ARCHITECTURAL DRAWING LIST

SHEET NUMBER	SHEET NAME	REV	DATE	Drawn By
DA0-01	COVER PAGE	A	18/02/2026	SP
DA0-02	SURVEY PLAN	B	18/02/2026	SP
DA0-03	DEMOLITION PLAN	B	18/02/2026	SP
DA0-04	PROPOSED STAGING PLAN	A	18/02/2026	SP
DA0-05	PROPOSED STAGE 1 LOT AREAS	A	18/02/2026	SP
DA0-06	SITE PLAN	C	18/02/2026	SP
DA1-01	BASEMENT PLAN	G	18/02/2026	SP
DA1-02	GROUND PLAN	E	30/01/2026	SP
DA1-03	LEVEL 1 PLAN	F	18/02/2026	SP
DA1-04	LEVEL 2 PLAN	F	18/02/2026	SP
DA1-05	ROOF PLAN	D	18/02/2026	SP
DA2-01	ELEVATIONS - WEST & SOUTH	B	30/01/2026	SP
DA2-02	ELEVATIONS - EAST & NORTH	B	30/01/2026	SP
DA2-03	MATERIAL PALETTE	B	18/02/2026	SP
DA3-01	SECTIONS - 1 & 2	B	18/02/2026	SP
DA4-01	RENDERS-PAGE 1	B	18/02/2026	SP
DA4-02	RENDERS-PAGE 2	B	18/02/2026	SP
DA4-03	RENDERS-PAGE 3	B	18/02/2026	SP
DA4-04	RENDERS-PAGE 4	B	18/02/2026	SP
DA4-05	RENDERS-PAGE 5	B	18/02/2026	SP
DA5-01	DEVELOPMENT SUMMARY - PLOT RATIO	B	18/02/2026	SP

TOTAL DRAWINGS: 21

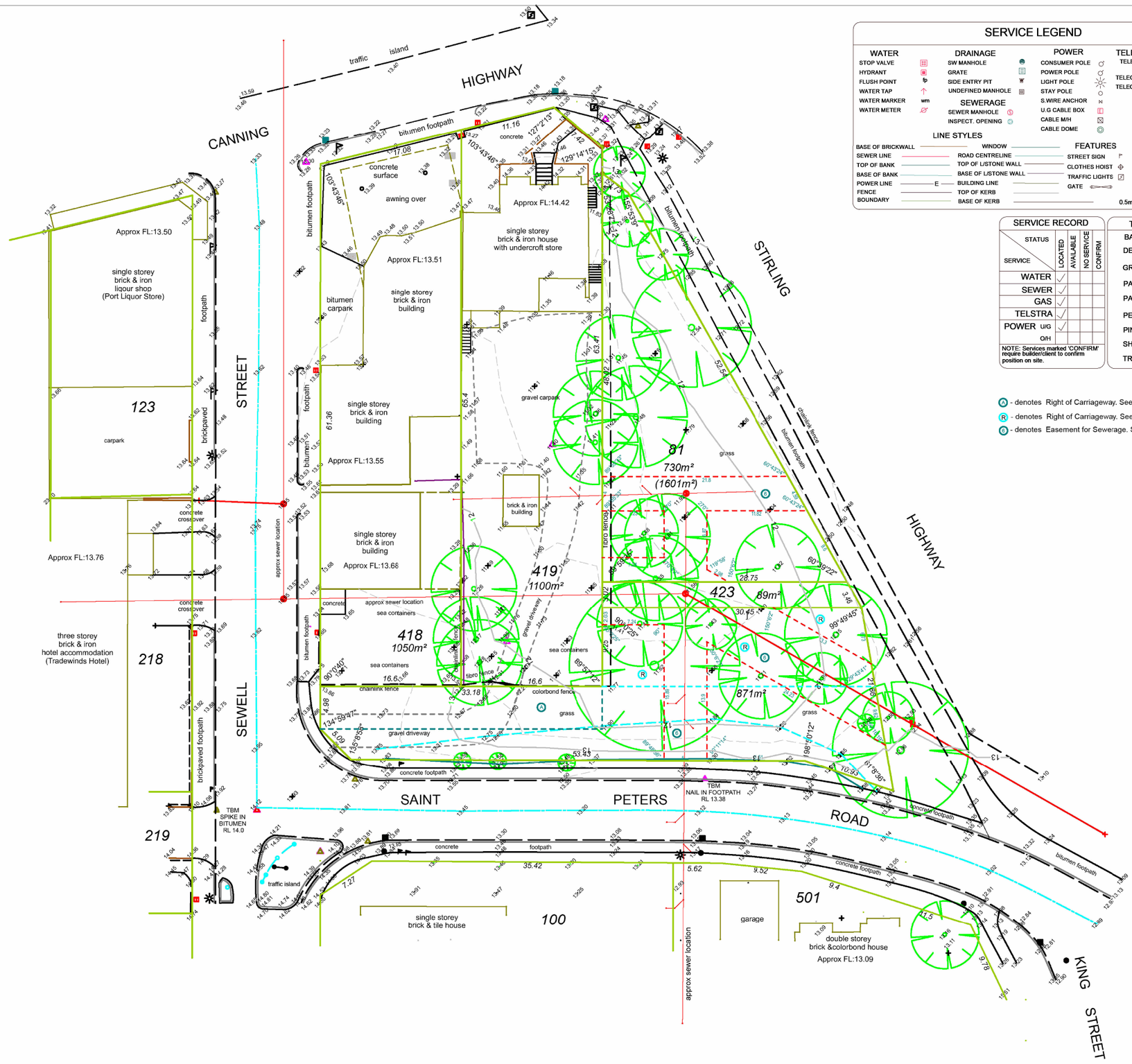
TOWNHOUSE DEVELOPMENT

91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)

ARCHITECTURAL DRAWINGS

DEVELOPMENT APPLICATION ISSUE

RAD architecture



SERVICE LEGEND

WATER
STOP VALVE
HYDRANT
FLUSH POINT
WATER TAP
WATER MARKER wm
WATER METER

DRAINAGE
SW MANHOLE
GRATE
SIDE ENTRY PIT
UNDEFINED MANHOLE

SEWERAGE
SEWER MANHOLE
INSPECT. OPENING

POWER
CONSUMER POLE
POWER POLE
LIGHT POLE
STAY POLE
S.WIRE ANCHOR
U.G CABLE BOX
CABLE M/H
CABLE DOME

TELECOMMUNICATION
TELECOMMUNICATION MARKER tm
TELECOMMUNICATION PIT
TELECOMMUNICATION M/H tmh

GAS
GAS MARKER
GAS METER
GAS VALVE

LINE STYLES
BASE OF BRICKWALL
SEWER LINE
TOP OF BANK
BASE OF BANK
POWER LINE E
FENCE
BOUNDARY
WINDOW
ROAD CENTRELINE
TOP OF L/STONE WALL
BASE OF L/STONE WALL
BUILDING LINE
TOP OF KERB
BASE OF KERB

FEATURES
STREET SIGN
CLOTHES HOIST
TRAFFIC LIGHTS
GATE

SURVEY
PEG FOUND
CONTROL POINT
DATUM
0.5m CONTOUR INTERVAL

SERVICE RECORD

SERVICE \ STATUS	LOCATED	AVAILABLE	NO SERVICE	CONFIRM
WATER	✓			
SEWER	✓			
GAS	✓			
TELSTRA	✓			
POWER U/G	✓			
O/H				

NOTE: Services marked 'CONFIRM' require builder/client to confirm position on site.

TREE SPECIES

BANKSIA
DEAD TREE
GRASS TREE
PALM TREE
PAPER BARK
PEPPERMINT
PINE TREE
SHE OAK
TREE UNNAMED

(A) - denotes Right of Carriageway. See L871747 & DP68130
(R) - denotes Right of Carriageway. See T28/1901 & DP68130
(D) - denotes Easement for Sewerage. Sec 27A & D 98193

RAD architecture

PROJECT NAME
TOWNHOUSE DEVELOPMENT
91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)

CLIENT
SARACEN PROPERTIES

DRAWING NAME
SURVEY PLAN

DEVELOPMENT APPLICATION ISSUE

SCALE 1 : 500 (A3)
0 1 2 3 4 5 6 M

PROJECT No.	DRAWING No.	REV
25-10	DA0-02	B

DRAWN BY SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
19/12/2025	A	ISSUE FOR REVIEW	

ALL MATERIALS AND WORK PRACTICES SHALL COMPLY WITH, BUT NOT LIMITED TO, THE BUILDING REGULATIONS 2018, THE NATIONAL CONSTRUCTION CODE SERIES 2019 BUILDING CODE OF AUSTRALIAN VOL 2 AND ALL RELEVANT CURRENT AUSTRAIAN STANDARDS (AS AMENDED) REFERRED TO THEREIN.

EXISTING STRUCTURE TO BE DEMOLISHED, SITE TO BE CLEARED AND LEVELED, DETAILS REFER TO CONSTRUCTION DRAWING

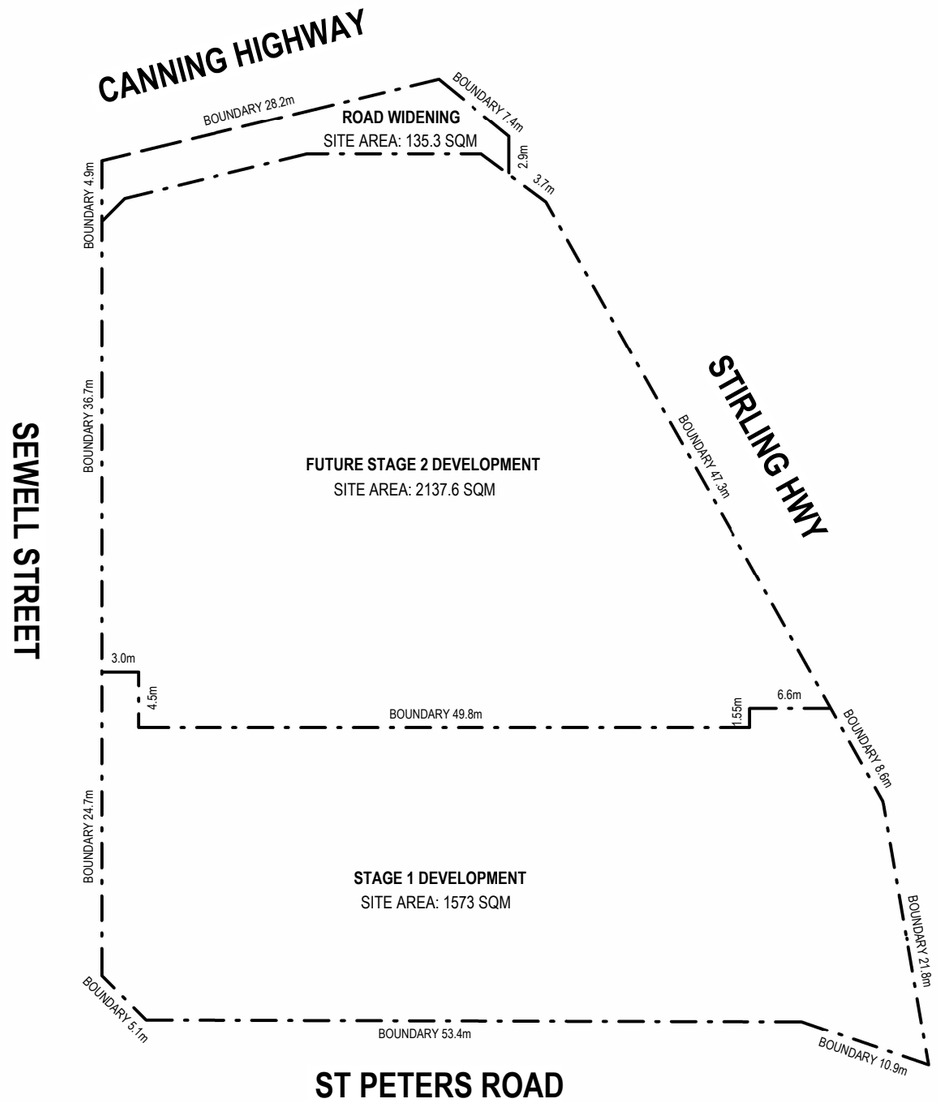
EXISTING TREES TO BE REMOVED OR RELOCATED IN ACCORDANCE WITH LANDSCAPE ARCHITECT DRAWINGS

EXISTING TREES TO BE RETAINED IN ACCORDANCE WITH LANDSCAPE ARCHITECT DRAWINGS

RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	DEMOLITION PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 500 (A3) 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA0-03
REV	B
DRAWN BY	SP

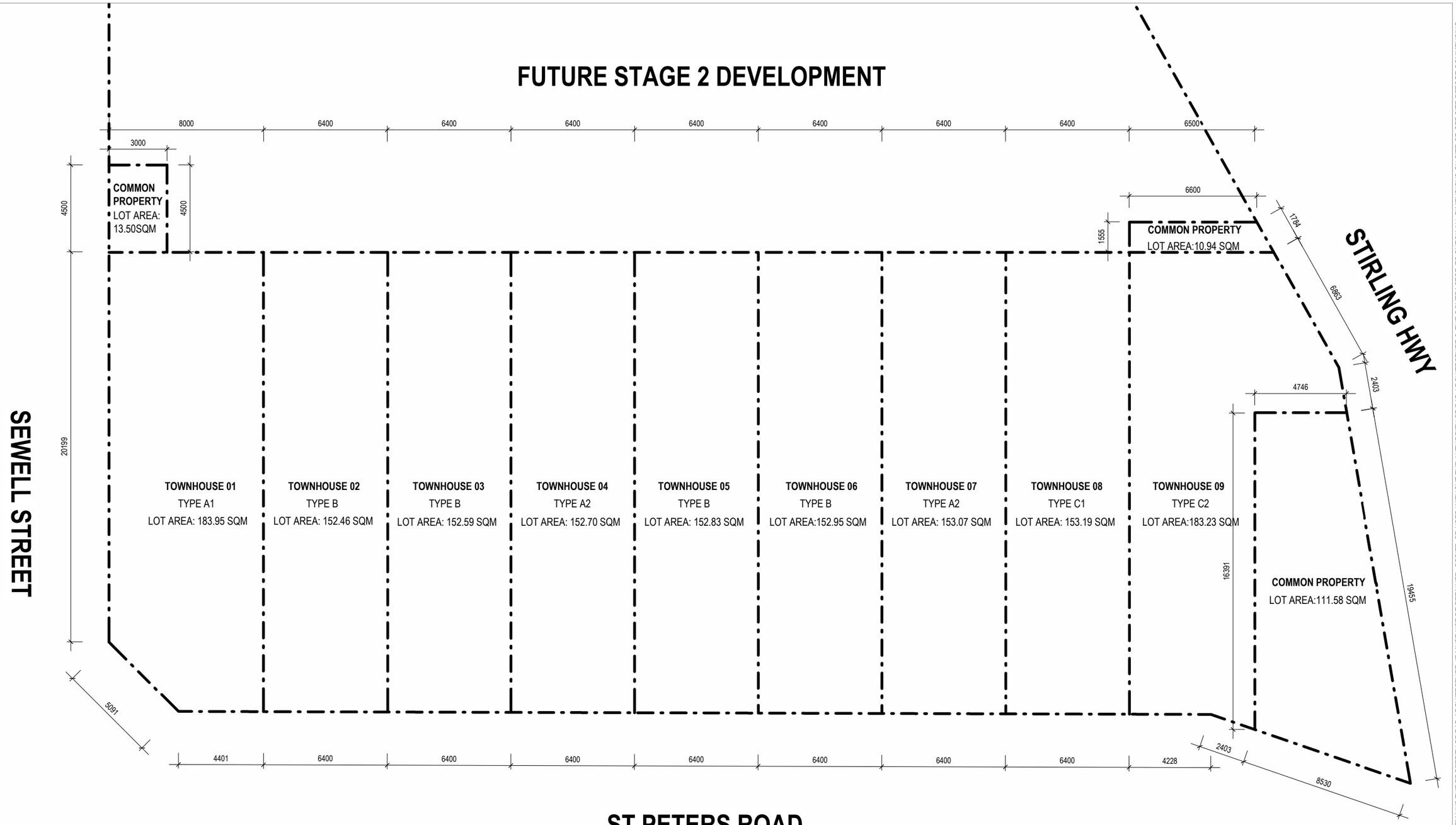
DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
19/12/2025	A	ISSUE FOR REVIEW	



RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: PROPOSED STAGING PLAN	SCALE: 1 : 500 (A3) 0 1 2 3 4 5 6 M		
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA0-04	REV: A
			DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	A	ISSUE FOR DA	



RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: PROPOSED STAGE 1 LOT AREAS	SCALE: 1 : 200 (A3) 0 1 2 3 4 5 6 M	
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA0-05 / REV: A
		DRAWN BY: SP	

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	A	ISSUE FOR DA	

FUTURE STAGE 2 DEVELOPMENT

EXISTING STREET BAY ON SEWELL STREET TO BE RETAINED

NIL SECONDARY STREET SETBACK LINE SHOWN DASHED IN RED

NIL REAR SETBACK LINE SHOWN DASHED IN RED

NIL SIDE SETBACK LINE SHOWN DASHED IN RED

4.0M STREET SETBACK LINE SHOWN IN RED DASHED

SEWELL STREET

STIRLING HWY

ST PETERS ROAD

SAINT PETERS ROAD

LOT 100

LOT 501

TOWNHOUSE 01	TOWNHOUSE 02	TOWNHOUSE 03	TOWNHOUSE 04	TOWNHOUSE 05	TOWNHOUSE 06
TYPE A1	TYPE B	TYPE B	TYPE A2	TYPE B	TYPE B
RL.13.50	RL.13.50	RL.13.50	RL.13.50	RL.13.50	RL.13.50

TOWNHOUSE 07	TOWNHOUSE 08	TOWNHOUSE 09
TYPE A2	TYPE C1	TYPE C2
RL.13.50	RL.13.50	RL.13.50

ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500	ALFRESCO RL.13.500

FRONT YARD RL.13.885	FRONT YARD RL.13.880	FRONT YARD RL.13.804	FRONT YARD RL.13.683	FRONT YARD RL.13.538	FRONT YARD RL.13.523	FRONT YARD RL.13.522	FRONT YARD RL.13.517	FRONT YARD RL.13.393

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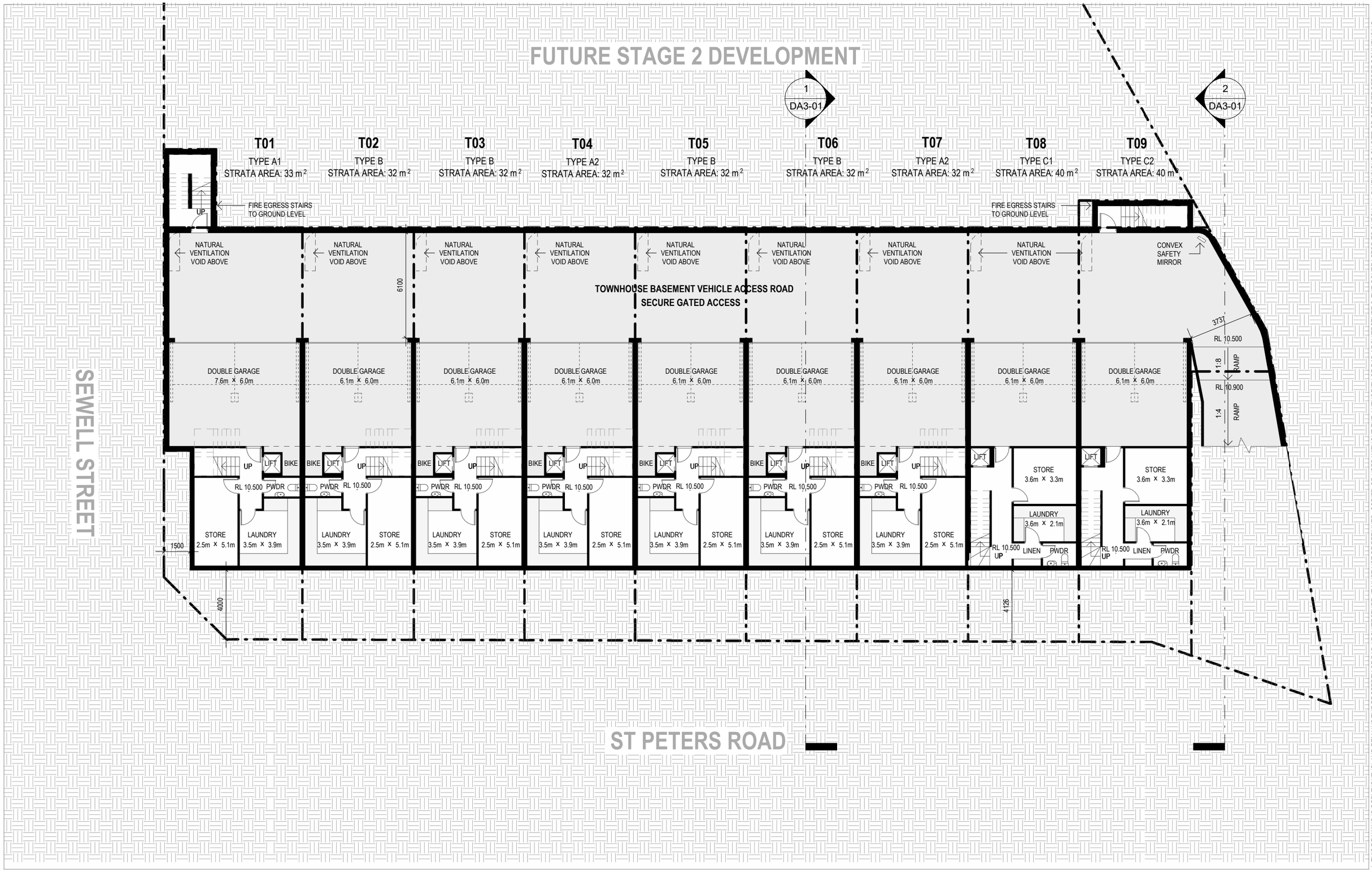
RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	SITE PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3)
PROJECT No.	25-10
DRAWING No.	DA0-06
REV	C
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	C	ISSUE FOR DA	
09/02/2026	B	ISSUE FOR REVIEW	
30/01/2026	A	ISSUE FOR CONSULTANT	



RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	BASEMENT PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3) — 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA1-01
REV	G
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	G	ISSUE FOR DA	
09/02/2026	F	ISSUE FOR REVIEW	
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	

FUTURE STAGE 2 DEVELOPMENT

EXISTING STREET BAY ON SEWELL STREET TO BE RETAINED

STREET PARKING

SEWELL STREET

STIRLING HWY

CONCRETE FOOTPATH

BITUMEN FOOTPATH

bitumen footpath

approx sewer location

1 DA3-01

2 DA3-01

T01	T02	T03	T04	T05	T06	T07	T08	T09
TYPE A1	TYPE B	TYPE B	TYPE A2	TYPE B	TYPE B	TYPE A2	TYPE C1	TYPE C2
PLOT RATIO AREA: 83 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 82 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 82 m²	PLOT RATIO AREA: 84 m²	PLOT RATIO AREA: 84 m²
STRATA AREA: 75 m²	STRATA AREA: 73 m²	STRATA AREA: 73 m²	STRATA AREA: 74 m²	STRATA AREA: 73 m²	STRATA AREA: 73 m²	STRATA AREA: 74 m²	STRATA AREA: 76 m²	STRATA AREA: 76 m²

FIRE EGRESS STAIRS TO THE BASEMENT

SECURED GATED ACCESS

PLANTER BOXES

SECURED GATED ACCESS

PLANTER BOXES

SECURED GATED ACCESS

FIRE EGRESS STAIRS TO THE BASEMENT

DN

VOID

ALFRESCO 6.1m × 5.2m RL 13.500

ALFRESCO 4.5m × 5.2m RL 13.500

ALFRESCO 4.5m × 5.2m RL 13.490

ALFRESCO 6.6m × 5.2m RL 13.500

BBQ

6400

13400

DINING 3.1m × 4.9m

KITCHEN 3.1m × 4.9m

DINING 3.1m × 4.5m

KITCHEN 3.1m × 4.5m

SCUL.

LIFT

UP

LIVING 3.9m × 5.0m

LIVING 3.7m × 3.8m

ENTRY RL 13.500

SECOND LIVING 3.5m × 4.5m RL 13.500

1:8 RAMP

RL 10.900

1:4 RAMP

WALL MOUNTED FLASHING VEHICLE WARNING LIGHT

VEHICLE GATES

WAITING BAY

1:20 RAMP

RL 13.330

PROPOSED CROSSOVER

BIN STORE

240l

140l

RL 13.500 UP

FRONT YARD RL 13.885

FRONT YARD RL 13.880

FRONT YARD RL 13.794

FRONT YARD RL 13.683

FRONT YARD RL 13.538

FRONT YARD RL 13.513

FRONT YARD RL 13.512

FRONT YARD RL 13.507

FRONT YARD RL 13.383

PLANTER BOXES

SECURED GATED ACCESS

SCREENED BIN ENCLOSURE

CONCRETE FOOTPATH

SECURED GATED ACCESS

ST PETERS ROAD

LOT 100

LOT 501

RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	GROUND PLAN
	DEVELOPMENT APPLICATION ISSUE

SCALE 1 : 200 (A3)

0 1 2 3 4 5 6 M

PROJECT No.	DRAWING No.	REV
25-10	DA1-02	E
	DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
30/01/2026	E	ISSUE FOR DA	
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	

FUTURE STAGE 2 DEVELOPMENT

1
DA3-01

2
DA3-01

T01	T02	T03	T04	T05	T06	T07	T08	T09
TYPE A1	TYPE B	TYPE B	TYPE A2	TYPE B	TYPE B	TYPE A2	TYPE C1	TYPE C2
PLOT RATIO AREA: 75 m²	PLOT RATIO AREA: 72 m²	PLOT RATIO AREA: 72 m²	PLOT RATIO AREA: 74 m²	PLOT RATIO AREA: 72 m²	PLOT RATIO AREA: 72 m²	PLOT RATIO AREA: 74 m²	PLOT RATIO AREA: 77 m²	PLOT RATIO AREA: 77 m²
STRATA AREA: 68 m²	STRATA AREA: 66 m²	STRATA AREA: 66 m²	STRATA AREA: 67 m²	STRATA AREA: 66 m²	STRATA AREA: 66 m²	STRATA AREA: 67 m²	STRATA AREA: 71 m²	STRATA AREA: 71 m²

SEWELL STREET

STIRLING HWY

VERTICAL ARCHITECTURAL ELEMENT

ALFRESCO CONCRETE ROOF

BED 3 3.0m × 3.2m | BED 2 3.0m × 3.2m | PWDR | LINEN | BATH | RL 16.843 | LIFT | UP

ARCHITECTURAL ELEMENT

SECOND LIVING 3.9m × 5.1m | VOID

BED 2 3.0m × 3.0m | BED 3 3.0m × 3.5m | ENSUITE | WIR | RL 16.843 DN | MASTER BED 3.5m × 3.8m

CAR RAMP BELOW

ARCHITECTURAL ELEMENT

PROPOSED CROSSOVER BELOW

6400

13400

4000

3013

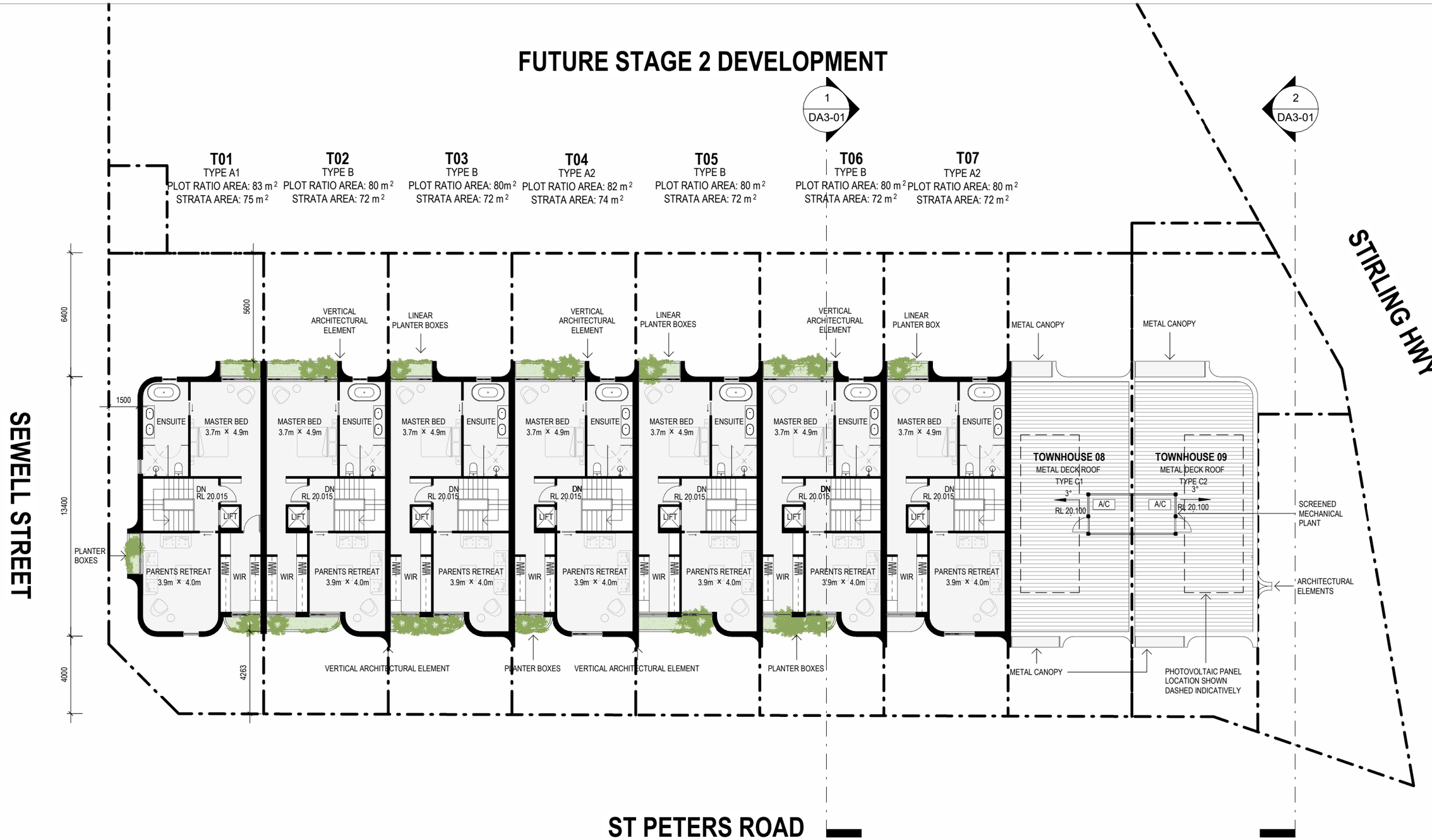
3045

ST PETERS ROAD

RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	LEVEL 1 PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3)
PROJECT No.	25-10
DRAWING No.	DA1-03
REV	F
DRAWN BY	SP

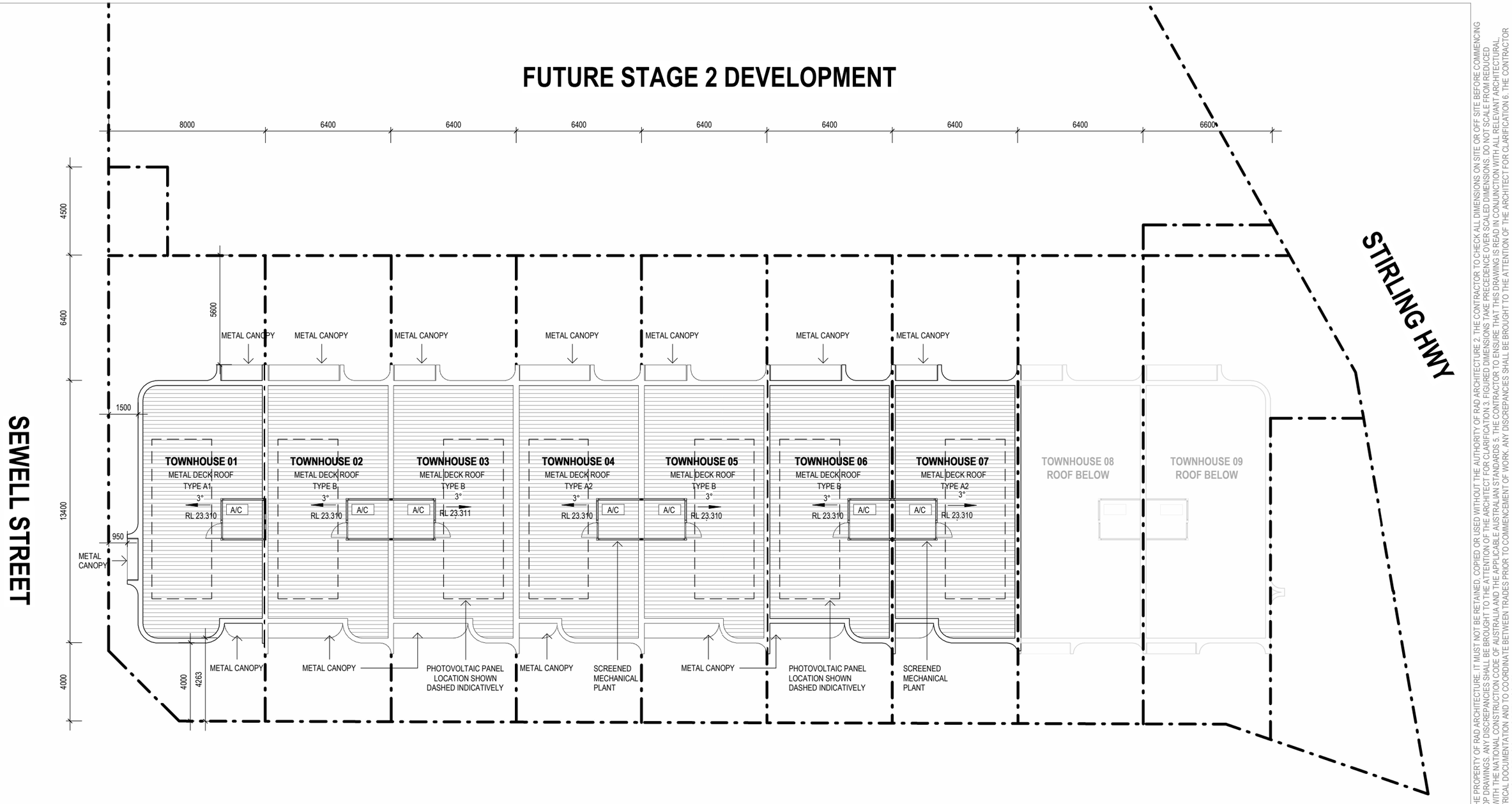
DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	F	ISSUE FOR DA	
30/01/2026	E	ISSUE FOR CONSULTANT	
15/12/2025	D	ISSUE FOR CONSULTANT	
12/12/2025	C	ISSUE FOR REVIEW	
26/11/2025	B	ISSUE FOR REVIEW	
10/11/2025	A	ISSUE FOR REVIEW	



RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	LEVEL 2 PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3) 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA1-04
REV	F
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	F	ISSUE FOR DA	
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	



RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	ROOF PLAN
	DEVELOPMENT APPLICATION ISSUE

SCALE 1 : 200 (A3)

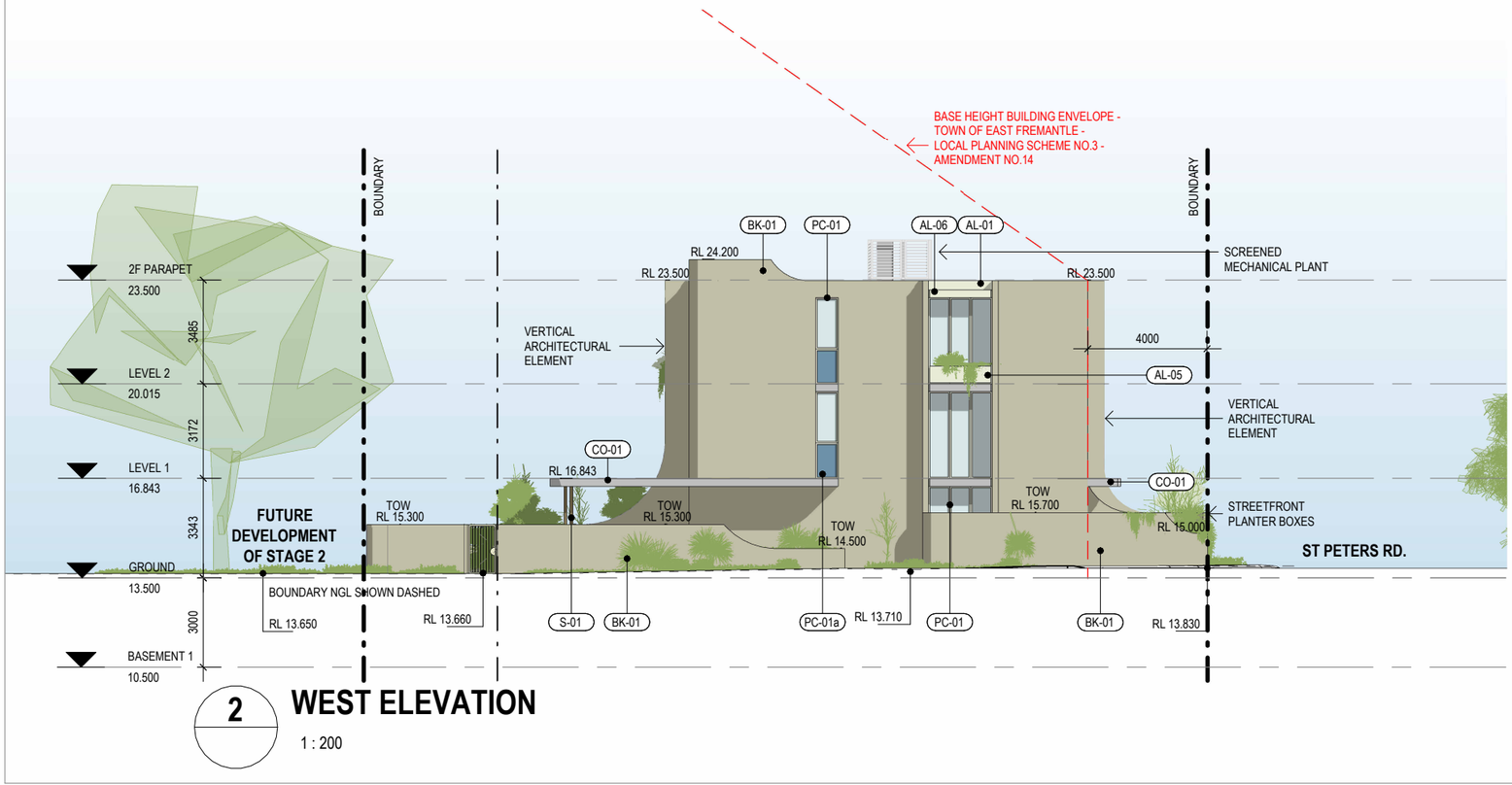
0 1 2 3 4 5 6 M

PROJECT No.	DRAWING No.	REV
25-10	DA1-05	D
	DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	D	ISSUE FOR DA	
30/01/2026	C	ISSUE FOR CONSULTANT	
12/12/2025	B	ISSUE FOR REVIEW	
26/11/2025	A	ISSUE FOR REVIEW	

1 SOUTH ELEVATION

1 : 200



2 WEST ELEVATION

1 : 200

WALL FINISHES LEGEND

AL-01	ALUMINIUM PANEL WALL- CHAMPAGNE POWDERCOAT FINISH
AL-02	ALUMINIUM FENCE - CHAMPAGNE POWDERCOAT FINISH
AL-03	ALUMINIUM METAL PLANTER - CHAMPAGNE POWDERCOAT FINISH
AL-04	ALUMINIUM METAL CANOPY - CHAMPAGNE POWDERCOAT FINISH
AL-05	ALUMINIUM METAL EXTERIOR DOOR - CHAMPAGNE POWDERCOAT FINISH
PC-01	ALUMINIUM FRAMED WINDOW SUITE - CHAMPAGNE POWDERCOAT FINISH CLEAR GLAZING
PC-01a	ALUMINIUM FRAMED WINDOW SUITE - CHAMPAGNE POWDERCOAT FINISH SPANDREL GLAZING
PC-02	ALUMINIUM FRAMED DOOR SUITE - JARRAH LOOK FINISH DOOR PANEL
PC-03	ALUMINIUM FRAMED GLAZING DOOR SUITE - CHAMPAGNE POWDERCOAT FINISH
BK-01	BRICKWORK - BEIGE TEXTURE RENDER FINISH
CO-01	IN-SITU CONCRETE
S-01	STEEL COLUMN - CHAMPAGNE POWDERCOAT FINISH

