub> is the maximum noise level.

We note that noise emissions from the premises need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This includes noise associated with mechanical services (ie air conditioning and ventilation systems).

### 3.3 NOISE INGRESS

The area of the proposed development was examined to ascertain the applicable noise sources.

As shown below, the development is within the trigger distance for both Canning Highway and Stirling Highway.



A preliminary assessment in accordance with SPP 5.4 has been undertaken, with the results presented in an accompanying report (HSA Ref : 35728-1-25472).

#### 4.0 NCC REQUIREMENTS

The proposed development will be constructed to comply with the requirements of Part F7 of the NCC.

#### 5.0 NOISE INGRESS

A review of the surrounding premises indicated that the noise environment in the area is dominated by traffic noise associated with both Canning Highway and Stirling Highway.

A preliminary noise impact assessment has been undertaken with the details of this assessment contained in a separate report to accompany the development application (Our Ref: 35728-1-25472).

During the design process a full assessment of noise ingress into the development will be undertaken to ensure compliance with the internal criteria and assist in glazing selections.

#### 6.0 NOISE FROM DEVELOPMENT

The main source of noise from the proposed development will be from mechanical services consisting of air-conditioning plant. Noise received at neighbouring premises, and premises within the development, from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

## 6.1 MECHANICAL SERVICES

The main source of noise from the proposed development will be from mechanical services consisting of air-conditioning plant and condenser units. Noise received at residence (neighbours and residence within the development) from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

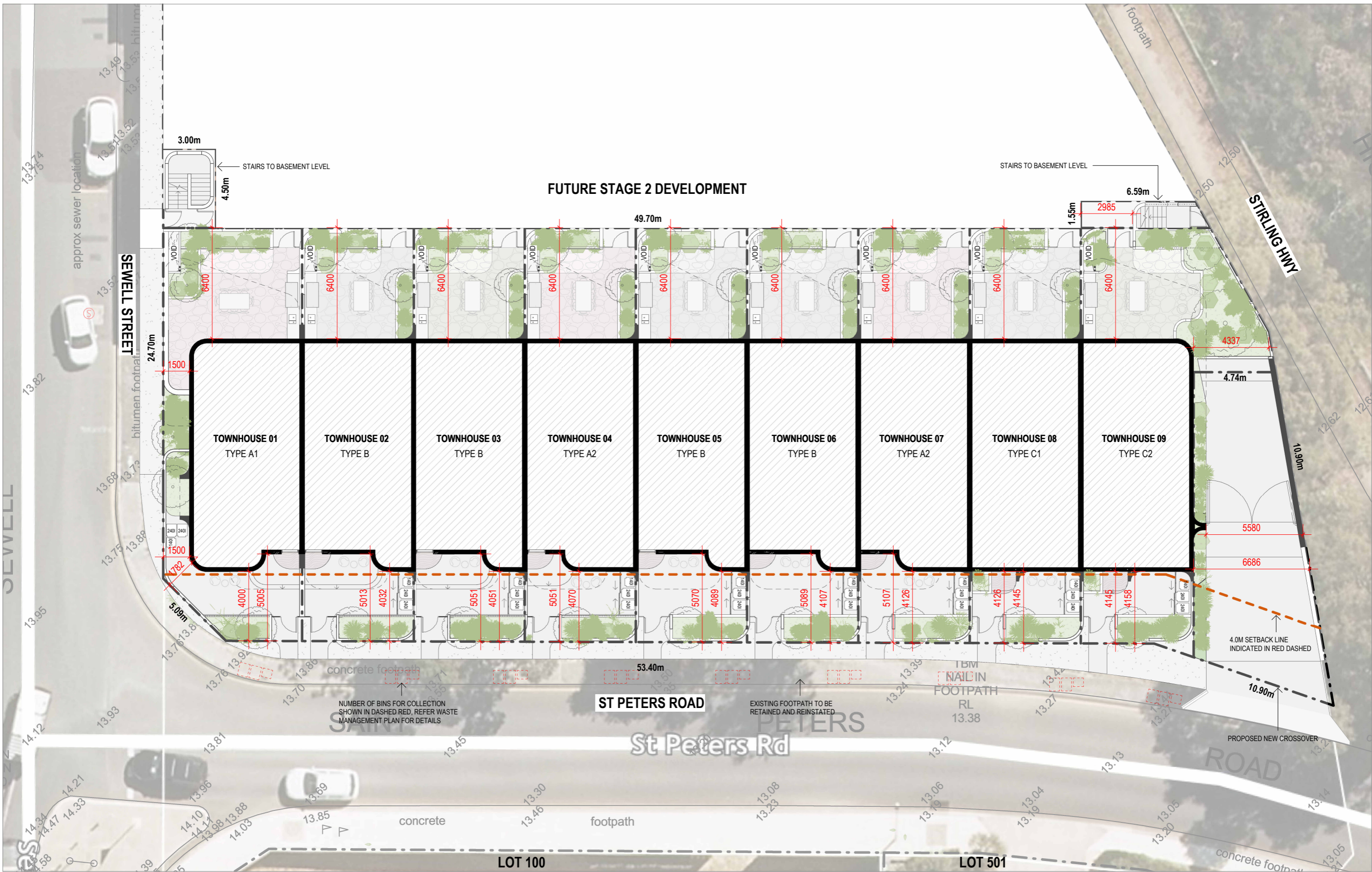
As the mechanical services could operate during the night, noise emissions from the development needs to comply with the assigned  $L_{A10}$  night period noise level of 44 dB(A) at residential premises. Potentially, noise emissions from mechanical services could be tonal, in which case an +5 dB(A) penalty for a tonal component could be applied to the resultant noise levels. Therefore, the design level at the neighbouring residential premises would be 39  $L_{A10}$  dB.

