

DEVELOPWISE

**RESIDENTIAL DEVELOPMENT
256-258 CHARLES STREET, NORTH PERTH**

SPP 5.4 NOISE MANAGEMENT PLAN

SEPTEMBER 2025

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FOR

DEVELOPWISE

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1. INTRODUCTION

Herring Storer Acoustics were commissioned by Developwise to carry out an acoustic study with regards to traffic related noise for the proposed residential development of 256-258 Charles Street, North Perth.

The purpose of the study was to:

- Assess the noise that would be received within the development area from vehicles travelling on Charles Street.
- 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 <i>Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume</i>	300 metres	Road carriageway edge
Other significant freight/traffic routes <i>These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)</i>	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 ($L_{Aeq}(\text{Day})$ dB) (6 am-10 pm)	Night ($L_{Aeq}(\text{Night})$ dB) (10 pm-6 am)	(L_{Aeq} dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	L_{Aeq} (Day) 40(Living and work areas) L_{Aeq} (Night) 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

Notes:

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

Noise Exposure Forecast (Section 6.2)

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

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

3. NOISE LEVEL MODELLING

The noise measurements were conducted on 7 May 2025 a short term period during peak hour to determine the L_{A10} noise level. During the measurement it was ascertained that noise was dominated by Charles Street.

Utilising this measurement, reference to the DEFRA publication (*Method for Converting the UK Road Traffic Noise $L_{A10,18h}$ to the EU Noise Indices for Road Noise Mapping, ref: st/05/91/AGG04442*) 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)
256 Charles Street	73.2	70.5	62.1

4. MODELLING

To determine the noise levels from traffic on Charles Street, 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);
- Adjustments as listed in Table 4.2.

TABLE 4.1 - NOISE MODELLING INPUT DATA

Parameter	Charles Street (Current) 2020	Charles Street (Future) 2045
Traffic Volumes	25,820 vpd	51,640 vpd
Percentage traffic 0600 – 2400 hours (Assumed)	94%	94%
Heavy Vehicles (%) (Assumed)	7.6%	7.6%
Speed (km/hr)	60km/hr	60km/hr
Road Surface	Chip Seal	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)	-2.7 dB*

* Based on measured results listed in Table 3.1.

5. TRAFFIC NOISE ASSESSMENT

Using the data contained in Tables 4.1 and 4.2, noise modelling was conducted and the highest noise level at the development has been calculated to exceed the Noise Target. As a result, Quiet House Design detailed in Appendix B is required for this development.

External walls facing Charles Street would require an R_w+C_{tr} of 55 dB, with all other external walls requiring an R_w+C_{tr} of 50 dB. It is noted that walls with a prescribed R_w+C_{tr} of 55 dB may be onerous to design and construct.

It is recommended that outdoor living areas provided meet the assigned policy level of 55 dB $L_{Aeq(Day)}$ as far as practicable.

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

6. CONCLUSION

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development of 256-258 Charles Street, North Perth, from vehicles travelling on Charles Street 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 Table 5.1 and 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

YIELD TABLE

1. PLOT RATIO:	
LOT 800 & 801 TOTAL AREA	2037 SQM
PLOT RATIO (R100)	MAX. 1.3
ALLOWED PLOT RATIO AREA	MAX. 2648.10 SQM
GROUND FLOOR PLOT RATIO AREA	0 SQM
LEVEL 1 PLOT RATIO AREA	832.44 SQM
LEVEL 2 FLOOR PLOT RATIO AREA	898.72 SQM
LEVEL 3 FLOOR PLOT RATIO AREA	898.72 SQM
TOTAL AREA	2629.88 SQM
TOTAL PLOT RATIO	1.29

2. BUILDING FLOOR AREA:	
GROUND FLOOR – including carpark, lift lobby, stairwells, material store, bin store, elec/comm room, fire pump & tank	1500.75 SQM
LEVEL 1 – including lift lobby, stairwells, corridor, stores, alfresco & balconies	1250.45 SQM
LEVEL 1 – including communal open space, terraces & fire escape path	266.02 SQM
LEVEL 2 – including lift lobby, stairwells, corridor, stores & balconies	1246.75 SQM
LEVEL 3 – including lift lobby, stairwells, corridor, stores & balconies	1246.75 SQM
TOTAL AREA	5510.72 SQM