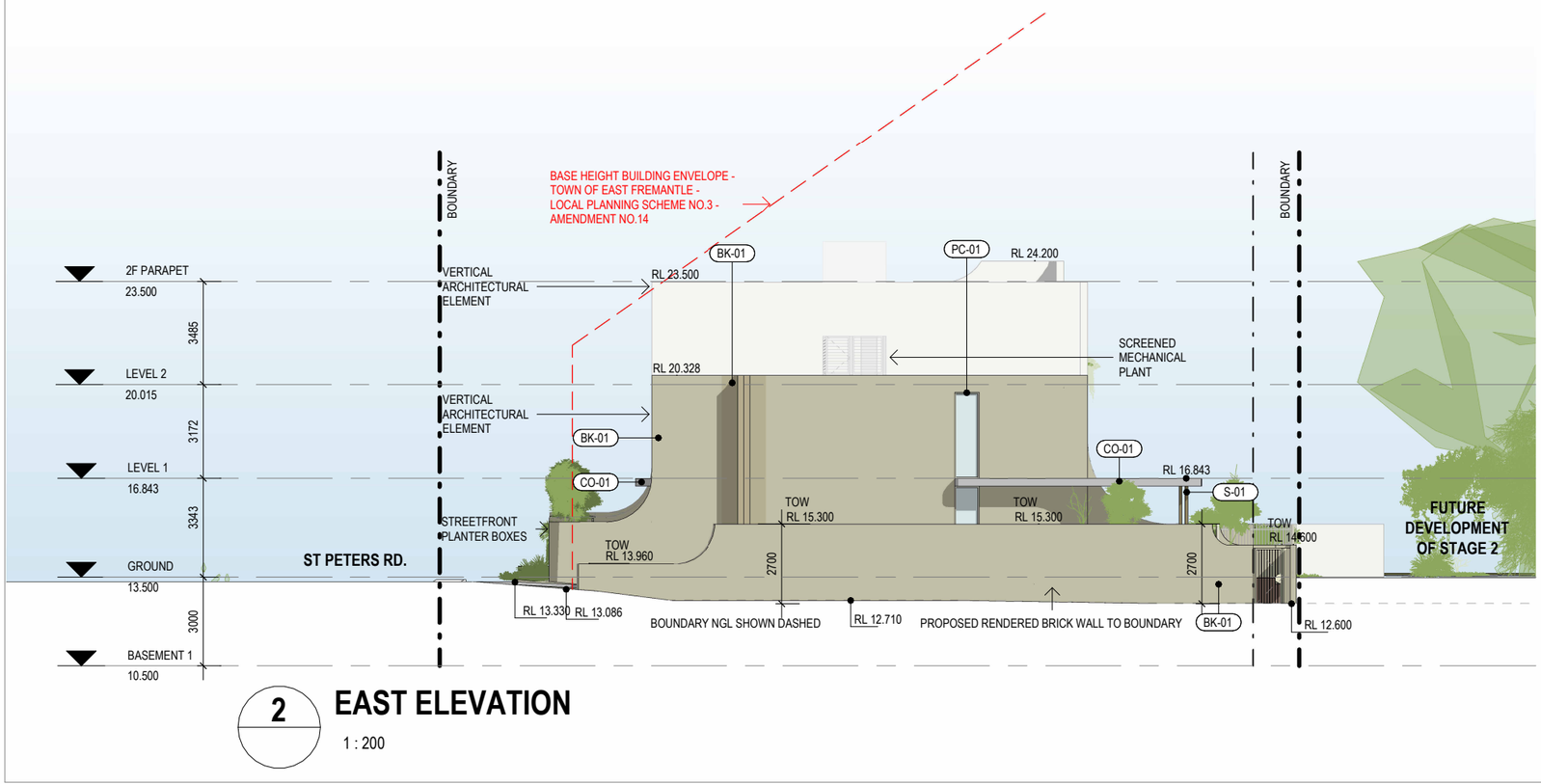
RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	ELEVATIONS - WEST & SOUTH
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3)
PROJECT No.	25-10
DRAWING No.	DA2-01
REV	B
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
30/01/2026	B	ISSUE FOR DA	
12/12/2025	A	ISSUE FOR REVIEW	

1 **NORTH ELEVATION**

1 : 200



2 **EAST ELEVATION**

1 : 200

WALL FINISHES LEGEND

AL-01	ALUMINIUM PANEL WALL- CHAMPAGNE POWDERCOAT FINISH
AL-02	ALUMINIUM FENCE - CHAMPAGNE POWDERCOAT FINISH
AL-03	ALUMINIUM METAL PLANTER - CHAMPAGNE POWDERCOAT FINISH
AL-04	ALUMINIUM METAL CANOPY - CHAMPAGNE POWDERCOAT FINISH
AL-05	ALUMINIUM METAL EXTERIOR DOOR - CHAMPAGNE POWDERCOAT FINISH
PC-01	ALUMINIUM FRAMED WINDOW SUITE - CHAMPAGNE POWDERCOAT FINISH CLEAR GLAZING
PC-01a	ALUMINIUM FRAMED WINDOW SUITE - CHAMPAGNE POWDERCOAT FINISH SPANDREL GLAZING
PC-02	ALUMINIUM FRAMED DOOR SUITE - JARRAH LOOK FINISH DOOR PANEL
PC-03	ALUMINIUM FRAMED GLAZING DOOR SUITE - CHAMPAGNE POWDERCOAT FINISH
BK-01	BRICKWORK - BEIGE TEXTURE RENDER FINISH
CO-01	IN-SITU CONCRETE
S-01	STEEL COLUMN - CHAMPAGNE POWDERCOAT FINISH

RAD architecture

PROJECT NAME
TOWNHOUSE DEVELOPMENT
91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)

CLIENT
SARACEN PROPERTIES

DRAWING NAME
ELEVATIONS - EAST & NORTH

DEVELOPMENT APPLICATION ISSUE

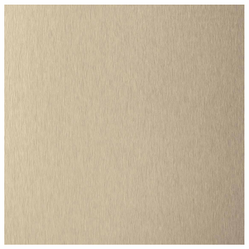
SCALE 1 : 200 (A3)
0 1 2 3 4 5 6 M

PROJECT No.	DRAWING No.	REV
25-10	DA2-02	B

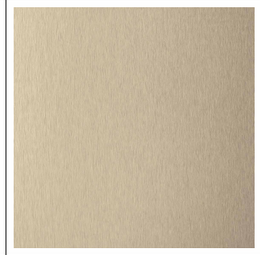
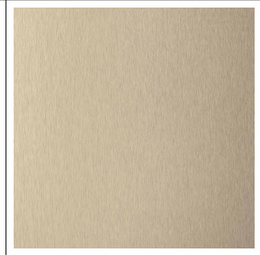
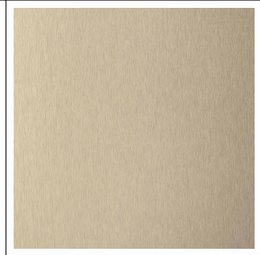
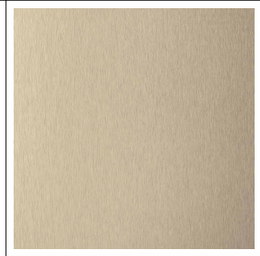
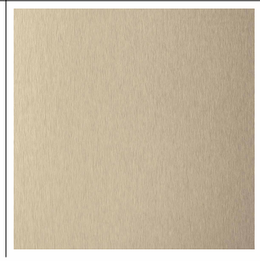
DRAWN BY SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
30/01/2026	B	ISSUE FOR DA	
12/12/2025	A	ISSUE FOR REVIEW	

Material Schedule

Material Keynotes	Description	Image
PC-01	Clear Glazing	
PC-01a	Spandrel Glazing	
PC-02	Aluminium Framed Door Suite - Jarrah Look Finish Door Panel	
PC-03	Aluminium Framed Door Suite - Champagne Powercoat Finish	
BK-01	Brickwork - Beige Texture Render Finish	
CO-01	In-Situ Concrete	

Material Schedule

Material Keynotes	Description	Image
AL-01	Aluminium Panel Wall - Champagne Powercoat Finish	
AL-02	Aluminium Fence - Champagne Powercoat Finish	
AL-03	Aluminium Metal Planer - Champagne Powercoat Finish	
AL-04	Aluminium Metal Canopy - Champagne Powercoat Finish	
AL-05	Aluminium Metal Exterior Door - Champagne Powercoat Finish	

RAD architecture

PROJECT NAME
TOWNHOUSE DEVELOPMENT
91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)

CLIENT
SARACEN PROPERTIES

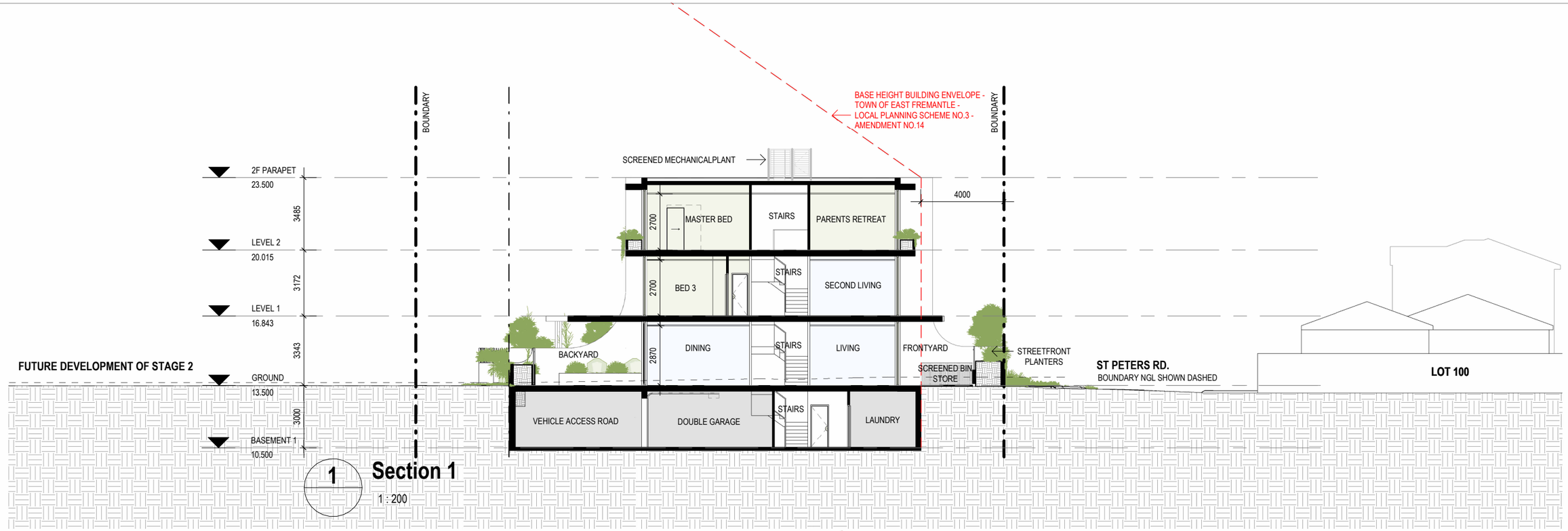
DRAWING NAME
MATERIAL PALETTE

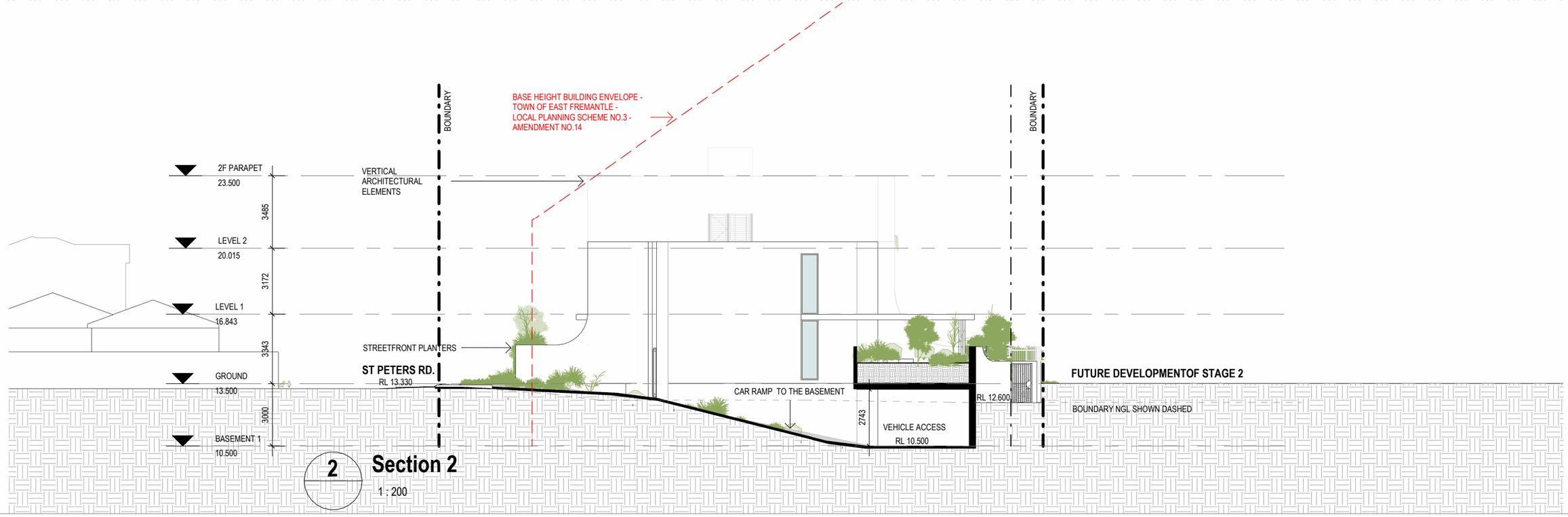
DEVELOPMENT APPLICATION ISSUE

SCALE (A3) M

PROJECT No.	DRAWING No.	REV
25-10	DA2-03	B
	DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
30/01/2026	A	ISSUE FOR CONSULTANT	





RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)
CLIENT	SARACEN PROPERTIES
DRAWING NAME	SECTIONS - 1 & 2
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3)
PROJECT No.	25-10
DRAWING No.	DA3-01
REV	B
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
30/01/2026	A	ISSUE FOR CONSULTANT	

ELEVATION PERSPECTIVE FROM ST PETERS ROAD

RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: RENDERS-PAGE 1	SCALE (A3) M		
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA4-01	REV: B
			DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
09/02/2026	A	ISSUE FOR REVIEW	

ELEVATION PERSPECTIVE FROM ST PETERS ROAD (ADJACENT TO SEWELL STREET INTERSECTION)

RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT, 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: RENDERS-PAGE 2	SCALE (A3) M		
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA4-02	REV: B
			DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
09/02/2026	A	ISSUE FOR REVIEW	

ELEVATION PERSPECTIVE FROM ST PETERS ROAD (ADJACENT TO KING STREET INTERSECTION)

RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: RENDERS-PAGE 3	SCALE (A3) M		
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA4-03	REV: B
			DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
09/02/2026	A	ISSUE FOR REVIEW	

ELEVATION PERSPECTIVE FROM FUTURE STAGE 2 PUBLIC OPEN SPACE

RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: RENDERS-PAGE 4	SCALE (A3) M		
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA4-04	REV: B
			DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
09/02/2026	A	ISSUE FOR REVIEW	

ELEVATION PERSPECTIVE FROM SEWELL STREET

RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)	DRAWING NAME: RENDERS-PAGE 5	SCALE (A3) M		
CLIENT: SARACEN PROPERTIES	DEVELOPMENT APPLICATION ISSUE	PROJECT No.: 25-10	DRAWING No.: DA4-05	REV: B
			DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
09/02/2026	A	ISSUE FOR REVIEW	

DEVELOPMENT SUMMARY - STAGE 1

		TYPE	TYPE DESCRIPTION	SITE AREA (m^2)*	PLOT RATIO AREA(m^2)	PLOT RATIO
STAGE 1	TOWNHOUSE 01	TYPE A1	3F+BASEMENT	**1573**	241	
	TOWNHOUSE 02	TYPE B	3F+BASEMENT		232	
	TOWNHOUSE 03	TYPE B	3F+BASEMENT		232	
	TOWNHOUSE 04	TYPE A2	3F+BASEMENT		238	
	TOWNHOUSE 05	TYPE B	3F+BASEMENT		232	
	TOWNHOUSE 06	TYPE B	3F+BASEMENT		232	
	TOWNHOUSE 07	TYPE A2	3F+BASEMENT		238	
	TOWNHOUSE 08	TYPE C1	2F+BASEMENT		161	
	TOWNHOUSE 09	TYPE C2	2F+BASEMENT		161	
					1967	
STAGE 2	FUTURE DEVELOPMENT (STAGE 2)			**2272.9**	**9569.5**	
COMBINED				**3845.9**	**11536.5**	**3. 0**

*SITE AREA: THE TOTAL SITE AREA INCLUDES ROAD WIDENING FOR PLOT RATIO CALCULATION PURPOSES.

RAD architecture

PROJECT NAME
TOWNHOUSE DEVELOPMENT
91-93 CANNING HIGHWAY, EAST FREMANTLE (STAGE 1)

CLIENT
SARACEN PROPERTIES

DRAWING NAME
DEVELOPMENT SUMMARY - PLOT RATIO

DEVELOPMENT APPLICATION ISSUE

SCALE (A3) M

PROJECT No.	DRAWING No.	REV
25-10	DA5-01	B
	DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
18/02/2026	B	ISSUE FOR DA	
09/02/2026	A	ISSUE FOR REVIEW	

PLAN
E

00 | 91-93 CANNING HIGHWAY EAST FREMANTL

landscape concept

CONTENTS

01 CONTEXT AND SITE ANALYSIS

SITE CONTEXT

91–93 Canning Highway is located in East Fremantle, within the suburb of Fremantle.

The site is close to the Swan River shoreline and has convenient access to Stirling Bridge, situated directly beside Stirling Highway and at the intersection of Canning Highway and Sewell Street.

It is also located near the train line, with the Fremantle Train Station easily reached via a short commute along the river. Key public amenities nearby include the Fremantle city centre, offering a wide range of cafés, restaurants, shops and grocery stores. A variety of local cafés, eateries and public parks are also within walking distance of the site in East Fremantle.

91-93 CANNING HIGHWAY, EAST FREMANTLE

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LANDSCAPE CONCEPT
FEBRUARY 2026

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02

IMAGERY BOARD

CONCEPT DESIGN

91-93 CANNING HIGHWAY, EAST FREMANTLE

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02

IMAGERY BOARD

COLOR AND MATERIAL PALETTE

COLOR RANGE

COLOR COMBINATION TYPE 1

COLOR COMBINATION TYPE 2

COLOR COMBINATION TYPE 3

EXPOSED AGGREGATE WITH SHELL GRID

91-93 CANNING HIGHWAY, EAST FREMANTLE

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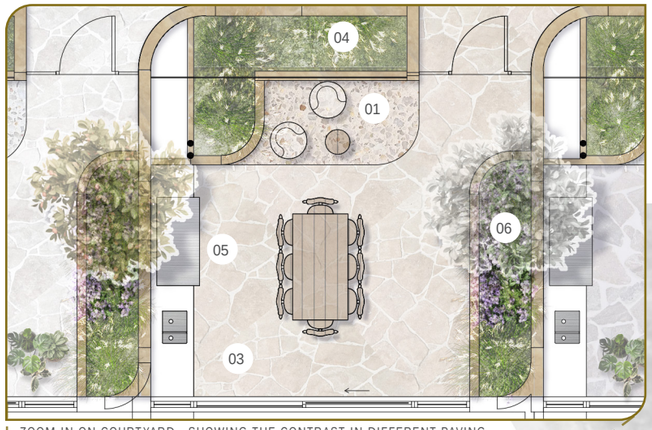
03 CONCEPT PLAN
GROUND FLOOR



ZOOM-IN ON COURTYARD - SHOWING THE CONTRAST IN DIFFERENT PAVING TYPES, COLORS AND FRUIT TREES.

LEGEND

01	EXPOSED AGGREGATE CONCRETE WITH SHELL GRID IN THREE DIFFERENT SPECIFIED SHADES - VARIED BETWEEN THE UNITS
02	RED GRANITE "WELCOME MATT" PAVING TO MATCH FEATURE FACADE
03	RANDOM-SET STONE PAVING IN THREE DIFFERENT SPECIFIED SHADES - VARIED BETWEEN THE UNITS
04	WA NATIVE PLANT SPECIES TO NORTHERN INTERFACE
05	BBQ AREA WITH OPEN SPACE FOR FLEXIBLE DINING & SEATING OPTIONS
06	PLANTER WITH SPACE FOR HERBAL GARDENING & FRUITING TREES, VARIED SPECIES BETWEEN THE UNITS, E.G *CITRUS LEMON, CITRUS ORANGE.*
07	ENTRY COURTYARD WITH STAIRS TO ENTRANCE WITH PLATFORM FOR FLEXIBLE LOUNGE FURNITURE & POTS
08	LEVEL ENTRY COURTYARD WITH SPACE FOR FLEXIBLE LOUNGE FURNITURE & POTS
09	WA NATIVE TREE AND PLANTING SPECIES IN GARDEN BED NEXT TO ENTRY GATE E.G *HAKEA LAURINA*
10	SPACE FOR CLOTHESLINE AGAINST WALL

91-93 CANNING HIGHWAY, EAST FREMANTLE

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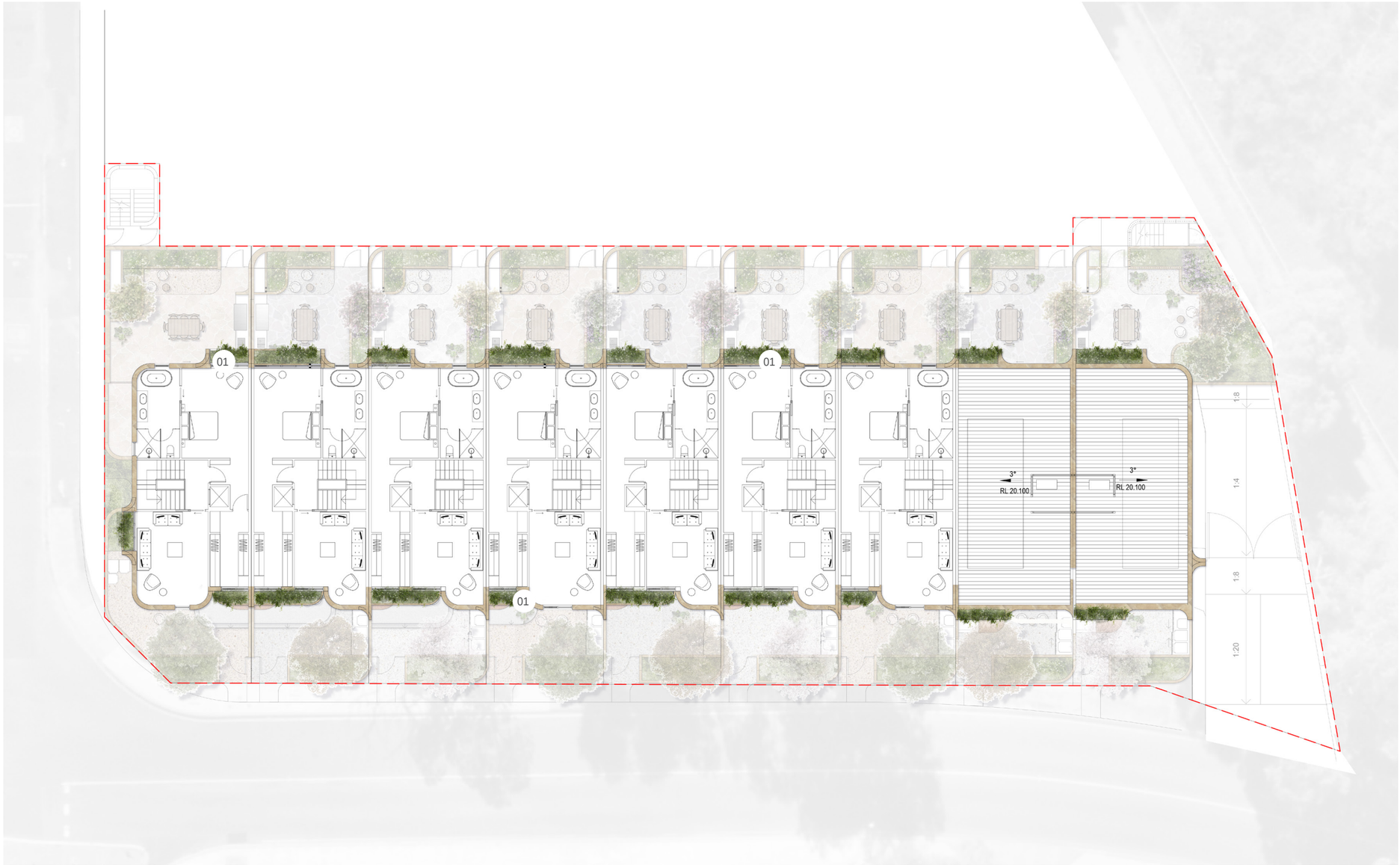
03 CONCEPT PLAN
LEVEL 02



LEGEND

01 PROPOSED FEATURE PLANTING WITH CREEPERS (E.G *CASUARINA 'COUSIN IT'*) HANGING FROM BALCONY PLANTER

91-93 CANNING HIGHWAY, EAST FREMANTLE

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04 R-CODES VOLUME 1 - COMPLIANCE ITEMS

PART C - SOFT LANDSCAPE AREA [C.1.2.1 - C.1.2.3] & TREE REQUIREMENTS [C.1.2.4 & C.1.2.5]

BASED ON A SITE AREA OF: 1573 SQ.M

REQUIRED SOFT LANDSCAPE AREA - TOTAL LOT (15%): 236 SQ.M PROVIDED SOFT LANDSCAPE AREA: 192.1 SQ.M

REQUIRED TREE QUANTITY: 2 SMALL TREES PER STRATA LOT (18 SMALL TREES) PROVIDED TREE QUANTITY: 20 SMALL TREES

SOFT LANDSCAPE AREA

THE DEVELOPMENT SEEKS TO EXCEED THE REQUIRED LANDSCAPE PROVISION FOR SOFT LANDSCAPE AREAS AS DEFINED IN THE WESTERN AUSTRALIA PLANNING COMMISSION (WAPC) RESIDENTIAL DESIGN CODES - VOLUME 1, THROUGH GENEROUSLY SCALED LANDSCAPE AREAS.

THE TABLE BELOW OUTLINES MINIMUM REQUIREMENTS FOR SOFT LANDSCAPE AREAS AS DEFINED IN THE R CODES VOLUME 1.

TABLE 01: SOFT LANDSCAPE REQUIREMENTS

PROPOSED LOT	STRATA LOT SIZE	MINIMUM REQUIREMENTS -15% OF EACH STRATA LOT	PROVIDED REQUIREMENT - GROUND FLOOR	PROVIDED REQUIREMENT - L2	TOTAL SOFT LANDSCAPE AREA
T01	184 SQ.M	27.9 SQ.M	19 SQ.M	3.6 SQ.M	22.9 SQ.M
T02	152 SQ.M	23.6 SQ.M	12.5 SQ.M	4.9 SQ.M	18.2 SQ.M
T03	153 SQ.M	23.7 SQ.M	12.5 SQ.M	3.7 SQ.M	17 SQ.M
T04	153 SQ.M	23.7 SQ.M	12.5 SQ.M	3.7 SQ.M	17 SQ.M
T05	153 SQ.M	23.7 SQ.M	12.5 SQ.M	3.7 SQ.M	17 SQ.M
T06	153 SQ.M	23.7 SQ.M	12.5 SQ.M	4.9 SQ.M	18.2 SQ.M
T07	153 SQ.M	23.7 SQ.M	12.5 SQ.M	2.7 SQ.M	16 SQ.M
T08	153 SQ.M	23.7 SQ.M	13.4 SQ.M	3 SQ.M	17.2 SQ.M
T09	183 SQ.M	26.8 SQ.M	34 SQ.M	4.2 SQ.M	38.2 SQ.M
COMMON SPACES	-	-	19.8 SQ.M	-	19.8 SQ.M
TOTAL	1573 SQ.M	236 SQ.M	157.7 SQ.M	34.4 SQ.M	192.1 SQ.M

TREE REQUIREMENTS

THE DEVELOPMENT SEEKS TO PROVIDE SUFFICIENT NUMBER OF TREES THROUGH ALL LEVELS OF LANDSCAPE, INCLUDING EXTERNAL LANDSCAPE SPACES.

THE TABLE BELOW OUTLINES MINIMUM REQUIREMENTS FOR TREE QUANTITY AS DEFINED IN DESIGNWA.

TABLE 02: TREE REQUIREMENTS

	LOT SIZE	MINIMUM TREE REQUIREMENTS	PROVIDED REQUIREMENT
PROPOSED TOTAL LOT	> 1000 SQ.M	2 SMALL TREES PER EACH STRATA LOT [9 LOTS - 18 SMALL TREES]	20 SMALL TREES

IRRIGATION REQUIREMENTS

A FULLY AUTOMATIC IRRIGATION SYSTEM WILL BE INSTALLED FOR 91-93 CANNING HIGHWAY PROJECT. THE SCOPE WILL INCLUDE:

- IRRIGATION TO ALL LANDSCAPE AREAS
- MOISTURE SENSORS THROUGHOUT, TO ENSURE WATER USE IS MINIMISED
- USE OF LOW WATER USE EMITTERS TO ENSURE ONLY SUFFICIENT WATER IS PROVIDED TO IRRIGATE PLANTING AREAS
- IN-LINE FERTILISATION UNIT TO ENSURE FERTILISING AND MOISTURE RETENTION IS CONTROLLED
- USE OF POP - UP FLOOD BUBBLERS TO SUIT SIZE OF GARDEN BEDS TO ENSURE ANY OVER-SPRAY AND WASTAGE IS MITIGATED, AND;
- A DETAILED DESIGN AND SPECIFICATION WILL BE PROVIDED AT BUILDING LICENSE APPLICATION STAGE.

PLAN E

LANDSCAPE ARCHITECTS

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04

R-CODES VOLUME 1 - COMPLIANCE ITEMS

PART C - SOFT LANDSCAPE AREA [C.1.2.1 - C.1.2.3] & TREE REQUIREMENTS [C.1.2.4 & C.1.2.5]

LEGEND

- LOT BOUNDARIES
- IN GROUND - SOFT LANDSCAPE AREA [RESIDENTIAL LOTS]
- IN GROUND - SOFT LANDSCAPE AREA [COMMON SPACES]
- SMALL TREES - 4M DIAMETER MIN

91-93 CANNING HIGHWAY, EAST FREMANTLE

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05 PLANTING PALETTE
TREES

Eucalyptus caesia Silver Princess
SILVER PRINCESS
MATURE SIZE: 6 X 4 M
POT SIZE: 90L

Eucalyptus Vitrix Snow Queen
POWDERBARK COOLABAH
MATURE SIZE: 6 X 3 M
POT SIZE: 100L

Eucalyptus torquata
CORAL GUM
MATURE SIZE: 5 X 4 M
POT SIZE: 100L

Hakea laurina
PIN-CUSHION HAKEA
MATURE SIZE: 6 X 5 M
POT SIZE: 200L

Citrus 'Tahitian Lime'
TAHITIAN LIME
MATURE SIZE: 2.5 X 1.5 M
POT SIZE: 100L

Citrus limon
LEMON
MATURE SIZE: 1.5 X 1 M
POT SIZE: 100L

Citrus orange
WEST AUSTRALIAN WEEPING PEPPERMINT
MATURE SIZE: 2 X 1.5 M
POT SIZE: 100L

Olea europaea
OLIVE
MATURE SIZE: 2.5 X 2 M
POT SIZE: 200L

91-93 CANNING HIGHWAY, EAST FREMANTLE

PREPARED FOR RAD ARCHITECTS

LANDSCAPE CONCEPT
FEBRUARY 2026

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05 PLANTING PALETTE
SHRUBS & GROUNDCOVERS

WA NATIVE PLANTS

Lepidosperma gladiatum
COAST SWORD SEDGE
MATURE SIZE: 1 X 1 M
SPACING: 2/M² POT SIZE: 5L

Olearia 'Beach ball'
COAST DAISY BUSH
MATURE SIZE: 0.4 X 0.8 M
SPACING: 2/M² POT SIZE: 140 MM

Anigozanthos Everlasting Red
KANGAROO PAW
MATURE SIZE: 0.45 X 0.35 M
SPACING: 1/M² POT SIZE: 140 MM

Westringia dampieri
SHORE WESTRINGIA
MATURE SIZE: 1.5 X 1 M
SPACING: 2/M² POT SIZE: 140 MM

Banksia repens
CREEPING BANKSIA
MATURE SIZE: 0.5 X 3 M
SPACING: 1/M² POT SIZE: 140 MM

Grevillea 'City Lights'
GREVILLEA
MATURE SIZE: 3 X2 M
SPACING: 1/M² POT SIZE: 5L

Banksia nivea
HONEYPOT DRYANDRA
MATURE SIZE: 1 X 1 M
SPACING: 2/M² POT SIZE: 140 MM

Banksia menziesii 'Dwarf'
BANKSIA
MATURE SIZE: 1.5 X 1.5 M
SPACING: 1/M² POT SIZE: 5L

Casuarina 'Cousin it'
COUSIN IT CASUARINA
MATURE SIZE: 0.15 X 1 M
SPACING: 2/M² POT SIZE: 140 MM

Grevillea crithmifolia 'Little crith'
LITTLE CRITH
MATURE SIZE: 1 X 1 M
SPACING: 1/M² POT SIZE: 140 MM

Banksia Ashbyi 'Dwarf'
BANKSIA
MATURE SIZE: 1.5 X 2 M
SPACING: 1/M² POT SIZE: 5L

Hardenbergia comptoniana
NATIVE WISTERIA
MATURE SIZE: 3 X 3 M
SPACING: 2/M² POT SIZE: 140 MM

91-93 CANNING HIGHWAY, EAST FREMANTLE

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LANDSCAPE CONCEPT
FEBRUARY 2026

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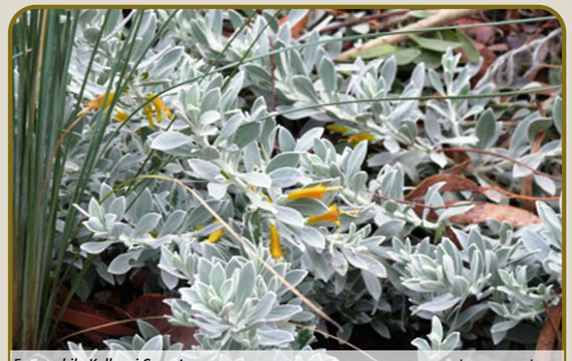
05 PLANTING PALETTE
SHRUBS & HERBS

Conostylis candicans
GREY COTTONHEADS
MATURE SIZE: 0.3 X 0.5 M
SPACING: 4/M² POT SIZE: 140 MM



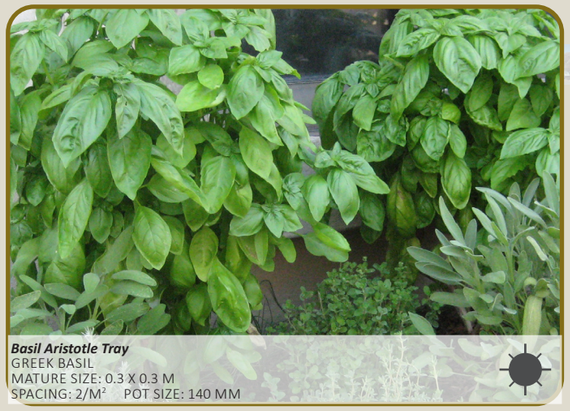
Eremophila Kalbarri Carpet
EMU BUSH
MATURE SIZE: 0.2 X 2 M
SPACING: 2/M² POT SIZE: 140 MM

Leucophyta brownii
SILVER COTTON BUSH
MATURE SIZE: 1 X 1 M
SPACING: 2/M² POT SIZE: 140 MM

Calothamnus quadrifidus prostrate
ONE SIDED BOTTLEBRUSH
MATURE SIZE: 0.8 X 2 M
SPACING: 1/M² POT SIZE: 140 MM

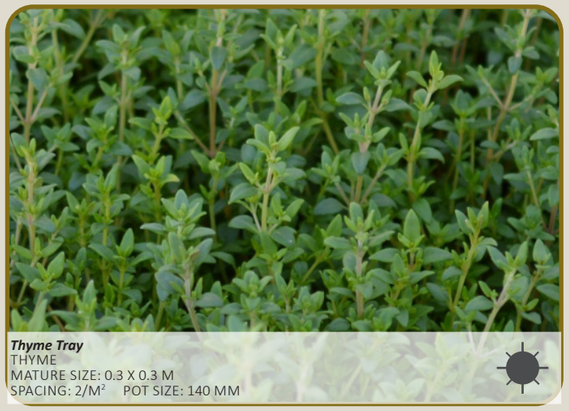
HERBAL GARDEN PLANTS

Rosmarinus Tuscany Blue Tray
ROSMARINUS
MATURE SIZE: 1.5 X 2 M
SPACING: 2/M² POT SIZE: 140 MM



Basil Aristotle Tray
GREEK BASIL
MATURE SIZE: 0.3 X 0.3 M
SPACING: 2/M² POT SIZE: 140 MM

Sage Tray
COMMON SAGE
MATURE SIZE: 0.45 X 0.3 M
SPACING: 2/M² POT SIZE: 140 MM



Thyme Tray
THYME
MATURE SIZE: 0.3 X 0.3 M
SPACING: 2/M² POT SIZE: 140 MM

91-93 CANNING HIGHWAY, EAST FREMANTLE

PREPARED FOR RAD ARCHITECTS

LANDSCAPE CONCEPT
FEBRUARY 2026

JOB NO. 2513501 C1.1012 REV C

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EAST FREMANTLE TOWNHOUSES STAGE 1

PREPARED FOR RAD ARCHITECTS
FEBRUARY 2026

Department of Planning, Lands and Heritage
GOVERNMENT OF WESTERN AUSTRALIA

Western Australian Planning Commission

Residential Design Codes

Volume 1

2024

PART C

ASSESSMENT TEMPLATE

DESIGN WA For a Better Built Environment

Disclaimer: This assessment template is not intended to replace R-Codes Volume 1. Applicants and assessors should refer to the R-Codes Volume 1 for information on the relevant provisions that are applicable to a development.

R-CODES VOLUME 1, PART C – ASSESSMENT TEMPLATE

April 2024

Planning Framework	
Region Scheme Zoning:	**Urban**
Local Planning Scheme zoning/R-code:	**Mixed Use & Additional Use**
Land Use permissibility:	**Grouped Dwelling: (Permitted - 'P')**
Special Control area:	**N/A**
Structure Plan Area:	**N/A**
Local Development Plan Area:	**N/A**
Local Planning Policies:	**Local Planning Policy 3.1.1 – Residential Design Guidelines.**
Planning Control Area:	**N/A**

Schedule 13 of Local Planning Scheme 13	
Provision:	**Assessment:**
Exemption from Variations: Provisions relating to height, additional height, setback, plot ratio and overshadowing in this schedule are not open to variation through any provision of this scheme or any other mechanism.	The proposed development does not seek to vary the prescribed building height, additional height, setback and plot ratio and overshadowing requirements.
Design Objectives: Development must achieve urban design and architecture that is exemplary with respect to mixed use and multiple dwelling design. The design of development must: (i) ensure height, built form and façade design considers and makes a positive contribution to vistas toward the site from the surrounding locality; and (ii) demonstrate careful arrangement of building massing and height to minimise negative impacts on the amenity of adjoining properties.	The proposed development is solely a residential development relating to stage 1 of the ultimate development of the site. The proposed development demonstrates a high standard of architectural and urban design through a carefully considered response to site context, built form, landscape and amenity. The design draws on key characteristics of the surrounding Plympton Ward residential and high street context, reinterpreting these elements through a contemporary architectural language that contributes positively to the evolving character of the locality. Building massing and scale have been deliberately modulated across the site to provide an appropriate transition between the lower-scale residential properties to the south and the commercial context to the west. The built form steps from two storeys along the eastern portion of the site to three storeys at the Sewell Street corner, ensuring the development responds sensitively to surrounding development while maintaining an appropriate urban presence. The sculptural composition of the built form and façade articulation contributes positively to views of the site from surrounding streets, creating a distinctive yet contextually responsive development. The arrangement of building height, setbacks and landscape elements has been carefully designed to minimise impacts on adjoining properties. Extensive landscaping, including 20 small trees and over 190m² of soft landscaping, integrates with the architecture through planter boxes and layered endemic planting to soften the built form and enhance the local ecological context. The townhouses are designed to deliver a high level of residential amenity and environmental performance. All dwellings feature dual or triple aspect layouts with northern orientation and 100% natural cross-ventilation, while generous internal spaces connect directly to landscaped courtyards. Each dwelling also incorporates an internal lift, secure garaging and substantial storage, supporting long-term functionality and ageing in place. Collectively, the proposal delivers a well-resolved architectural outcome that balances contextual response, built form articulation, landscape integration and residential amenity. The design therefore achieves an exemplary standard of development consistent with the objectives of Schedule 13 and the broader design principles of the Residential Design Codes.
Land Use and Density: 1. Only residential development shall front St Peters Road, and commercial development and vehicle parking are not permitted to front St Peters Road.	The application proposes residential development to St Peters Road with no other land use proposed. Vehicular parking is proposed in a basement configuration with the crossover proposed to St Peters Road. Whilst the crossover is proposed to St Peters, there is no visual impact of vehicle parking to St Peters Road.

2. Vehicle parking is not permitted to front Canning Highway. 3. Clause 5.3.4 of the scheme does not apply to development on this site. *Clause 5.3.4 Residential Development in Non-Residential Zones: Subject to clause 5.3.5, where residential development is provided for in non-residential zones, a maximum density of R40 shall apply, although the local government may vary the requirements relating to bulk, form and setbacks so as to facilitate coordinated development, having regard to the local government's objectives for the Precinct.*	The application does not propose any vehicle parking to Canning Highway. An R-coding of R40 has not been applied to this proposal with built form controls controlled via the provisions of this schedule.
Plot Ratio The maximum plot ratio of development within the site is 3.0:1.	This application relates to Stage 1 of the overall development with the total plot ratio area of 1,967m^2, resulting in a plot ratio of 0.5:1.0. The remaining plot ratio area of 9,569m^2 (2.49) will be utilised for the future development of Stage 2.
Building Height and Setbacks: 1. Development is to be contained within the building envelope shown in Figures 1 and 2 of this schedule.	The proposed development is consistent with the development envelope with the exception of architectural elements consisting of canopies, blade walls, ground planters and suspended planters. All minor projections are clearly noted within the application drawings and do not comprise any residential floor area outside of the building envelope. These projections are justified in accordance with point 2 as they are non-habitable residential components of the development and provide a vertical architectural element positively contributing towards the exemplary architectural design. As such, the proposed minor variation is still consistent with the design objectives of schedule 13 of the scheme and the associated building envelope.