The air conditioning for the townhouses is not yet known. Once the design of the system is finalised, an acoustic assessment will be carried out of noise emissions from the mechanical plant and any noise amelioration required will be incorporated into the design to ensure compliance with the *Environmental Protection (Noise) Regulations 1997*. However, we believe that compliance would be easily achieved, and any noise mitigation would be minimal, with the proposed design.

Similarly, carpark exhaust ventilation systems will need to be compliant with the Regulations. It has been assumed that the basement carpark will require mechanical ventilation, with careful selection of the car park exhaust fans, and perhaps inclusion of podded silencers, compliance with the required Assigned Noise Levels is not considered problematic.

## **APPENDIX A**

### **DEVELOPMENT APPLICATION PLANS**



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**TOWNHOUSE DEVELOPMENT**  
 91-93 CANNING HIGHWAY, EAST FREMANTLE  
 CLIENT  
**SARACEN PROPERTIES**

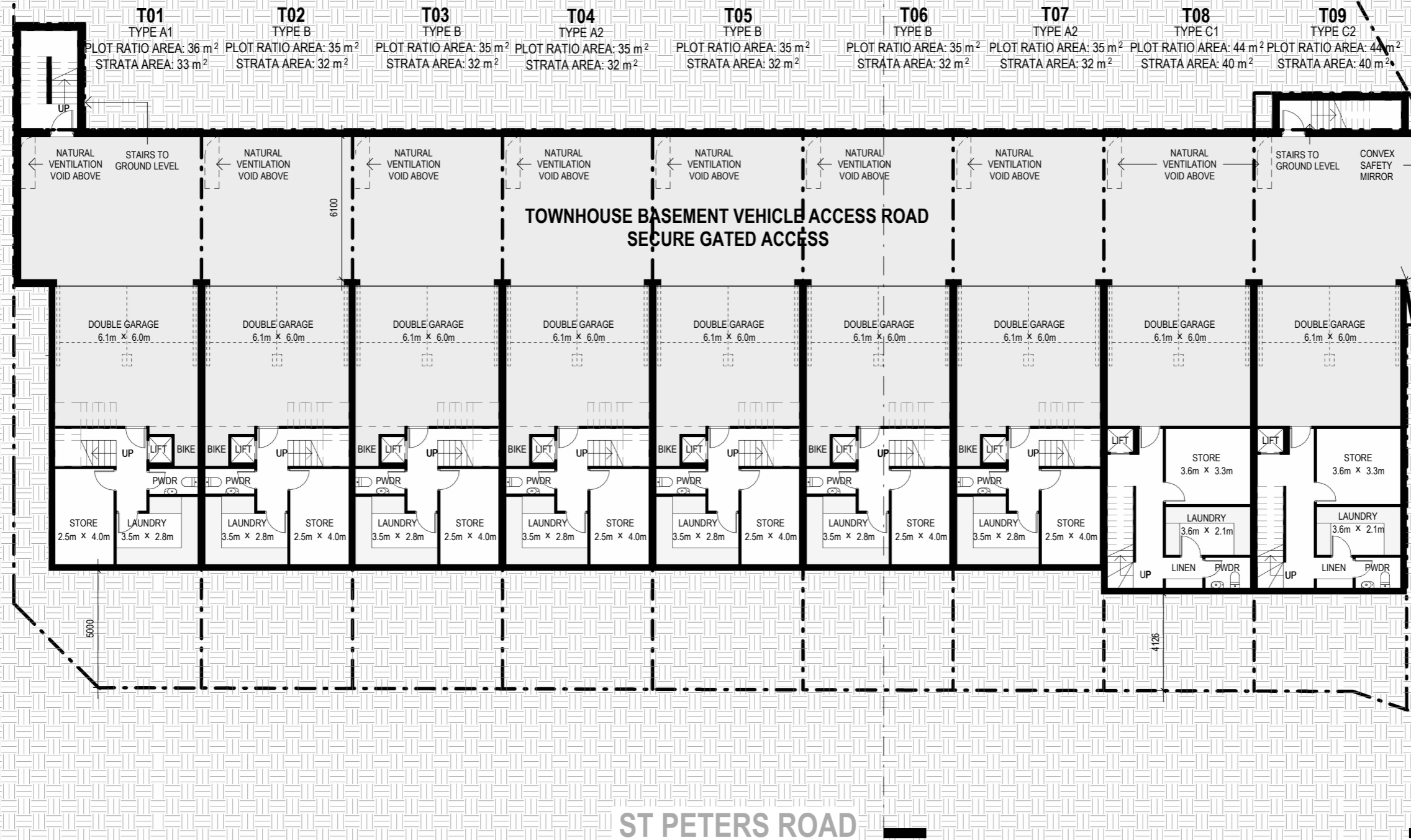
DRAWING NAME  
**SITE PLAN**  
 SCHEMATIC DESIGN

SCALE 1 : 200 (A3)

PROJECT No.	DRAWING No.	REV
25-10	DA01-00	A
	DRAWN BY	BGV

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# FUTURE STAGE 2 DEVELOPMENT



SEWELL STREET

ST PETERS ROAD

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PROJECT NAME  
**TOWNHOUSE DEVELOPMENT**  
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**SARACEN PROPERTIES**