3. APARTMENT TYPE:	
1 BED, BATH	15 UNITS (52%)
2 BEDS, 2 BATHS	12 UNITS (41%)
3 BEDS, 2 BATHS	2 UNITS (7%)

4. RESIDENT CAR BAYS:	
ACCORDING TO R-CODES VOL. 2, FOR A SITE WITHIN 250M OF A HIGH-FREQUENCY RAIL ROUTE OR MULTIPLE TRANSIT ROUTE. ONE BEDROOM – 0.75 CARBAY PER DWELLING & TWO OR MORE BEDROOMS 1 CARBAY PER DWELLING.	
MINIMUM REQUIRED RESIDENT CAR BAY	26 BAYS
PROPOSED DEVELOPMENT PROVIDED	35 BAYS

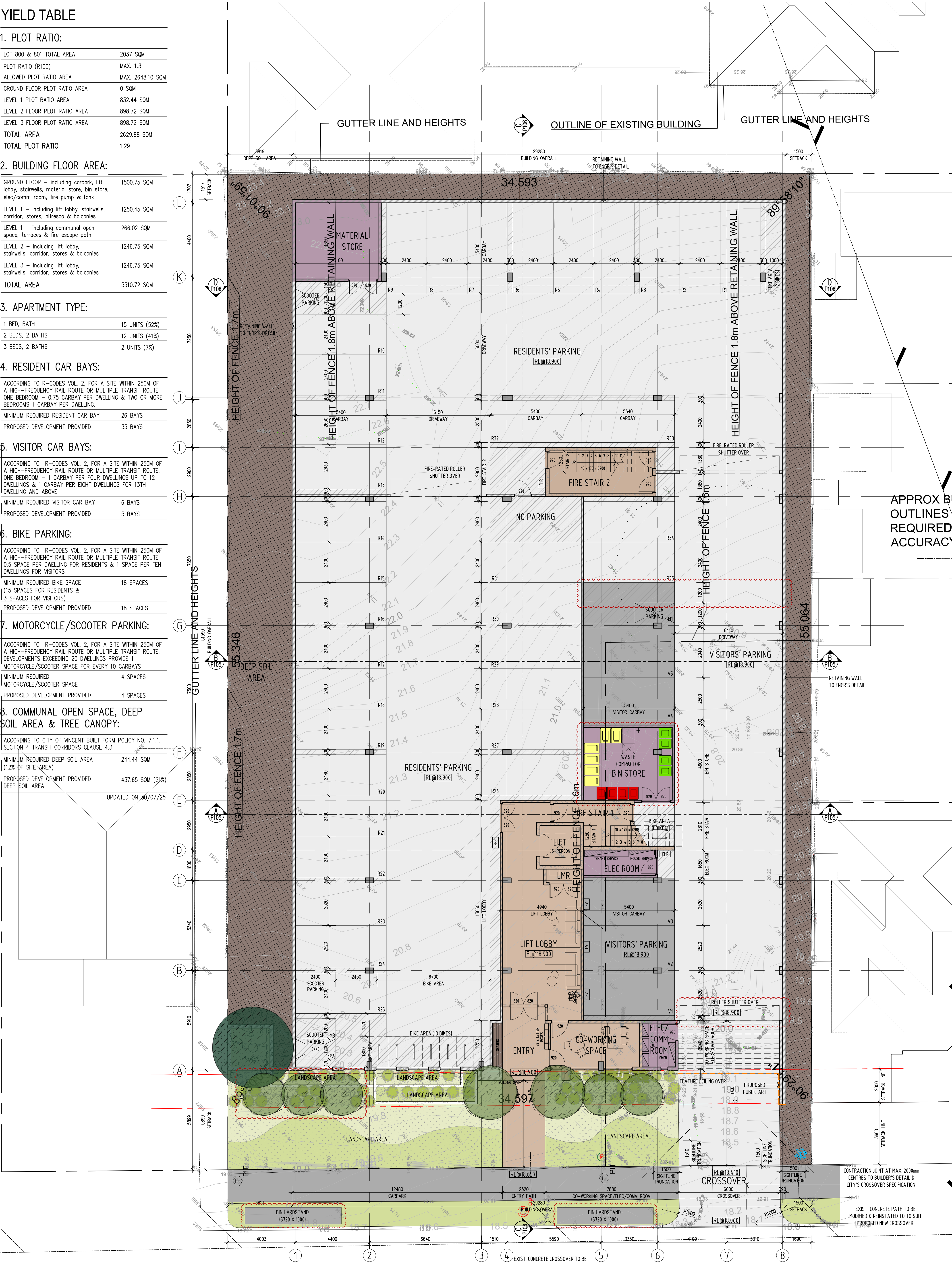
5. VISITOR CAR BAYS:	
ACCORDING TO R-CODES VOL. 2, FOR A SITE WITHIN 250M OF A HIGH-FREQUENCY RAIL ROUTE OR MULTIPLE TRANSIT ROUTE. ONE BEDROOM – 1 CARBAY PER FOUR DWELLINGS UP TO 12 DWELLINGS & 1 CARBAY PER EIGHT DWELLINGS FOR 13TH DWELLING AND ABOVE	
MINIMUM REQUIRED VISITOR CAR BAY	6 BAYS
PROPOSED DEVELOPMENT PROVIDED	5 BAYS