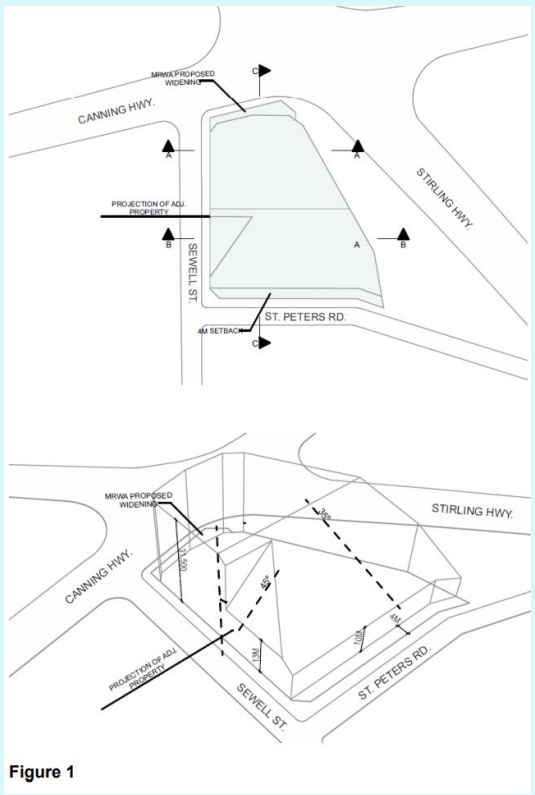
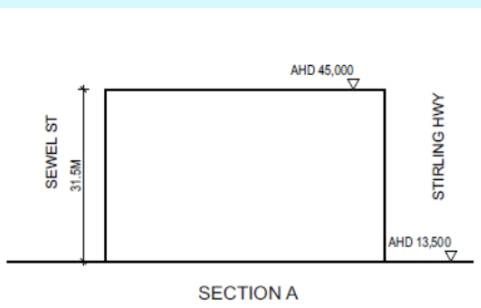
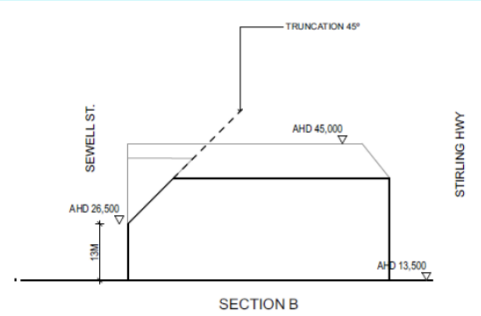


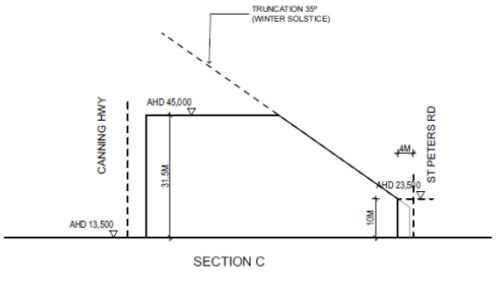
Figure 1



SECTION A

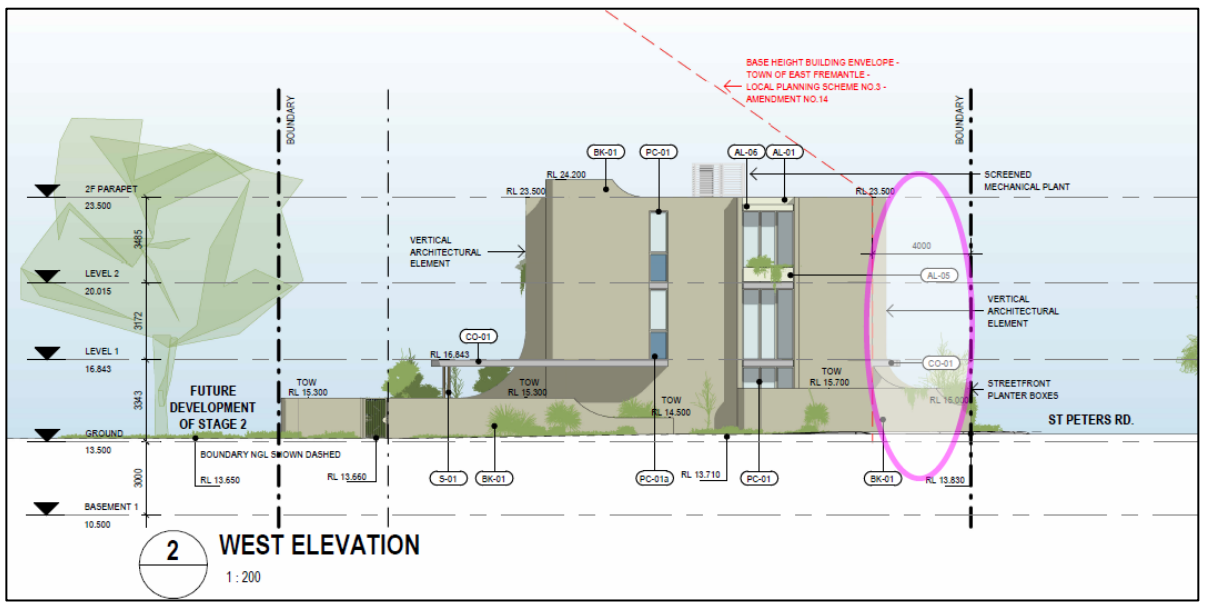


SECTION B

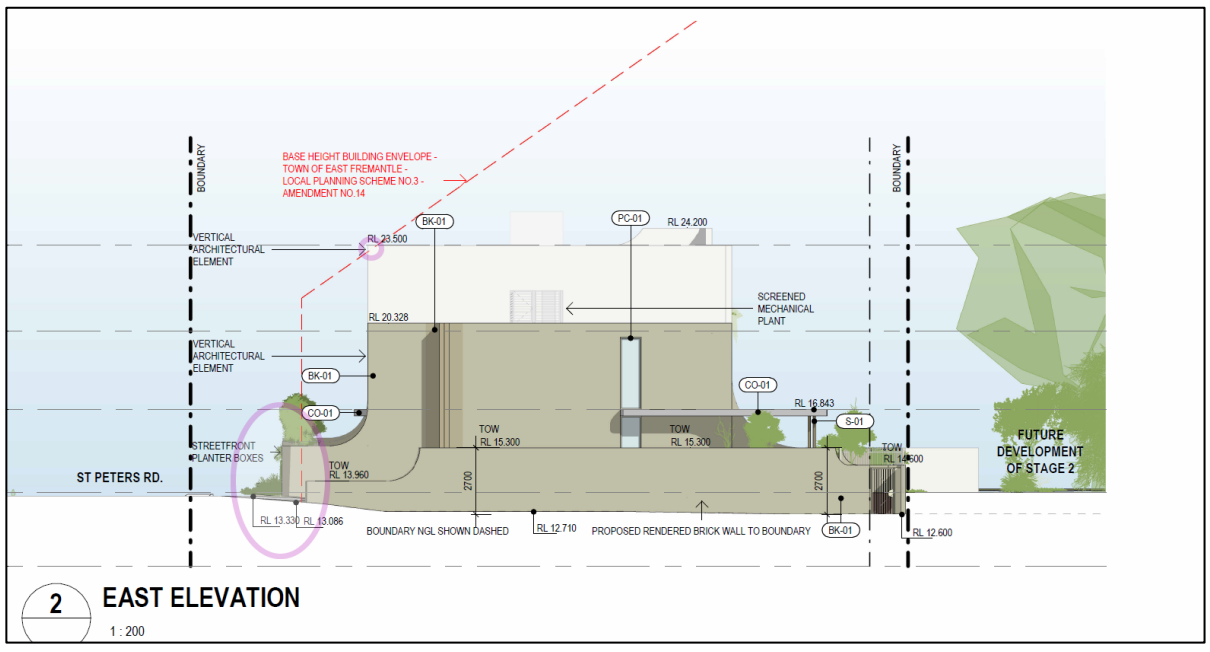


SECTION C

Figure 2



2 WEST ELEVATION
1 : 200



2 EAST ELEVATION
1 : 200

2. Non-habitable residential amenities such as roof terraces, gardens and shade structures may project outside the building envelope where suitably integrated with the architecture of the development. 3. Solar collectors, air conditioning units, mechanical plant rooms and lift overruns setback within a 45-degree plane taken from the edge of the building may project outside the building envelope where suitably screened from view and integrated with the architecture of the development.	
Additional Height: 1. The height of development on the site may exceed the building envelope shown in Figures 1 and 2 of this schedule up to a maximum of 76.5m AHD where: (i) the building envelope permits development to a height of 45.0m AHD; (ii) Lot 81 St Peters Road and Lot 423 King Street, or an area of a similar size and location, are transferred to the local government free of cost, for the purpose of public open space, or subject to appropriate measures to ensure the public is granted permanent and unrestricted access at all times; (iii) the land subject to (ii) above is to be upgraded and landscaped to a standard suitable for public open space purposes to the satisfaction of the local government, and if not ceded to the Local Government maintained by the owner of the open space; (iv) a tree protection and management plan which ensures that trees identified for retention on the land subject to (ii) above are protected, is provided to the satisfaction of the local government; (v) overshadowing of adjoining residential properties does not exceed the maximum permitted under the deemed to comply requirements of the R Code applying to the impacted land; (vi) development incorporates dwellings, private open space or communal open space at ground level overlooking and contiguous with the land subject to (ii) above; and (vii) in the opinion of the local government, having regard to the advice of its nominated design review panel, development achieves and demonstrates design consistent with the design objectives. 2. Land subject to 1(ii) above shall continue to be considered as part of the site for the purposes of calculating the maximum plot ratio area.	Not applicable – no additional height is being sought other than the minor variation to the building envelope.

PART D - LAND

1.1 SITE AREA

DEEMED-TO-COMPLY		YES	NO	N/A	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	COMMENTS
C1.1.1	Average & Minimum site area in accordance with Table D	☐	☐	☒				The site requirements of Part D do not apply to this application given that Schedule 13 of the LPS prescribes the density for the site and given that schedule 13 states that clause 5.3.4 of the Town's scheme does not apply, which nominates an R-Coding for the site.
C1.1.2	Minimum site area calculated as required for a single house or grouped dwelling	☐	☐	☒				
C1.1.3	Corner Truncation to a public street, up to a maximum of 20m2 to be added	☐	☐	☒				
	Battle-axe access leg no more than 20% of required site area in Table D	☐	☐	☒				
C1.1.4	Variation approved by the WAPC	☐	☐	☒				
	Existing lot with permanent legal access to a public road	☐	☐	☒				
C1.1.5	R25 & below only			☒				
C1.1.6 R30 - R40 only	Reduced by up to 35% for an accessible dwelling to gold level universal design or a small dwelling	☐	☐	☒				
	Site not less than100m2	☐	☐	☒				
	Where 4 or more dwellings or sites, reduction applied to a maximum 50%	☐	☐	☒				
C1.1.7 R50+	Reduced by up to 35% for an accessible dwelling to gold level universal design or a small dwelling	☐	☐	☒				
	Site not less than100m2	☐	☐	☒				
	Where 4 or more dwellings or sites, small dwelling reduction applied to a maximum 50%	☐	☐	☒				
C1.1.8	For multiple dwellings in areas coded R30 to R60; where a significant existing tree is retained, the average site area may be reduced by 10%. (This reduction is limited to dwellings not already subject to a reduced average site area under C1.1.6 or C1.1.7)	☐	☐	☒				

1.0 THE GARDEN

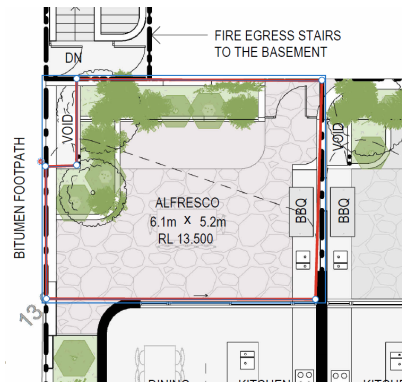
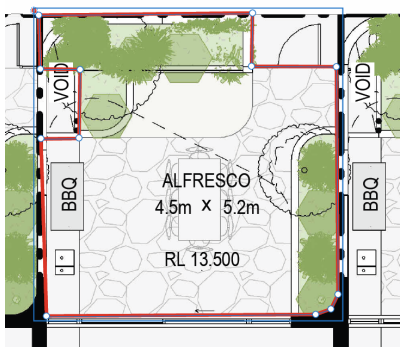
1.1 PRIVATE OPEN SPACE

<table>
<tr><th colspan="2">DEEMED-TO-COMPLY</th><th>YES</th><th>NO</th><th>N/A</th><th>DEEMED-TO-COMPLY REQUIREMENT</th><th>PROVIDED</th><th>DESIGN PRINCIPLE (IF APPLIED)</th><th>COMMENTS / CONDITION OF APPROVAL</th></tr>
<tr><td>C1.1.1</td><td>Primary garden area in accordance with Table 1.1a
<table><tr><th>Site area (m^2)</th><th>Minimum primary garden area (m^2 per dwelling)</th><th>Maximum permanent roof cover[1]</th><th>Minimum dimension[2]</th></tr><tr><td>Greater than 220</td><td>40</td><td rowspan="2">One-third of the primary garden area provided</td><td rowspan="5">3m</td></tr><tr><td>191-220</td><td>35</td></tr><tr><td>161-190</td><td>30</td></tr><tr><td>131-160</td><td>25</td><td rowspan="2">0m^2 (open to the sky)</td></tr><tr><td>100-130</td><td>20</td></tr></table>Site area rounded up to the nearest whole number.
[1] Permanent roof cover excludes minor projections (eaves).
[2] Minimum dimension refers to the minimum length and width of the primary garden area. Refer to Figure 1.1a for dimensions and calculations of primary garden areas.</td><td>☐</td><td>☒</td><td>☐</td><td>Town House 1:
(183 sqm site)
requires 30sqm

Town House 2
(152sqm site)
Requires 25sqm.

Town House 3-6:
(153 sqm site)
requires 25sqm

Town House 7-8
(153sqm site)
Requires 25sqm

Town House 9:
(183sqm site)
Requires 35sqm</td><td>Town House 1:
48.03m^2
20m^2 uncovered (41%)
 
Town House 2-8:
37.47m^2
20.3m^2 uncovered (54%)
 
Town House 9:
57.74m^2
37.59m^2 – uncovered (65%)
 
All primary garden areas meet the minimum dimension of 3m.</td><td>While the extent of permanent roof cover exceeds the Deemed-to-Comply limit, the remaining uncovered portion of the primary garden area remains of sufficient size and dimension to function effectively for outdoor recreation, leisure and informal entertaining for the intended occupants.

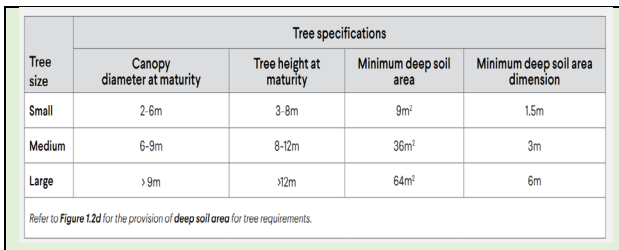
The primary garden area is appropriately sited and oriented to achieve reasonable solar access consistent with the local climatic context. The partial roof coverage provides a balance between weather protection and openness, supporting year-round use while still allowing sunlight penetration and natural ventilation to both the outdoor area and adjoining internal spaces. Further to this the covering provides architectural interest that positively contributes to the schedule 13 requirement for exemplar architectural design.

The primary garden areas are directly accessible from, and capable of use in conjunction with, the primary living area of the dwelling (kitchen& dining). This strong visual and physical connection supports indoor–outdoor living, enhances residential amenity, and ensures the space performs as an extension of the main living area rather than a residual or unusable area.

The proposed primary garden area is also north facing and permitting adequate winter sunlight and ventilation to the dwelling.</td><td>The proposal satisfies the design principle.</td></tr>
<tr><td>C1.1.2</td><td>Splitting of PGA for grouped dwellings</td><td>☐</td><td>☐</td><td>☒</td><td>Not Applicable</td><td>Not Applicable</td><td>Not Applicable</td><td>Not Applicable</td></tr>
<tr><td>C1.1.3</td><td>Private open space to multiple dwellings (balcony) in accordance with Table 1.1b</td><td>☐</td><td>☐</td><td>☒</td><td>Not Applicable</td><td>Not Applicable</td><td>Not Applicable</td><td>The application relates to a grouped dwelling development.</td></tr>
<tr><td>C1.1.4</td><td>Balconies to be unscreened for 25%</td><td>☐</td><td>☐</td><td>☒</td><td>Not Applicable</td><td>Not Applicable</td><td>Not Applicable</td><td>The application does not include any balconies.</td></tr>
</table>

1.2 TREES AND LANDSCAPING

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	COMMENTS / CONDITION OF APPROVAL
C1.2.1 – 15% soft landscaping per site	☐	☒	☐	Town House 1: 27.9 sqm required Town House 2: 23.6sqm Town House 3-8: 22.7sqm required Town House 9: 26.8 sqm required.	Town House 1: 22.9sqm Town House 2: 18.2sqm Town House 3: 17sqm Town House 4: 17sqm Town House 5: 17sqm Town House 6: 18.2sqm Town House 7: 16sqm Town House 8: 17.2sqm Town House 9: 38.2 sqm	The proposed built form responds to the site constraints by consolidating development footprint and hardstand areas, enabling landscaping to be strategically located where it provides the greatest functional and visual benefit. While at-grade soft landscaping is reduced, the proposal incorporates landscaped planter areas at first-floor level, contributing to increased greening within the streetscape and private realm and softening of the built form. Soft landscaping provisioning on the ground level has been maximised whilst balancing functionality of the outdoor courtyards.	The proposed development satisfies the design principle. Note: the proposed assessment includes measurements based on the L2 landscaping in accordance with the accompanying landscape plans.
C1.2.2 – 30% soft landscaping of the primary street setback area	☐	☒	☐	Town House 1: PS Setback Area= 26.34m^2 Requirement = 7.9m^2 Town House 2-8: PS Setback Area= 25.03m^2 Requirement =7.5m^2 Town House 9: PS Setback Area= 26.95m^2 Requirement =8.05m^2	Town House 1: 5.01m^2 Town House 2-8: 6.15m^2 Town House 9: 6.19m^2	Although the primary street setback does not achieve the 30% soft landscaping benchmark, the development incorporates deep planting zones (where achievable), second-floor landscaped planters visible from the street, and a building form that frames landscaping elements to maintain visual permeability and soften presentation. The inclusion of elevated planting provides visual interest and greenery at the second level, contributing positively to the streetscape character and reducing the perceived bulk of the development. This layered landscaping approach improves outlook from habitable rooms and enhances residential amenity for occupants, achieving the qualitative outcomes sought by the design principle.	The proposed development satisfies the design principle.
C1.2.3 – Communal Street and communal open space is landscaped and provided with adequate lighting to footpaths and vehicle access areas	☒	☐	☐	As referenced in the deemed-to-comply provisions column.	The proposed common property includes a landscaped strip along the western lot boundary.	Not Applicable	An appropriate condition can be applied requiring lighting within the common property.
C1.2.4 – Minimum trees and deep soil area in accordance with Tables 1.2a & 1.2b. **Dwelling Type** / **Minimum tree requirements** **Single house** (per dwelling): 1 small tree; Where the primary street setback is 1.5m or greater: - frontages less than 20m: 1 small tree in the primary street setback area; or - frontages 20m or greater: 1 small tree in the primary street setback area per 10m frontage[1]. **Grouped dwellings** (per dwelling): 1 small tree OR 2 small trees where primary garden area is reduced in accordance with C1.1.2 **Multiple dwellings** (per lot): Sites less than 700m^2: 1 medium tree and 2 small trees; Sites of 700-1000m^2: 2 medium trees or 1 large tree and 1 small tree; Sites greater than 1000m^2: 2 medium trees or 1 large tree and 1 small tree PLUS 1 medium tree per 400m^2 in excess of 1000m^2 or part thereof *Trees required within the **street setback** area are in addition to trees required per **dwelling** and where providing a secondary **private open space**.* *[1]Frontage to be rounded down to the nearest 10m.* *Tree requirements exclude **ancillary dwellings**.* *Refer to **Figure 1.2c** for **grouped dwelling** tree requirements.*	☒	☐	☐	1 small tree or 2 small trees per dwelling where the primary garden area is reduced Tree specifications as per the table in the Deemed-to-Comply column.	Townhouse 1: Includes 3 small trees Townhouse 2-8: Includes 2 trees small trees Townhouse 9: Includes 3 trees small trees Total =20 small trees (refer landscaping plans) All dwellings include a small tree within the	Not Applicable	Not Applicable.

 Tree specifications Tree size / Canopy diameter at maturity / Tree height at maturity / Minimum deep soil area / Minimum deep soil area dimension Small: 2-6m / 3-8m / 9m² / 1.5m Medium: 6-9m / 8-12m / 36m² / 3m Large: >9m / >12m / 64m² / 6m Refer to *Figure 1.2d* for the provision of **deep soil area** for tree requirements.					primary street setback area. Deep soil areas are provided in section 5 of the landscaping plans depicting that the trees all achieve the minimum dimension of 1.5m and minimum deep soil areas.		
C1.2.5 – Shade trees for uncovered at grade car-parking for grouped and multiple dwellings	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C1.2.6 – reduced landscaping subject to retaining a significant existing tree	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C1.2.7 – Where a significant existing tree is retained on site, tree protection zone is provided in accordance with *AS4970*	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C1.2.8 – Landscaping plan (for multiple dwellings or 5+ dwellings) in accordance with Appendix 3	☒	☐	☐	Landscaping plan is required as part of the development application.	A landscaping plan has been prepared in support of the proposed development.	Not Applicable	Not Applicable

1.3 COMMUNAL OPEN SPACE – Multiple dwellings only

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	COMMENTS / CONDITION OF APPROVAL
C1.3.1 – Minimum communal open space requirements	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C1.3.2 – Communal open space separated or screened sources of noise and odour	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C1.3.3 – Design and orientation of communal open space to minimise impacts of noise, odour, light spill and overlooking	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

1.4 WATER MANAGEMENT AND CONSERVATION

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	COMMENTS / CONDITION OF APPROVAL
C1.4.1 – Stormwater retained on site	☒	☐	☐	Stormwater runoff draining from roofs, driveways, communal streets and other impervious surfaces generated by a small rainfall event to be retained on site, with run-off directed to garden areas, rainwater tanks and infiltration cells (e.g. soak wells), appropriate to climatic, local soil and groundwater conditions.	Stormwater will be retained on site.	Not Applicable	An appropriate condition of development approval can be applied.
C1.4.2 – Notwithstanding C1.4.1, stormwater directed to a district or local stormwater drainage system where required by the decision-maker	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.0 THE BUILDING

2.1 SIZE AND LAYOUT OF DWELLINGS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.1.1 – Designated primary living space, for multiple dwellings the primary living space with a minimum dimension of 3.8m	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.2 – Primary living space to have direct and physical access to primary garden area/private open space (single houses and grouped dwellings)	☒	☐	☐	As per description under column one.	All townhouses have access to an outdoor alfresco from a kitchen and dining room at the northern portion of dwellings.	Not Applicable	Not Applicable.
C2.1.3 – Primary living space to have direct access to private open space (multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.4 – Max depth of single aspect primary living space (multiple dwellings only)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.5 – Bedrooms to have a minimum internal floor area of 9m² and a minimum dimension of 2.7m (multiple dwellings only)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.6 – Minimum ceiling height (multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

C2.1.7 –Minimum internal dwelling floor area (multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.8 – Dwelling mix (10+ multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.9 – Storage requirements in Table 2.1b **Table 2.1b** Storage requirements **Dwelling Size** / **Minimum storage area** / **Minimum storage area dimension** / **Minimum storage area height** **Studio / 1 bedroom dwelling** — 3m² — 1.5m[1] — 2.1m **2 bedroom dwelling** — 4m² — 1.5m[1] — 2.1m **3+ bed bedroom dwelling** — Single houses and grouped dwellings: 4m²; Multiple dwellings: 5m² — 1.5m[1] — 2.1m *Minimum dimension refers to the minimum length and width of the **storage** area.* **Storage** *can be co-located within a **garage** or **carport** but must provide a dedicated area.* *Dimensions and areas are exclusive of services, plant, **utilities**, bin storage, bicycle parking and fixtures and facilities.* [1]*Minimum dimension can be reduced in accordance with **C2.1.10***	☒	☐	☐	4m²	All proposed dwellings include a storage area of 10m² with the minimum dimension of 2.5m	Not Applicable	Not Applicable
C2.1.10 – Reduced storage area dimension	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.11 – Major openings setback a minimum of 3m where facing directly onto car parking and corridors (multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.1.12 – Separation of noise sources (multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.2 SOLAR ACCESS AND NATURAL VENTILATION

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.2.1 – Openable external window requirements for habitable rooms i. Visible from all parts of the room; ii. With an aggregate glazed area not less than 10% of the habitable room internal floor area; and iii. Comprising a minimum 50% transparent glazing.	☒	☐	☐	Refer to deemed-to-comply column.	All habitable rooms in the dwellings include openable external windows that satisfy the minimum dimensions for each room size.	Not Applicable	Not Applicable
C2.2.2 – Courtyard requirements (when proposed as the only source of daylight to a habitable room)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.2.3 – Openable window requirements for bathrooms on external walls (excluding boundary walls)	☐	☒	☐	Bathrooms located on external walls (excluding boundary walls) must have a minimum of one openable window for natural ventilation.	All bathrooms are located along boundary walls with the exception of the Town House 1 Level 1 powder room and the Townhouse 9 Level 1 bathroom. The powder room in Townhouse 1 includes and openable window whilst Townhouse 9's ensuite does not.	The design is considered to satisfy the intent of the Design Principle, which encourages the optimisation of natural ventilation to bathrooms where possible, having regard to site constraints, functionality and climatic responsiveness . In this instance, the external wall to the ensuite is required to accommodate a full-height vanity and mirror layout to ensure appropriate internal amenity, functionality and usability of the space. Provision of a window on this wall would compromise the practical use of the bathroom, reduce mirror and storage opportunities, and result in a less efficient and functional internal layout. Given the compact nature of the ensuite, there are no alternative locations on the external wall where a compliant window could be reasonably accommodated without detriment to the overall design outcome. Mechanical ventilation could be considered an acceptable alternative in circumstances where natural ventilation is not reasonably achievable and is commonly relied upon for non-habitable rooms such as bathrooms. The ventilation system will ensure satisfactory internal amenity outcomes despite the absence of an openable window.	The proposed development satisfies the design principles.
C2.2.4 – Orientation of major openings to primary living spaces (single houses and grouped dwellings)	☒	☐	☐	For single houses and grouped dwellings in climate zones 4,5 and 6, a major opening to the primary living space is oriented	All dwellings include a north facing kitchen and dining room with a dimension of 6.2m x 4.9m. This primary living space does include shading devices that	The development is sited, oriented and designed to optimise winter solar gain while limiting summer solar penetration to primary living spaces, habitable rooms and private open space. The primary living space is oriented between north-west and east,	The proposed development satisfies the design principles.

				between north-west and east in accordance with Figure 2.2b, with an adjoining uncovered open area with: i. a minimum dimension 3m x 3m1 in accordance with Figure 2.2c; and ii. the exception of shading devices up to 2m depth.	permit some direct daylight access to most of the dwelling.	ensuring access to low-angle winter sun consistent with passive solar design principles. The increased depth shading structure is located immediately adjacent to the primary living space and functions as a solar control device, rather than an obstruction to solar access. The covered outdoor living area provides seasonal modulation of sunlight, limiting high-angle summer sun while still allowing filtered winter sunlight to penetrate beneath the structure and into the primary living space. The covered shading structure does not obstruct daylight access, instead it provides diffused natural light, reducing excessive heat gain. The covered outdoor living area assists in facilitating ventilation by allowing windows and doors to remain open during warmer periods while providing weather protection. Overall, the design achieves the intent of optimising year-round solar performance, balancing solar access with thermal comfort and improved outdoor amenity.	
C2.2.5 – Percentage of dwellings achieving solar access to major openings to primary living spaces (multiple dwellings)	☐	☐	☐	Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.3 PARKING

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.3.1 – Occupant parking in accordance with Table 2.3a Occupant car parking Location A: Ancillary dwelling — Minimum parking space(s) (per dwelling): 0 — Maximum garage and carport parking (per dwelling): 1 Studio and 1 bedroom dwelling: 0 — 1 2 bedroom dwelling: 0 — 2 3+ bedroom dwelling: 1 — 2 Location B: Ancillary dwelling: 0 — 1 Studio and 1 bedroom dwelling: 1 — 1 2 bedroom dwelling: 1 — 2 3+ bedroom dwelling: 1 — 2	☒	☐	☐	All dwellings include 3 bedrooms and therefore require a minimum of 1 bay and a maximum of 2.	The proposed development includes 2 bays per dwelling	Not Applicable	Not Applicable
C2.3.2 – Motorcycle/scooter parking (multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.3.3 – Design of car spaces and manoeuvring areas as per *AS2890.1*	☒	☐	☐	All car spaces and manoeuvring areas are to be constructed as per *AS2890.1*	All car parking and manoeuvring spaces will be constructed to the *AS2890.1* standards.	Not Applicable	Not Applicable
C2.3.4 – Visitor parking in accordance with Table 2.3a Visitor carparking 0-4 dwellings: No visitor car parking required 5-8 dwellings: 1 9-12 dwellings: 2 13 or more dwellings: 3, plus 1 additional space per four dwellings or part thereof	☐	☒	☐	Given the proposal relates to 9 grouped dwellings there is a requirement for 2 visitor bays.	The proposal does not include any visitor parking.	Although the proposal does not provide the two on-site visitor parking bays required under the deemed-to-comply provisions, the intent of Design Principle P2.3.1 is satisfied. Each dwelling provides two on-site private parking bays, which is at the upper end of the permitted range (minimum one bay, maximum two bays per dwelling). This exceeds the minimum occupant parking requirement and provides flexibility for residents with lower vehicle ownership. It is also reasonable to comment that some occupants may have only one vehicle, allowing the second private bay to function informally as visitor parking, thereby reducing demand for dedicated on-site visitor bays. The absence of dedicated visitor parking enables a more efficient use of the site, avoiding additional hardstand areas,	The proposed development satisfies the design principles.

						reducing the extent of paving and vehicle manoeuvring areas, and allowing the development to present a less car-dominated built form. This outcome supports a higher quality streetscape response. In addition, there are nine existing on-street parking bays located in close proximity to the site, which are available for shared use by visitors and are currently relied upon by surrounding developments. The availability of this on-street parking provides a practical and convenient alternative to on-site visitor bays and reflects the established parking pattern within the locality.	
C2.3.5 – Design and location of visitor parking				Visitor car parking to be: Marked and clearly signposted as dedicated for visitor use only; Located on common property; and Connected to building entries via a continuous path of travel.	Not Applicable as visitor parking is not provided.	Not Applicable	Not Applicable
C2.3.6 – Bicycle parking in accordance with Table 2.3b **Minimum number of bicycle spaces** Occupant bicycle parking: Single houses: No minimum requirement; Grouped dwellings: No minimum requirement; Multiple dwellings: 0.5 x the total number of dwellings Visitor bicycle parking: 0-9 dwellings: No visitor bicycle parking required; 10 or more dwellings: No visitor bicycle parking required; 0.1 x the total number of dwellings *Where the bicycle parking calculation results in a fraction of a space, the requirement is to be rounded up to the nearest whole number.*	☐	☐	☒	Refer to Table 2.3b	The proposed development is a grouped dwelling application and does not require any bicycle parking.	Not Applicable	Not Applicable It is worth noting that the development does propose large double garages and storerooms within the basement which could be utilised for bicycle storage despite there not being a requirement for bicycle parking.

2.4 WASTE MANAGEMENT

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.4.1 – Space for bin storage A dedicated and accessible space is provided to accommodate the required number and type of waste storage bins for the development, in line with requirements of the local government and separate from any waste storage areas associated with the non-residential component of a mixed use development	☒	☐	☐	Refer to text under the Deemed-to-Comply provision.	All dwellings include an appropriately screened bin storage area to accommodate 1x 140L and 2x 240L bins.	Not Applicable	Not Applicable
C2.4.2 – Waste management plan (multiple dwellings or 5+ grouped dwellings)	☒	☐	☐	A waste management plan is to be provided as part of the development application given that the application seeks approval for 9 grouped dwellings.	A Waste Management Plan has been prepared to accompany this application.	Not Applicable	Not Applicable
C2.4.3 – Screening of waste storage	☒	☐	☐	Waste storage bins are screened from view from communal areas, the street, public open space, and other areas accessible to the public.	The proposed waste storage areas are located within a screened enclosure and screened from the streetscape.	Not Applicable	Not Applicable

C2.4.4 – Communal waste storage area requirements	☐	☐	☒	Not Applicable	The development does not propose any communal waste storage areas.	Not Applicable	Not Applicable

2.5 UTILITIES

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.5.1 – Service utilities	☒	☐	☐	Service utilities are designed and located such that they: i)are accessible and can be safely maintained; ii)maintain clear sightlines for vehicle access; and iii)integrated into the design of the development and/or screened from view of the street.	Service utilities are appropriately screened and accessible. These services are located outside of the street setback area and are not visually intrusive.	Not Applicable	Not Applicable
C2.5.2 – Functional utilities	☒	☐	☐	i)Are located behind the primary street setback and not visible from the primary street; ii) Are designed to integrate with the development; and iii) Are located and/or screened so that they are not visually obtrusive and minimise the impact of noise sources to habitable rooms and private open space both in the development and adjoining properties.	Functional utilities are appropriately screened and accessible. These services are located outside of the street setback area and are not visually intrusive.	Not Applicable	Not Applicable
C2.5.3 – Solar collectors (where provided)	☒	☐	☐	Are located on the roof or other parts of buildings and prioritise functional performance.	Solar collectors are provided on the roof plan.	Not Applicable	Not Applicable

2.6 OUTBUILDINGS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.6.1 – Requirements for outbuildings	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.6.2 – Additional outbuilding standards where designed to be compatible with the colour and materials of the dwelling	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.7 UNIVERSAL DESIGN

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.7.1 – 20% of dwellings to achieve silver level universal design (10 + grouped or multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C2.7.2 – Gold level universal design requirements where seeking to apply site area variation in Part D, C1.1.6 or C1.1.7	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.8 ANCILLARY DWELLINGS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C2.8.1 – Ancillary dwelling requirements	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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3.0 NEIGHBOURLINESS

3.1 SITE COVER

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.1.1 – Site cover in accordance with Table 3.1a *(For single house and grouped dwelling development, refer section 5, C5.1 until 10 April 2026)*	☐	☐	☒	Site cover is varied via Schedule 13 of the Town's LPS3. The site cover requirements of the R-Codes are therefore not applicable.	Refer to Schedule 13 of LPS Assessment above.	Not Applicable	Not Applicable

3.2 BUILDING HEIGHT

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.2.1 – Building height in accordance with Table 3.2a	☐	☐	☒	Building height is varied via Schedule 13 of the Town's LPS3. The building height requirements of the R-Codes are therefore not applicable.	Refer to Schedule 13 of LPS Assessment above.	Not Applicable	Not Applicable

3.3 STREET SETBACKS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.3.1 – Setback of buildings in accordance with Table 3.3a	☐	☐	☒	Setbacks are varied via Schedule 13 of the Town's LPS3. The setback requirements of the R-Codes are therefore not applicable to this application.	Refer to Schedule 13 of LPS Assessment above.	Not Applicable	Not Applicable
C3.3.2 – Porch, verandah, balcony projections into the street setback area	☐	☐	☒			Not Applicable	Not Applicable
C3.3.3 – Setback from corner truncations	☐	☐	☒			Not Applicable	Not Applicable
C3.3.4 – Garages setback from primary street in accordance with Table 3.3b	☐	☐	☒			Not Applicable	Not Applicable
C3.3.5 – Setback of carports from a primary street	☐	☐	☒			Not Applicable	Not Applicable
C3.3.6 – Setback of garages and carports from a secondary street, right-of way and communal street in accordance with Table 3.3a	☐	☐	☒			Not Applicable	Not Applicable

3.4 LOT BOUNDARY SETBACKS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.4.1 – Buildings set back from lot boundaries in accordance with Table 3.4a	☐	☐	☒	Setbacks are varied via Schedule 13 of the Town's LPS3. The setback requirements of the R-Codes are therefore not applicable to this application.	Refer to Schedule 13 of LPS Assessment above.	Not Applicable	Not Applicable
C3.4.2 – Maximum length for two storey walls	☐	☐	☒			Not Applicable	Not Applicable
C3.4.3 – Setback of carports, patios, verandahs or equivalent structure	☐	☐	☒			Not Applicable	Not Applicable
C3.4.4 – Maximum height and length of boundary walls in accordance with Table 3.4b	☐	☐	☒			Not Applicable	Not Applicable
C3.4.5 – Boundary wall abutting an existing or simultaneously constructed wall	☐	☐	☒			Not Applicable	Not Applicable
C3.4.6 – Grouped dwellings on the same lot set back as if there is a boundary between them	☐	☐	☒			Not Applicable	Not Applicable
C3.4.7 – Multiple dwelling buildings on the same lot set back as though there is a lot boundary	☐	☐	☒			Not Applicable	Not Applicable

3.5 SITE WORKS AND RETAINING WALLS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.5.1 – Retaining walls, fill and excavation in the street setback area max 0.5m, except where necessary to provide for pedestrian universal access and/or vehicle access, drainage works, or natural light to a dwelling	☒	☐	☐	0.5m of fill and excavation in the street setback area.	0.15 - 0.244 of excavation and fill is proposed within the front setback.	Not Applicable	Not Applicable
C3.5.2 - Retaining walls and fill behind the street setback in accordance Table 3.5a	☒	☐	☐	Refer to the table under the deemed-to-comply column.	The proposed development proposes retaining up to 1m for the planter boxes. Some of these planter boxes have a nil setback which comply with the setback requirements for Table 3.5a.	Not Applicable	Not Applicable

<table><tr><th>Height of retaining walls and fill [1] *As measured from natural ground level*</th><th>Setback required</th></tr><tr><td>**1m or less**</td><td>0m</td></tr><tr><td>**1.5m**</td><td>1.5m</td></tr><tr><td>**2m**</td><td>2m</td></tr><tr><td>**2.5m**</td><td>2.5m</td></tr><tr><td>**3m +**</td><td>3m</td></tr><tr><td colspan="2">[1] *Take the nearest higher value for all **height** calculations.* *Measurement of the **height** of **site** works or retaining **walls** for the purpose of calculating **Table 3.5a setback** is to be taken from the **natural ground level** at the **lot boundary** adjacent to that point of the site works or retaining wall.* *The relevant provisions of 3.9 Solar access for adjoining sites and 3.10 Visual privacy apply.*</td></tr></table>							
C3.5.3 – Excavation within the site is permitted behind the street setback line and may be constructed up to the lot boundary.	☒	☐	☐	Excavation within the site is permitted behind the street setback line and may be constructed up to the lot boundary.	Excavation within the site complies with this provision.	Not Applicable	Not Applicable

3.6 STREETSCAPE

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.6.1 – Single houses and grouped dwellings address the street	☒	☐	☐	The primary entrance to each dwelling must be readily identifiable from the street; and Provide at least one major opening on the dwelling frontage.	All dwellings have a legible primary entrance and have at least one major opening to the street.	Not Applicable	Not Applicable
C3.6.2 – Multiple dwelling upper-level balconies address the street	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.6.3 – Front door protection from the weather	☒	☐	☐	Front doors to be protected from the weather with a minimum dimension of 1.2m	The proposed front door entries provide an architectural feature that comprises a length of 2m and a width of 1m.	Not Applicable	Not Applicable
C3.6.4 – Ground floor multiple dwellings access to the street	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.6.5 – Maximum garage door width	☐	☐	☒	A garage door and its supporting structures (or a garage wall where a garage is aligned parallel to the street) facing the primary street is not to occupy more than 50 per cent of the frontage at the setback line as viewed from the street.	The proposed garage doors are located in the basement and are not accessible from the street. The proposed basement gate has a proposed width of 3m.	Not Applicable	Not Applicable
C3.6.6 – Maximum carport width	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.6.7 – Fence or wall within the primary street setback area requirements	☐	☒	☐	i) A maximum height of 1.8m; and ii) Visually permeable above 1.2m	The proposed front fence has a height of 1.77m and is visually permeable from 0.6m in height. A portion of the front fence is proposed to be a solid fence for the entire 1.8m.	The proposal has been assessed against Design Principle P3.6.5. As illustrated in the elevations, the fencing to the primary street is not a continuous blank wall but is visually articulated through changes in alignment, integrated pedestrian gates, varied materials and landscaping within the front setback. This articulation reduces visual bulk and contributes positively to the streetscape. While the fence is solid, passive surveillance of the street is maintained through the orientation of dwelling entries and habitable room windows addressing both street frontages. The solid fence height provides an appropriate balance between surveillance and the need for privacy and acoustic buffering to ground-level private open space, particularly given the dual street exposure. On balance, the proposed fencing achieves the intent of Design Principle P3.6.5 by	The variation satisfies the design principle.

						providing a visually managed street interface that supports residential amenity while maintaining a safe and orderly streetscape outcome.	
C3.6.8 – Pillars as part of street fence/wall	☐	☐	☒	Solid pillars that form part of front fences or walls are not more than 1.8m above natural ground level, provided the horizontal dimension of the pillars is not greater than 450mm by 450mm and pillars are separated by visually permeable fencing.	The application does not include any pillars as part of street fencing and walls.	Not Applicable	Not Applicable
C3.6.9 – Secondary Street fencing for corner sites	☐	☒	☐	For sites on street corners, street fences or walls within the secondary street setback area are to be designed in accordance with C3.6.7 and C3.6.8 for a minimum 50 per cent of the street boundary behind the primary street setback	The proposed secondary fence is proposed as a solid wall up to 1.8m in height.	The proposed 1.8 -metre-high solid wall along the secondary street frontage directly abuts ground-level outdoor living areas and does not meet the deemed-to-comply requirement for visual permeability above 1.2 metres. The development has therefore been assessed against Design Principle P3.6.5. The secondary street wall is not a continuous or visually dominant blank structure. It incorporates articulated changes in height and alignment, integrated pedestrian access, and soft landscaping along the street interface. This treatment breaks up the built form, softens the appearance of the wall, and provides visual interest within the streetscape, reducing perceived bulk and scale when viewed from the public realm. The solid wall is considered appropriate in this location as it provides a necessary level of privacy and acoustic protection to outdoor living areas that directly interface with the secondary street. Requiring visual permeability in this circumstance would compromise the usability and amenity of these spaces by exposing them to overlooking, pedestrian activity and traffic noise. The wall therefore enables the effective and reasonable use of private open space, consistent with good residential design outcomes. Passive surveillance of the secondary street is maintained through the orientation of dwelling entries and habitable room windows addressing the street, ensuring a safe and legible interface despite the solid wall form. On balance, the proposed secondary street wall achieves the intent of Design Principle P3.6.5 by appropriately balancing passive surveillance with privacy, acoustic performance and residential amenity, while delivering a well-articulated and visually responsive streetscape outcome.	The variation satisfies the design principle.