DRAWING NAME  
**BASEMENT PLAN**

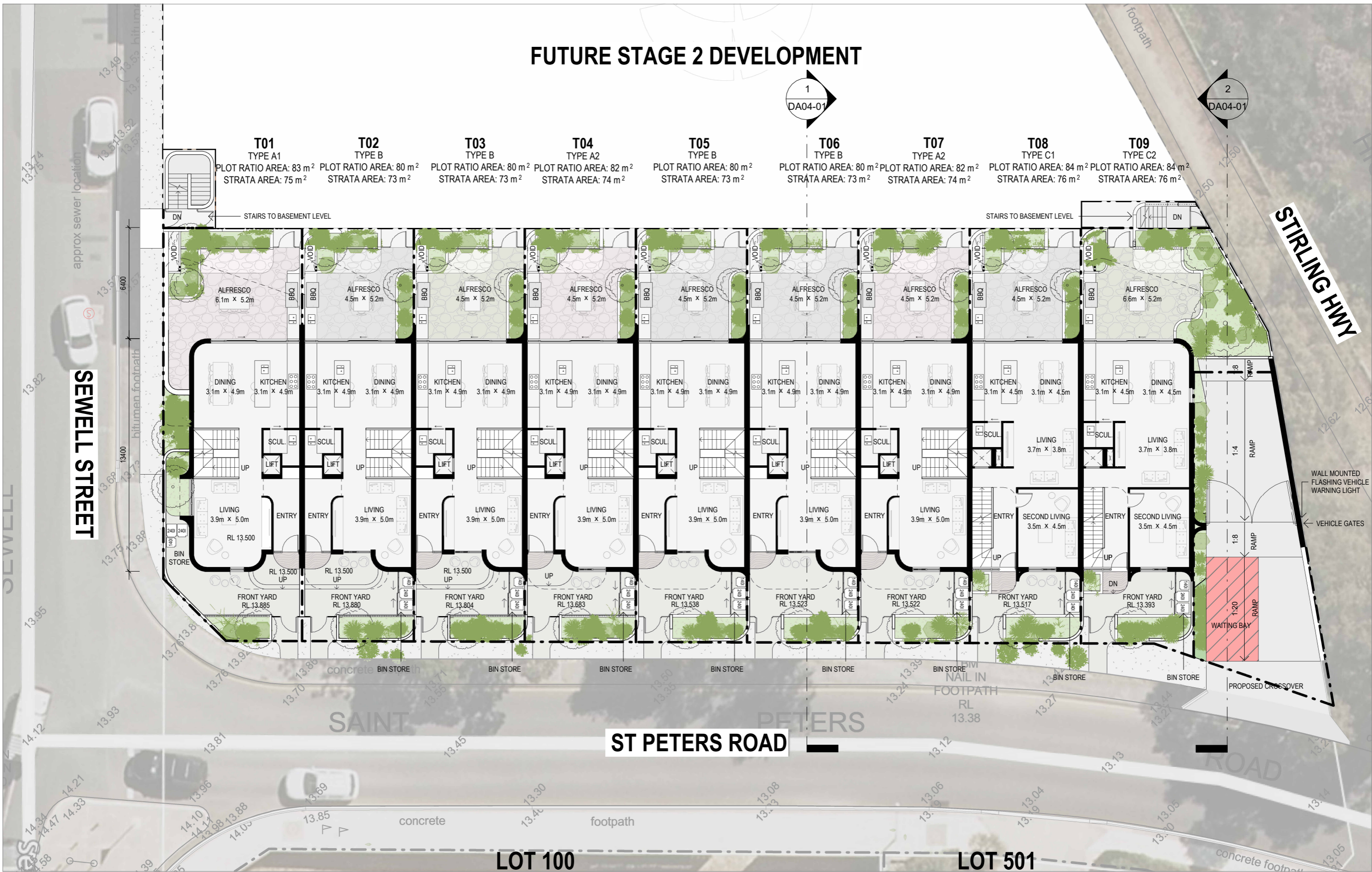
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SCALE **1 : 200 (A3)**

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# FUTURE STAGE 2 DEVELOPMENT