6. BIKE PARKING:	
ACCORDING TO R-CODES VOL. 2, FOR A SITE WITHIN 250M OF A HIGH-FREQUENCY RAIL ROUTE OR MULTIPLE TRANSIT ROUTE. 0.5 SPACE PER DWELLING FOR RESIDENTS & 1 SPACE PER TEN DWELLINGS FOR VISITORS	
MINIMUM REQUIRED BIKE SPACE (15 SPACES FOR RESIDENTS & 3 SPACES FOR VISITORS)	18 SPACES
PROPOSED DEVELOPMENT PROVIDED	18 SPACES

7. MOTORCYCLE/SCOOTER PARKING:	
ACCORDING TO R-CODES VOL. 2, FOR A SITE WITHIN 250M OF A HIGH-FREQUENCY RAIL ROUTE OR MULTIPLE TRANSIT ROUTE. DEVELOPMENTS EXCEEDING 20 DWELLINGS PROVIDE 1 MOTORCYCLE/SCOOTER SPACE FOR EVERY 10 CARBAYS	
MINIMUM REQUIRED MOTORCYCLE/SCOOTER SPACE	4 SPACES
PROPOSED DEVELOPMENT PROVIDED	4 SPACES

8. COMMUNAL OPEN SPACE, DEEP SOIL AREA & TREE CANOPY:	
ACCORDING TO CITY OF VINCENT BUILT FORM POLICY NO. 7.1.1, SECTION 4 TRANSIT CORRIDORS CLAUSE 4.3.	
MINIMUM REQUIRED DEEP SOIL AREA (12% OF SITE AREA)	244.44 SQM
PROPOSED DEVELOPMENT PROVIDED DEEP SOIL AREA	437.65 SQM (21%)