3.7 ACCESS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.7.1 – Vehicle access hierarchy	☒	☐	☐	Vehicle access to on site car parking spaces to be provided via the lowest available street in the hierarchy as follows: i. where available, from a right-of-way or communal street available for lawful use to access the relevant site and which is trafficable and drained from the property boundary to a constructed street; or ii. from the secondary street or primary street where no right-of-way or communal street exists.	Vehicle access is proposed off the primary street with this being Saint Peters Road. A communal street provides internal access to each allotment with access to this street provided from Saint Peters Road.	Not Applicable	Not Applicable
C3.7.2 – One vehicle access per lot	☒	☐	☐	Vehicle access points are limited to one per lot except where: An existing dwelling is being retained that has an established access point that is not able to serve the other dwellings. Dwellings front the street and access is not available from a communal street or rear right-of-way, whereby a maximum of one vehicle access point is permitted per dwelling; or the lot frontage exceeds 40m, two vehicle access points are permitted.	Each dwelling has one vehicle access point with this occurring to the common property road.	Not Applicable	Not Applicable
C3.7.3 – Driveway dimension requirements	☒	☐	☐	i. a minimum 3m wide; ii. a maximum 6m wide at the street boundary; iii. set back 0.3m from a side lot boundary or street pole; iv. set back 6m to a street corner v. aligned at right angles to the road carriageway; and vi. adequately trafficable and drained.	The proposed driveway has a width of 3.7m - 4m and is setback 0.38m from the lot boundary. The driveway is setback greater than 6m from a street corner and is aligned at a right angle to the carriageway. The driveway will be trafficable and drained.	Not Applicable	An appropriate condition can be applied to the determination regarding trafficability and drainage.
C3.7.4 – Driveways that allow vehicles to exit in forward gear	☒	☐	☐	Where the driveway serves five or more dwellings.	Vehicles are capable of entering and exit in a forward gear. Access to the driveway is gated and will only be utilised by residents.	Not Applicable	Not Applicable
C3.7.5 – Driveway allow passing (when 30m+)	☒	☐	☐	Passing points are to be provided at least every 30m with driveways to be minimum 5.5m wide for a minimum 6.3m length (excluding manoeuvring tapers)	The proposed common property includes a waiting bay on the car ramp with the driveway having a 6.3m dimension at this point.	Not Applicable	Not Applicable
C3.7.6 – Driveways onto primary distributor or integrator arterial roads	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.7.7 - Sightlines	☐	☐	☒	Walls, fences and other structures truncated or	There are no proposed walls and fences where the driveway intersects St Peters Road.	Not Applicable	Not Applicable

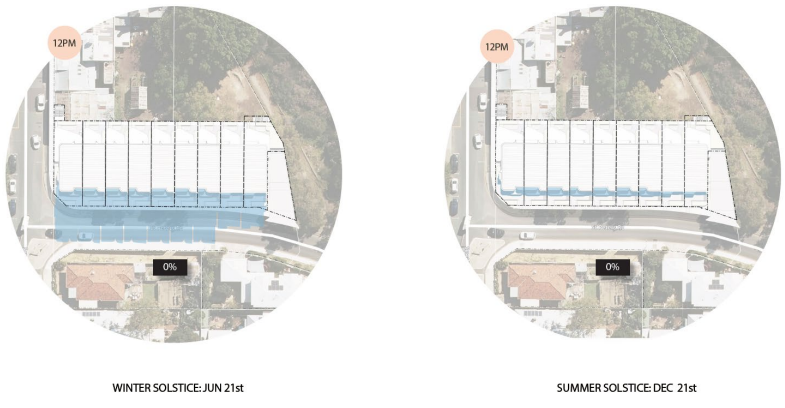
				reduced to no higher than 0.75m within 1.5m of where walls, fences, or other structures adjoin: i. a driveway that intersects a street, right-of-way or communal street; ii. a right-of-way or communal street that intersects a public street; and iii. two streets that intersect.			
C3.7.8 – Pedestrian access (grouped and multiple dwellings)	☒	☐	☐	For grouped and multiple dwellings, a legible, well defined, continuous path of travel is provided from the public footpath and car parking areas to building access areas such as lift lobbies, stairs, accessways and individual dwelling entries.	The proposed development does not include lifts with car parking areas being secure and only accessible to residents of the dwellings. Pedestrian entries to the proposed dwellings are legible and well connected.	Not Applicable	Not Applicable
C3.7.9 – Delineated or separate pedestrian access (10+ grouped and multiple dwellings)	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.7.10 – Pedestrian access legs	☐	☐	☒	Where a pedestrian access leg is required to provide access from a dwelling site to a public street, it is to: i. be a minimum width of 1.5m; and ii. provide a continuous path of travel with a minimum width of 1m, clear of any utilities or minor projections.	No pedestrian access legs are proposed as part of this application.	Not Applicable	Not Applicable
C3.7.11 – Communal street or battleaxe leg requirements	☒	☐	☐	A communal street or battleaxe leg is to be a minimum width of 3.6m, inclusive of a minimum: i. 3m wide driveway in accordance with C3.7.3; and ii. 0.3m setback either side of the driveway.	The proposed communal street/common property has a width of 6.3m. The common property includes a 0.3m setback from either side of the driveway.	Not Applicable	Not Applicable
C3.7.12 – Lighting and landscaping of communal streets or battleaxe legs	☒	☐	☐	A communal street or battleaxe leg, including any adjoining setbacks, is provided with adequate lighting and be landscaped in accordance with C1.2.3.	The communal street can be appropriately lit. The communal street includes a portion of landscaping along the western boundary	Not Applicable	An appropriate condition can be applied regarding lighting.
C3.7.13 – Notwithstanding C3.7.11, communal streets to 20 or more lots requirements	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

3.8 RETAINING EXISTING DWELLINGS

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.8.1 – Requirements where a dwelling is retained	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

3.9 SOLAR ACCESS FOR ADJOINING SITES

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.9.1 – Maximum overshadowing in accordance with Table 3.9a	☒	☐	☐	The neighbouring properties have a residential density of R25 (25%	The proposed town houses do not overshadow any adjoining properties given that the site is bound by two road reservations	Not Applicable	Not Applicable

<table><tr><th rowspan="2">Adjoining property R-Coding</th><th colspan="2">Maximum overshadowing</th></tr><tr><th>Adjoining property (percentage of dwelling site area)[1]</th><th>Diagonally adjacent lots (percentage of dwelling site area)[1]</th></tr><tr><td>R25 and lower</td><td>25%</td><td>12.5%</td></tr><tr><td>R30 – R40</td><td>35%</td><td>17.5%</td></tr><tr><td>R50 or higher</td><td>50%</td><td>25%</td></tr></table> *For the purpose of calculating overshadowing, **site area** refers to the area of the ground surface and is measured without regard to any **building** on it, but taking into account its **natural ground levels**.* *Dividing fences up to 2m in height do not contribute to overshadowing calculations.* *[1]Where proposed **development** adjoins a **grouped dwelling** development, the maximum overshadowing requirement is to be applied for each grouped dwelling **site area** and excludes portions of **common property** (refer **Figure 3.9.c**)*				maximum and 12.5% for diagonally adjacent lots).			
C3.9.2 – Maximum overshadowing where R40 or greater and has a lot frontage of 7.5m or less	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.9.3 – Maximum overshadowing requirements where the adjoining property shares a northern lot boundary with more than one lot	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

3.10 VISUAL PRIVACY

DEEMED-TO-COMPLY	MEETS DEEMED-TO-COMPLY	ADDRESSES DESIGN PRINCIPLE	NOT APPLICABLE	DEEMED-TO-COMPLY REQUIREMENT	PROVIDED	DESIGN PRINCIPLE (IF APPLIED)	CONDITION OF APPROVAL (IF APPLIED)
C3.10.1 – Visual privacy requirements where adjoining a developed site <table><tr><th rowspan="2">Type of habitable room/ active habitable space *(with a floor level of more than 0.5m above natural ground level)*</th><th colspan="2">Cone of vision radius</th></tr><tr><th>Areas coded R50 or lower</th><th>Areas coded higher than R50</th></tr><tr><td>Major opening from bedroom and study</td><td>4.5m</td><td>3m</td></tr><tr><td>Major opening from habitable room other than bedroom and study</td><td>6m</td><td>4.5m</td></tr><tr><td>Outdoor active habitable space</td><td>7.5m</td><td>6m</td></tr></table>	☒	☐	☐	Refer to the table under the Deemed-to-Comply provisions.	The eastern, southern and western boundaries of the site are road reservations and not subject to visual privacy requirements.	Not Applicable	Not Applicable
C3.10.2 – Notwithstanding C3.10.1, Visual privacy design solutions	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.10.3 – Offsetting of bedroom and study windows	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.10.4 – Overlooking for grouped or multiple dwellings within a lot	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable
C3.10.5 – Visual privacy where adjoining a vacant or unknown site	☒	☐	☐	Where an adjoining property is vacant residential zoned land, or when the location of a major opening or an active habitable space is unknown, all sources of overlooking are oriented, offset or set back in accordance with Table 3.10a so that the cone of vision does not extend beyond the lot boundaries.	All dwellings are setback 6.4m from the northern boundary which is subject to future development. Given that there are no outdoor active habitable spaces on the first and second floor, the proposal is consistent with the visual privacy requirements of C3.10.1.	Not Applicable	Not Applicable
C3.10.6 – Notwithstanding C3.10.5, visual privacy design solutions where adjoining a vacant or unknown site	☐	☐	☒	Not Applicable	Not Applicable	Not Applicable	Not Applicable

EMERGEN

SUSTAINABLE DESIGN ASSESSMENT REPORT

PROPOSED TOWNHOUSES

91-93 CANNING HIGHWAY, EAST FREMANTLE – STAGE 1

PREPARED BY

CLAIRE CHAPMAN

Project: 132565

Published Date: 9/03/2026

EMERGEN

DOCUMENT REVISION

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16/12/2025	Schematic Design	Claire Chapman	Claire Chapman	Glenn Underwood	B
6/02/2026	Schematic Design	Claire Chapman	Glenn Underwood	Glenn Underwood	C
9/03/2026	Schematic Design	Claire Chapman	Glenn Underwood	Glenn Underwood	D

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The contents of this report are based on the documentation and plans provided by the Client to EMERGEN/CADDS Group. The outcomes presented are representative of schematic systems, schedules, and project design. These results should not be considered as actual energy usage.

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CONTENTS

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1 OVERVIEW

EMERGEN has developed a sustainable design report on the proposed townhouse development at 91-93 Canning Highway, East Fremantle in consultation with RAD Architecture.

The purpose of this report is to support the development application by identifying the principles incorporated in the design that meet sustainable objectives and targets for the site. The initial assessment is based on preliminary documentation with the outcomes subject to change during design development.

1.1 STATE PLANNING POLICY SUMMARY

EMERGEN (a division of CADDS GROUP), in collaboration with the design team (RAD Architecture) has developed a sustainable design strategy aligning with ***State Planning Policy 7.0,*** which focuses on the Design of the Built Environment - specifically, Principle 5: Sustainability.

This report serves the vital purpose of bolstering the development application by articulating the sustainability principles and commitments for the project site. We acknowledge the significance of State Planning Policy 7.0 in promoting sustainability within the built environment. Good design, as outlined in the policy, is not only about aesthetics but also optimises the sustainability of our built surroundings, yielding positive outcomes on environmental, social, and economic fronts.

Our approach to sustainable landscape and urban design adheres closely to the established water-sensitive urban design principles, ensuring minimal adverse impacts on existing natural features and ecological processes while promoting green infrastructure at all scales of the project. Furthermore, our strategy for sustainable built environments embraces passive environmental design measures tailored to local climate and site conditions. This includes careful consideration of optimal orientation, shading, building envelope, and natural ventilation, ultimately reducing reliance on energy-intensive heating and cooling technologies. This, in turn, results in reduced energy consumption, decreased resource usage, and lowered operating costs throughout the project's lifecycle.

2 TARGETS

The design team will utilise a structured approach to a sustainable outcome for the design and construction of the development including the following Sustainable Targets.

Table 1: Sustainability Targets

DESCRIPTION	GOAL	SUSTAINABILITY COMMITMENTS
STRUCTURE DESIGN EFFICIENCY	Integrate passive solar design principles into optimising solar access in winter and shading in summer.	• Enhance solar passive performance by incorporating shading devices on north and west-facing windows to reduce summer heat gain and improve visual interest. • Above **60%** of the combined living and bedroom area of each unit have high level of daylight (above 160 Lux). • Building orientation and design to maximise natural ventilation and promote cooling opportunities • External shading devices to minimise heat gains • Building form and orientation to maximise natural daylighting
ENERGY EFFICIENCY	Enhance energy performance by reducing consumption through efficient design and the use of renewable and low-energy systems.	• Efficient LED Lighting. • Provision for future solar photovoltaic (PV) system to supply renewable energy. • All units meet the minimum NatHERS energy efficiency requirement of **7 stars for sole occupancy**, based on the NCC 2022.
WATER EFFICIENCY	Water efficient fixtures and Landscaping.	• High WELS Ratings • Water sensitive urban design, drip irrigation.
URBAN ECOLOGY	Reduce impacts of heat island effect	• Light roof colour (SRI ≥ 0.64). • Incorporate vegetation and green spaces around the building to provide shading and reduce surrounding air temperatures. • Landscaping plant selections are water-wise species
SUSTAINABLE TRANSPORT/ ACCESSABILITY	Low carbon options	• Provision for secure bicycle storage area. • Access to public transport
INDOOR ENVIRONMENT QUALITY	Enhance indoor air quality	• Natural ventilation to all townhouses. • Low VOC and Low Formaldehyde products to be used. • Minimum 95% of internally applied paints, adhesives, sealants (by volume), and carpets (by area) must meet TVOC limits.

3 PROJECT INFORMATION

The proposed residential development site is located at 91-93 Canning Highway, East Fremantle within the Town of East Fremantle. This project aims to revitalize a semi vacant and dilapidated site through the construction of 7, 4-storey and 2, 3-story townhouses as part of stage 1. A future stage will include a mixed use, multi-residential and commercial building. Stage 1 aims to contribute positively to the local streetscape by delivering contemporary, high-quality, and sustainable housing that respects and complements the suburb's medium-density residential zoning.

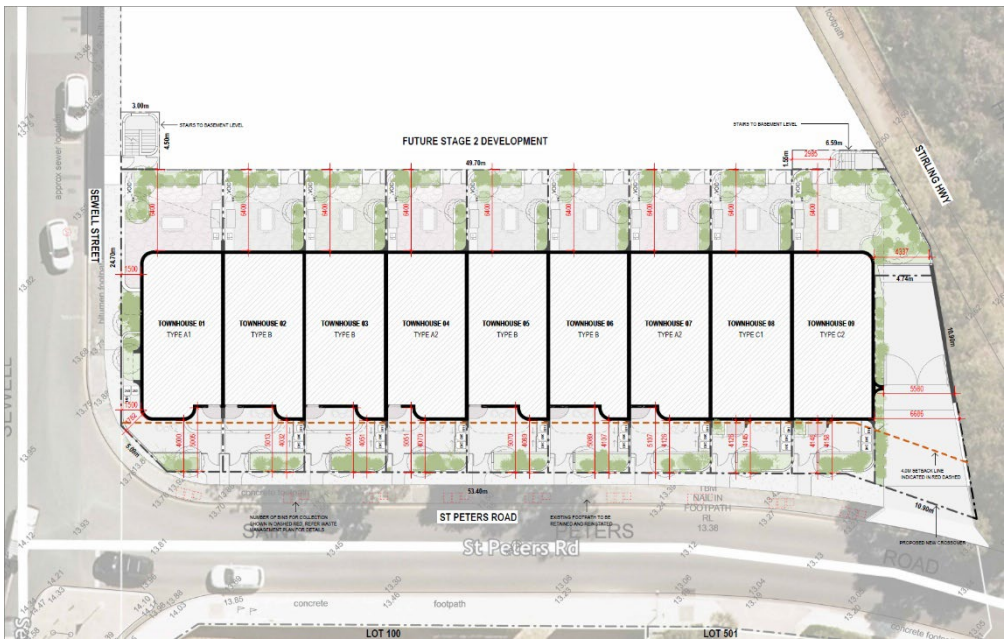

Figure 1: Existing Site Image/Proposed Development

4 STRUCTURE DESIGN EFFICIENCY

4.1 SOLAR PASSIVE DESIGN

Solar Passive design principles have been carefully integrated into the proposed development to enhance energy efficiency and occupant comfort. While the east- and west-facing glazing is less ideal for solar gain control, the design incorporates effective shading strategies to mitigate heat during the summer months, while still preserving views and maintaining a strong connection to the surrounding natural environment. Emergen has conducted a Solar Analysis to review efficiency of proposed shading design.

4.1.1 SOLAR ANALYSIS

The architectural design incorporates several strategies to reduce unwanted heat gain from the north and west - critical for Climate Zone 5 conditions where afternoon solar exposure is significant.

Key measures include:

- Horizontal shading to north-facing glazing, blocking high-angle summer sun while allowing beneficial winter light.
- Limited use of dark cladding, with the façade predominantly finished in light, reflective materials, helping lower absorbed solar radiation.
- High-SRI roof covering, minimising heat absorption at the roof - the most solar-exposed surface.

Together, these elements reduce mechanical cooling demand, improve occupant comfort, and align with NCC 2022 thermal performance expectations.

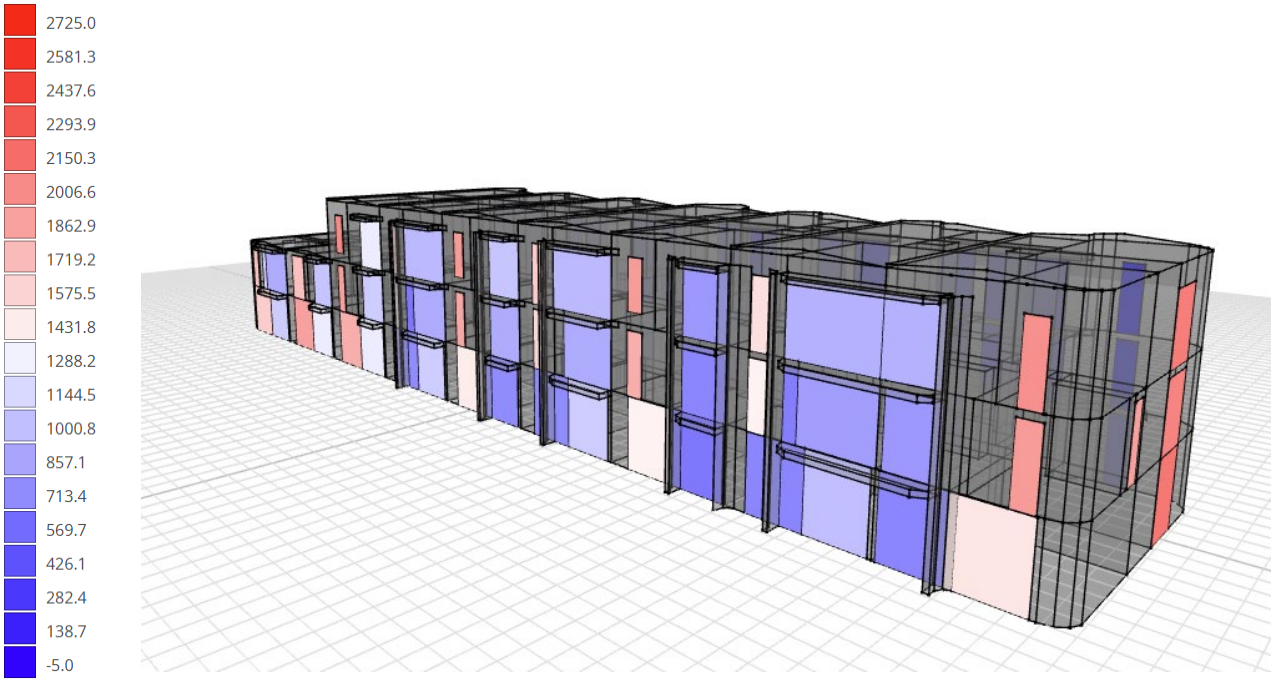

Figure 2: Solar Analysis showing the direct solar radiation MJ/m2 to the North and West Facade

Direct Solar (mean) W/m²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12 AM	0	0	0	0	0	0	0	0	0	0	0	0
11 PM	0	0	0	0	0	0	0	0	0	0	0	0
10 PM	0	0	0	0	0	0	0	0	0	0	0	0
9 PM	0	0	0	0	0	0	0	0	0	0	0	0
8 PM	0	0	0	0	0	0	0	0	0	0	0	0
7 PM	584	366	0	0	0	0	0	0	0	0	53	545
6 PM	751	625	559	111	0	0	0	0	269	465	557	723
5 PM	852	698	669	461	401	328	375	393	463	590	677	822
4 PM	901	752	725	543	494	404	453	461	536	663	737	880
3 PM	920	793	765	613	565	468	507	495	547	720	769	905
2 PM	928	815	799	661	625	513	534	510	549	743	790	907
1 PM	906	821	790	670	638	527	536	539	567	746	780	906
12 PM	875	822	756	655	597	497	506	549	573	728	756	891
11 AM	842	803	723	609	536	441	442	493	549	695	741	857
10 AM	797	751	661	517	442	365	355	410	496	667	713	802
9 AM	723	658	549	372	316	169	178	315	405	600	650	717
8 AM	584	489	297	139	0	0	0	34	222	474	553	592
7 AM	248	54	0	0	0	0	0	0	0	159	351	393
6 AM	0	0	0	0	0	0	0	0	0	0	0	0
5 AM	0	0	0	0	0	0	0	0	0	0	0	0
4 AM	0	0	0	0	0	0	0	0	0	0	0	0
3 AM	0	0	0	0	0	0	0	0	0	0	0	0
2 AM	0	0	0	0	0	0	0	0	0	0	0	0
1 AM	0	0	0	0	0	0	0	0	0	0	0	0

Location
East.Fremantle, WA, AUS

Coordinates
32.05° S / 115.77° E

Weather File
AUS_WA_East.Fremantle.956050_TMYx

Figure 3: Average Direct Solar (W/m2)

Figure 3 displays average direct solar radiation by hour and month. It highlights peak solar loads from 7 PM–7 AM, especially in summer and early autumn, with the strongest heat on west-facing surfaces in the afternoon.

4.2 DAYLIGHTING

The proposed development has been designed to optimise natural daylight, improving occupant comfort and reducing reliance on artificial lighting.

To evaluate the effectiveness of these strategies, a detailed daylight assessment was undertaken using Green Star Buildings Credit 11 – Light Quality as the performance benchmark. Under this framework, high daylight levels are defined as at least 160 lux from daylight for 80% of occupied hours, with compliance achieved when 60% of the combined assessed areas meet this target. This methodology provides a recognised standard for assessing internal daylight performance.

The results confirm that all of the townhouses achieve adequate daylight, exceeding the 60% compliance threshold and demonstrating the success of the proposed daylighting strategies. Figure 5 to Figure 7 illustrate the distribution of daylight across the building, while Table 3 summarises compliance by floor.

Figure 4: Daylighting Model in BetterBuilding (Speckel)

Table 2: Calculation Conditions - Daylight

CALCULATION CONDITIONS	
TEST FACTOR	Daylight Autonomy
SKY FACTOR	CIE Overcast Sky
DATE	Annual 21st 12:00pm

Table 3: Daylighting Results for Sole Occupancy Units

LEVEL	PROPOSE USAGE	NOMINATED AREA (m^2)	COMPLIANT AREA (m^2)	COMPLIANCE (%)
G	Living	335.96	326.69	96.75
1	Bedrooms	203.82	203.82	100
1	Living	140.1	136.05	95.95
2	Bedrooms	125.95	125.95	100.00
2	Living	127.46	126.74	96.32

Based on the results above, the proposed development meets the required daylight percentage, enhancing occupant comfort, well-being, and productivity. Additionally, by reducing reliance on artificial lighting, it contributes to lower energy consumption and a reduced environmental impact.

Showing the area above the threshold value of 160 lux to bedrooms and habitable spaces:

Figure 5: Daylighting for Ground Floor

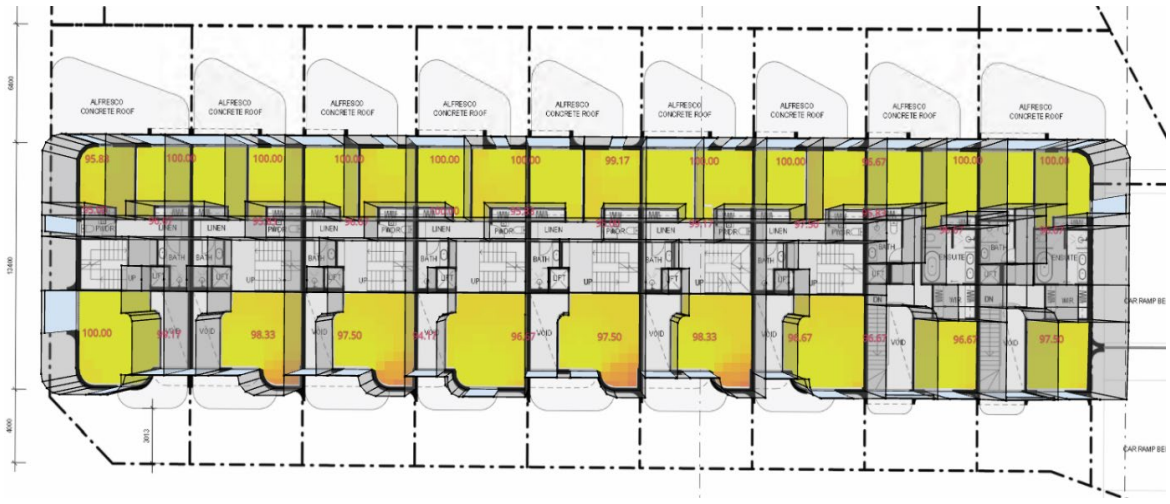

Figure 6: Daylighting for First Floor

Figure 7: Daylighting for First Floor

5 PASSIVE DESIGN

5.1 NATURAL VENTILATION

The natural ventilation strategy has been informed by the Built Environment Sustainability Scorecard (BESS), a recognised best-practice guidance tool commonly used to demonstrate effective ventilation outcomes at the planning stage.

- In townhouses, Cross ventilation can be designed for rooms or for an entire unit. Accordingly, cross ventilation principles are applied. BESS guidance for cross ventilation recommends that: The length of the breeze path should be a maximum of 15 metres; Ventilation openings should be at least 1m^2 or 2% of the floor area in size; Ventilation openings on adjacent walls should be at least 3 metres apart; There should not be more than 1 doorway or opening between ventilation openings.

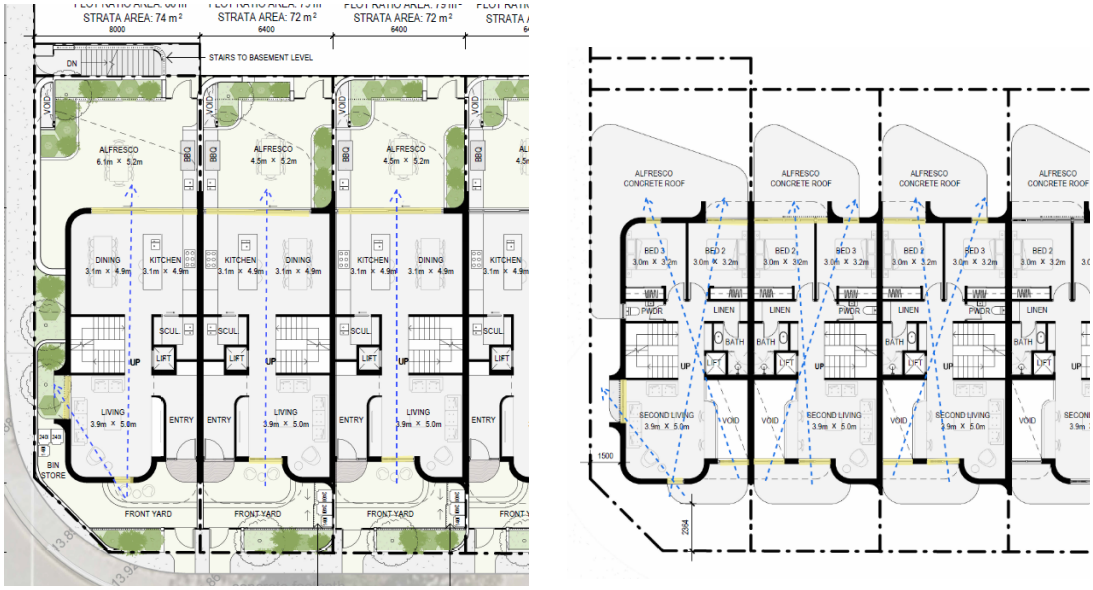

Figure 8 - GF and FF - Cross ventilation strategy

6 ENERGY EFFICIENCY

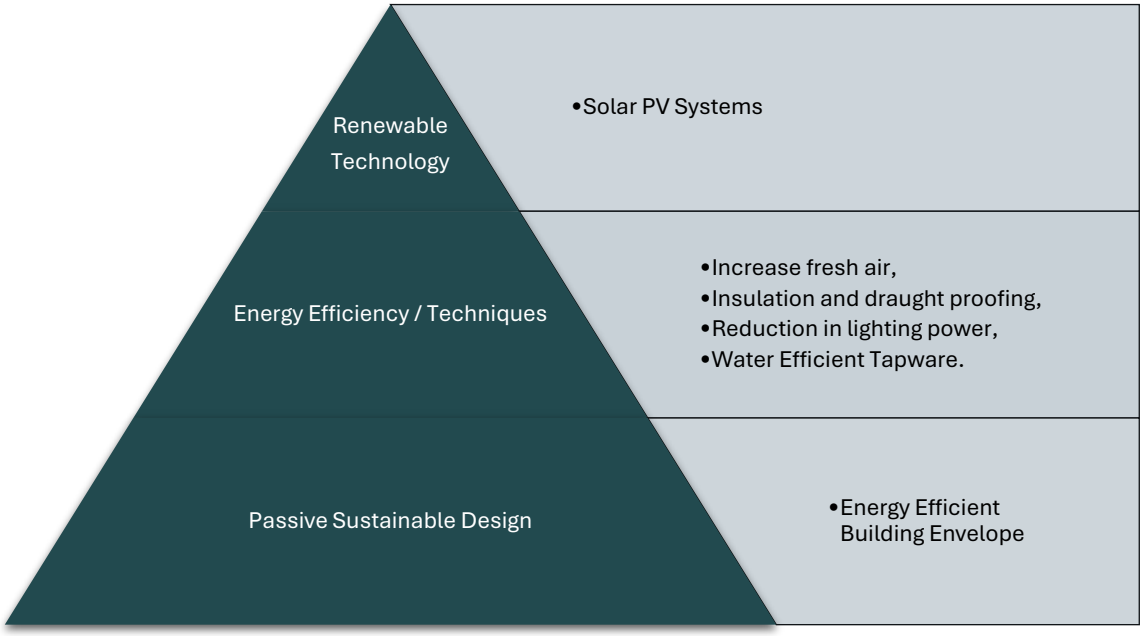

Figure 9: Energy Reduction Strategy

6.1 LIGHTING COMFORT

Lighting within the building must meet the following criteria:

- All lighting must be flicker-free.
- Light sources must have a minimum Colour Rendering Index (CRI) average R1 to R8 of 85 or higher and have a CRI R9 of 50 or higher.
- Light sources must meet best practice illuminance levels for each task within each space type with a maintained illuminance that meets the levels recommended in AS/NZS 1680.1:2006 series applicable to the project type and including maintenance.
- The maintained Illuminance values must achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006, with a maintenance factor method as defined in AS/NZS 1680.4.; and
- All light sources must have a minimum of 3 MacAdam Ellipses.
- The walls within the field of view of occupants in regularly occupied spaces must have an average surface reflectance value of 0.70 and an average surface illuminance of at least 50% of the horizontal illuminance levels required for task.
- Vertical illuminance in workspaces: ensure that 50% of the horizontal task illuminance reaches the average eye height for 90% of primary spaces using vertical illuminance calculation grid.
- The illuminance values must be calculated in accordance with AS/NZS 1680 series for the relevant task.

6.2 EFFICIENT LIGHTING AND CONTROLS

The installed aggregate illumination power has been designed to be **20%** below the maximum illumination power based on maximum allowable lighting power densities defined in Table J7D3a of the NCC 2022. Motion Detectors and daylight sensors are provided to reduce demand.

Table 4: Lighting Characteristics

PARAMETER	PROPOSED BUILDING	REFERENCE BUILDING
LIGHTING TYPE	LED light fittings	LED light fittings
DESIGN ILLUMINANCE (LUX)	Various lux	Various lux
NOMINAL LIGHTING POWER DENSITY (W/M^2)	**20%** less compared to NCC max requirements.	As per NCC max requirements.
OCCUPANT SENSOR CONTROLS	Motion sensors	N/A
DAYLIGHT CONTROLS	Yes	N/A
OTHER LIGHTING CONTROLS	Timer switches	N/A
ADJUSTMENT FACTOR APPLIED	0.9 – Motion sensor 1 0.7 – Motion sensor 2 0.55 – Motion sensor 3	Room Aspect Ratio

6.3 ARTIFICIAL LIGHTING AND CONTROLS

All lighting will be equipped with light-emitting diodes (LEDs), covering all primary areas. Common area lighting will include controls like occupancy sensors (PIRs) and time switches to minimize energy usage when lighting is not needed.

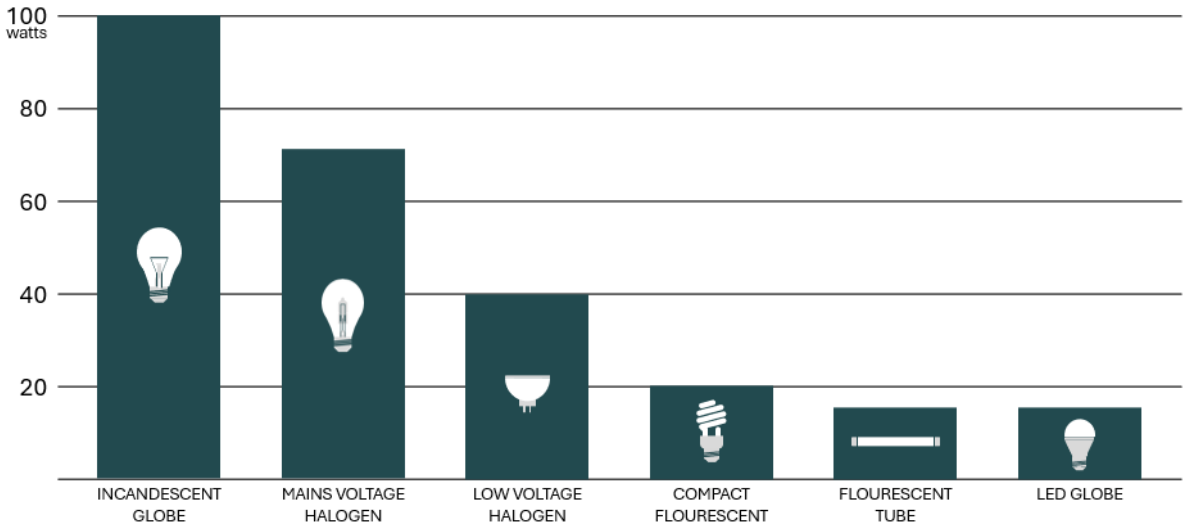

Figure 10: Comparison of LED Lighting with other Conventional Lighting

6.4 RENEWABLE TECHNOLOGY

Integrating solar panels into the residential development offers multiple benefits, including cost savings, improved energy independence, and reduced environmental impact. As the site will operate as an all-electric development, a future solar photovoltaic (PV) system will play a key role in reducing greenhouse gas emissions and offsetting grid electricity consumption, thereby enhancing the project's overall sustainability performance.

The building design, including the roof layout, electrical distribution system, and metering infrastructure, will incorporate provisions to allow for the future installation of systems such as solar photovoltaic arrays and battery storage. This ensures the development remains adaptable and ready to accommodate emerging renewable energy technologies.

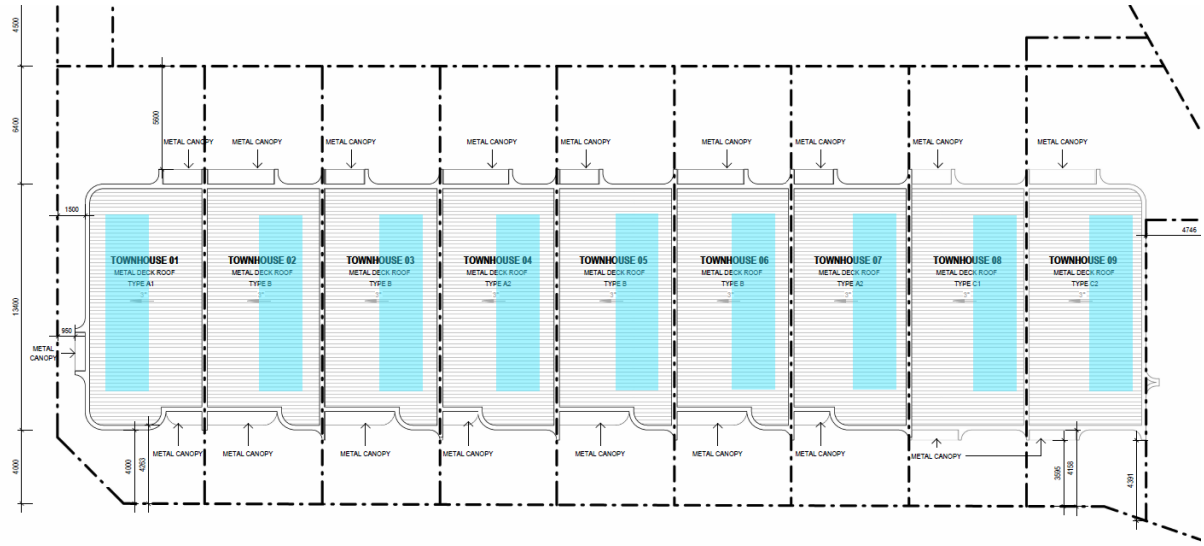

Figure 11: Indicative Provision for Solar PV System

6.5 ENERGY USE

Energy savings in a building can be realised by minimising the need for heating and cooling through a well-designed and insulated façade. The design team will focus on enhancing energy efficiency by exceeding the minimum requirements of NCC Section J. This will involve optimising the building envelope, air conditioning and ventilation systems, and lighting to ensure lower energy consumption.

The review has been undertaken in accordance with the Energy Efficiency provisions of the NCC 2022 – Amendment 1 for each class of building referred in the table below:

Table 5: Energy Compliance Overview

BUILDING	CLASS	VERIFICATION
9 x Sole Occupancy	1	NatHERS

These results are produced from models based on the documentation provided by the Architects. Any updates to these plans may affect the results and may require a change to specification (Section 5.1.1 – 5.1.2).

6.5.1 BUILDING SPECIFICATIONS FOR SOLE OCCUPANCY UNITS – CLASS 1

The construction for the proposed building envelope is as per plans provided during the DA stage are outlined below. *These specifications may require upgrades once all units are modelled.*

Table 6: Proposed Building Specifications for Apartment Units

CONSTRUCTION		DESCRIPTION	REQUIREMENT
EXTERNAL WALLS	External Cavity Brick Wall	2x90mm Brick with 70mm cavity.	**25mm R1.1 cavity board insulation**
INTERNAL WALLS	Single brick wall	90mm/110mm brick	**No Insulation Required.**
FLOORS	Slab on Ground	Concrete slab with ground contact. Floor coverings as per plans.	**No Insulation Required.**
	Suspended Slab	250mm suspended concrete Slab. Floor coverings as per plans.	**No Insulation Required.**
CEILINGS/ ROOFS	Roof Type 1	Metal deck roof sheet. Medium/light roof colour **(SA ≤ 0.45).**	**60mm Anticon (R1.3)** with **R4.0 Insulation Batts** to dropped plasterboard ceilings.

** Wall constructions have been simplified for modelling purposes using worst-case assumptions.*

Table 7: Proposed Glazing Specifications for Apartment Units

WINDOW SPECIFICATION		U-VALUE	SHGC
EXTERNAL GLAZING 1A	Double Glazed Low-E Clear in aluminium frame. *(Type B windows)* – T01 Only	**3.10**	**0.49**
EXTERNAL GLAZING 1B	Double Glazed Low-E Clear in aluminium frame. *(Type A windows)* - T01 Only	**3.10**	**0.39**
EXTERNAL GLAZING 2A	Double Glazed Clear in aluminium frame. *(Type B windows)* - T09 Only	**3.60**	**0.47**
EXTERNAL GLAZING 2B	Double Glazed Clear in aluminium frame. *(Type A windows)* - T09 Only	**3.60**	**0.54**
EXTERNAL GLAZING 3A	Double Glazed Low-E Clear in aluminium frame. *(Type B windows)* – Typical	**4.80**	**0.51**
EXTERNAL GLAZING 3B	Double Glazed Low-E Clear in aluminium frame. *(Type A windows)* - Typical	**4.80**	**0.59**

Note: The glazing values specified are for whole systems values (glass + frame).

6.5.2 ESTIMATED ENERGY USED FOR SOLE OCCUPANCY UNITS – CLASS 1

The results below are based on NatHERS rating. The minimum requirement under the NCC 2022 is 7 stars for sole occupancy for townhouses (class1).

Table 8: NatHERS Results

APARTMENT TYPE	HEATING (MJ/m²)	COOLING (MJ/m²)	TOTAL	STAR RATING
A1	19.8	21.8	41.6	**7.1**
B	17.3	16.4	33.7	**7.9**
C2	25.9	17.0	42.9	**7.0**

The project is committed to meet the minimum requirement under the NCC 2022 of 7 stars

7 URBAN ECOLOGY

Urban ecology is crucial for conserving biodiversity and enhancing urban life. Well-planned buildings and landscapes protect biodiversity and support sustainable practices, including low water and fertilizer use and the selection of native plants.

The current site has no existing vegetation. The proposed redevelopment restores ecological function through:

- >70% native or drought-tolerant species mix
- Deep soil zones along Sewell Street and St Peters Road
- Shrubs and low water planting
- Pedestrian-oriented front verge interface, improving amenity and microclimate

Figure 12- Landscaping allocated to the townhouses

7.1 HEAT RESILIENCE

The heat island effect occurs when urban areas are warmer than their rural surroundings due to the built environment. The roof and external finishes have been reviewed to ensure heat resilience and long-term comfort. A light-coloured roof with a Solar Reflectance Index (SRI) ≥70 has been proposed to minimise heat absorption and reduce urban heat island effects.

The strategies that can be used to reduce the heat island effect are:

- Vegetation
- Green roofs
- Roofing materials, including shading structures, having the following:
  – For roof pitched <15°– a three-year SRI of minimum 64
  – For roof pitched >15°– a three-year SRI of minimum 34
- Unshaded hard-scaping elements with a three-year SRI of minimum 34 or an initial SRI of minimum 39
- Hardscaping elements shaded by overhanging vegetation
- Water bodies and/or water courses

8 WATER EFFICIENCY

8.1 SUSTAINABLE WATER INITIATIVES

Western Australia has a limited potable water supply due to the increases in population and reductions in annual rainfall levels. By reducing demand this will help to alleviate the concerns related to potable water usage. The development aims to achieve a minimum 20% reduction in potable water consumption compared to established benchmarks.

Table 9: WELS Ratings

FIXTURE / EQUIPMENT TYPE	WELS RATING
TAPS	5 Star
TOILETS	4 Star
SHOWERS	3 Star
DISHWASHERS	4 Star
WASHING MACHINES	4 Star

8.2 WATER EFFICIENT LANDSCAPING

Water-efficient landscaping refers to techniques and strategies aimed at conserving water while maintaining aesthetically pleasing and functional outdoor spaces. This is important in Western Australia due to its semi-arid climate conditions, which often result in water scarcity. Key strategies include:

- **Plant Selection:** Choosing native or drought-tolerant plant species that are well-suited to the local climate can significantly reduce water requirements.