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	CLIENT	SARACEN PROPERTIES

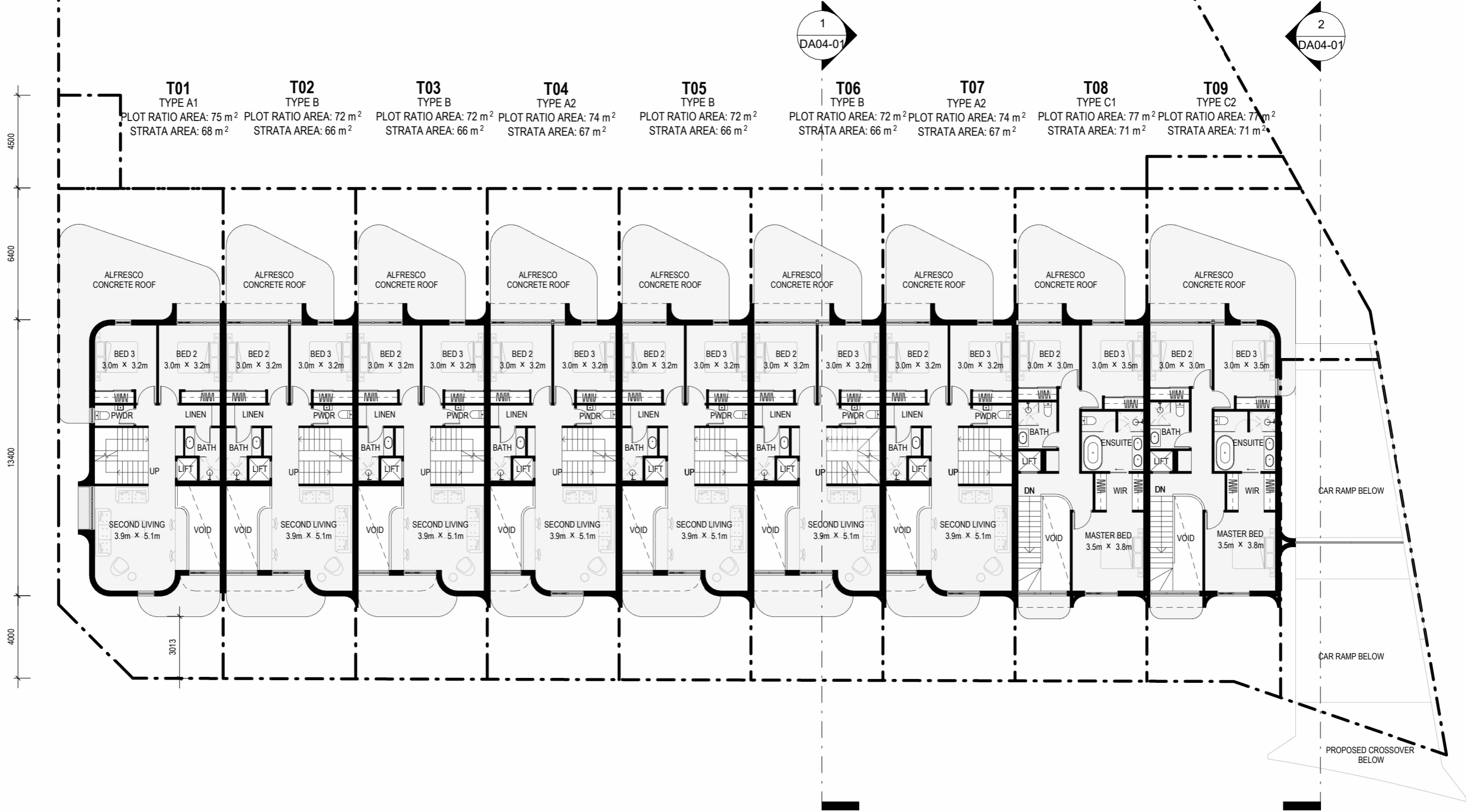
DRAWING NAME	GROUND PLAN
	SCHEMATIC DESIGN

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PROJECT No.	25-10
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CLIENT  
**SARACEN PROPERTIES**