UPDATED ON 30/07/25



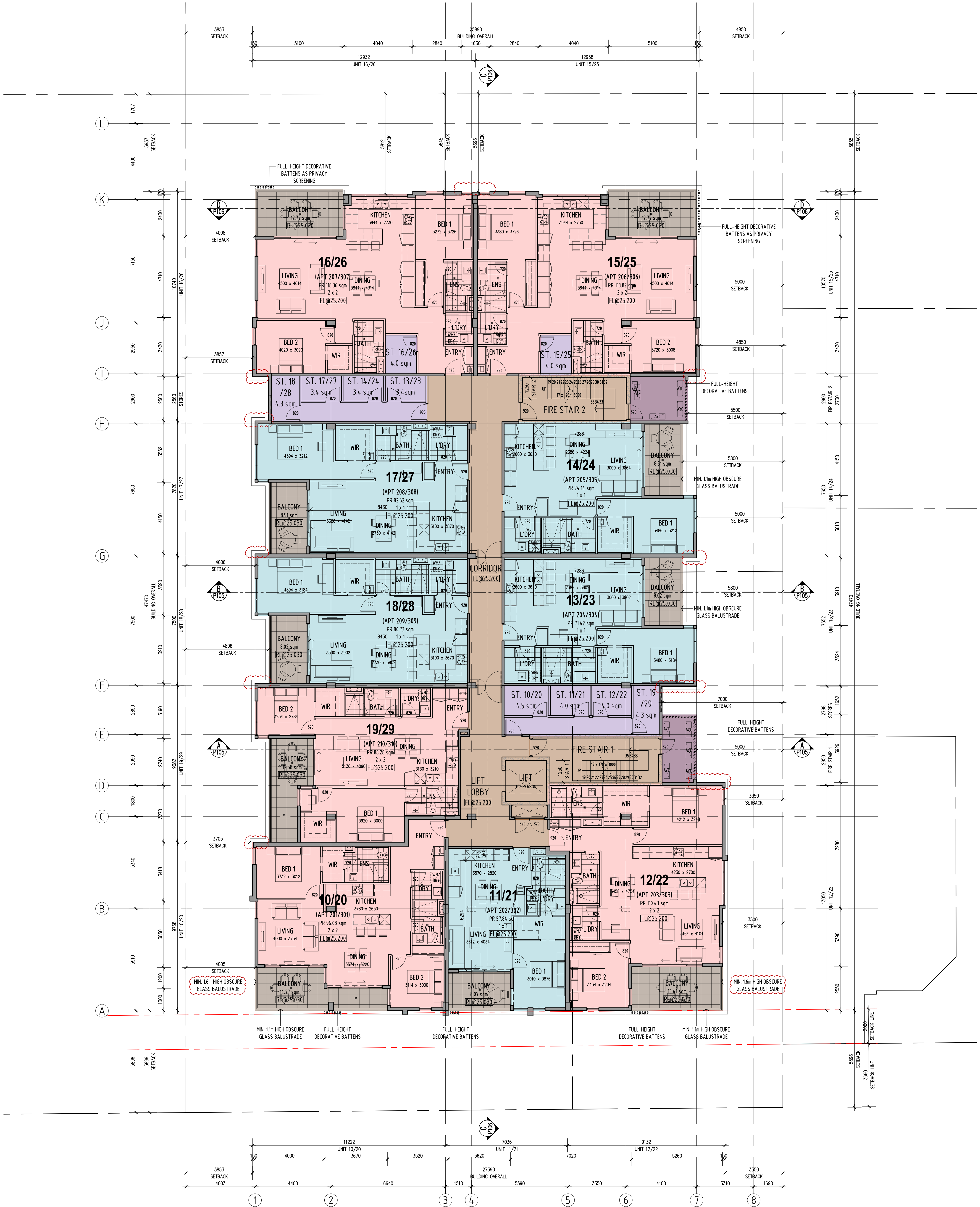
GROUND FLOOR PLAN
SCALE 1 : 200 @ A3 size
SCALE 2 : 100 @ A1 size