- **Soil Improvement:** Improving soil quality through methods such as mulching and composting can enhance water retention and reduce evaporation, thereby optimizing water usage in landscaping.
- **Irrigation Efficiency:** Employing efficient irrigation systems such as drip irrigation or micro-sprinklers helps deliver water directly to plant roots with minimal waste. Additionally, using smart irrigation controllers that adjust watering schedules based on weather conditions and soil moisture levels can further enhance water efficiency.
- **Water Harvesting:** Capturing rainwater through techniques like rainwater tanks will allow for on-site water storage and reuse, reducing reliance on potable water for landscaping needs.
- Overall, water-efficient landscaping plays a vital role in conserving water resources, promoting sustainability, and mitigating the impacts of water scarcity in urban and rural environments.

9 SUSTAINABLE TRANSPORT/ ACCESSABILITY

9.1 BICYLCE PARKING FACILITIES & SUSTAINABLE TRANSPORT FACILITIES

The intention of this category is to reduce occupants' reliance on carbon-intensive vehicles. To support this, the development will include infrastructure that facilitates the future installation of electric vehicle (EV) charging stations. Additionally, secure bike storage will be provided to encourage cycling as a sustainable mode of transportation.

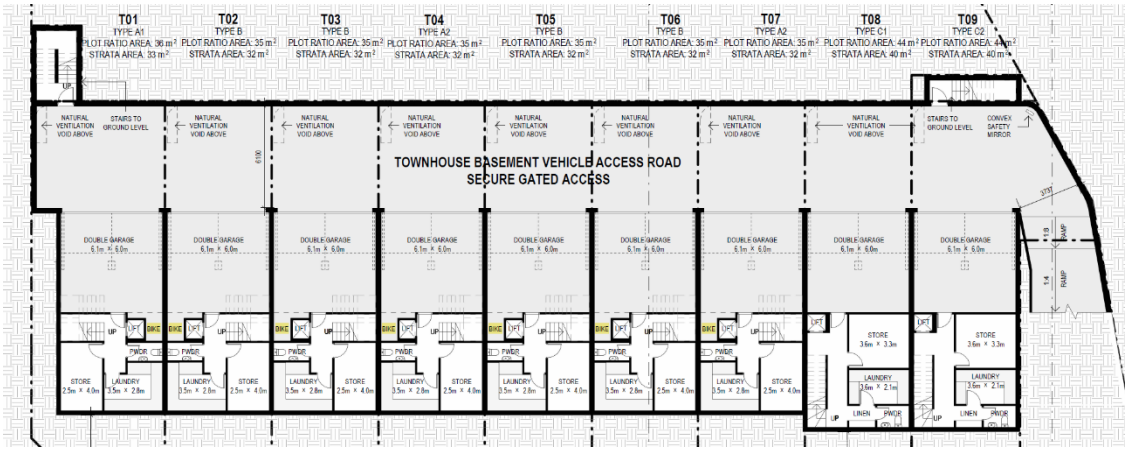

Figure 13 - Basement plan indicating bike storage

9.2 WALKABILITY TO THE SITE

The building's design and location encourage walking to and from several amenities within the vicinity. This means designing roads within the building boundary to prioritise pedestrians, and either providing within, or being located close to, several amenities.

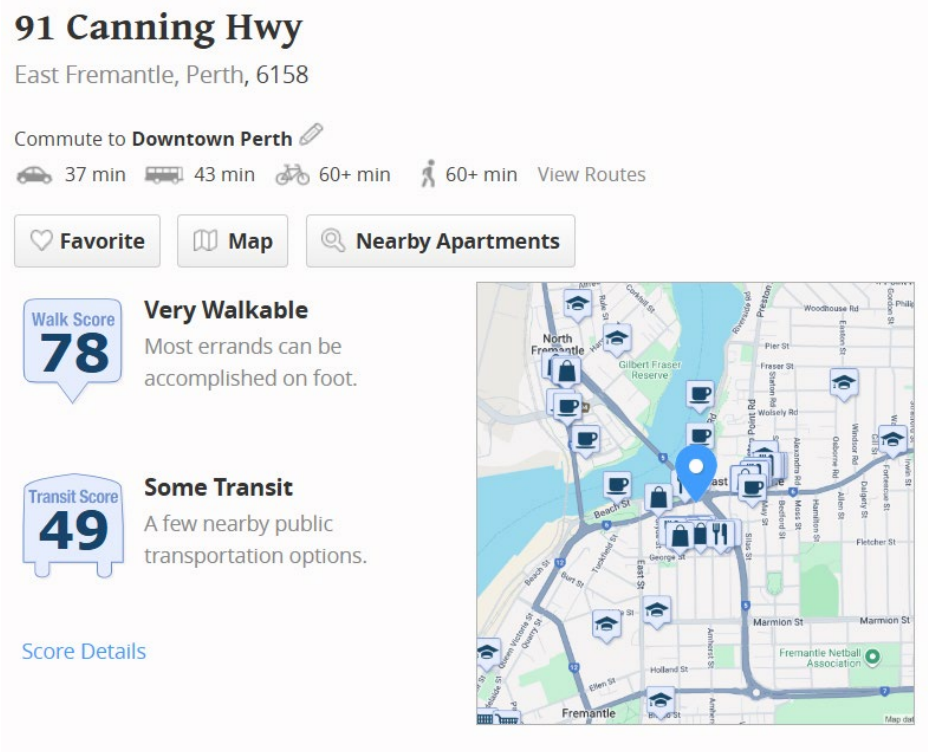

Figure 14: Walkability Score of the Proposed Development

10 INDOOR ENVIRONTMENT QUALITY

10.1 INTERNAL FINISHES

Internal finishes (paints, adhesives, sealants, carpets) with low VOC and formaldehyde content will be prioritised.

Using low VOC (volatile organic compounds) products offers numerous benefits, primarily by enhancing indoor air quality and promoting better health. These products release fewer harmful chemicals, reducing the risk of respiratory issues, headaches, dizziness, and long-term health problems. Environmentally, low VOC products contribute less to air pollution and smog formation, supporting a healthier ecosystem.

10.2 PAINTS, ADHESIVES, AND SEALANTS

To meet the requirements, at least 95% of internally applied paints, adhesives, sealants (by volume), and carpets (by area) must meet TVOC (Total Volatile Organic Compounds) limits. Compliance with these limits can be achieved through one of the following methods:

1. **Product Certification Scheme:** The contractor can use products that are certified under a recognized and current Product Certification Scheme at the time of purchase. These schemes assess and verify the TVOC content of the materials, ensuring they meet the specified limits.
2. **Laboratory Product Testing**: If there are no certified products available, the contractor can conduct laboratory testing on the paints, adhesives, and sealants, to determine their TVOC content. The testing should be carried out using the whole paint, including water and tinters, to obtain accurate results.

3. **Absence of Non-compliant Materials**: Alternatively, if none of the materials mentioned (paints, adhesives, sealants, and carpets) are present at the time of practical completion (PC), and thus no TVOC emissions are expected, compliance can be achieved.

All paints used for internal application on the job are to have a low TVOC content as outlined below. TVOC content must be based on whole paint (water and tinters included):

Table 10: Paint VOC limits

PRODUCT TYPE / SUBCATEGORY	MAX TVOC CONTENT (G/L OF READY TO USE PRODUCT)
Walls and ceilings – Any gloss level	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65

Maximum TVOC Content Limits for Paints, Varnishes and Protective Coatings
*EU Directive
The TVOC content of the 'ready-to-use' paint shall be theoretically calculated as the sum total of the VOCs of each of the raw material component comprising the paint.

Where the TVOC content of individual components is not known, it must be determined experimentally by one of the following testing methods as appropriate:

- ISO Method 17895 (2005), for a material with a presumed VOC content <1%;
- ISO Method 11890-2 (2006), for a material with a presumed VOC <15%;
- ISO Method 11890-1 (2007), for a material with a presumed VOC content >15%;
- ASTM D3960, which is comprised of four individual testing procedures that measures TVOC (D2369) as well as density (D1475) and water content (D4017). Exempt compounds (D4457) must not be subtracted in the calculation of VOC content.

The contractor must obtain written approval from the design team before using any sealant, adhesive, paint, flooring or fit out items. This approval will be contingent on the provision of proof that the product has a VOC content below that noted above.

At the end of construction, the contractor is required to undertake a final audit to ensure that the correct products have been used.

All sealants used in an internal application on the job are to have a low TVOC content as outlined below.

Table 11: Adhesives/Sealants VOC limits

PRODUCT	MAXIMUM TVOC CONTENT (G/LITRE)
General purpose adhesives and sealants	50
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100
Primers, sealers and prep coats	65

One and two pack performance coatings for floors	140

Maximum TVOC limits for Adhesives & Sealants
*Sealants used to enhance the fire- and water-proofing properties are included.

The testing method applicable to adhesive and sealants is only ASTM D3960 as detailed above for paints. For more information on ASTM D3960 refer to South Coast Air Quality Management District Rule 1168.

The contractor must obtain written approval from the design team before using any sealant, adhesive, paint, flooring or fitout items. This approval will be contingent on the provision of proof that the product has a VOC content below that noted above.

At the end of construction, the contractor is required to undertake a final audit to ensure that the correct products have been used.

All carpets and/or other flooring used on the project are to have low TVOC emission rates as outlined below.

Table 12: Carpet VOC limits

ALL CARPET/FLOORING PRODUCTS MUST COMPLY WITH TVOC EMISSION LEVELS	
Total VOC limit	0.5 mg/m^2 per hour
4-pc (4-Phenolcycohexene) limit	0.05 mg/m^2 per hour

Compliance Testing: Refer to Carpet and Rug Institute Green Label (US) OR American Society for Testing and Materials (ASTM) D5116 Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products OR

For carpets and laminate floor coverings, an option for demonstrating compliance with TVOC levels is as follows: ISO 10580 (also known as ISO/TC 219) – Document N238 – Resilient,

Textile and Laminate Floor Coverings Evaluation of Volatile Organic Compounds Emissions, with a limit of 500µg/m^2/hr at 24 hours. OR

For floor coverings (other than carpet), an option for demonstrating compliance with TVOC levels is as follows:

ISO16000 parts 9, 10 and 11 (also known as the EN 13419), with a TVOC limit at three days of 5mg/m^2/h and 0.5mg/m^2/h at 28 days.

Carpet or other flooring installed as part of the base building works prior to fit out works, can be deemed re-used for the purpose of this credit.

The contractor must obtain written approval from the design team before using any sealant, adhesive, paint, flooring or fit out items. This approval will be contingent on the provision of proof that the product has a VOC content below that noted above.

At the end of construction, the contractor is required to undertake a final audit to ensure that the correct products have been used.

There are two options for demonstrating compliance for carpets, as follows:

Option A - Product Certification:

Carpets certified under a relevant Product Certification Scheme standard recognised by the GBCA under the GBCA assessment Framework for Product Certification Schemes are deemed to satisfy the requirements of this criterion. Relevant GBCA recognized standards are listed on the GBCA web site. The certificate must be current at the time of project registration or submission and list the relevant product name and model.

A UL GREENGUARD Children & Schools® certification current at the time of project registration or submission is another acceptable evidence for demonstrating compliant TVOC levels for carpets.

Option B - Experimental Testing

All carpets comply with the Total VOC (TVOC) limits within Table below. The emission levels detailed in this table must be established by a NATA or another ISO/IEC17025 accreditation laboratory.

Table 13: Flooring VOC limits

ALL CARPET/FLOORING PRODUCTS MUST COMPLY WITH TVOC EMISSION LEVELS – TO ASTM D5116 TEST PROTOCOL	
Carpets using ASTM D5116 Test Protocol:	
Total VOC limit	0.5 mg/m^2 per hour
4-pc (4-Phenolcycohexene) limit	0.05 mg/m^2 per hour
Carpet using ISO 16000 test protocol (also known as EN 13419)	
TVOC at three days-	0.5 mg/sqm per hour
Flooring using ISO 10580 (also known as ISO/TC 219) – Document	
TVOC at 24 hours - 0	0.5mg/sqm per hour

10.3 FORMALDEHYDE MINIMISATION

All engineered wood products used internally, including exposed and concealed applications, must have low formaldehyde emissions as defined in the table below, or contain no formaldehyde. Engineered wood products are defined as particleboard, plywood, veneer, MDF, Laminated Veneer Lumber (LVL), High-Pressure Laminate (HPL), Compact Laminate and decorative overlaid wood panels and include both finished and unfinished products.

These requirements are not applicable to exterior applications, formwork, internal car park applications, reused engineered wood products or raw timber.

The contractor must obtain approval from the design team before substituting any product.

The limits listed here are defined according to the test method. The levels listed are equivalent results for different test procedures.

Table 14: Formaldehyde emission limits

TEST PROTOCOL	EMISSION LIMIT/ UNIT OF MEASUREMENTS
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	< 1.0 mg/L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	< 1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	< 1.0 mg/L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	< 1.0 mg/L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	< 1.0 mg/L
JIS A1901 (not applicable to Plywood)	< 1.0 mg/L
ASTM D5116	<0.1 (+/- 0.0005) mg/m^{2}hr (may also be represented as mg/m^2/hr)
ISO 16000 part 9, 10 and 11 (also known as EN 13419)	<0.1 (+/- 0.0005) mg/m^{2}hr (may also be represented as mg/m^2/hr)
ASTM D6007	0.12mg/m^3*
ASTM E1333	0.12mg/m^3**
EN 717-1 (also known as DIN EN 717-1)	0.12 mg/m^3
EN 717-2 (also known as DIN EN 717-2)	3.5 mg/m^{2}hr (may also be represented as mg/m^2/hr).
*The test report must confirm that the conditions of Table 1 comply for the particular wood product type, the final results must be presented in EN 717-1 equivalent (as presented in the table) using the correlation ratio of 0.98.	

11 CONCLUSION

In conclusion, the report outlines sustainability commitments that align with core principles, focusing on energy and water efficiency. It highlights efforts to promote environmental responsibility and resource efficiency, underscoring a commitment to a greener, more sustainable future.

Table 15: Sustainability Commitments

DESCRIPTION	GOAL	SUSTAINABILITY COMMITMENTS
STRUCTURE DESIGN EFFICIENCY	Integrate passive solar design principles into optimising solar access in winter and shading in summer.	• Enhance solar passive performance by incorporating shading devices on north and west-facing windows to reduce summer heat gain and improve visual interest. • Above **60%** of the combined living and bedroom area of each unit have high level of daylight (above 160 Lux). • Building orientation and design to maximise natural ventilation and promote cooling opportunities • External shading devices to minimise heat gains • Building form and orientation to maximise natural daylighting
ENERGY EFFICIENCY	Enhance energy performance by reducing consumption through efficient design and the use of renewable and low-energy systems.	• Efficient LED Lighting. • Provision for future solar photovoltaic (PV) system to supply renewable energy. • All units meet the minimum NatHERS energy efficiency requirement of **7 stars for sole occupancy**, based on the NCC 2022.
WATER EFFICIENCY	Water efficient fixtures and Landscaping.	• High WELS Ratings • Water sensitive urban design, drip irrigation.
URBAN ECOLOGY	Reduce impacts of heat island effect	• Light roof colour (SRI ≥ 0.64). • Incorporate vegetation and green spaces around the building to provide shading and reduce surrounding air temperatures. • Landscaping plant selections are water-wise species
SUSTAINABLE TRANSPORT/ ACCESSABILITY	Low carbon options	• Provision for secure bicycle storage area. • Access to public transport
INDOOR ENVIRONMENT QUALITY	Enhance indoor air quality	• Natural ventilation to all townhouses. • Low VOC and Low Formaldehyde products to be used. • Minimum 95% of internally applied paints, adhesives, sealants (by volume), and carpets (by area) must meet TVOC limits.

Waste Management Plan

91-93 Canning Highway, East Fremantle

Prepared for Blue Unlimited Pty Ltd c/- RAD Architecture

2 February 2026

Project Number: WMP25135

DOCUMENT CONTROL

Version	Description	Date	Author	Reviewer	Approver
1.0	First Approved Release	2/02/2026	JL	AB	AB

Approval for Release

Name	Position	File Reference
Ann Brouwer	Project Manager – Waste Management Plan Lead (WA)	WMP25135-01_Waste Management Plan_1.0
Signature	Ann Brouwer Digitally signed by Ann Brouwer Date: 2026.02.02 09:05:32 +08'00'	

Executive Summary

Blue Unlimited Pty Ltd is seeking development approval for the proposed residential townhouse development located at 91-93 Canning Highway, East Fremantle (the Proposal).

To satisfy the conditions of the development application the Town of East Fremantle (the Town) requires the submission of a Waste Management Plan (WMP) that will identify how waste is to be stored and collected from the Proposal. Talis Consultants has been engaged to prepare this WMP to satisfy the Town's requirements.

A summary of the bin size, numbers, collection frequency and collection method is provided in the below table.

Proposed Waste Collection Summary

Waste Type	Bin Size (L)	Number of Bins	Collection Frequency	Collection
Individual Bin Storage Area				
Refuse	140	One	Fortnightly	Town of East Fremantle
Recycling	240	One	Fortnightly	Town of East Fremantle
FOGO	240	One	Once each week	Town of East Fremantle

Note: Each townhouse will have a 140L refuse bin, a 240L recycling bin and a 240L FOGO bin stored within their individual front yards.

The Town will collect refuse, recyclables and FOGO from the Proposal utilising its kerbside collection service. The Town's waste collection vehicle will service the bins from the verge of St Peters Road.

Residents will oversee the relevant aspects of waste management at the Proposal.

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1 Introduction

Blue Unlimited Pty Ltd is seeking development approval for the proposed residential townhouse development located at 91-93 Canning Highway, East Fremantle (the Proposal).

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The Proposal is bordered by Canning Highway to the north, reserve/Stirling Highway to the east, St Peters Road to the south and Sewell Street to the west, as shown in Figure 1.

1.1 Objectives and Scope

The objective of this WMP is to outline the equipment and procedures that will be adopted to manage waste (refuse, recyclables and FOGO) at the Proposal. Specifically, the WMP demonstrates that the Proposal is designed to:

- Adequately cater for the anticipated volume of waste to be generated;
- Provide adequate bin storage for the appropriate bins; and
- Allow for efficient collection of bins by appropriate waste collection vehicles.

To achieve the objective, the scope of the WMP comprises:

- Section 2: Waste Storage;
- Section 3: Waste Collection;
- Section 4: Waste Management; and
- Section 5: Conclusion.

2 Waste Storage

Waste materials generated within the Proposal will be collected in the bins located within each townhouse, as shown in Diagram 1, and discussed in the following sub-sections.

2.1 Proposed Tenancies

The anticipated volume of refuse, recyclables and FOGO is based on the number of residential townhouses at the Proposal – **9.**

Each townhouse will have adequate space to store one 140L refuse bin, one 240L recycling bin and one 240L FOGO bin stored within their individual front yards.

2.2 Internal Transfer of Waste

To promote positive recycling behaviour and maximise diversion from landfill, internal bins will be available throughout the Proposal for the source separation of refuse, recycling and FOGO.

The townhouses will have room to accommodate two under the counter/kitchen bins for the source separation of refuse and recycling and a kitchen caddy for the separation of FOGO. The residents will then take the contents of these internal bins to their individual Bin Storage Area for consolidation into the appropriate bins.

All bins will be colour coded and labelled in accordance with Australian Standards (AS 4123.7) to assist residents to dispose of their separate waste materials in the correct bins.

2.3 Bin Sizes

Table 2-1 gives the typical dimensions of standard bins sizes that may be utilised at the Proposal. It should be noted that these bin dimensions are approximate and can vary slightly between suppliers.

Table 2-1: Typical Bin Dimensions

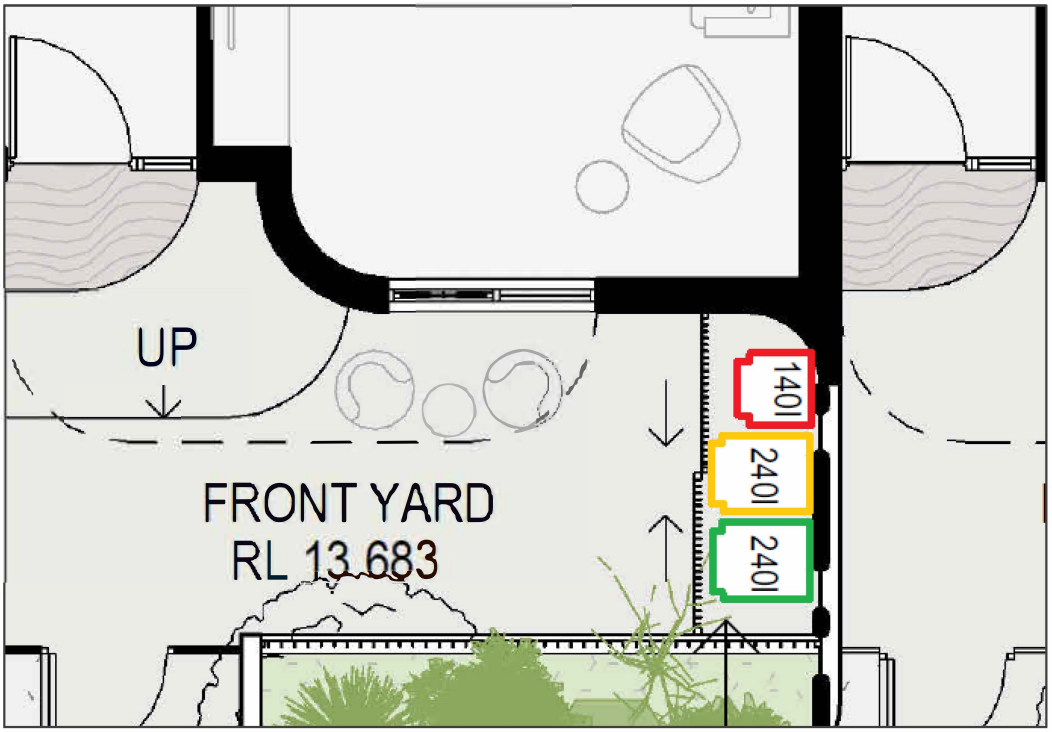
Dimensions (m)	Bin Sizes	
	140L	240L
Depth	0.615	0.730
Width	0.535	0.585
Height	0.915	1.060

Reference: SULO Bin Specification Data Sheets

2.4 Individual Bin Storage Area Size

Each townhouse will have one 140L refuse bin, one 240L recycling bin and one 240L FOGO bin stored within their individual front yards, refer Diagram 1. Each unit will have FOGO collected once each week and refuse and recyclables collected on alternating fortnights.

Diagram 1: Example Bin Storage Area



3 Waste Collection

The Town will service the Proposal and provide each townhouse with one 140L refuse bin, one 240L recycling bin and one 240L FOGO bin.

The Town will collect FOGO once each week and refuse and recyclables on alternating fortnights from the verge of St Peters Road utilising its side arm waste collection vehicle, refer Diagram 2

Bins will be presented for collection with wheels and handles facing away from the street. The bins will remain clear of obstructions such as power poles, signs and street trees, and will be placed so as not to obstruct pedestrians or bike lanes. Bins will be lined up neatly and in a single row along the verge, with sufficient space between each bin to facilitate collection by the Town's side arm waste collection vehicle.

Residents will ferry their bins to and from their Bin Presentation Area on collection days. The travel path between Bin Storage Areas and Bin Presentation Areas will be of flat surface and kept free of obstacles. Residents will return their bins to their townhouses as soon as possible on the same day following collection.

Diagram 2: Example Bin Presentation Area

3.1 Bulk and Green Waste

To assist with the reduction of illegal dumping of bulk wastes, each townhouse has an allocated storage room of at least **2.5m x 4.0m** which could be used for the temporary storage of bulk waste.

The Town offers residents one Bulk & White/Metal Goods and one Bulk Green Waste collection each year. Bulk waste and green waste presentation and collection will be monitored and coordinated by the strata manager, who will liaise with residents on appropriate procedures, as required.

4 Waste Management

Residents will complete the following tasks:

- Monitoring and maintenance of bins within their individual townhouse Bin Storage Areas;
- Cleaning of bins and their Bin Storage Area, when required;
- Ferrying of bins to and from their Bin Storage Area and the verge on collection days;
- Monitor bulk general and green waste accumulation and liaise with the strata manager and the Town, as required; and
- Regularly engage with the Town to ensure efficient and effective waste service is maintained.

5 Conclusion

As demonstrated within this WMP, the Proposal provides sufficiently sized Bin Storage Areas within each townhouse for the storage of refuse, recyclables and FOGO, based on the estimated waste generation volumes and suitable configuration of bins. This indicates that adequately designed Bin Storage Areas have been provided, and collection of refuse, recyclables and FOGO can be completed from the Proposal.

The above is achieved using (for each individual townhouses):

- One 140L refuse bin, collected fortnightly;
- One 240L recycling bin, collected fortnightly; and
- One 240L FOGO bin, collected once each week.

The Town will collect refuse, recyclables and FOGO from the Proposal utilising its kerbside collection service. The Town's waste collection vehicle will service the bins from the verge of St Peters Road.

Residents will oversee the relevant aspects of waste management at the Proposal.

Figures


Sewell St
Canning Hwy
St Peters Rd
Stirling Hwy
6,454,225
6,454,250
6,454,275
6,454,300

Assets | Engineering | Environment | Noise | Spatial | Waste

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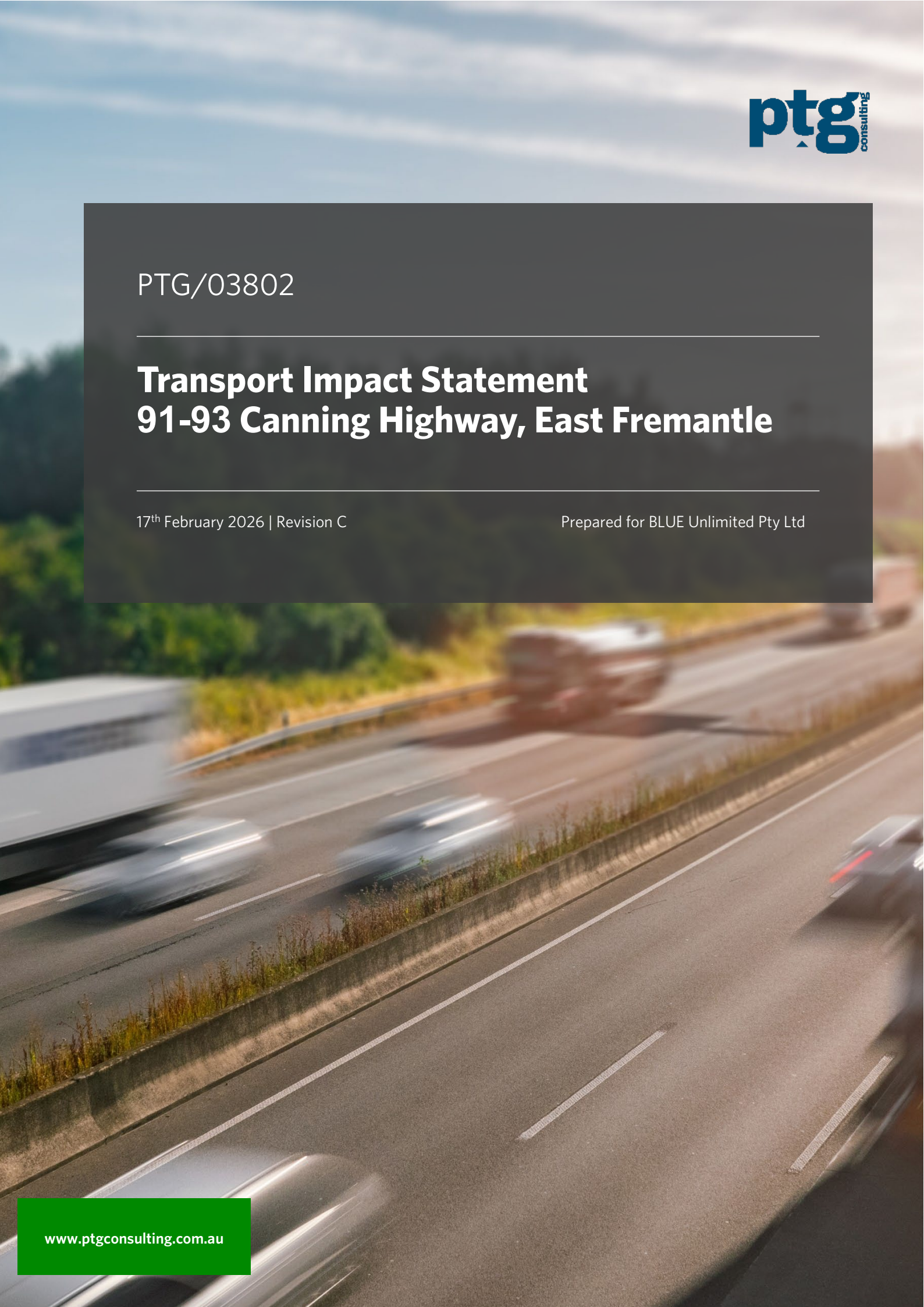

PTG/03802

Transport Impact Statement
91-93 Canning Highway, East Fremantle

17th February 2026 | Revision C

Prepared for BLUE Unlimited Pty Ltd

www.ptgconsulting.com.au

CONTENTS

REPORT DETAILS

Unique Document Identification

	Information
Document Title	Transport Impact Statement – 91-93 Canning Highway, East Fremantle
Project Number	PTG/03802
Document ID	TR-R001-C
Client	BLUE Unlimited Pty Ltd

PTG Consulting Office Details

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Revision Details

Revision No.	Date	Comments	Author	Approved by
Rev A	08/01/2026	For Issue	NA/OL	RJC
Rev B	16/02/2026	Minor Update	LL	RJC
Rev C	17/02/2026	Minor Update	LL	RJC

1 INTRODUCTION

1.1 Background

PTG Consulting Pty Ltd (PTG) has been commissioned by BLUE Unlimited Pty Ltd ('the Client') to prepare a Traffic Impact Statement (TIS) for the proposed grouped dwellings (townhouses) located at 91-93 Canning Highway ('the Site') within the Town of East Fremantle.

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments: Volume 4– Individual Developments (2016) and the Transport Impact Statement (TIS) Checklist is included at Appendix A.

Specifically, this report aims to assess the operations of the proposed development internally and its connections to the adjacent road network, with a focus on traffic volumes, access and accessibility.

This report also outlines the requirements and opportunities associated with traffic and transport within the development, referencing relevant Council and WAPC policies and guidelines as well as best practice planning within Western Australia.

2 PROPOSED DEVELOPMENT

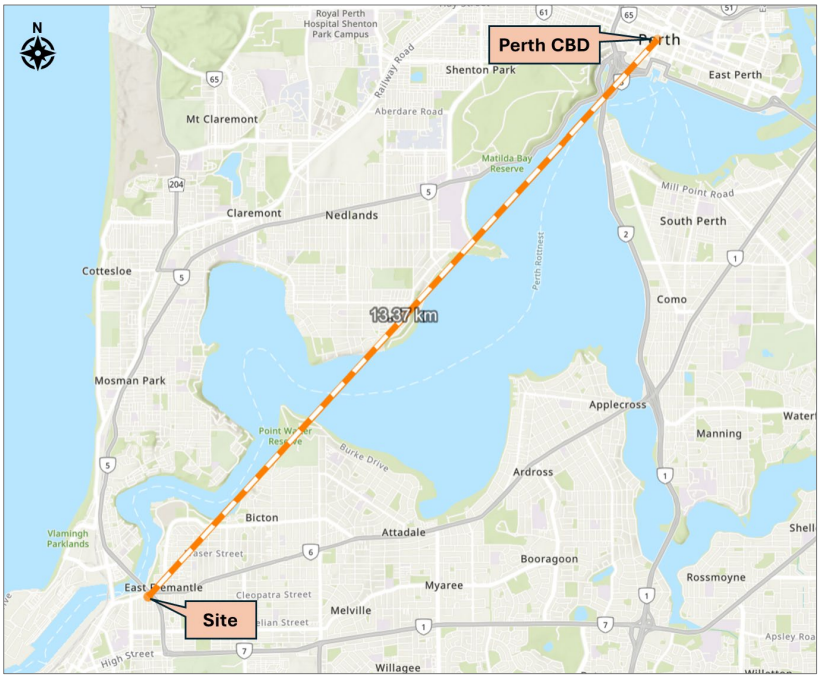
2.1 Site Location

The Site is located at 91-93 Canning Highway ('the Site') within the Town of East Fremantle as shown in **Figure 1**. The proposed grouped dwellings (townhouses) is bounded by Sewell Street to the west, St Peters Road to the south and Stirling Highway Road Reserve to the east. It is situated approximately 13 kilometres southwest of Perth CBD as illustrated in **Figure 2**.

Figure 1 Site Location

Source: Metromap (2025)

Figure 2 Regional Context



Source: Main Roads WA Road Information Mapping System

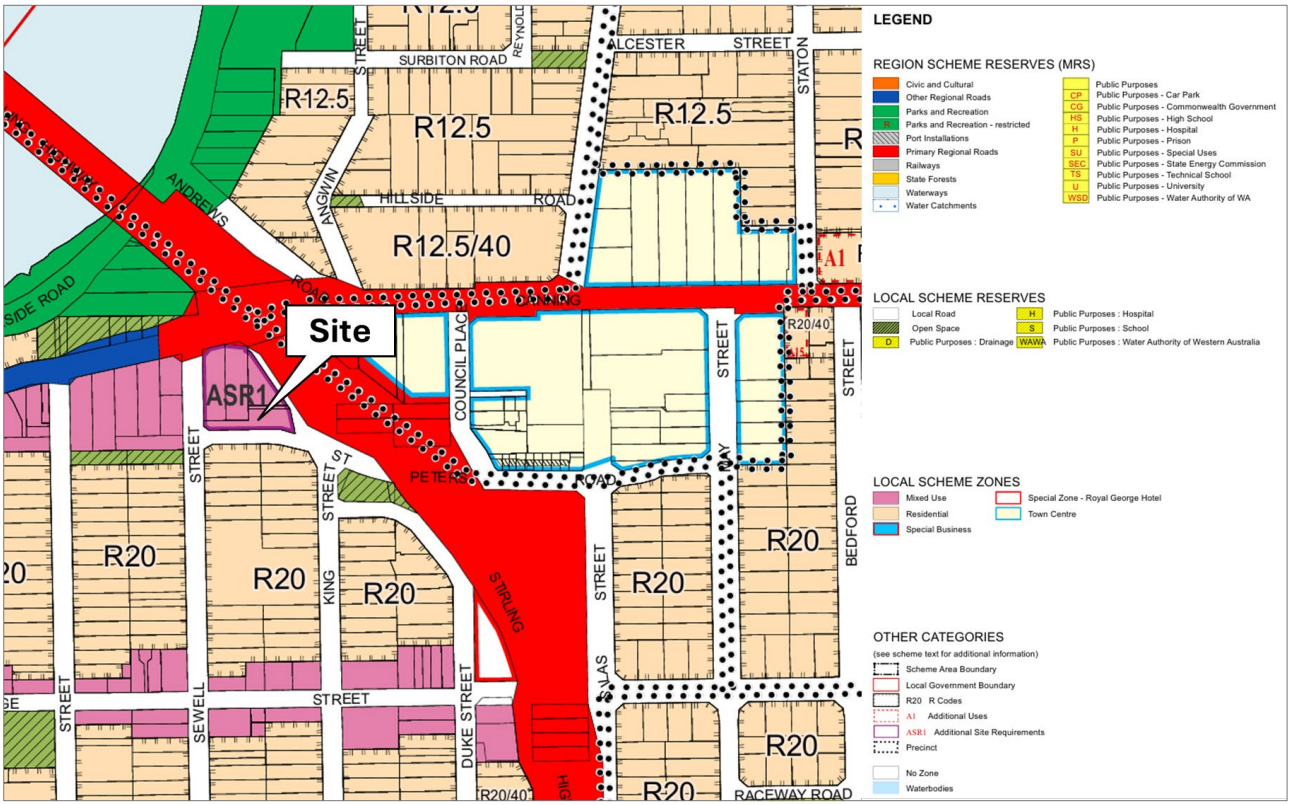
2.2 Existing Land Uses

The Site currently contains single storey buildings.

2.3 Context with Surrounds

The Town of East Fremantle Local Planning Scheme No. 3 characterises the Site as 'Mixed Use' with 'Additional Site Requirements' as shown in **Figure 3**. Based on this scheme the surrounding land uses consist of other mixed uses, residential and parks and recreation.

Figure 3 Context with Surroundings



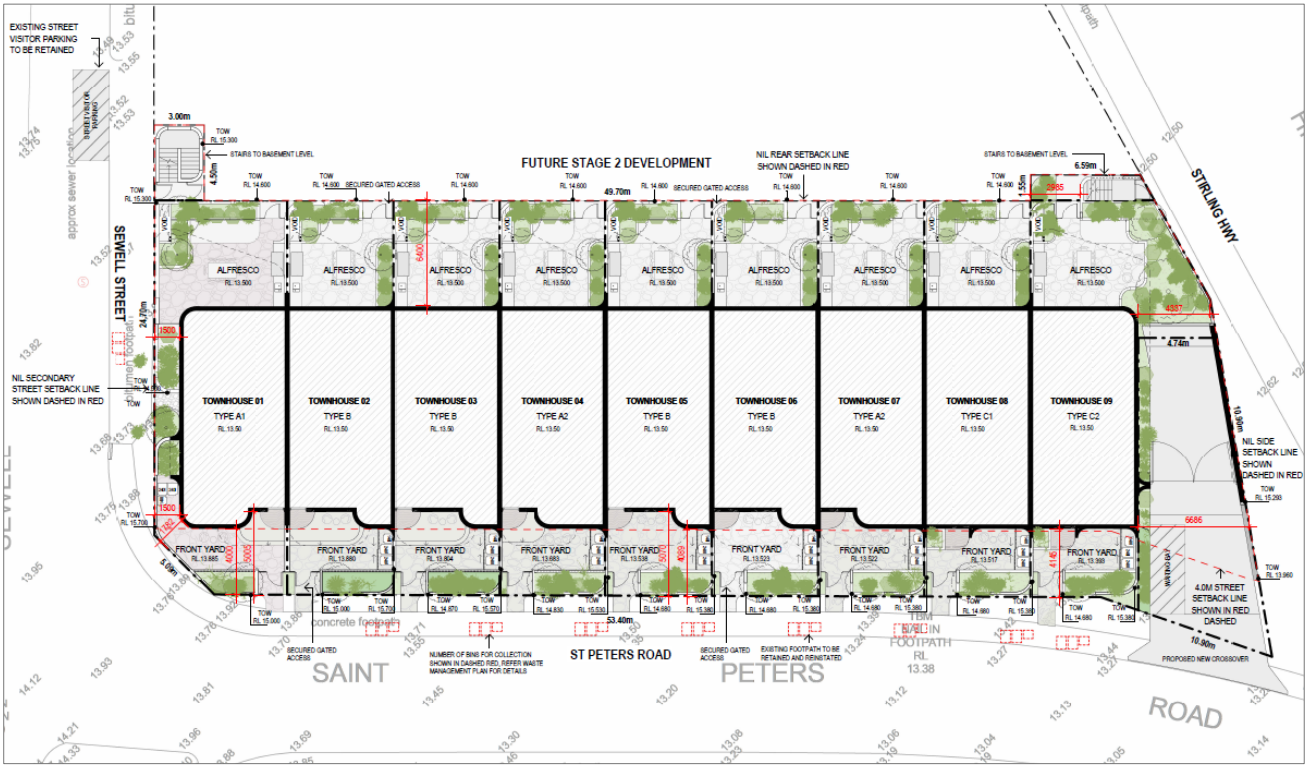
Source: Town of East Fremantle Local Planning Scheme No. 3

2.4 Proposed Land Uses

As per the provided plans, the proposed residential development will consist of seven (7) three-storey grouped dwellings and two (2) two-storey grouped dwellings with a single basement level allocated for parking for each individual unit.

The ground floor plan of the proposed development is shown in **Figure 4**. The complete set of plans is included in **Appendix B.**

Figure 4 Ground Floor Plan



Source: RAD Architecture (2026)

2.5 Major Attractors and Generators

Among the major attractors and generators within the surrounding area of the Site are the following:

- The Good Grocer
- East Fremantle Medical Centre
- Immaculate Conception Parish Church
- Richmond Primary School
- Southern Plus Health and Wellness Centre
- J Dolan Park

Figure 5 illustrates the major attractors/generators near the surrounding area of the Site.

Figure 5 Key Attractors and Generators

Source: Metromap (2025)

3 TRAFFIC VOLUMES

3.1 Development - Peak Traffic Volumes

The trip generation rates used to calculate the traffic generated by the proposed development were obtained from Transport for NSW (TfNSW) Guide to Transport Impact Assessment - Technical Guidance for Transportation Practitioners. Trip distribution percentages were taken from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.

The trip generation rates are presented in **Table 1** and the trip distribution percentages are summarised in **Table 2**. The total estimated trips generated by the site are detailed in **Table 3**.

Table 1 Trip Generation Rates

Land Use	Source	Yield	AM Peak	PM Peak	Daily
Residential (Low-density)	TfNSW	9 dwellings	0.68 per dwelling	0.77 per dwelling	8.12 per dwelling

Table 2 Trip Distribution

Land Use	Source	AM Peak		PM Peak		Daily	
		IN	OUT	IN	OUT	IN	OUT
Residential (Low-density)	ITE 220	24%	76%	63%	37%	50%	50%

Table 3 Total Generated Trips

Land Use	AM Peak		PM Peak		Daily	
	IN	OUT	IN	OUT	IN	OUT
Residential (Low-density)	2	5	5	3	37	37
Total	7		8		74	

A total of 7 vehicle trips is expected to be generated in the AM peak, 8 vehicle trips during PM peak and 74 daily trips.

3.2 Types of Vehicles

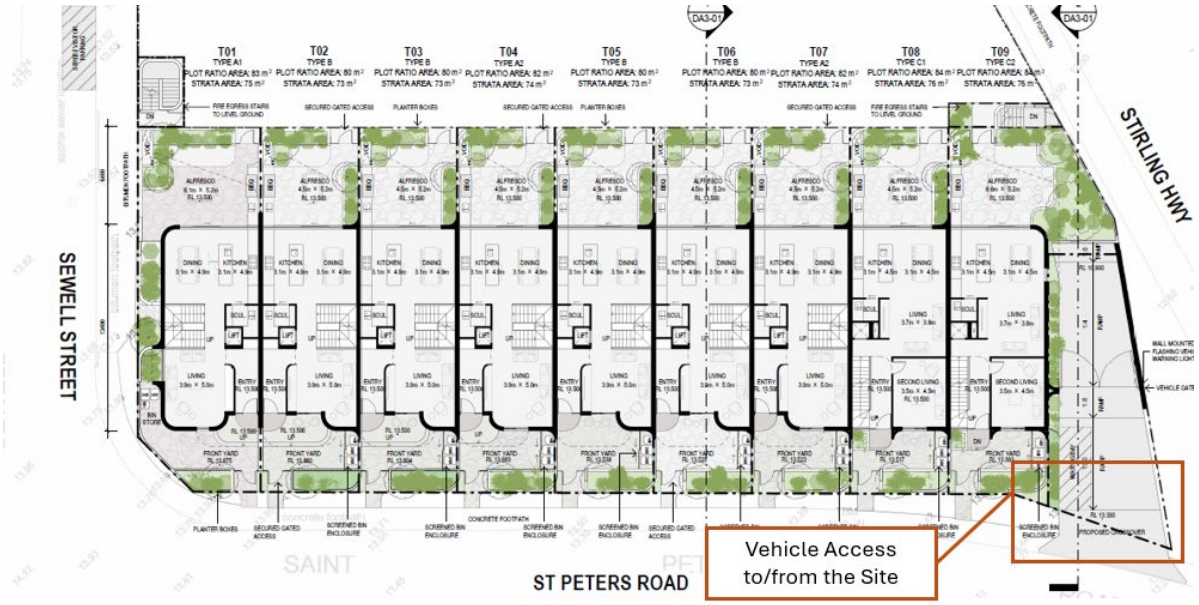
Based on the proposed land use, the main types of vehicles expected to access the development will be light vehicles.