DRAWING NAME  
**LEVEL 1 PLAN**

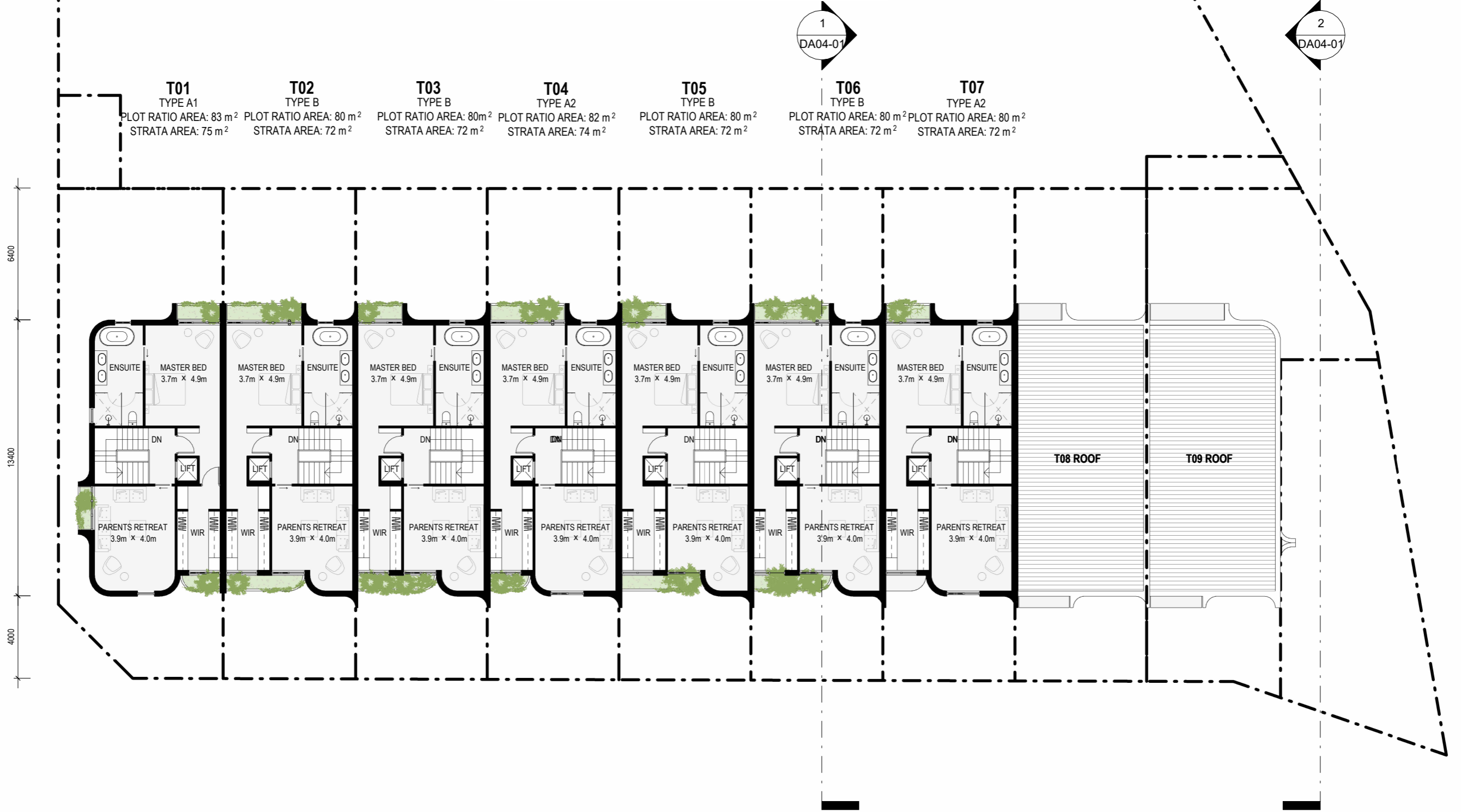
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# FUTURE STAGE 2 DEVELOPMENT



**T01** TYPE A1 PLOT RATIO AREA: 83 m<sup>2</sup> STRATA AREA: 75 m<sup>2</sup>  
**T02** TYPE B PLOT RATIO AREA: 80 m<sup>2</sup> STRATA AREA: 72 m<sup>2</sup>  
**T03** TYPE B PLOT RATIO AREA: 80 m<sup>2</sup> STRATA AREA: 72 m<sup>2</sup>  
**T04** TYPE A2 PLOT RATIO AREA: 82 m<sup>2</sup> STRATA AREA: 74 m<sup>2</sup>  
**T05** TYPE B PLOT RATIO AREA: 80 m<sup>2</sup> STRATA AREA: 72 m<sup>2</sup>  
**T06** TYPE B PLOT RATIO AREA: 80 m<sup>2</sup> STRATA AREA: 72 m<sup>2</sup>  
**T07** TYPE A2 PLOT RATIO AREA: 80 m<sup>2</sup> STRATA AREA: 72 m<sup>2</sup>