PROPOSED 4 STOREY MULTI-RESIDENTIAL DEVELOPMENT
ON LOT 800 & 801 (HN 256 & 258), CHARLES STREET, NORTH PERTH, WA 6006



LEVEL 1 FLOOR PLAN
SCALE 1 : 200 @ A3 size
SCALE 2 : 100 @ A1 size

PROPOSED 4 STOREY MULTI-RESIDENTIAL DEVELOPMENT
ON LOT 800 & 801 (HN 256 & 258), CHARLES STREET, NORTH PERTH, WA 6006



TYPICAL FLOOR PLAN (LEVEL 2 & 3)
SCALE 1 : 200 @ A3 size
SCALE 2 : 100 @ A1 size

PROPOSED 4 STOREY MULTI-RESIDENTIAL DEVELOPMENT
ON LOT 800 & 801 (HN 256 & 258), CHARLES STREET, NORTH PERTH, WA 6006

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	$R_w + C_{tr}$			
		Bedroom 0.4 W:F Ratio	Bedroom 0.2 W:F Ratio	Living Area 0.4 W:F Ratio	Living Area 0.2 W:F Ratio
U1 FACING	71	36	39	31	34
U1 SIDE	67	31	34	26	29
U2 FACING	72	36	39	31	34
U3 FACING	72	36	39	31	34
U3 SIDE	65	29	32	24	27
U4 SIDE	55	23	23	23	23
U5 SIDE	54	23	23	23	23
U6 REAR	40	23	23	23	23
U6 SIDE	53	23	23	23	23
U7 REAR	41	23	23	23	23
U7 SIDE	54	23	23	23	23
U8 SIDE	55	23	23	23	23
U9 SIDE	58	23	26	23	23
U10 FACING	71	36	39	31	34
U11 FACING	71	36	39	31	34
U11 SIDE	66	31	34	26	29
U12 SIDE	58	23	26	23	23
U13 SIDE	56	23	24	23	23
U14 REAR	45	23	23	23	23
U14 SIDE	54	23	23	23	23
U15 REAR	46	23	23	23	23
U15 SIDE	55	23	23	23	23
U16 SIDE	54	23	23	23	23
U17 SIDE	60	25	28	23	23
U18 SIDE	61	26	29	23	24
U19 FACING	71	36	39	31	34
U19 SIDE	67	31	34	26	29
U20 FACING	70	35	38	30	33
U21 FACING	71	36	39	31	34
U21 SIDE	66	31	34	26	29
U22 SIDE	61	25	28	23	23
U23 SIDE	59	24	27	23	23
U24 REAR	52	23	23	23	23
U24 SIDE	56	23	24	23	23
U25 REAR	52	23	23	23	23
U25 SIDE	57	23	25	23	23
U26 SIDE	58	23	26	23	23
U27 SIDE	62	27	30	23	25
U28 SIDE	62	27	30	23	25
U29 FACING	71	35	38	30	33
U29 SIDE	66	31	34	26	29

Notes: The required R_w rating can be reduced by reducing the area of glazing.

Requirements pertain to only acoustic advice in regard to *State Planning Policy 5.4* and may be superseded by other requirements (BAL, Thermal, etc

W:F Ratio denotes the ratio of window size to floor size of the room attached to the window.

APPENDIX C

MRWA Traffic Flows



Hourly Volume

Charles St (H035)

2020/21
Monday to Friday

North of Vincent St (SLK 0.70)

	All Vehicles		
	NB	SB	Both
00:00	92	69	161
01:00	55	42	97
02:00	37	32	69
03:00	34	50	84
04:00	32	120	152
05:00	122	423	545
06:00	342	963	1305
07:00	501	1329	1830
08:00	584	1265	1849
09:00	646	948	1594
10:00	630	686	1316
11:00	703	669	1372
12:00	756	628	1384
13:00	775	645	1420
14:00	957	677	1634
15:00	1234	642	1876
16:00	1481	657	2138
17:00	1561	631	2192
18:00	957	617	1574
19:00	581	484	1065
20:00	458	342	800
21:00	426	265	691
22:00	265	171	436
23:00	138	99	237
TOTAL	13367	12454	25821

	Heavy Vehicles			%
	NB	SB	Both	
00:00	3	4	7	4.3
01:00	3	1	4	4.1
02:00	1	2	3	4.3
03:00	3	3	6	7.1
04:00	1	5	6	3.9
05:00	11	36	47	8.6
06:00	43	122	165	12.6
07:00	54	123	177	9.7
08:00	48	106	154	8.3
09:00	56	86	142	8.9
10:00	52	61	113	8.6
11:00	47	57	104	7.6
12:00	57	63	120	8.7
13:00	65	55	120	8.5
14:00	64	54	118	7.2
15:00	78	61	139	7.4
16:00	88	61	149	7.0
17:00	83	66	149	6.8
18:00	47	46	93	5.9
19:00	25	25	50	4.7
20:00	19	18	37	4.6
21:00	13	12	25	3.6
22:00	10	7	17	3.9
23:00	8	9	17	7.2
TOTAL	879	1083	1962	7.6



Peak Statistics

AM	TIME	11:45	07:15	08:15	09:15	06:30	06:30
	VOL	764	1331	1891	57	142	193
PM	TIME	16:30	14:15	16:15	16:15	17:00	16:15
	VOL	1568	698	2218	96	66	159