4 VEHICULAR ACCESS AND PARKING

4.1 Access Arrangements

Vehicle access to/from the Site is provided along St Peters Road as illustrated in **Figure 6**.

Figure 6 Access Arrangements

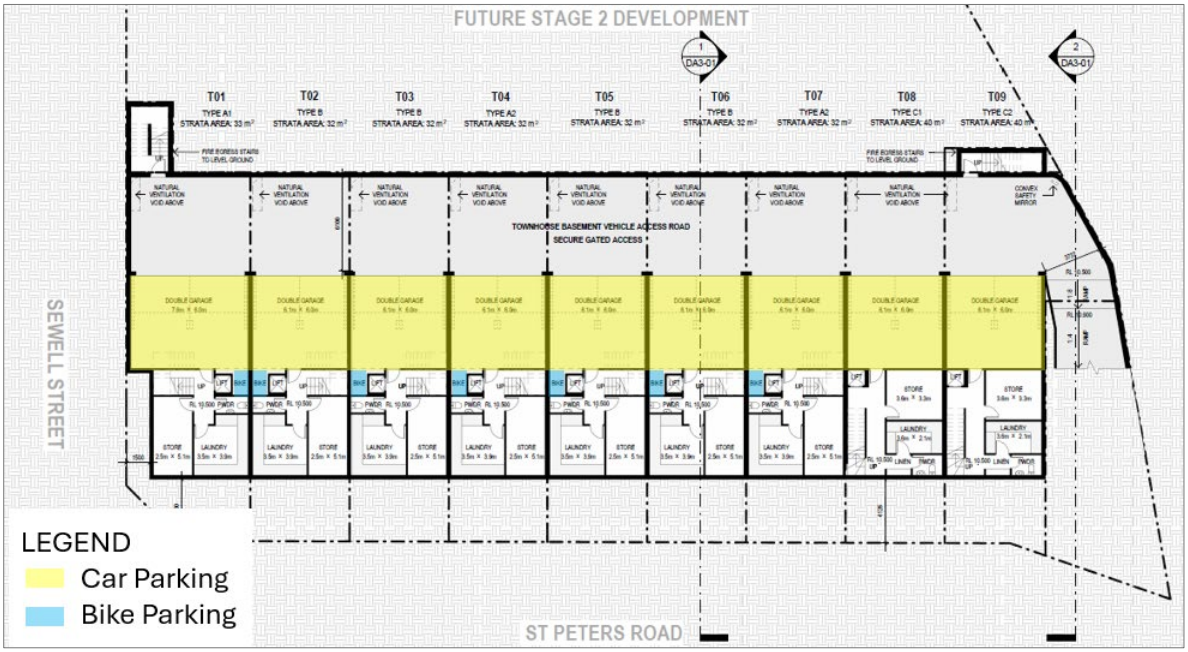


Source: RAD Architecture (2026)

4.2 Parking Provision

Two (2) car parking bays are allocated for each dwelling unit and located within the basement level of the development as shown in **Figure 7**. Bicycle spaces are also in seven (7) dwelling units as shown in the figure below.

Figure 7 Parking Provision



Source: RAD Architecture (2026)

5 SWEPT PATHS

5.1 Waste Collection

Waste collection is proposed to be undertaken along the verge of St Peters Road. On collection days, residents will move their bins from their respective bin stores and position along the verge of St Peters Road. Once the waste has been collected, residents will return the bins to the bin stores to maintain clean and orderly premises.

5.2 On/Off-Site Loading Facilities

No loading and unloading activity is expected in the proposed development.

5.3 Vehicle Swept Paths

The width of the car park accessway varies, with a wider section provided near the top of the ramp which allows for two-way movement. As the ramp descends into the car park basement, the ramp tapers to 4m at the bottom of the ramp where only one vehicle at a time can pass. Beyond this section and into the parking aisles, the width increases to 6.1m.

To demonstrate that this arrangement can operate appropriately, a swept path analysis was undertaken for the proposed residential development using the B85 and B99 design vehicles accessing the Site from St Peters Road and within the basement car park. Larger version of swept paths are provided in Appendix C.

The swept path assessment in Figure 8 shows the inbound vehicle waiting at the entrance gate and the outbound vehicle capable of manoeuvring around it.

To minimise vehicle conflicts and ensure smooth two-way flow, line marking will be provided to clearly designate the waiting area for the inbound vehicle. Also, delineation lines will be provided to guide vehicles onto the left side ensuring the waiting bay is kept clear for any entering vehicle.

Figure 8 Swept Path – Ground Level Entry & Exit

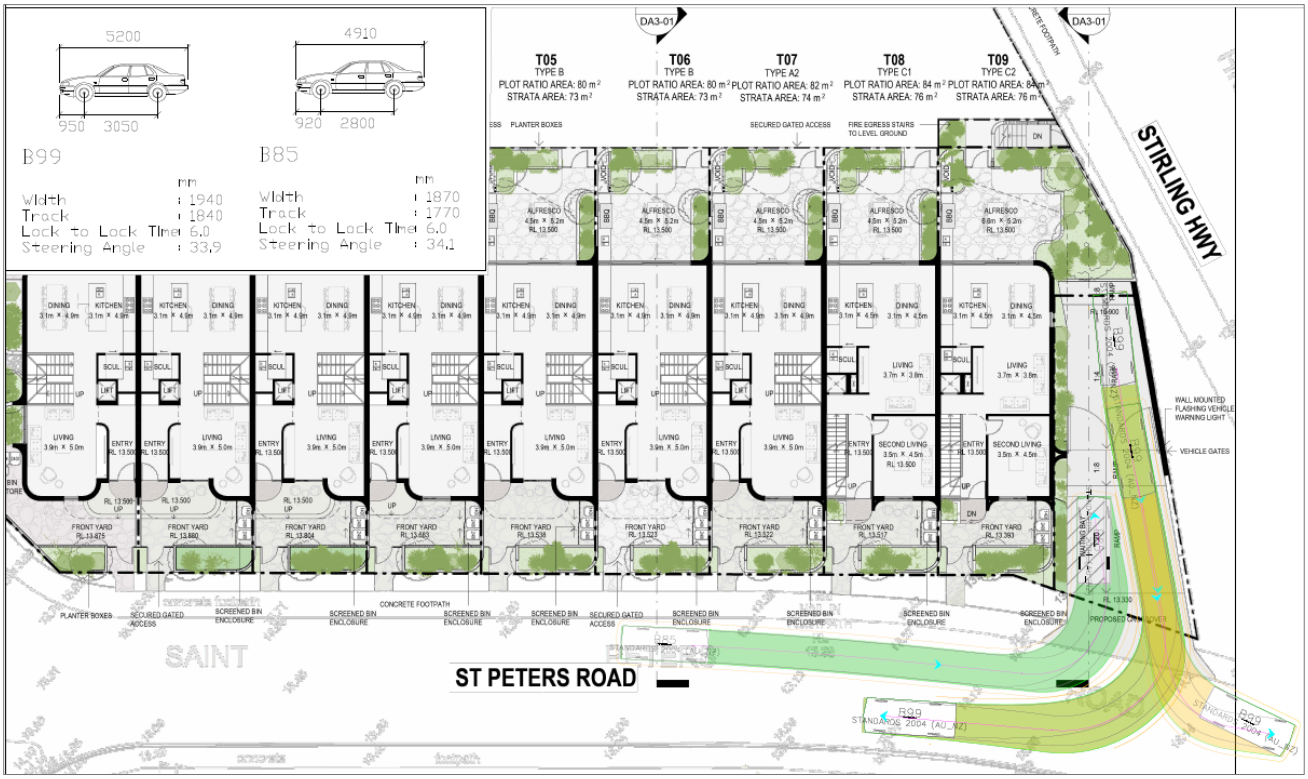


Figure 9 and **Figure 10** show the swept paths of vehicles entering and exiting from critical parking bays. No immediate vehicle conflict was observed in either parking bays.

Figure 9 Swept Path – B85 Basement Level Parking Entry & Exit (T01)

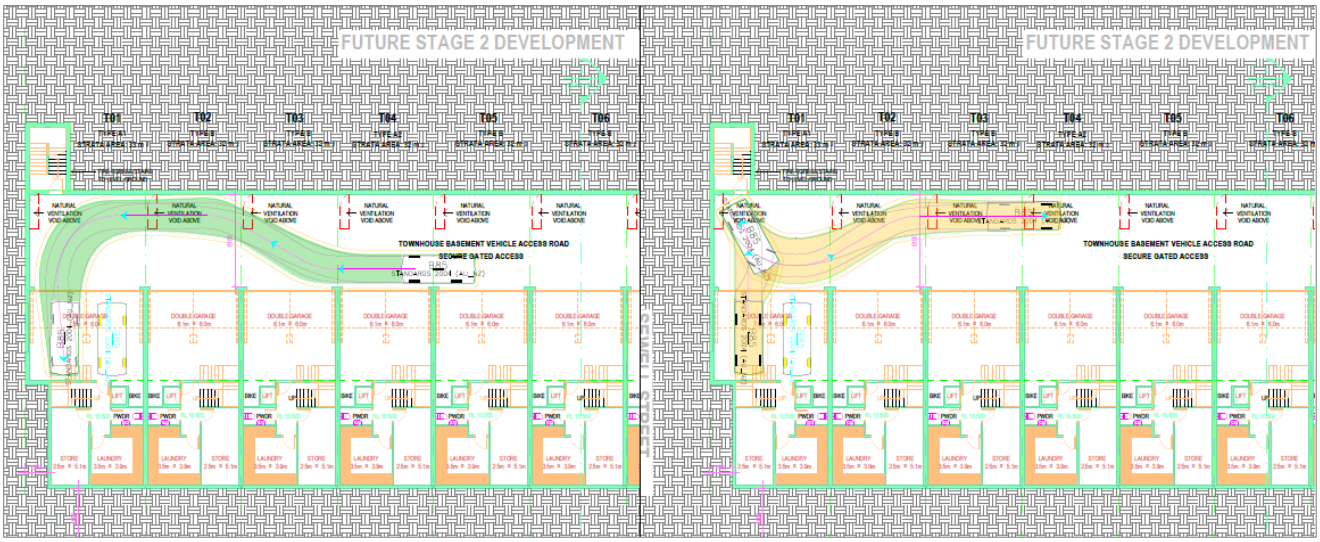
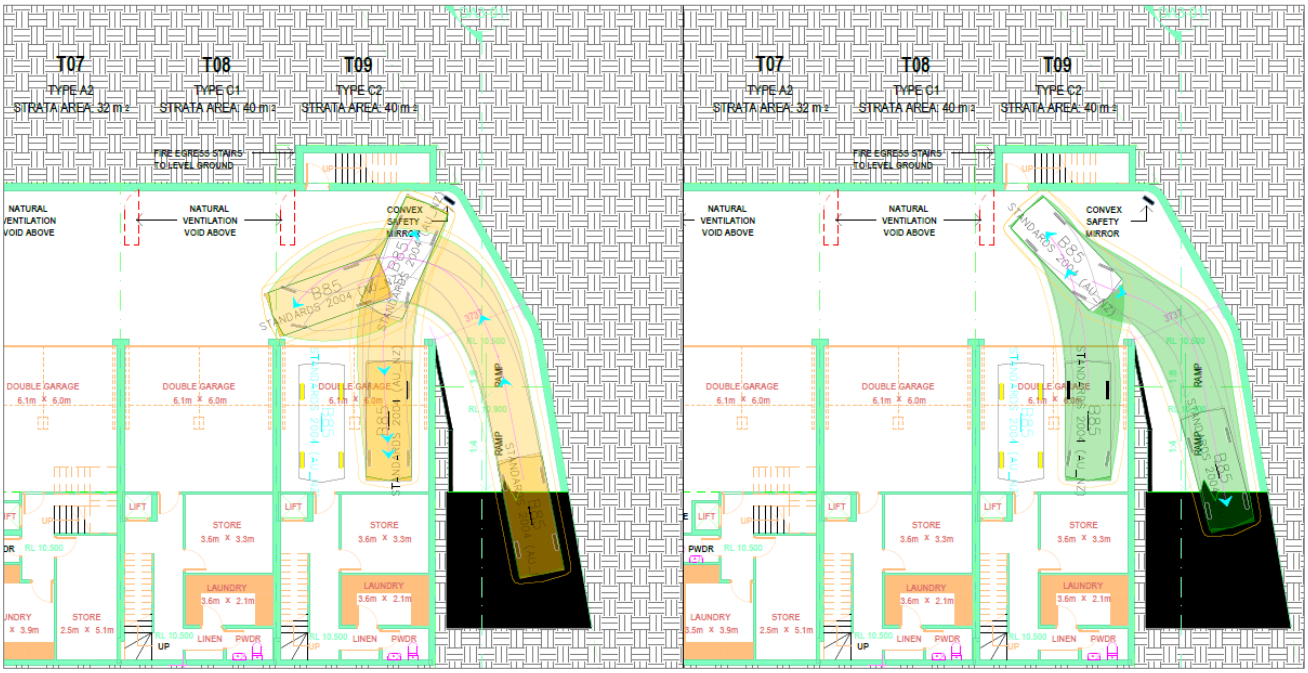


Figure 10 Swept Path – B85 Basement Level Parking Entry & Exit (T09)



5.4 Car Park Traffic Management Measures

Given the constrained visibility and tight layout associated with ramp access, the following traffic management measures will be implemented to reduce potential conflict risks and facilitate safe vehicle circulation.

5.4.1 Flashing Lights

Installing flashing warning lights near the ramp entrance and at the basement level helps to alert exiting vehicles when another vehicle is entering or vice-versa. This measure will help improve driver awareness

and enhance overall safety. **Figure 11** shows an example of similar locations within Perth CBD providing speed humps, mirrors and flashing lights near access locations.

Figure 11 Examples of Traffic Management measures adopted within Perth CBD

Source: Google Street View

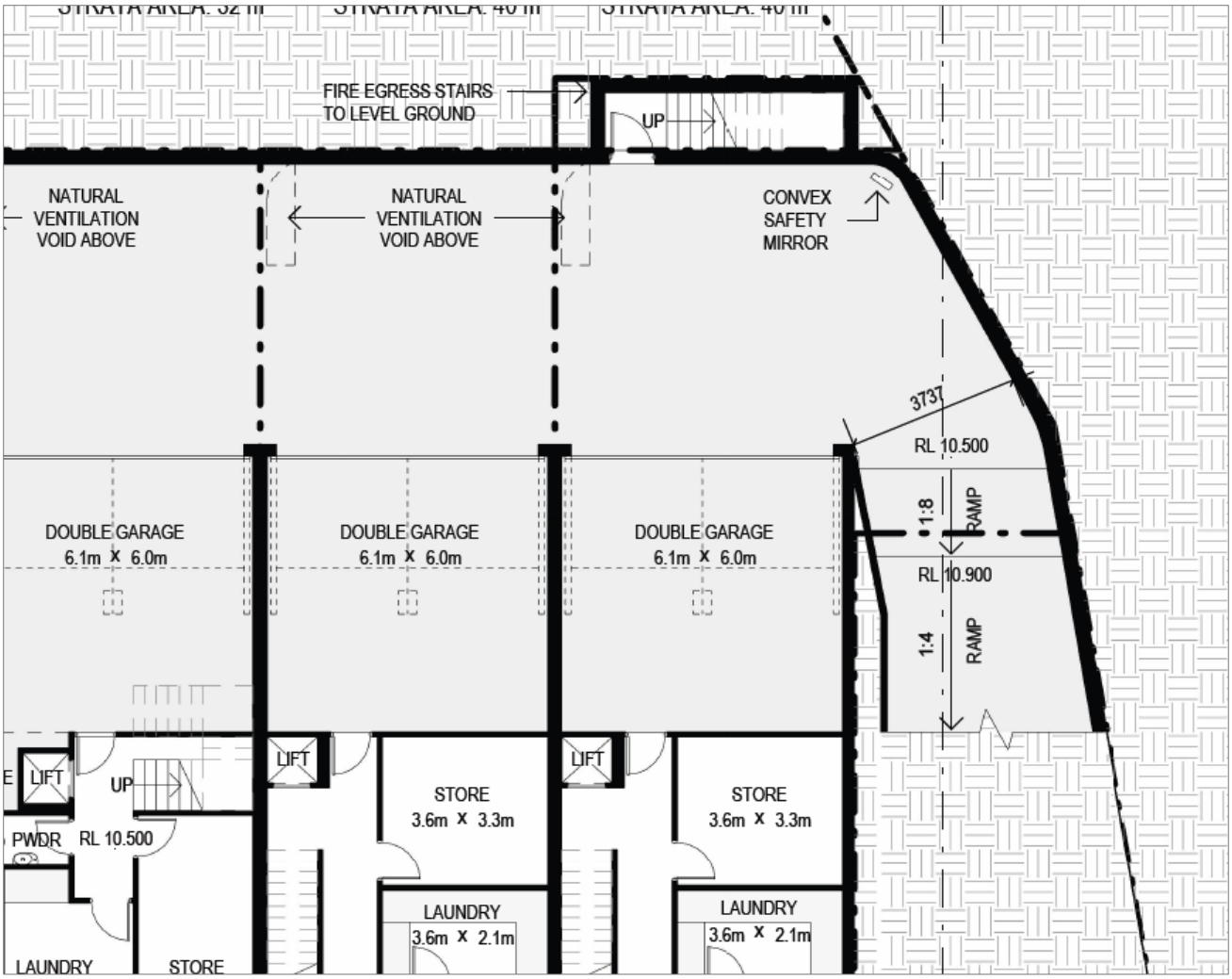
5.4.2 Signage and Pavement Markings

Signs and pavement markings should be provided within the car parks to improve the operational flow and remind drivers of any constraints or traffic arrangements implemented. Line marking to denote the holding line for inbound vehicles will help position the vehicle in the correct location so as to not block exiting vehicles.

5.4.3 Convex Mirrors

Convex mirrors can help to improve visibility around blind corners and turning areas within the car park and ramp (refer to **Figure 12**). The Site plans show a convex mirror located on the basement level near the bottom of the ramp as shown in **Figure 12**.

Figure 12 Location of Proposed Convex Mirror



6 TRAFFIC MANAGEMENT ON FRONTAGE STREETS

6.1 Existing Road Network and Traffic Management

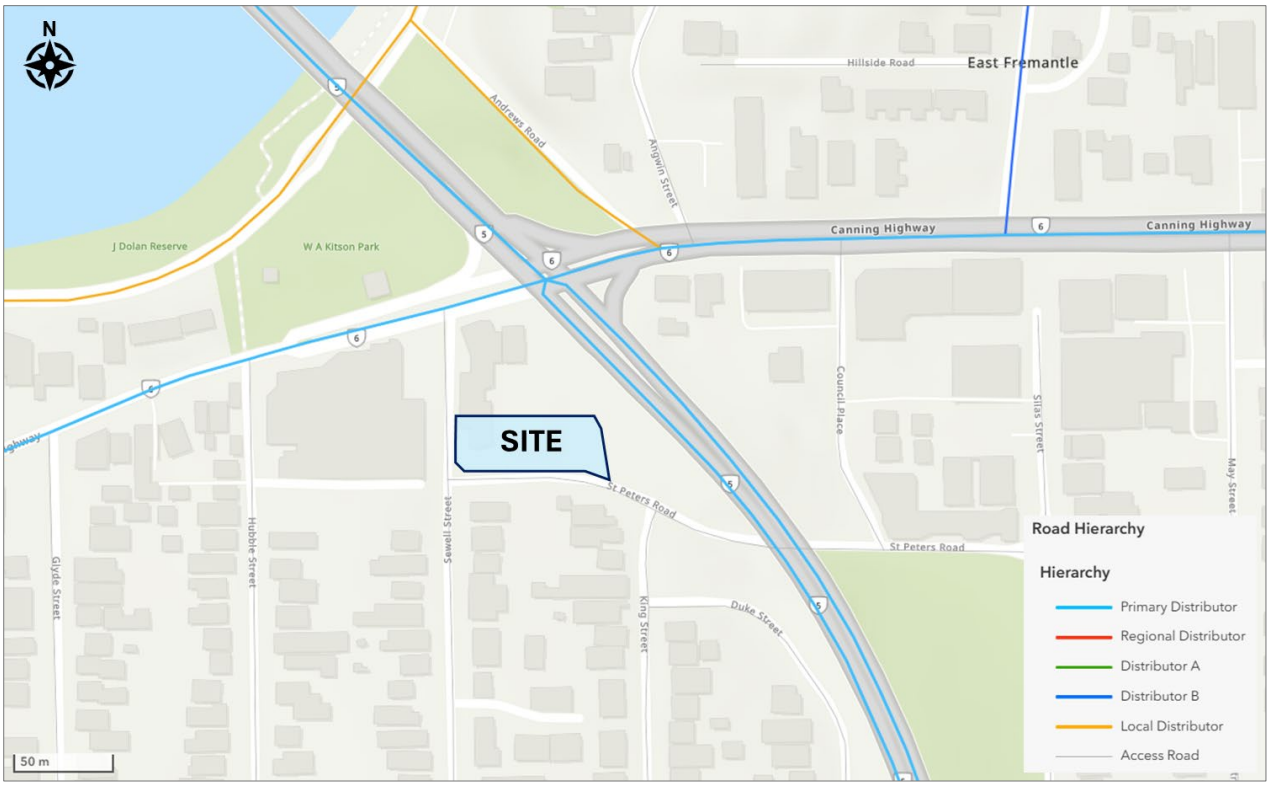
The road network within Western Australia is defined by Main Roads WA Road Hierarchy which describes the function, characteristic and management of each type of road. A description of each road type as per Main Roads WA Road Hierarchy criteria is summarised in **Table 4** below.

Table 4 Road Hierarchy Description

Road Type	Description
Primary Distributors	Provide for major regional and inter-regional traffic movement and carry large volumes of generally fast-moving traffic. Some are strategic freight routes and all are State Roads. They are managed by Main Roads Western Australia.
District Distributor A	Carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by local government.
District Distributor B	Perform a similar function to type A District Distributors but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with a traffic demand in excess of that originally intended. District Distributor A and B roads run between land-use cells and generally not through them, forming a grid which would ideally space them around 1.5 kilometres apart. They are managed by local government.
Regional Distributor	Roads that are not Primary Distributors but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by local government.
Local Distributor (Urban)	Roads that carry traffic within a cell and link District Distributors or Regional Distributors at the boundary, to access roads. The route of Local Distributors should discourage through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. Urban Local Distributor roads are managed by local government.
Local Distributor (Rural)	Connect to other Rural Distributors and to Rural Access Roads. Not Regional Distributors, but which are designed for efficient movement of people and goods within regional areas. Rural Local Distributor roads are managed by local government.
Access Roads	Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by local government.

Figure 13 shows the road hierarchy network and **Table 5** provides a summary of the road characteristics of the surrounding road network.

Figure 13 Road Hierarchy



Source: Main Roads WA Road Information Mapping System

Table 5 Surrounding Network Road Hierarchy

Road Name	Road Hierarchy	Jurisdiction	No. of footpaths	No. of Lanes	Road Pavement Approximate Width (m)	Speed Limit (km/hr)
Canning Highway	Primary Distributor	MRWA	2	4	12.5m W of Sterling Hwy 14m E of Sterling Hwy	60
Stirling Highway	Primary Distributor	MRWA	-	4	15m (inc. 1.5m median)	60
St. Peters Road	Access Road	Local Government	2	2	7m W of King St 6.4m E of King St	50
Sewell Street	Access Road	Local Government	2	2	9.4m (inc. 2m on-street parking each side)	50
King Street	Access Road	Local Government	2	2	7m	50

Source: Main Roads WA Road Information Mapping System & Metromap

6.2 Existing Intersections

The nearest intersections to the site shown in **Figure 14** are the following:

- Canning Highway / Stirling Highway;
- Canning Highway / Sewell Street;
- Sewell Street / St Peters Road; and
- St Peters Road / King Street.

Figure 14 Nearest Intersections

6.3 Traffic Flows on Surrounding Roads

Detector volume data were obtained from Main Roads WA's Traffic Map at the site shown in **Figure 14**. The average weekday traffic volumes are summarised in **Table 6**.

Figure 15 Traffic Data Location

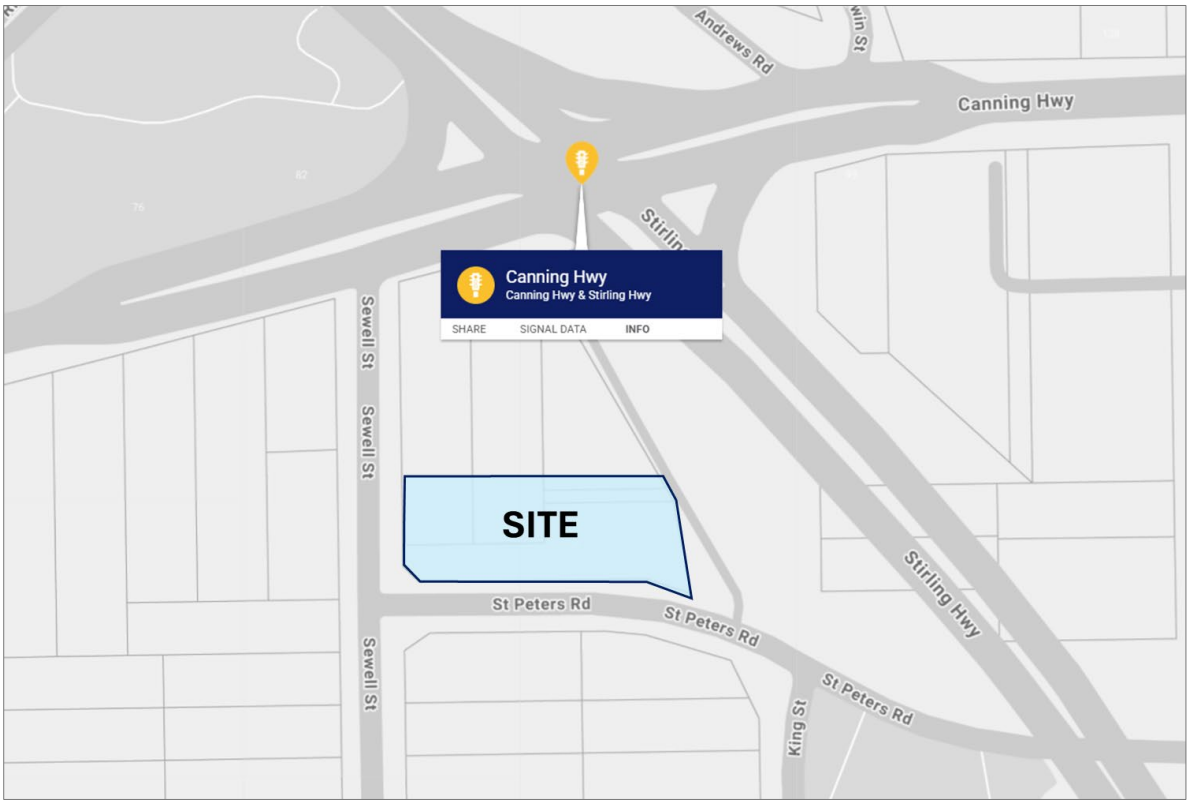


Table 6 Existing Traffic Volumes

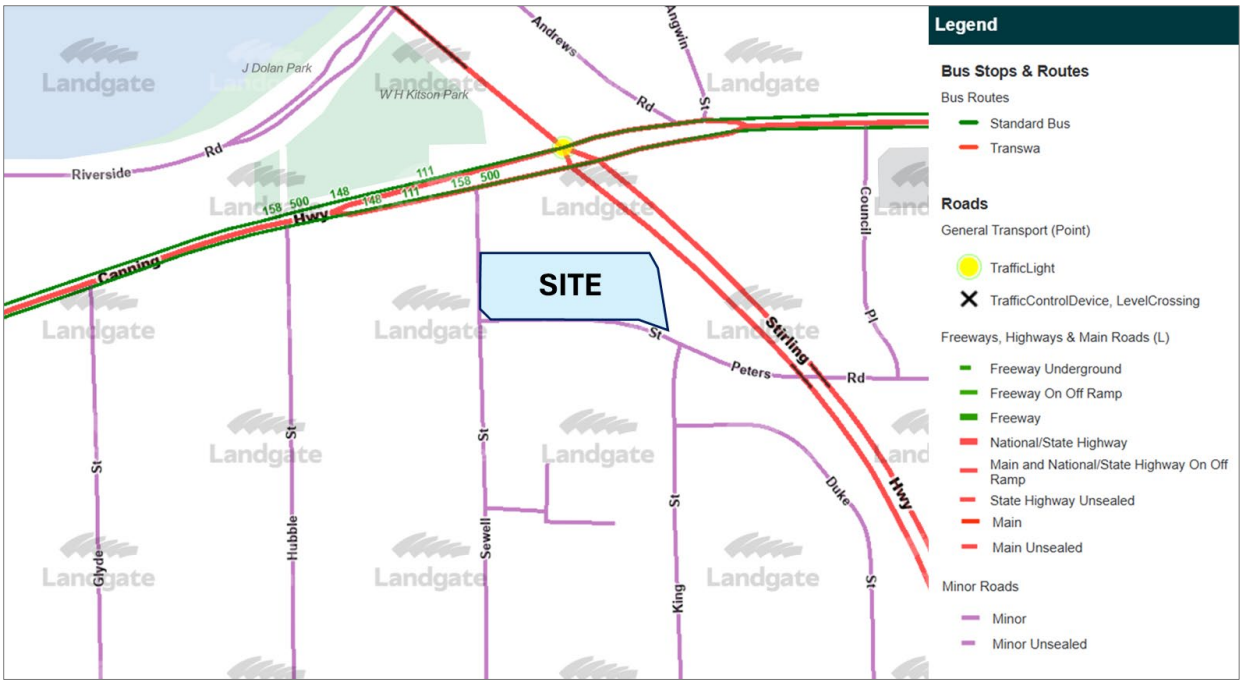
Road Name	Source	Year	Weekday AM Peak	Weekday PM Peak	Weekday Average Daily Traffic (HV%)
Canning Highway (East of East St)	MRWA	2024/25	1,300	972	12,610 (12.4%)
Canning Highway (West of Preston Point Rd)	MRWA	2024/25	1,903	2,025	26,181 (9.8%)

7 PUBLIC TRANSPORT ACCESS

7.1 Existing Public Transport Services

Transperth's bus routes 111, 148, 158, and 910 are the closest bus services from the Site, traversing along Canning Highway. **Figure 16** shows the bus routes and **Table 7** details the service frequencies.

Figure 16 Existing Bus Route



Source: Transperth

Table 7 Bus Service Routes and Frequencies

Bus Route	Route Description	Service Frequencies		
		Weekdays	Saturdays	Sundays & Public Holidays
111	Fremantle Station - East Perth via Canning Highway & Kwinana Freeway	10-15 minutes	No service	No service
148	Fremantle Station - Como via Bicton & Attadale	30 minutes	90 minutes	120 – 180 minutes
158	Fremantle Station - Perth via Bicton & Attadale	20-30 minutes	No service	No service
500	Bull Creek Station – Booragoon Station via Brentwood	*	*	*
910	Perth – Fremantle Station via Canning Highway	10 minutes	15 minutes	15 minutes

** only the deviation service of route 500 stop a the bus stops near the site and only operate during school days*

7.2 Nearest Bus Stops/Train Stations

The nearest bus stops from the Site are found along Canning Highway located approximately 100m to the north of the site as shown in **Figure 17**.

Figure 17 Location of Nearest Bus Stops Train Station

Source: Transperth

7.3 Pedestrian/Cycle Links to Bus Stops/Train Stations

The bus stops along Canning Highway are accessible via existing footpaths on both sides of the road.

7.4 Future Public Transport Facilities

The Public Transport Authority were consulted and informed of the following anticipated changes early next year (2026) due to the closure of the Fremantle Traffic Bridge:

- Routes 111, 148, 158 & 910 will operate on their present alignment, although the east west movement through the Stirling Hwy intersection will be bus only.
- A very small number of additional weekday trips have been added to routes 158 and 910 in the area.
- Stops 10288 (Canning Highway before East Street) and 10289 (Canning Highway before Stirling Highway) will merge to a new stop approximately between East Street & Glyde Street due to the rerouting of traffic on Canning Highway eastbound onto Stirling Highway northbound.
- Journey times on all services are expected to be longer due to the traffic congestion predicted with the temporary bridge closure.

All additional trips added to the routes will be withdrawn and the routes will return to their present route alignments at the conclusion of the bridge closure.

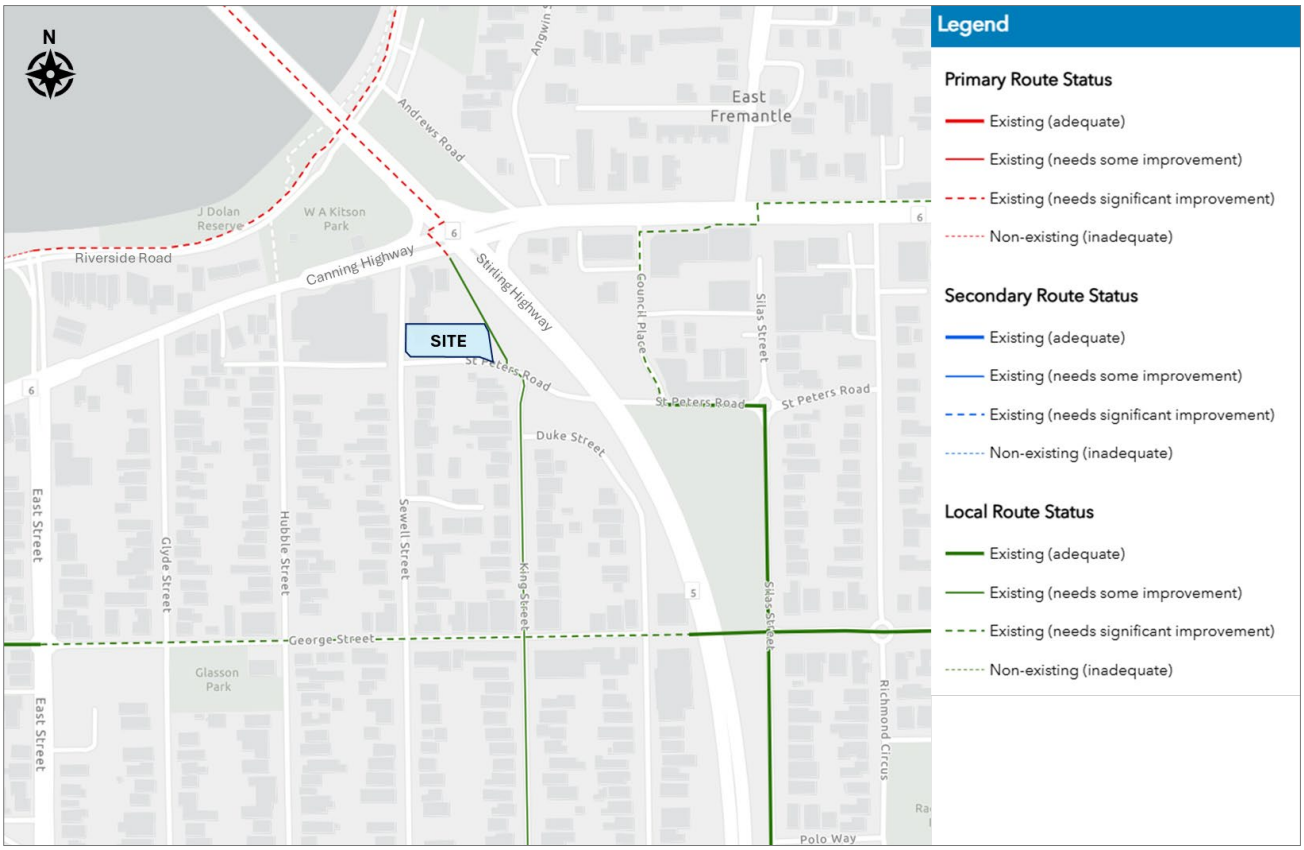
8 PEDESTRIAN AND CYCLE ACCESS/FACILITIES

8.1 Existing Pedestrian/Cycle Facilities on Surrounding Roads

Pedestrian footpaths are provided on both sides of Sewell Street and Canning Highway.

Figure 18 shows existing status of the Perth and Peel Long-Term Cycle Network. Cycling facilities along Stirling Highway (northeast of Canning Highway) and Riverside Road (primary route) are currently existing but needs significant improvement. The section of Canning Highway from Preston Point Road to Staton Road, Council Place and the section of George Street from East Street to Stirling Highway (local route) are also currently marked as existing but needs significant improvement

Figure 18 Existing Pedestrian and Cycle Facilities

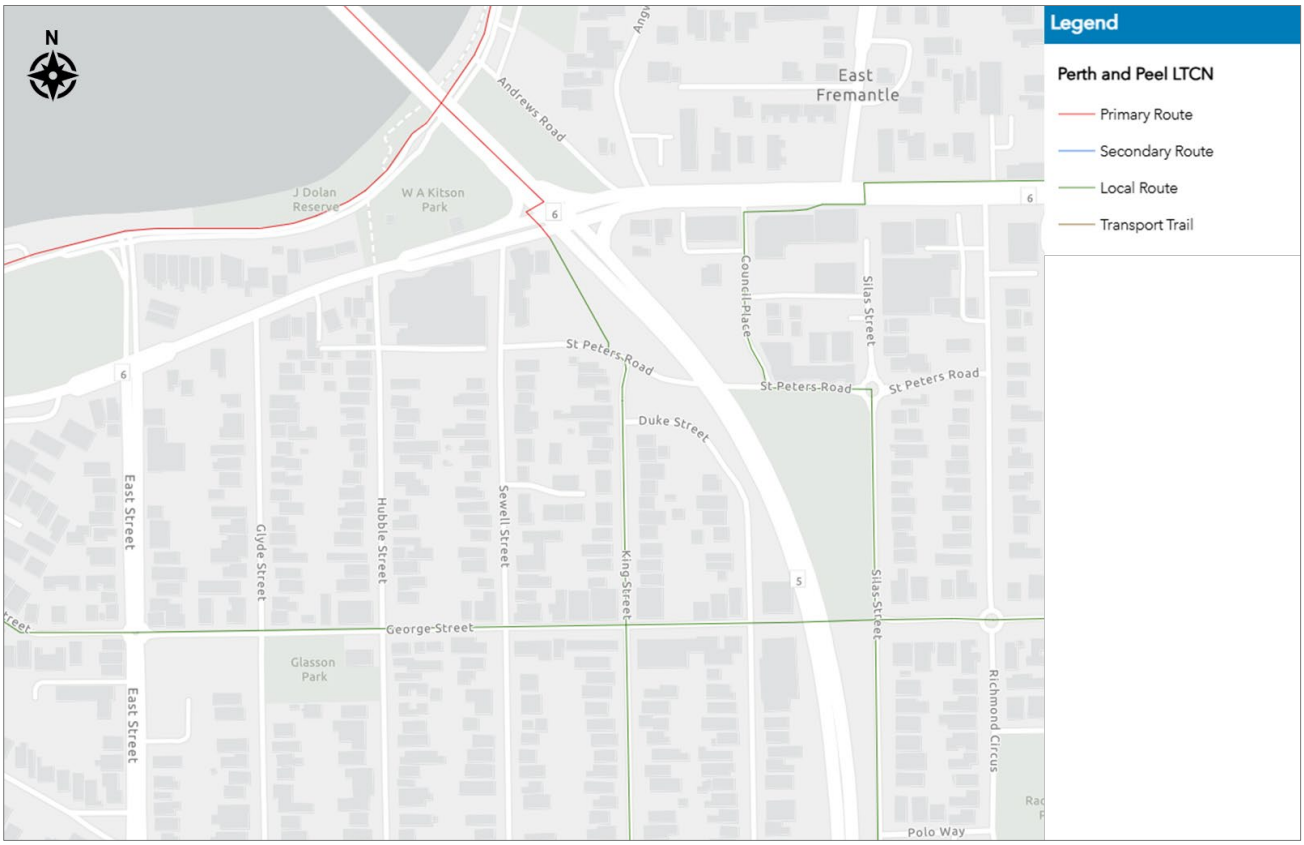


Source: Perth and Peel Long-Term Cycle Network

8.2 Proposals to Improve Pedestrian/Cycle Access

Figure 19 shows the ultimate pedestrian and cycle paths as observed in the LTCN Map. These are all existing cycling routes, and no additional routes are proposed.