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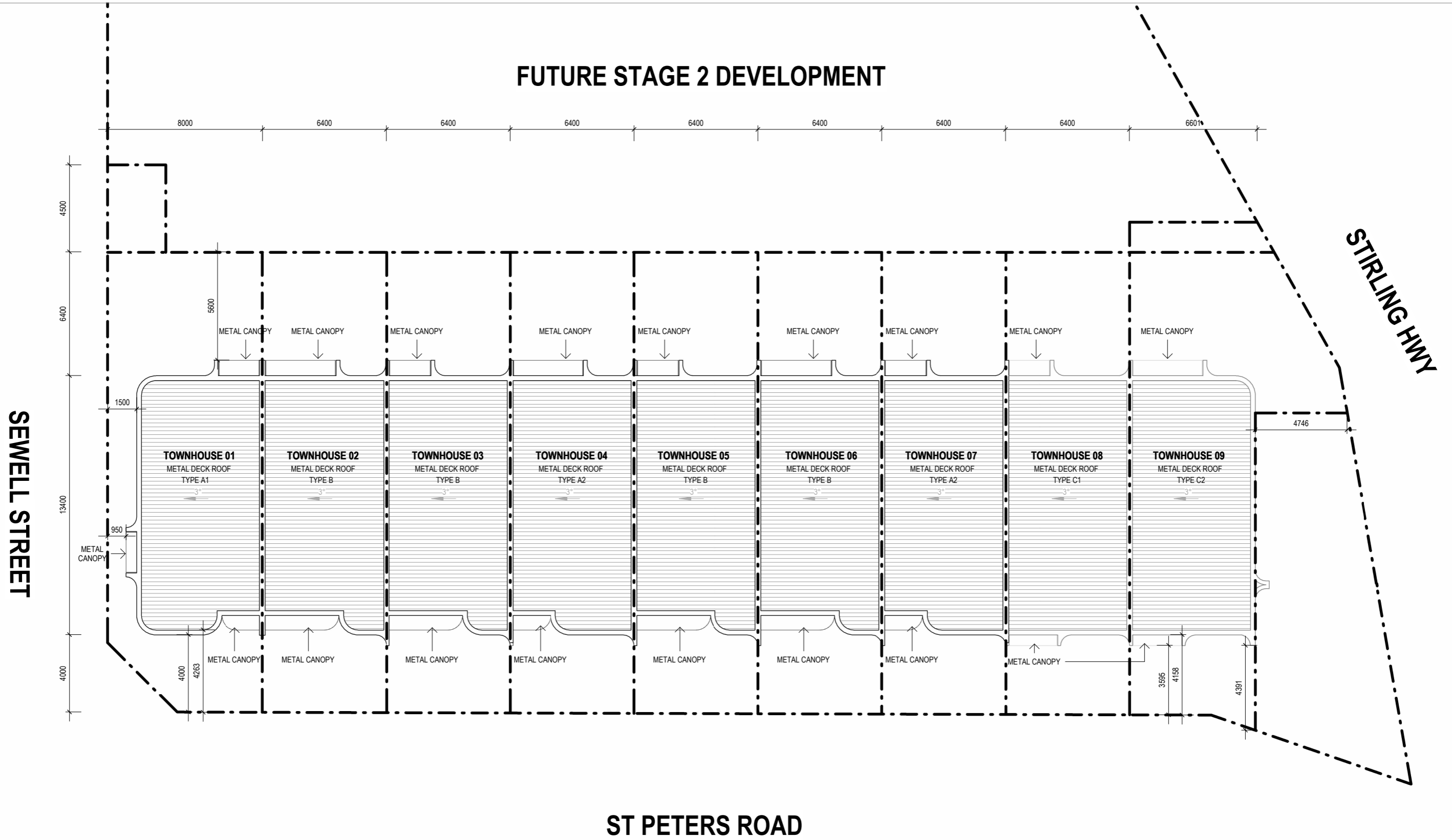
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**SARACEN PROPERTIES**

DRAWING NAME  
**ROOF PLAN**  
 SCHEMATIC DESIGN

SCALE 1 : 200 (A3)



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