Figure 19 Long-Term Cycle Network Map



Source: Perth and Peel Long-Term Cycle Network

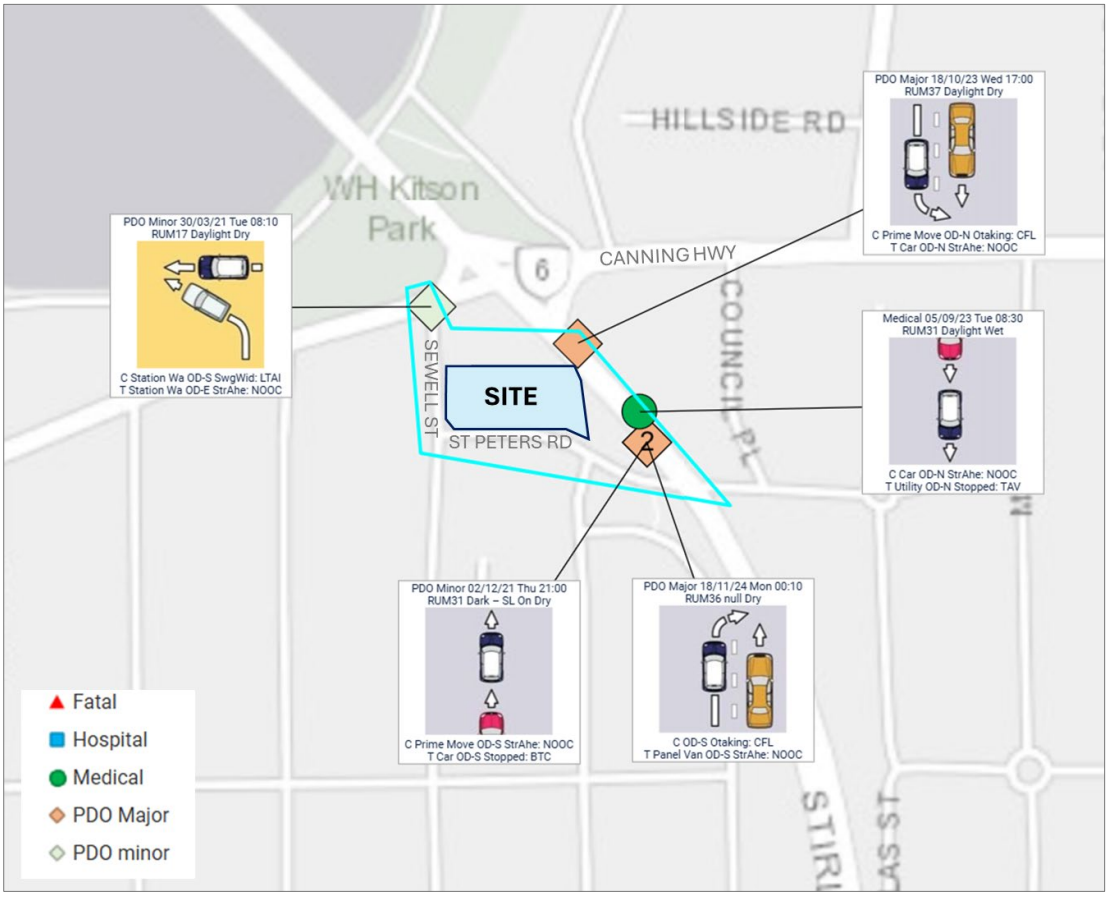
9 SITE SPECIFIC ISSUES

9.1 Crash Assessment

A crash assessment for the surrounding road network of the Site has been completed using Main Roads WA Reporting Centre. The assessment covers all the recorded crashes for the 5-year period between 1 January 2020 to 31 December 2024.

The crash locations and severity of these crashes are illustrated in **Figure 20**. A summary of all crashes that occurred within the vicinity of the Site is provided in **Table 8**.

Figure 20 Crash Locations



Source: Main Roads WA Reporting Centre

Table 8 Total Crashes

Crash Nature	Fatal	Hospital	Medical	PDO Major	PDO Minor	Total Crashes
Canning Highway / Sewell Street Intersection						
Right Angle	-	-	-	-	1	1
Sub-total	**-**	**-**	**-**	**-**	**1**	**1**
Stirling Highway Midblock						
Rear End	-	-	1	-	1	2
Sideswipe Same Direction	-	-	-	2	-	2
Sub-total	-	-	1	2	1	4
Total	**-**	**-**	1	2	2	5

Crash data is summarised as follows:

- A total of five (5) crashes were recorded within the vicinity of the Site, with no fatal crashes recorded.
- Primary cause of the crashes was identified to be rear end and sideswipe same direction collisions.
- Most of the road crashes (80%) resulted in major and minor property damages.
- One (1) recorded crash at Stirling Highway midblock due to rear end collision required medical attention.
- Four (4) crashes were recorded at the Stirling Highway midblock, and one (1) crash was reported at the Canning Highway / Sewell Street intersection.

Overall, given the low expected traffic generation, it is unlikely that the proposed development will have a significant impact on road safety in the area.

10 SUMMARY AND CONCLUSIONS

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016); the checklist is included in Appendix A.

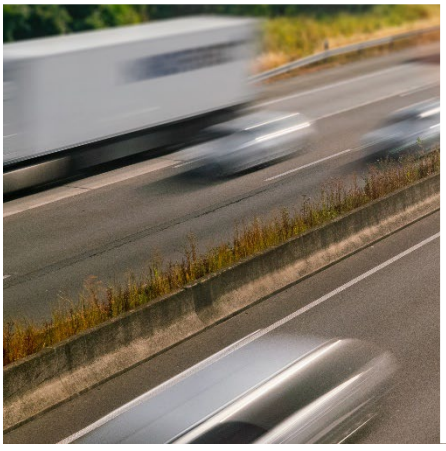
The following conclusions can be drawn from this TIS:

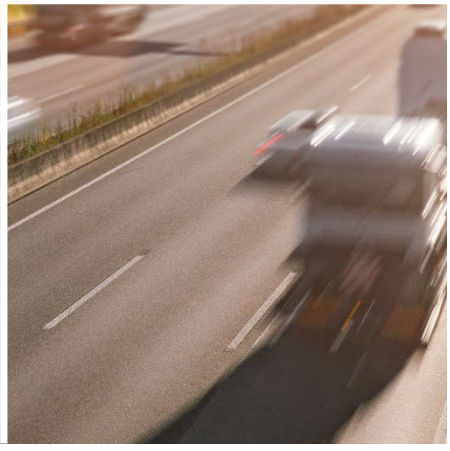
- The Site is located at 91-93 Canning Highway) within the Town of East Fremantle, approximately 13km southwest of the Perth CBD.
- The proposed development consists of nine (9) grouped dwellings with a single basement level allocated for parking.
- The proposed development is expected to generate approximately 7 vehicle trips is expected to be generated in the AM peak, 8 vehicle trips during PM peak and 74 daily trips.
- A total of 18 parking bays are proposed with each town house being allocated 2 parking bays.
- Transperth's bus routes 111, 148, 158, and 910 are the closest bus services from the Site with the nearest stop located approximately 100m north of the Site.
- A swept path analysis was conducted to demonstrate that vehicles can operate around the narrow one way section of the ramp and in and out of the parking bays. Furthermore, the implementation of traffic management measures are advised to reduce potential collision risks and facilitate safe vehicle circulation.
- A total of five (5) crashes were recorded within the vicinity of the Site over the past five years with rear end and sideswipe same direction collisions being the primary cause of crashes at intersections and midblock.

Overall, it is not expected that the proposed development will have an adverse impact on road safety or traffic operations in the surrounding area.

Appendix A

WAPC CHECKLIST





Item	Status	Comments/Proposal
Proposed Development	**Section 2**	
existing land uses	Section 2.2	
proposed land uses	Section 2.4	
context with surrounds	Section 2.3	
Traffic volumes	**Section 3**	
daily or peak traffic volumes	Section 3.1	
type of vehicles (eg cars, trucks)	Section 3.2	
Vehicular access and parking	**Section 4**	
access arrangements	Section 4.1	
public, private, disabled parking set down/pick up	Section 4	
Swept Paths	**Section 5**	
waste collection	Section 5.1	
on/off-site loading facilities	Section 5.2	
swept path analysis	Section 5.3	
Traffic management on frontage streets	**Section 6**	
Public transport access	**Section 7**	
existing public transport services	Section 7.1	
nearest bus stops/train stations	Section 0	
pedestrian/cycle links to bus stops/ train station	Section 7.3	
future public transport facilities	Section 7.4	
Pedestrian and Cycle access/facilities	**Section 8**	
existing pedestrian and cycle networks within the development (if any)	Section 8	
proposed pedestrian and cycle facilities within the development	Section 4.2	
existing pedestrian and cycle facilities on surrounding roads	Section 8.1	
proposals to improve pedestrian and cycle access	Section 8.2	
Site specific issues	**Section 9**	
Summary	**Section 10**	

Appendix B

SITE PLANS

FUTURE STAGE 2 DEVELOPMENT

EXISTING STREET VISITOR PARKING TO BE RETAINED

STREET VISITOR PARKING

T01	T02	T03	T04	T05	T06	T07	T08	T09
TYPE A1	TYPE B	TYPE B	TYPE A2	TYPE B	TYPE B	TYPE A2	TYPE C1	TYPE C2
PLOT RATIO AREA: 83 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 82 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 82 m²	PLOT RATIO AREA: 84 m²	PLOT RATIO AREA: 84 m²
STRATA AREA: 75 m²	STRATA AREA: 73 m²	STRATA AREA: 73 m²	STRATA AREA: 74 m²	STRATA AREA: 73 m²	STRATA AREA: 73 m²	STRATA AREA: 74 m²	STRATA AREA: 76 m²	STRATA AREA: 76 m²

1 DA3-01

2 DA3-01

FIRE EGRESS STAIRS TO LEVEL GROUND

SECURED GATED ACCESS

PLANTER BOXES

SECURED GATED ACCESS

PLANTER BOXES

SECURED GATED ACCESS

FIRE EGRESS STAIRS TO LEVEL GROUND

CONCRETE FOOTPATH

STIRLING HWY

SEWELL STREET

BITUMEN FOOTPATH

6400

13400

ALFRESCO 6.1m × 5.2m RL 13.500

ALFRESCO 4.5m × 5.2m RL 13.500

ALFRESCO 6.6m × 5.2m RL 13.500

BBQ

VOID

DINING 3.1m × 4.9m

KITCHEN 3.1m × 4.9m

DINING 3.1m × 4.5m

KITCHEN 3.1m × 4.5m

SCUL.

LIFT

UP

DN

LIVING 3.9m × 5.0m

LIVING 3.7m × 3.8m

ENTRY RL 13.500

SECOND LIVING 3.5m × 4.5m RL 13.500

1:8 RAMP

RL 10.900

1:4 RAMP

WALL MOUNTED FLASHING VEHICLE WARNING LIGHT

VEHICLE GATES

WAITING BAY

1:20 RAMP

RL 13.330

PROPOSED CROSSOVER

BIN STORE

240l

140l

RL 13.500 UP

FRONT YARD RL 13.875

FRONT YARD RL 13.880

FRONT YARD RL 13.804

FRONT YARD RL 13.683

FRONT YARD RL 13.538

FRONT YARD RL 13.523

FRONT YARD RL 13.522

FRONT YARD RL 13.517

FRONT YARD RL 13.393

PLANTER BOXES

SECURED GATED ACCESS

SCREENED BIN ENCLOSURE

CONCRETE FOOTPATH

SECURED GATED ACCESS

ST PETERS ROAD

LOT 100

LOT 501

RAD architecture

PROJECT NAME	91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	GROUND PLAN
	DEVELOPMENT APPLICATION ISSUE

SCALE 1 : 200 (A3)

0 1 2 3 4 5 6 M

PROJECT No.	DRAWING No.	REV
25-10	DA1-02	E
	DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
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	

FUTURE STAGE 2 DEVELOPMENT

1 DA3-01

2 DA3-01

T01 TYPE A1 STRATA AREA: 33 m²

T02 TYPE B STRATA AREA: 32 m²

T03 TYPE B STRATA AREA: 32 m²

T04 TYPE A2 STRATA AREA: 32 m²

T05 TYPE B STRATA AREA: 32 m²

T06 TYPE B STRATA AREA: 32 m²

T07 TYPE A2 STRATA AREA: 32 m²

T08 TYPE C1 STRATA AREA: 40 m²

T09 TYPE C2 STRATA AREA: 40 m²

FIRE EGRESS STAIRS TO LEVEL GROUND

UP

NATURAL VENTILATION VOID ABOVE

6100

TOWNHOUSE BASEMENT VEHICLE ACCESS ROAD
SECURE GATED ACCESS

CONVEX SAFETY MIRROR

3731

RL 10.500

1:8 RAMP

RL 10.900

1:4 RAMP

DOUBLE GARAGE 7.6m x 6.0m

DOUBLE GARAGE 6.1m x 6.0m

BIKE

LIFT

RL 10.500 PWDR

STORE 2.5m x 5.1m

LAUNDRY 3.5m x 3.9m

STORE 3.6m x 3.3m

LAUNDRY 3.6m x 2.1m

RL 10.500 UP LINEN PWDR

1500

4000

4126

SEWELL STREET

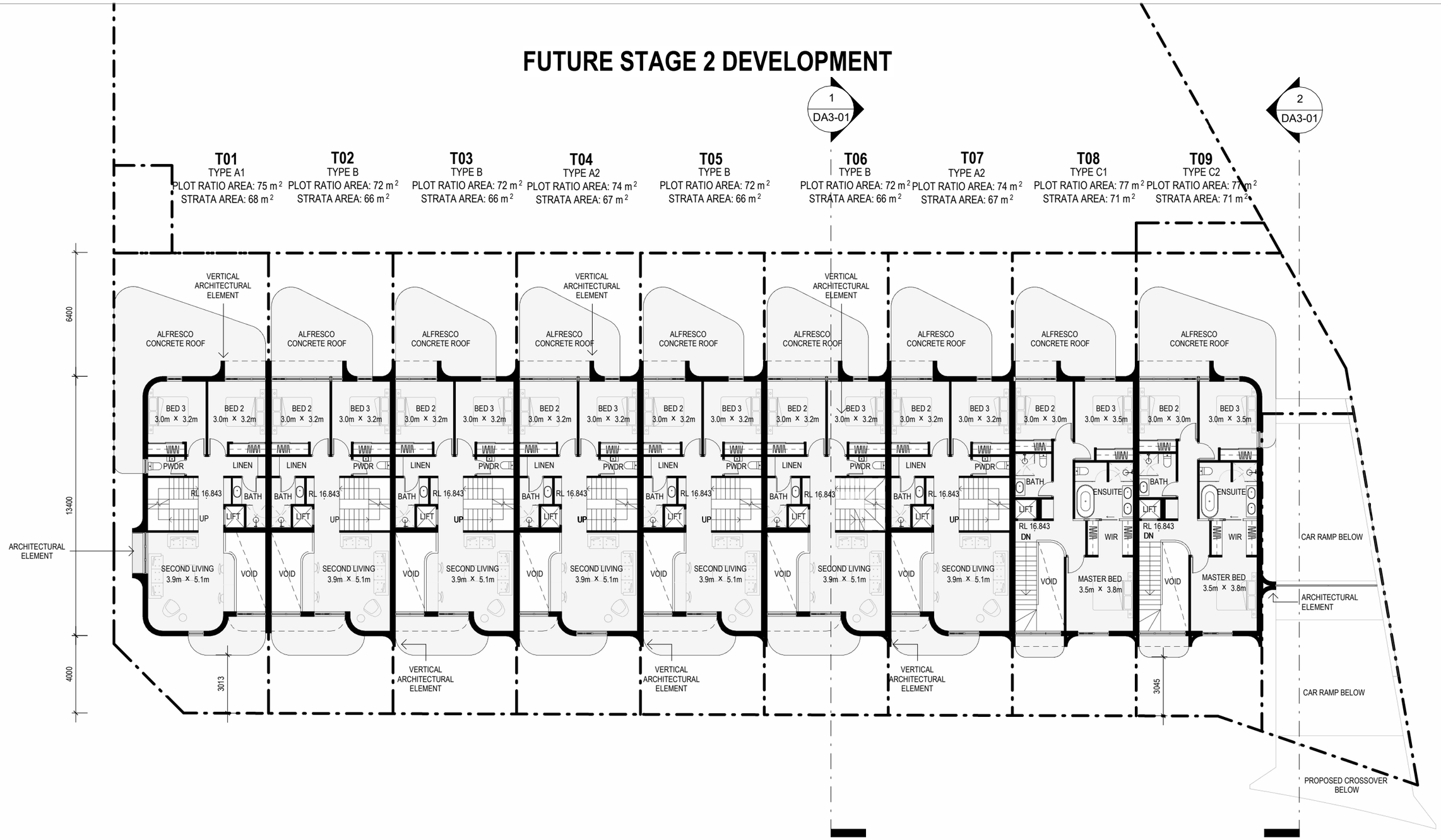
ST PETERS ROAD

RAD architecture

PROJECT NAME	91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	BASEMENT PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3) — 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA1-01
REV	G
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
13/02/2026	G	ISSUE FOR CONSULTANT	
09/02/2026	F	ISSUE FOR REVIEW	
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	

FUTURE STAGE 2 DEVELOPMENT



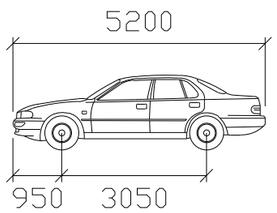
RAD architecture

PROJECT NAME	91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	LEVEL 1 PLAN
	DEVELOPMENT APPLICATION ISSUE
SCALE	1 : 200 (A3) — 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA1-03
REV	F
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
13/02/2026	F	ISSUE FOR CONSULTANT	
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	

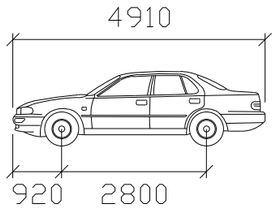
Appendix C

SWEPT PATHS



B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

DA3-01

DA3-01

T05
TYPE B
PLOT RATIO AREA: 80 m²
STRATA AREA: 73 m²

T06
TYPE B
PLOT RATIO AREA: 80 m²
STRATA AREA: 73 m²

T07
TYPE A2
PLOT RATIO AREA: 82 m²
STRATA AREA: 74 m²

T08
TYPE C1
PLOT RATIO AREA: 84 m²
STRATA AREA: 76 m²

T09
TYPE C2
PLOT RATIO AREA: 84 m²
STRATA AREA: 76 m²

PLANTER BOXES

SECURED GATED ACCESS

FIRE EGRESS STAIRS TO LEVEL GROUND

DN

STIRLING HWY

CONCRETE FOOTPATH

ALFRESCO 4.5m × 5.2m RL 13.500

ALFRESCO 6.6m × 5.2m RL 13.500

BBQ

VOID

DINING 3.1m × 4.9m

KITCHEN 3.1m × 4.9m

KITCHEN 3.1m × 4.5m

DINING 3.1m × 4.5m

SCUL.

LIFT

UP

LIVING 3.9m × 5.0m

LIVING 3.7m × 3.8m

ENTRY RL 13.500

SECOND LIVING 3.5m × 4.5m RL 13.500

SECOND LIVING 3.5m × 4.5m

DN

RL 13.500 UP

FRONT YARD RL 13.875

FRONT YARD RL 13.880

FRONT YARD RL 13.804

FRONT YARD RL 13.683

FRONT YARD RL 13.538

FRONT YARD RL 13.523

FRONT YARD RL 13.522

FRONT YARD RL 13.517

FRONT YARD RL 13.393

B99 STANDARDS 2004 (AU_NZ)

B85 STANDARDS 2004 (AU_NZ)

1:8 RAMP

WAITING BAY

RL 13.330

PROPOSED CROSSOVER

WALL MOUNTED FLASHING VEHICLE WARNING LIGHT

VEHICLE GATES

PLANTER BOXES

SECURED GATED ACCESS

SCREENED BIN ENCLOSURE

CONCRETE FOOTPATH

ST PETERS ROAD

LOT 100

LOT 501

FUTURE STAGE 2 DEVELOPMENT

FUTURE STAGE 2 DEVELOPMENT

T01 TYPE A1 STRATA AREA: 33 m2
T02 TYPE B STRATA AREA: 32 m2
T03 TYPE B STRATA AREA: 32 m2
T04 TYPE A2 STRATA AREA: 32 m2
T05 TYPE B STRATA AREA: 32 m2
T06 TYPE B STRATA AREA: 32 m2

FIRE EGRESS STAIRS TO LEVEL GROUND

NATURAL VENTILATION VOID ABOVE

TOWNHOUSE BASEMENT VEHICLE ACCESS ROAD
SECURE GATED ACCESS

B85 STANDARDS 2004 (AU_NZ)

DOUBLE GARAGE 6.1m x 6.0m

UP LIFT BIKE PWDR RL 10.500

STORE 2.5m x 5.1m
LAUNDRY 3.5m x 3.9m

SEWELL STREET

ST PETERS ROAD

DA3-01

T07
TYPE A2
STRATA AREA: 32 m 2

T08
TYPE C1
STRATA AREA: 40 m 2

T09
TYPE C2
STRATA AREA: 40 m 2

FIRE EGRESS STAIRS
TO LEVEL GROUND

UP

NATURAL
VENTILATION
VOID ABOVE

NATURAL
VENTILATION
VOID ABOVE

CONVEX
SAFETY
MIRROR

B85
STANDARDS 2004 (AU_NZ)

373

RL 10.500

7.8

RAMP

RL 10.900

1:4

DOUBLE GARAGE
6.1m x 6.0m

DOUBLE GARAGE
6.1m x 6.0m

DOUBLE GARAGE
6.1m x 6.0m

LIFT

UP

STORE
3.6m x 3.3m

STORE
3.6m x 3.3m

LAUNDRY
3.6m x 2.1m

LAUNDRY
3.6m x 2.1m

RL 10.500

LINEN

PWDR

UP

DA3-01

T07
TYPE A2
STRATA AREA: 32 m 2

T08
TYPE C1
STRATA AREA: 40 m 2

T09
TYPE C2
STRATA AREA: 40 m 2

FIRE EGRESS STAIRS
TO LEVEL GROUND

UP

NATURAL
VENTILATION
VOID ABOVE

NATURAL
VENTILATION
VOID ABOVE

CONVEX
SAFETY
MIRROR

B85
STANDARDS 2004 (AU_NZ)

373

RL 10.500

7.8

RAMP

1:4

DOUBLE GARAGE
6.1m x 6.0m

DOUBLE GARAGE
6.1m x 6.0m

DOUBLE GARAGE
6.1m x 6.0m

LIFT

UP

PWDR

RL 10.500

LAUNDRY
3.5m x 3.9m

STORE
2.5m x 5.1m

STORE
3.6m x 3.3m

LAUNDRY
3.6m x 2.1m

RL 10.500

LINEN

PWDR

UP

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RAD ARCHITECTURE

MIXED USE DEVELOPMENT
91-93 CANNING HIGHWAY
EAST FREMANTLE

SPP 5.4 NOISE MANAGEMENT PLAN

JANUARY 2026

OUR REFERENCE: 35728-2-25472

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DOCUMENT CONTROL PAGE

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

Job No: 25472

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FOR

RAD ARCHITECTURE

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Author:	Geoffrey Harris	**Checked By:**	George Watts
Date of Issue:	8 December 2025		

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Revision	Description	Date	Author	Checked
1	Revision for updated DA drawings	2/2/2026	GW	

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Version No.	Destination	Hard Copy	Electronic Copy
2	RAD Architecture Attn: Aleks Brkic Email: aleks@radarchitecture.com.au		✓

CONTENTS

APPENDICES

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 6th 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

Transport corridor classification	***Trigger distance***	***Distance measured from***
Roads		
Strategic freight and major traffic routes *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*	*300 metres*	*Road carriageway edge*
Other significant freight/traffic routes *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 >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)*	*200 metres*	*Road carriageway edge*
Passenger railways		
	100 metres	*Centreline of the closest track*
Freight railways		
	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}(Day) dB) (6 am-10 pm)	***Night (L_{Aeq}(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.*

<u>Noise Exposure Forecast (Section 6.2)</u>

*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)[1] 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.

1 *Calculation of Road Traffic Noise* UK Department of Transport 1987

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 superceded 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.

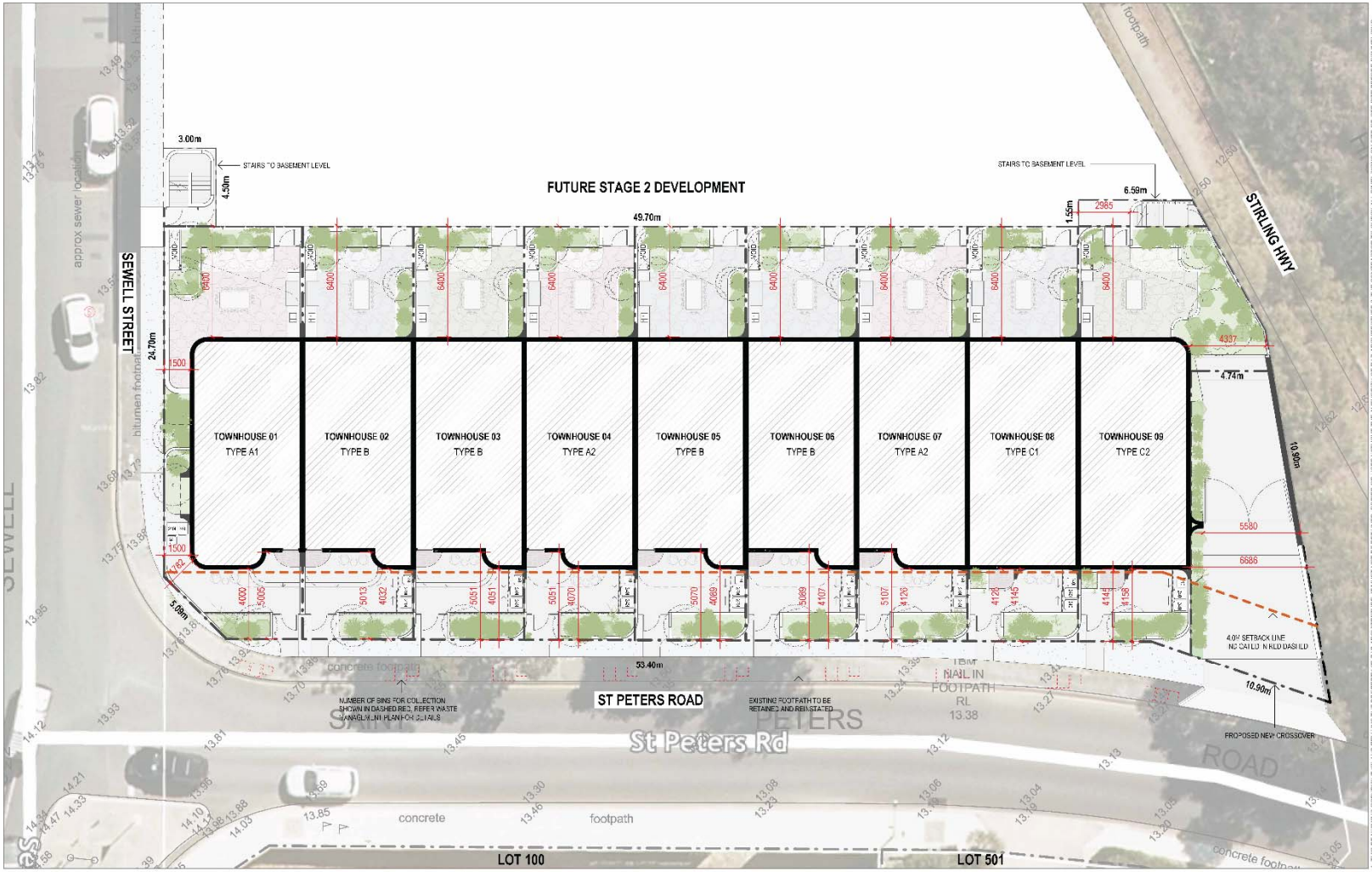
In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

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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	CLIENT: SARACEN PROPERTIES	SCHEMATIC DESIGN	PROJECT No.: 25-10	DRAWING No.: DA01-00	REV: A
				DRAWN BY: BGV	

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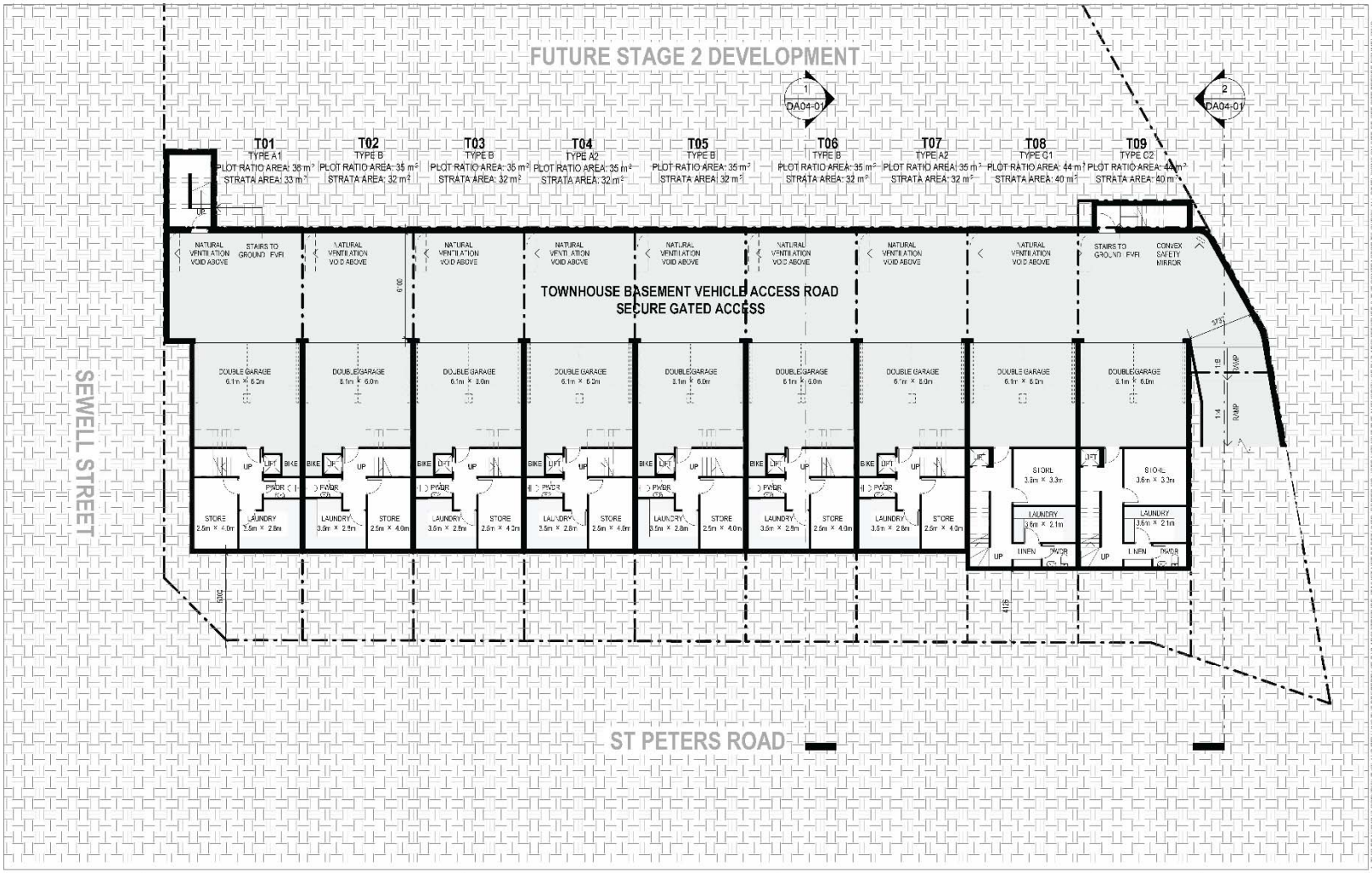

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				DRAWN BY: SP	

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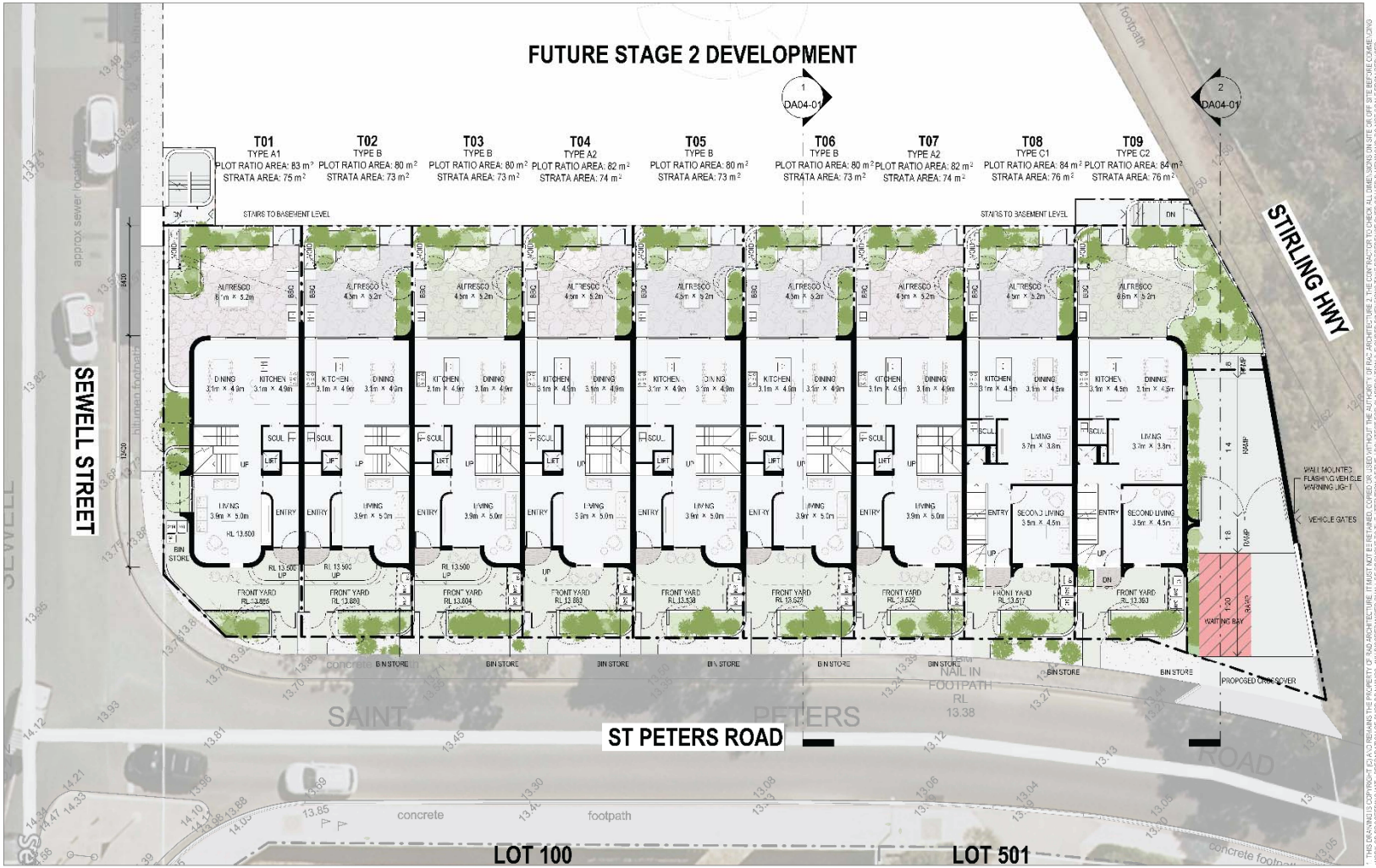

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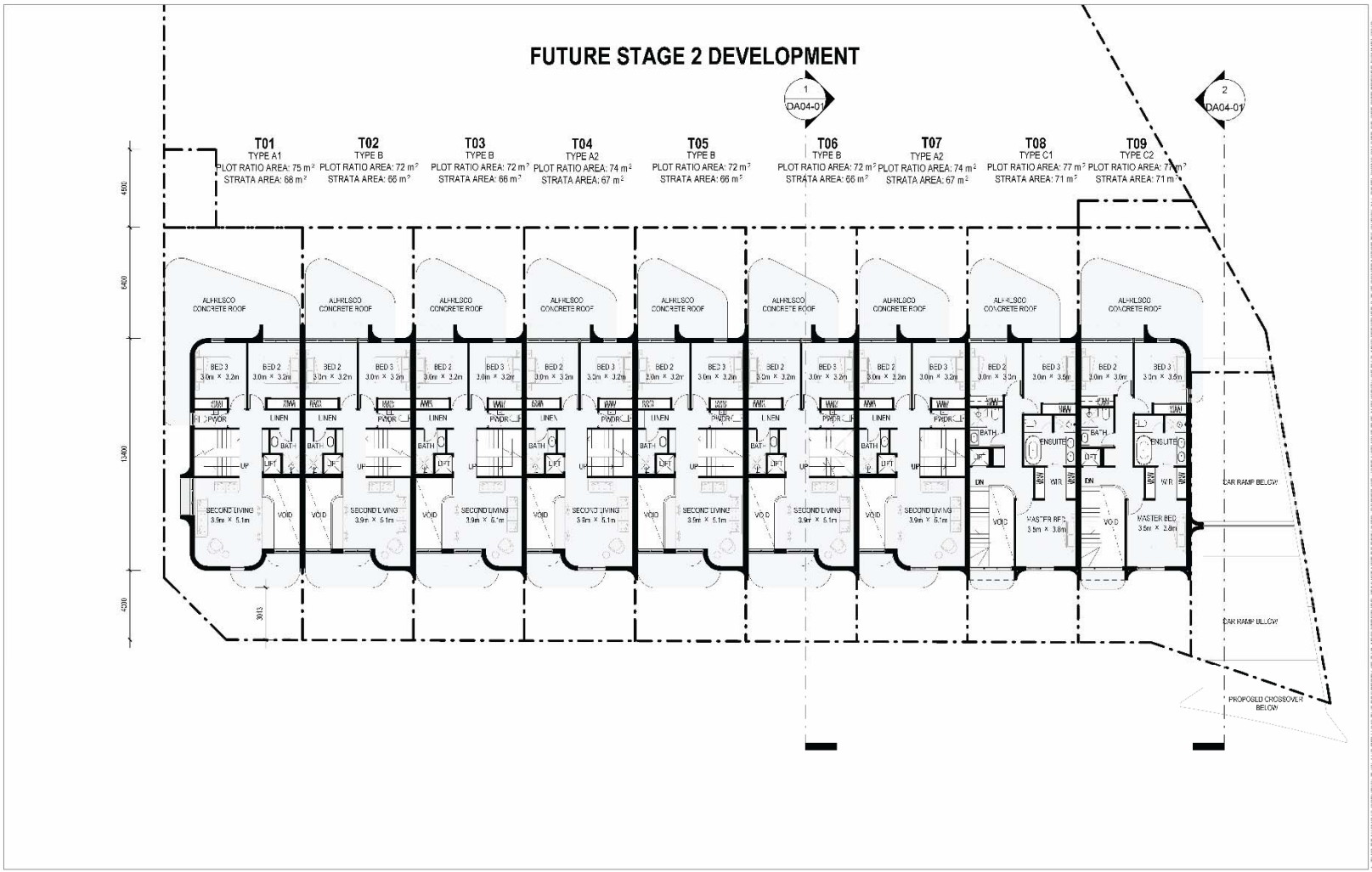

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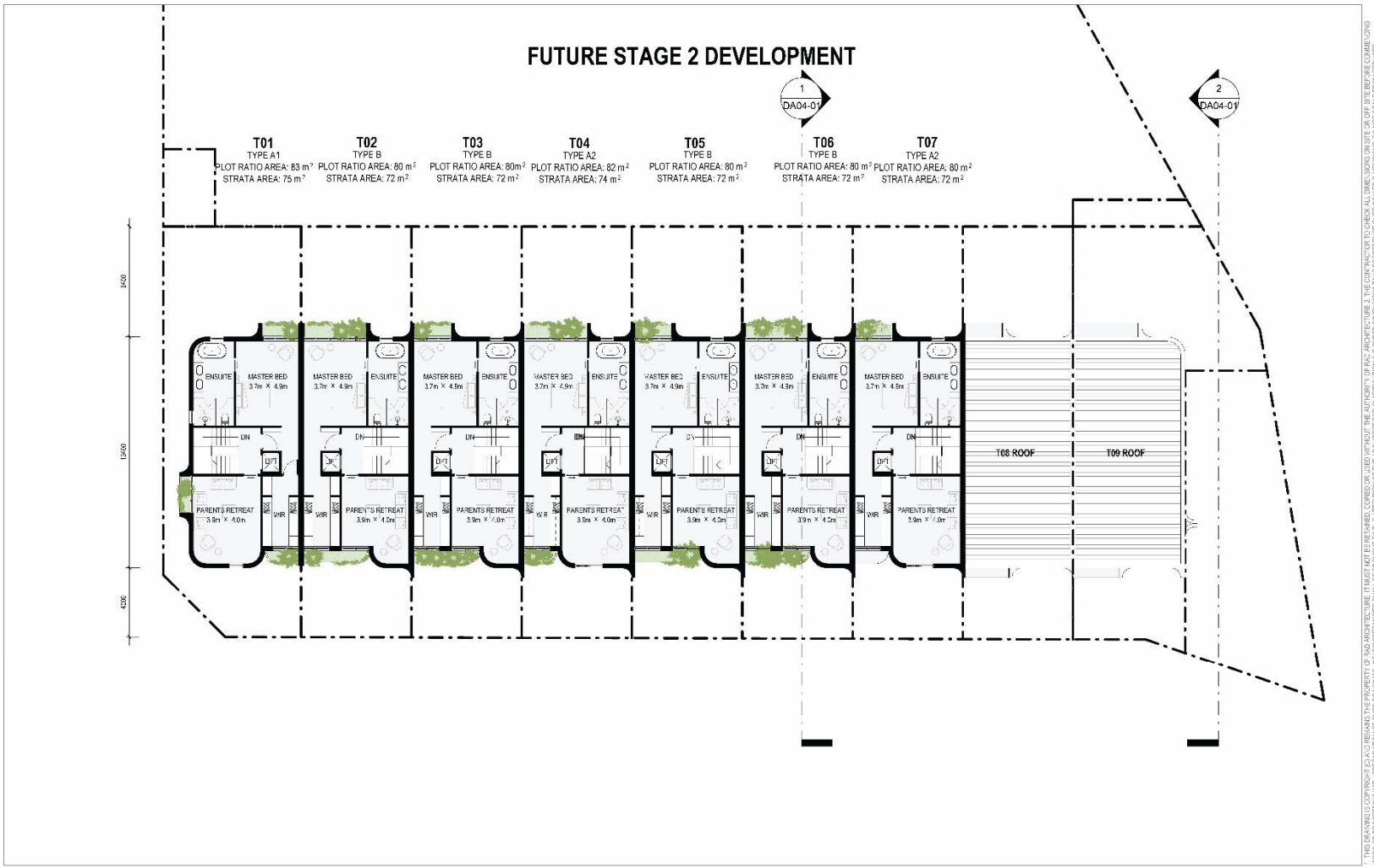

RAD architecture

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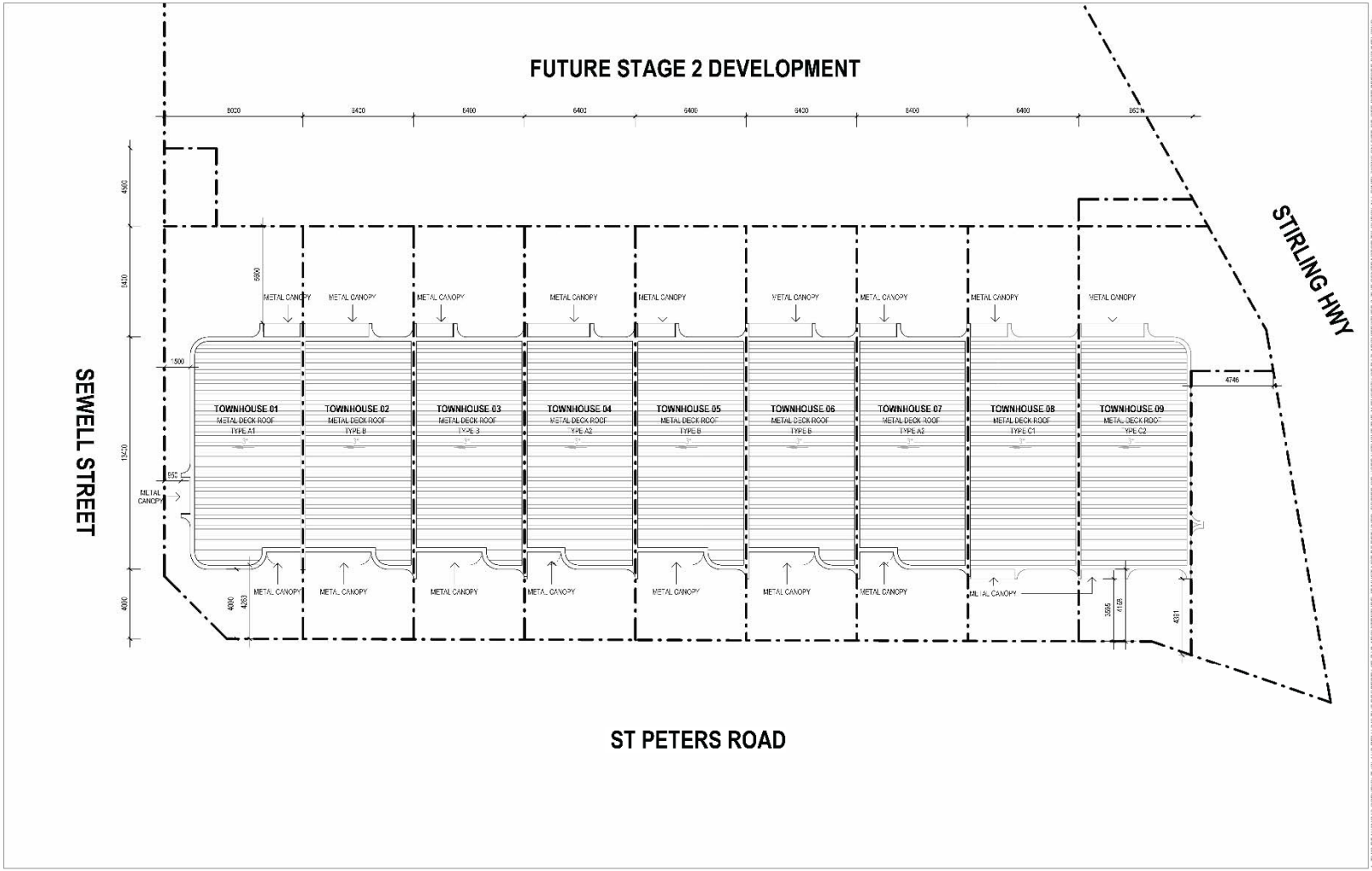

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12/12/2025	B	ISSUE FOR REVIEW	
26/11/2025	A	ISSUE FOR REVIEW	

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

mainroads
WESTERN AUSTRALIA

Stirling Hwy & Canning Hwy East Fremantle Noise Assessment

#43574

Transport Modelling Section

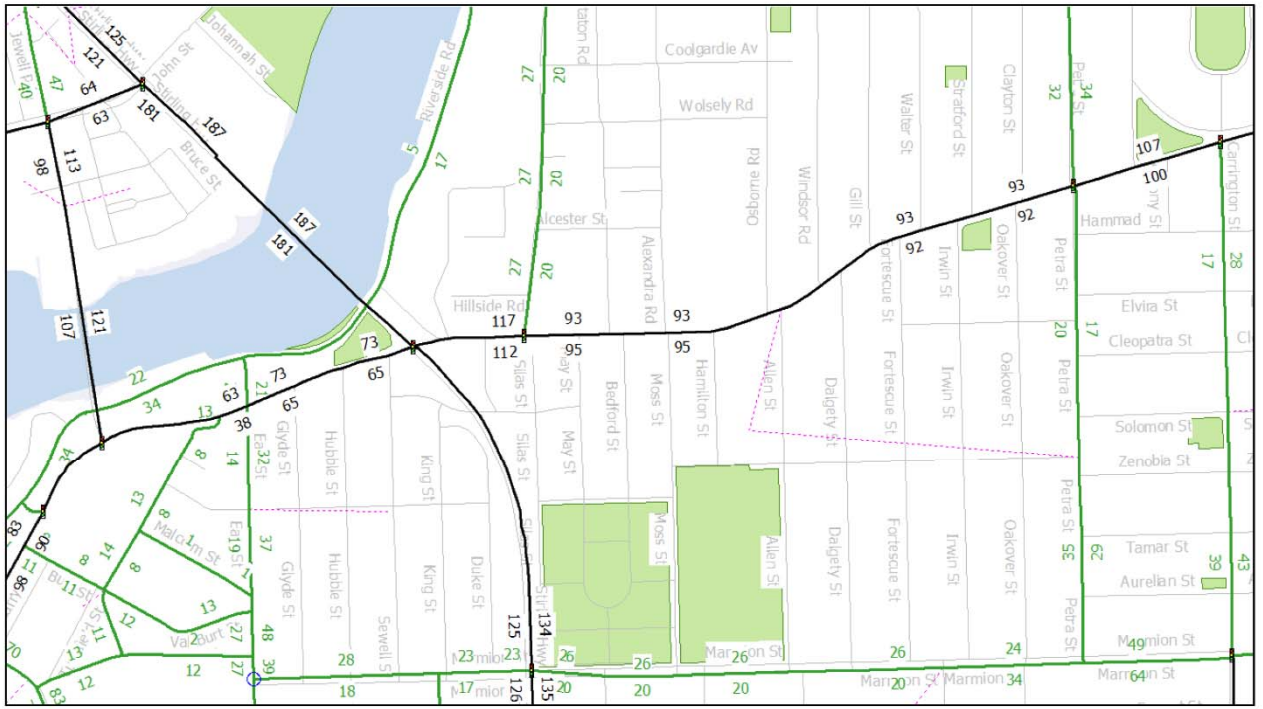
Enquiries: TMS@mainroads.wa.gov.au

26 November 2025

2021 ROM24 Scenario

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

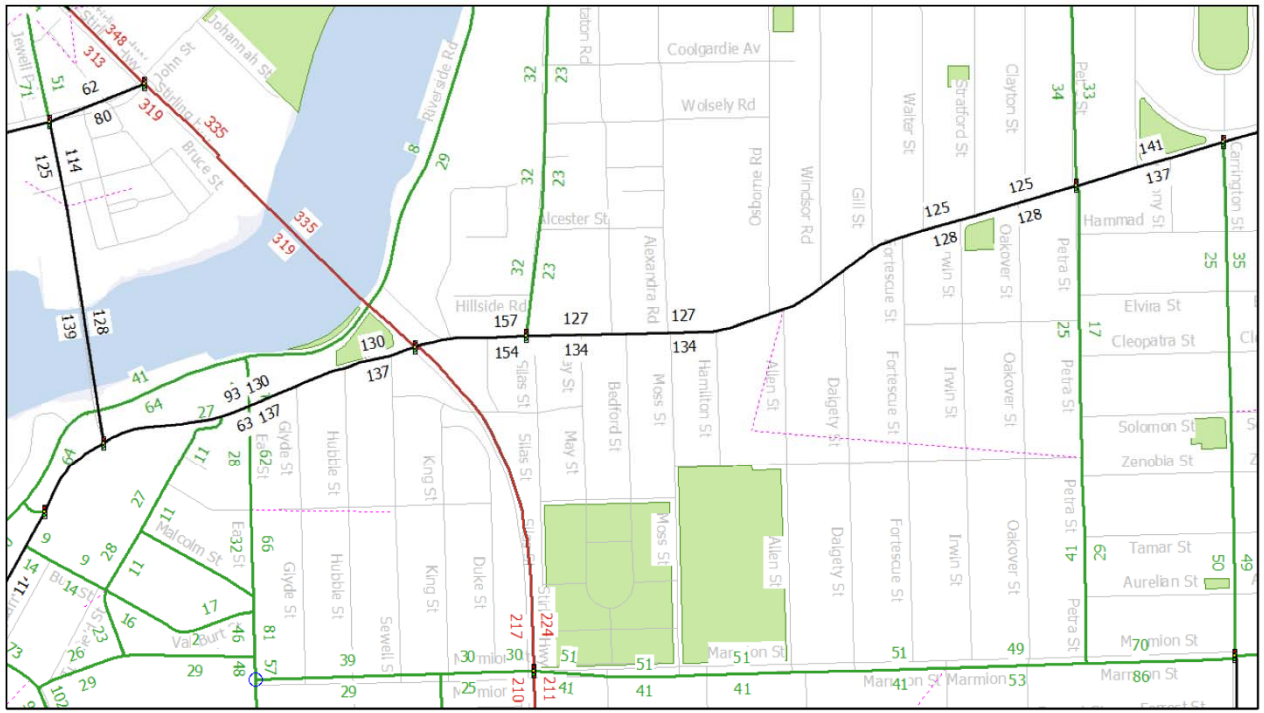
- 1 Lane Each Direction
- 2 Lanes Each Direction
- 3 Lanes Each Direction
- 4 Lanes Each Direction
- 5 Lanes Each Direction
- >=6 Lanes Each Direction
- Zone Connector



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



Surface Detail

Road	Start SLK	End SLK	CWY	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	CWY	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	CWY	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	CWY	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	CWY	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						
						SULA	L2	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	
						SULA	R1	3.8	2023	Asphalt Gap Graded Rubberised					40	
						SULA	R2	3.8	2023	Asphalt Gap Graded Rubberised					40	
	15.42	15.44	S	15.15	15.17	SULA	L1	3.6	2021	Asphalt Intersection Mix	Granite				40	
						SULA	L2	3.7	2021	Asphalt Intersection Mix	Granite				40	
						SULA	R1	3.6	2023	Asphalt Gap Graded Rubberised					40	
						SULA	R2	3.7	2023	Asphalt Gap Graded Rubberised					40	
	15.44	15.85	S	15.17	15.58	SULA	L1	3.6	1999	Asphalt Dense Graded						
						SULA	L2	3.7	1999	Asphalt Dense Graded						
						SULA	R1	3.6	1999	Asphalt Dense Graded						
						SULA	R2	3.7	1999	Asphalt Dense Graded						
	15.85	15.87	S	15.58	15.60	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	CWY	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	CWY	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	CWY	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	

HERRING STORER ACOUSTICS

RAD ARCHITECTURE

91 – 93 CANNING HIGHWAY
EAST FREMANTLE

DEVELOPMENT APPLICATION
ACOUSTIC REPORT

JANUARY 2026

OUR REFERENCE: 35740-2-25472

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
P.O. Box 219, Como, W.A. 6952
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DOCUMENT CONTROL PAGE

DA ACOUSTIC REPORT

91 – 93 CANNING HIGHWAY
EAST FREMANTLE

Job No: 25472

Document Reference: 35740-2-25472

FOR

RAD ARCHITECTURE

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Author:	George Watts	**Checked:**	Geoff Harris
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Revision	**Description**	**Date**	**Author**	**Checked**
1	Revision for updated DA drawings	2/2/2026	GW	

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2	RAD Architecture Attn: Aleks Brkic Email: aleks@radarchitecture.com.au		✓

CONTENTS

APPENDICIES

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
WALLS		
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
FLOORS		
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
SERVICE RISERS / STORM WATER DOWN PIPES		
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
DOORS		
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)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
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_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} 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_{Apeak} and $L_{Amax\ Slow}$ 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 $L_{A\ Fast}$ or is more than 3dB $L_{A\ Fast}$ 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 :

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

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_{A10}	L_{A1}	L_{Amax}
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_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} 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 REQUIRMENTS

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*.

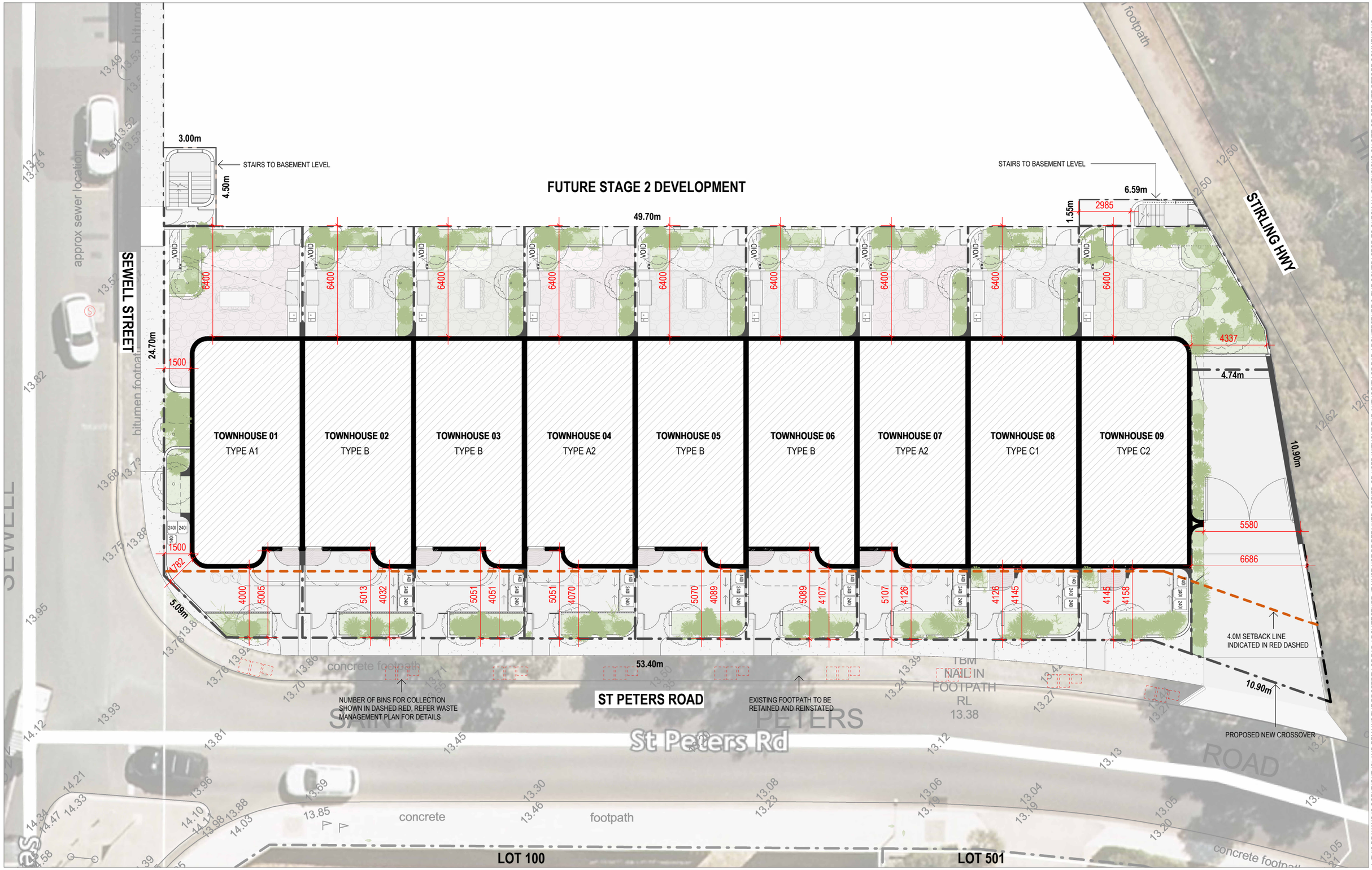
As the mechanical services could operate during the night, noise emissions from the development needs to comply with the assigned L_{A10} night period noise level of 44 dB(A) at residential premises. Potentially, noise emissions from mechanical services could be tonal, in which case an +5 dB(A) penalty 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

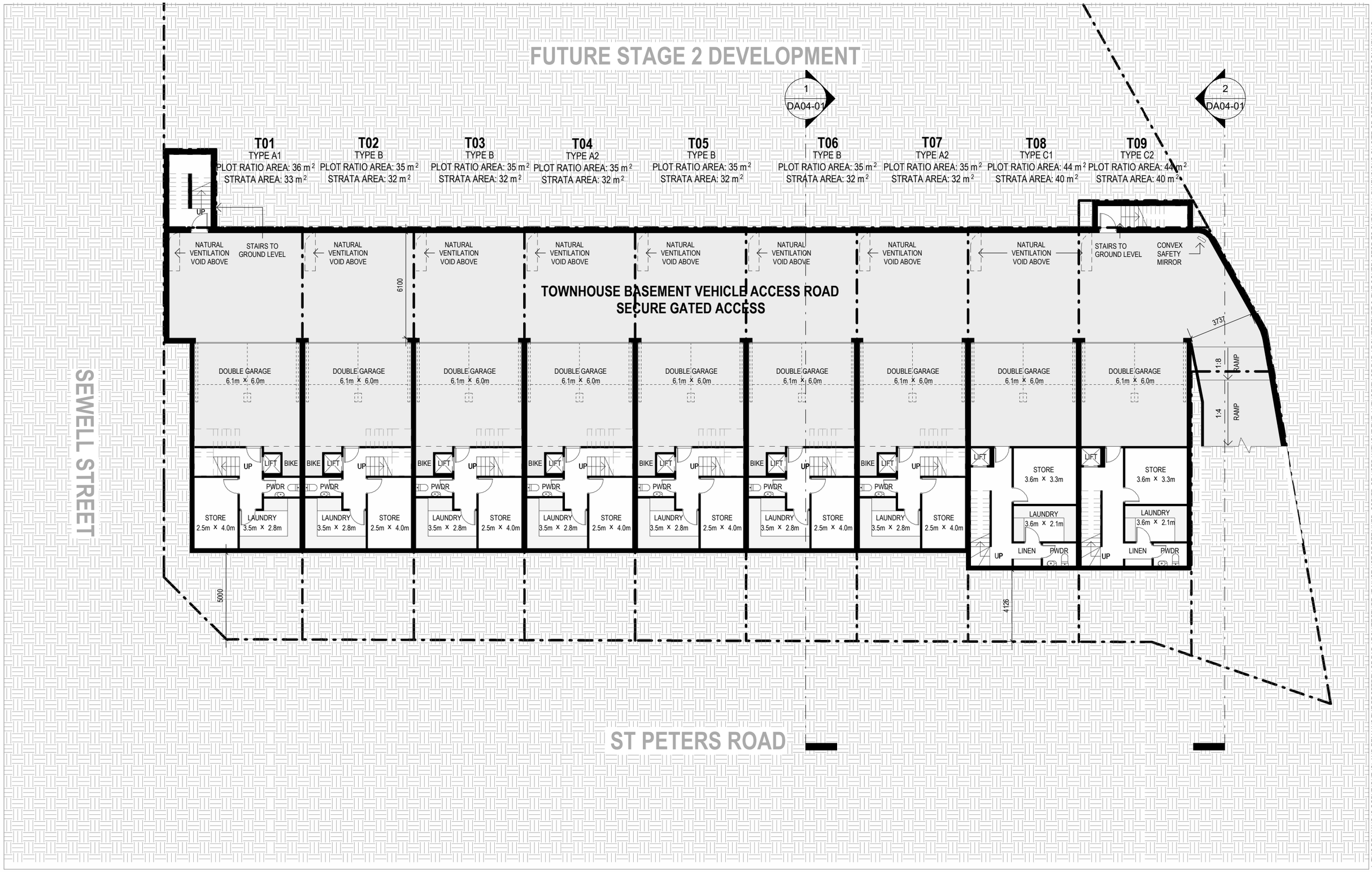
DEVELOPMENT APPLICATION PLANS



RAD architecture

PROJECT NAME: TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE	DRAWING NAME: SITE PLAN	SCALE: 1 : 200 (A3) 0 2 4 6 8 10 12 M		
CLIENT: SARACEN PROPERTIES	SCHEMATIC DESIGN	PROJECT No.: 25-10	DRAWING No.: DA01-00	REV: A
			DRAWN BY	BGV

DD/MM/YY	REV	DESCRIPTION	CHECKED
30/01/2026	A	ISSUE FOR CONSULTANT	



RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	BASEMENT PLAN
	SCHEMATIC DESIGN
SCALE	1 : 200 (A3) 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA01-01
REV	E
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
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	

FUTURE STAGE 2 DEVELOPMENT

T01	T02	T03	T04	T05	T06	T07	T08	T09
TYPE A1	TYPE B	TYPE B	TYPE A2	TYPE B	TYPE B	TYPE A2	TYPE C1	TYPE C2
PLOT RATIO AREA: 83 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 82 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 80 m²	PLOT RATIO AREA: 82 m²	PLOT RATIO AREA: 84 m²	PLOT RATIO AREA: 84 m²
STRATA AREA: 75 m²	STRATA AREA: 73 m²	STRATA AREA: 73 m²	STRATA AREA: 74 m²	STRATA AREA: 73 m²	STRATA AREA: 73 m²	STRATA AREA: 74 m²	STRATA AREA: 76 m²	STRATA AREA: 76 m²

1 DA04-01

2 DA04-01

STAIRS TO BASEMENT LEVEL

STAIRS TO BASEMENT LEVEL

DN

DN

VOID

ALFRESCO 6.1m × 5.2m

ALFRESCO 4.5m × 5.2m

ALFRESCO 6.6m × 5.2m

BBQ

DINING 3.1m × 4.9m

KITCHEN 3.1m × 4.9m

DINING 3.1m × 4.5m

KITCHEN 3.1m × 4.5m

SCUL.

LIFT

UP

LIVING 3.9m × 5.0m

LIVING 3.7m × 3.8m

ENTRY

SECOND LIVING 3.5m × 4.5m

RL 13.500

BIN STORE

240l

140l

RL 13.500 UP

FRONT YARD RL 13.885

FRONT YARD RL 13.880

FRONT YARD RL 13.804

FRONT YARD RL 13.683

FRONT YARD RL 13.538

FRONT YARD RL 13.523

FRONT YARD RL 13.522

FRONT YARD RL 13.517

FRONT YARD RL 13.393

1:8 RAMP

1:4 RAMP

1:20 RAMP

WAITING BAY

WALL MOUNTED FLASHING VEHICLE WARNING LIGHT

VEHICLE GATES

PROPOSED CROSSOVER

BIN STORE

STIRLING HWY

SEWELL STREET

ST PETERS ROAD

SAINT PETERS ROAD

approx sewer location

hitumen footpath

concrete footpath

concrete

footpath

NAIL IN FOOTPATH RL 13.38

LOT 100

LOT 501

6400

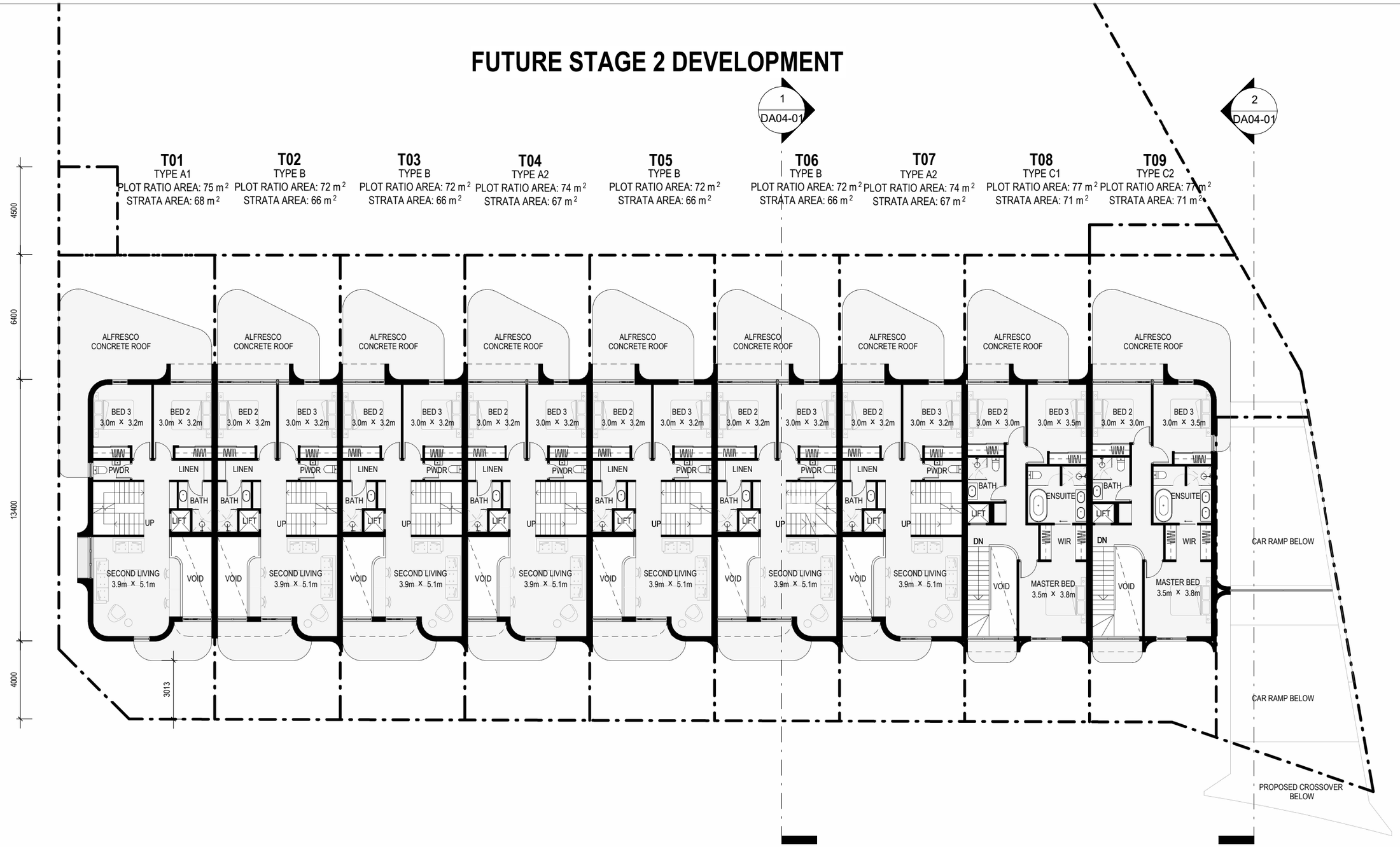
13400

RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	GROUND PLAN
	SCHEMATIC DESIGN
SCALE	1 : 200 (A3)
	0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA01-02
REV	E
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
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	

FUTURE STAGE 2 DEVELOPMENT



RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	LEVEL 1 PLAN
	SCHEMATIC DESIGN
SCALE	1 : 200 (A3) 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA01-03
REV	E
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
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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	

FUTURE STAGE 2 DEVELOPMENT

1
DA04-01

2
DA04-01

T01
TYPE A1
PLOT RATIO AREA: 83 m²
STRATA AREA: 75 m²

T02
TYPE B
PLOT RATIO AREA: 80 m²
STRATA AREA: 72 m²

T03
TYPE B
PLOT RATIO AREA: 80m²
STRATA AREA: 72 m²

T04
TYPE A2
PLOT RATIO AREA: 82 m²
STRATA AREA: 74 m²

T05
TYPE B
PLOT RATIO AREA: 80 m²
STRATA AREA: 72 m²

T06
TYPE B
PLOT RATIO AREA: 80 m²
STRATA AREA: 72 m²

T07
TYPE A2
PLOT RATIO AREA: 80 m²
STRATA AREA: 72 m²

6400

13400

4000

ENSUITE
MASTER BED 3.7m × 4.9m
DN
LIFT
PARENTS RETREAT 3.9m × 4.0m
WIR

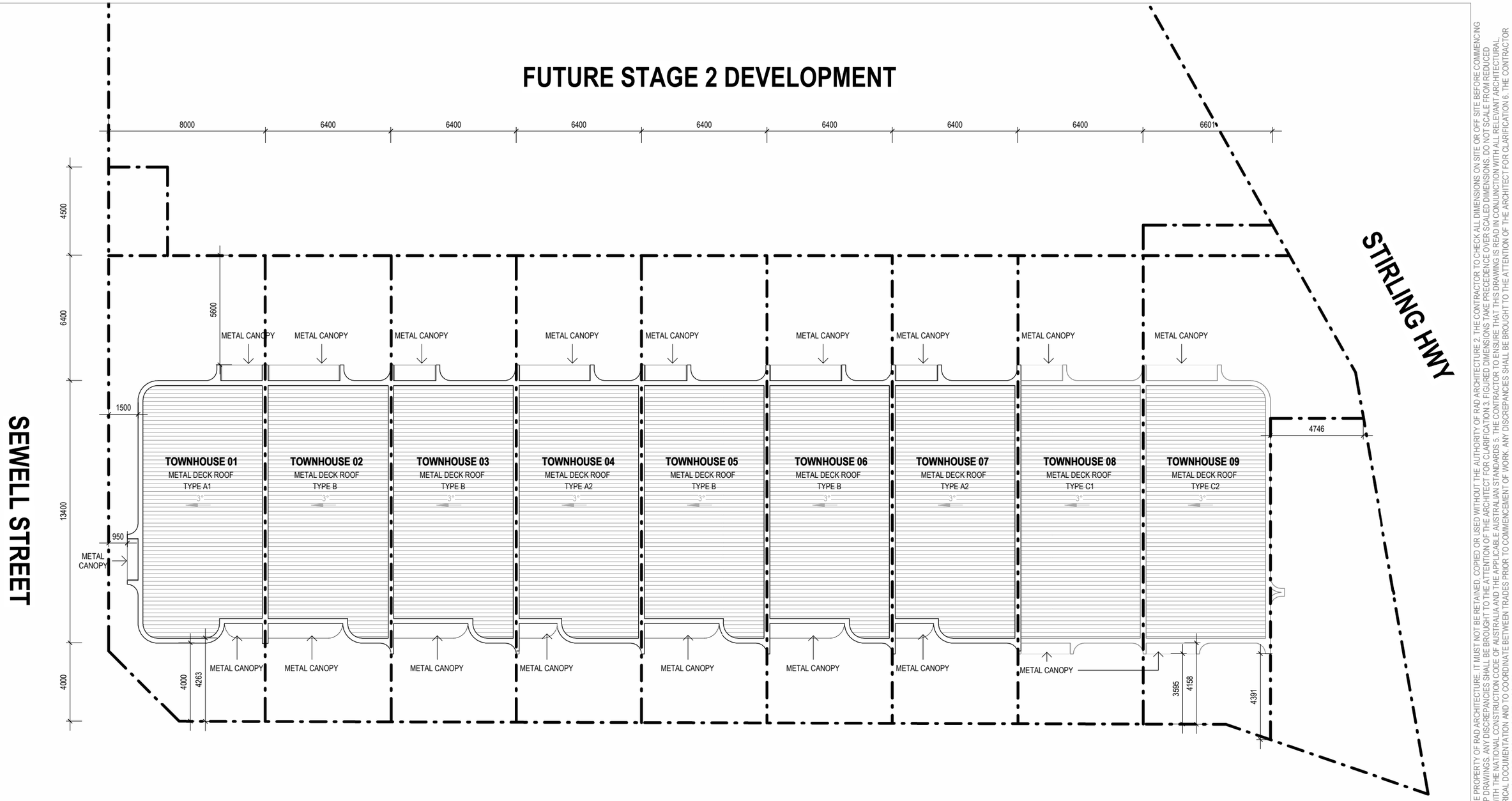
T08 ROOF

T09 ROOF

RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT 91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	LEVEL 2 PLAN
	SCHEMATIC DESIGN
SCALE	1 : 200 (A3) 0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA01-04
REV	E
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
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	



RAD architecture

PROJECT NAME	TOWNHOUSE DEVELOPMENT
	91-93 CANNING HIGHWAY, EAST FREMANTLE
CLIENT	SARACEN PROPERTIES
DRAWING NAME	ROOF PLAN
	SCHEMATIC DESIGN
SCALE	1 : 200 (A3)
	0 1 2 3 4 5 6 M
PROJECT No.	25-10
DRAWING No.	DA01-05
REV	C
DRAWN BY	SP

DD/MM/YY	REV	DESCRIPTION	CHECKED
30/01/2026	C	ISSUE FOR CONSULTANT	
12/12/2025	B	ISSUE FOR REVIEW	
26/11/2025	A	ISSUE FOR REVIEW	

WESTERN AUSTRALIA

REGISTER NUMBER	
423/P1753	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	2/7/2012

VOLUME 792 FOLIO 1

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 423 ON PLAN 1753

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ROBERT HENRY TURNER OF 91 CANNING HIGHWAY, EAST FREMANTLE
SIMON THOMAS MELVILLE OF 45 SOLOMON STREET, PALMYRA
AS JOINT TENANTS

(T L970932) REGISTERED 22/6/2012

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 792 FOL 1.
2. TITLE EXCLUDES THE LAND SHOWN ON O.P. 14779.
3. T28/1901 EASEMENT BURDEN SEE SKETCH ON VOL 792 FOL 1. REGISTERED 4/1/1901.
4. *M882776 MORTGAGE TO WESTPAC BANKING CORPORATION REGISTERED 13/1/2015.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 792-1 (423/P1753)
PREVIOUS TITLE: 111-25
PROPERTY STREET ADDRESS: LOT 423 KING ST, EAST FREMANTLE.
LOCAL GOVERNMENT AUTHORITY: TOWN OF EAST FREMANTLE

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING M882776

WESTERN AUSTRALIA

REGISTER NUMBER	
419/P1753	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	19/4/2012

VOLUME 1934 FOLIO 160

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 419 ON PLAN 1753

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

SIMON THOMAS MELVILLE OF 45 SOLOMON STREET, PALMYRA

(T E920606) REGISTERED 29/6/1992

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1934 FOL 160.
2. H696160 MORTGAGE TO WESTPAC BANKING CORPORATION REGISTERED 19/3/2001.
3. L871747 EASEMENT BENEFIT FOR RIGHT OF CARRIAGEWAY PURPOSES - SEE SKETCH ON DEPOSITED PLAN 68130. REGISTERED 1/3/2012.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

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STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1934-160 (419/P1753)
PREVIOUS TITLE:	1200-573
PROPERTY STREET ADDRESS:	93 CANNING HWY, EAST FREMANTLE.
LOCAL GOVERNMENT AUTHORITY:	TOWN OF EAST FREMANTLE

WESTERN AUSTRALIA

REGISTER NUMBER	
418/P1753	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	12/3/2019

VOLUME 1938 FOLIO 760

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 418 ON PLAN 1753

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ROBERT HENRY TURNER OF 91 CANNING HIGHWAY, EAST FREMANTLE

(T E930159) REGISTERED 8/7/1992

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. O107612 MORTGAGE TO MELVILLE EQUITY PTY LTD OF 21 PARRY STREET FREMANTLE WA 6160 REGISTERED 12/3/2019.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1938-760 (418/P1753)
PREVIOUS TITLE:	1300-970
PROPERTY STREET ADDRESS:	91 CANNING HWY, EAST FREMANTLE.
LOCAL GOVERNMENT AUTHORITY:	TOWN OF EAST FREMANTLE

WESTERN AUSTRALIA

REGISTER NUMBER	
81/DP69681	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	2/7/2012

VOLUME 2788 FOLIO 988

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 81 ON DEPOSITED PLAN 69681

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ROBERT HENRY TURNER OF 91 CANNING HIGHWAY, EAST FREMANTLE
SIMON THOMAS MELVILLE OF 45 SOLOMON STREET, PALMYRA
AS JOINT TENANTS

(T L970931) REGISTERED 22/6/2012

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. T28/1901 EASEMENT BENEFIT AS TO PORTION ONLY - SEE SKETCH ON DEPOSITED PLAN 69681. REGISTERED 4/1/1901.
2. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DEPOSITED PLAN 69681 AS CREATED ON DIAGRAM 98193.
3. L871747 EASEMENT BURDEN FOR RIGHT OF CARRIAGEWAY PURPOSES - SEE SKETCH ON DEPOSITED PLAN 69681. REGISTERED 1/3/2012.
4. *M882775 MORTGAGE TO WESTPAC BANKING CORPORATION REGISTERED 13/1/2015.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

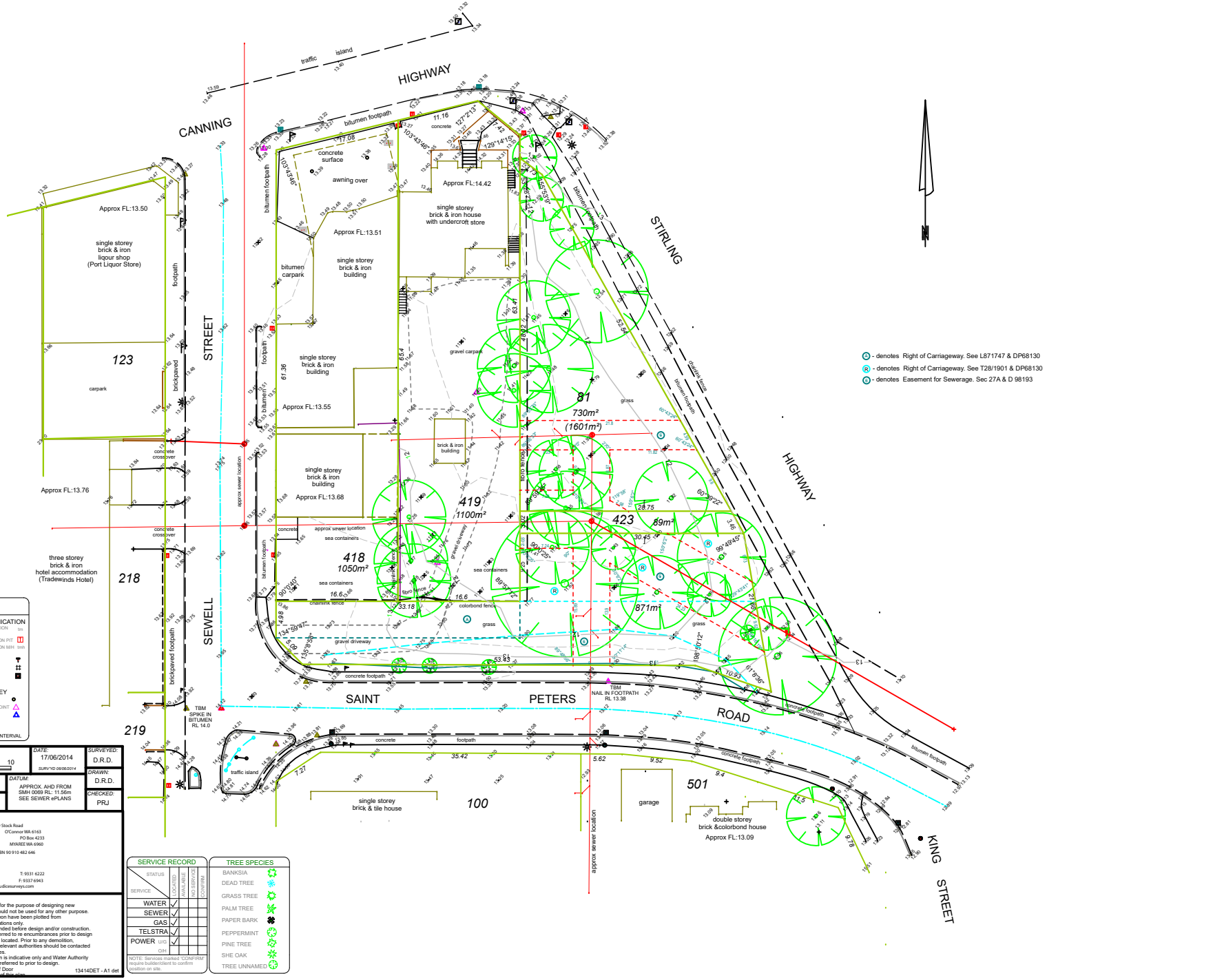
----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP69681
PREVIOUS TITLE:	2185-38
PROPERTY STREET ADDRESS:	70 ST PETERS RD, EAST FREMANTLE.
LOCAL GOVERNMENT AUTHORITY:	TOWN OF EAST FREMANTLE

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING M882775



SERVICE LEGEND

WATER
STOP VALVE, HYDRANT, FLUSH POINT, WATER TAP, WATER MARKER, WATER METER

DRAINAGE
SW MANHOLE, GRATE, SIDE ENTRY PIT, UNDEFINED MANHOLE

SEWERAGE
SEWER MANHOLE, INSPECT. OPENING

POWER
CONSUMER POLE, POWER POLE, LIGHT POLE, STAY POLE, S.WIRE ANCHOR, U.G CABLE BOX, CABLE M/H, CABLE DOME

TELECOMMUNICATION
TELECOMMUNICATION MARKER tm, TELECOMMUNICATION PIT, TELECOMMUNICATION M/H tmh

GAS
GAS MARKER, GAS METER, GAS VALVE

LINE STYLES
BASE OF BRICKWALL, SEWER LINE, TOP OF BANK, BASE OF BANK, POWER LINE, FENCE, BOUNDARY, WINDOW, ROAD CENTRELINE, TOP OF LISTONE WALL, BASE OF LISTONE WALL, BUILDING LINE, TOP OF KERB, BASE OF KERB

FEATURES
STREET SIGN, CLOTHES HOIST, TRAFFIC LIGHTS, GATE

SURVEY
PEG FOUND, CONTROL POINT, DATUM

0.5m CONTOUR INTERVAL

LOT:	PLAN/DIAG:	C/T: VOL / FOL
81	DP69681	2788-988
418	P 1753	1938-760
419	P 1753	1934-160
423	P 1753	792-1

REVISION:

SCALE: @ A1 1:250 (0 5 10)
REF: 134/14-DET
WAPC REF:
DATUM: APPROX. AHD FROM SMH 0069 RL: 11.56m SEE SEWER ePLANS
DATE: 17/06/2014 SURV'YD 06/06/2014
SURVEYED: D.R.D.
DRAWN: D.R.D.
CHECKED: PRJ

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ABN 90 910 482 646
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F: 9337 6943
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TITLE:
FEATURE & CONTOUR SURVEY
LOTS 81, 418, 419 & 423 CANNING HIGHWAY
EAST FREMANTLE

CLIENT:
BUILTFORM PROJECTS

PLEASE NOTE:
This drawing has been prepared for the purpose of designing new constructions on the land and should not be used for any other purpose.
* The title boundaries shown hereon have been plotted from plan dimensions,fence/wall locations only.
* Boundary redefinition recommended before design and/or construction.
* Certificate of Title should be referred to re encumbrances prior to design
* Only visible services have been located. Prior to any demolition, construction, or excavation the relevant authorities should be contacted for detailed location of all services.
* The position of sewer line shown is indicative only and Water Authority as-constructed plans should be referred to prior to design.
* Approx FL taken at Threshold of Door
* This note forms an integral part of this plan

13414DET - A1 det

SERVICE RECORD

SERVICE \ STATUS	CAPPED	MAINLAID	NO SERVICE	CONFIRM
WATER	✓			
SEWER	✓			
GAS	✓			
TELSTRA	✓			
POWER U/G	✓			
POWER O/H				

NOTE: Services marked 'CONFIRM' require builder/client to confirm location on site.

TREE SPECIES
BANKSIA, DEAD TREE, GRASS TREE, PALM TREE, PAPER BARK, PEPPERMINT, PINE TREE, SHE OAK, TREE UNNAMED