

# TECON

# RESIDENTIAL SUBDIVISION 25 JUBILEE ROAD, GLEN IRIS

# SPP 5.4 ROAD NOISE TRAFFIC STUDY

**MARCH 2025** 

OUR REFERENCE: 34373-1-25081



Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as: HERRING STORER ACOUSTICS P.O. Box 219, Como, W.A. 6952 (08) 9367 6200 hsa@hsacoustics.com.au DOCUMENT CONTROL PAGE

# ROAD NOISE TRAFFIC STUDY 25 JUBILEE ROAD, GLEN IRIS

## Job No: 25081

Document Reference: 34373-1-25081

## FOR

# TECON

		DOCUMENT IN	FORMATION	I		
Author:	Paul Daly		Checked By:		Geoff Harris	
Date of Issue :	27 March 2025					
		<b>REVISION H</b>	HISTORY			
Revision	Description			Date	Author	Checked
		DOCUMENT DI	STRIBUTION			
Сору No.	Version No.	Destination			Hard Copy	Electronic Copy
		Tecon				
1	1	Attn: Sophine Pfuhl				$\checkmark$
		Email: spfuhl@teconaust	.com.au			

# <u>CONTENTS</u>

1.	INTRODUCTION	1
2.	ACOUSTIC CRITERIA 2.1 Noise	1 1
3.	MEASUREMENTS AND OBSERVATIONS	4
4.	MODELLING	5
5.	TRAFFIC NOISE ASSESSMENT	6
6.	DESIGN CONSIDERATIONS	7
7.	CONCLUSION	8

# **APPENDICES**

А	Site Layout – Subdivision Plan

- B Noise Contour Plot
- C Quiet House Design
- D Monitoring Data
- E MRWA Traffic Data

## 1. INTRODUCTION

Herring Storer Acoustics were commissioned by Tecon to carry out an acoustic study with regards to traffic related noise for the proposed residential subdivision at Lot 25 Jubilee Road, Glen Iris.

The purpose of the study was to:

- Measure current noise levels associated with Forrest Highway at the development.
- Assess the noise that would be received within the development area from vehicles travelling on Forrest Highway for future traffic volumes.
- 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 <u>NOISE</u>

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

#### POLICY APPLICATION (Section 4)

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

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

- a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;
- b) New or major upgrades of roads as specified in Table 1 and maps (Schedule 1,2 and 3); or
- 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.

		Noise Targets			
		Out	Indoor		
Proposals	New/Upgrade	Day (L <sub>Aeq</sub> (Day) dB) (6 am-10 pm)	Night (L <sub>Aeq</sub> (Night)dB) (10 pm-6 am)	(L <sub>Aeq</sub> 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 <sub>Aeq</sub> (Day) 40(Living and work areas) L <sub>Aeq</sub> (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-tocomply mitigation measures; or
- noise-sensitive land-use and/or development is not recommended. Any noisesensitive land-use and/ or development is subject to mitigation measures outlined in a noise management plan."

### 3. MEASUREMENTS AND OBSERVATIONS

Observed measurements were conducted at the development site. Measurements were conducted from Friday 7<sup>th</sup> to Thursday 13<sup>th</sup> March 2025.

Monitoring was conducted at boundary of the development, facing Forrest Highway. The monitor was placed 12m from the nearest running edge of respective road of interest.

The results of this monitoring are summarised in Table 4.1.

TABLE 3.1: SUMMARY C	F MEASURED ROAD	TRAFFIC NOISE LEVELS (dB(A))
----------------------	-----------------	------------------------------

	South Coast Highway Monitor			
Date	L <sub>A10(18hour)</sub>	L <sub>Aeq,day</sub>	L <sub>Aeq,night</sub>	
		(6am to 10pm)	(10pm to 6am)	
AVERAGE	68.5	66.9	59.8	

Note: Based on the results of the noise monitoring the difference between the L<sub>Aeq</sub> (Day) and L<sub>Aeq</sub> (Night) is greater than 5 dB(A) (ie; 7.1 dB(A)). Hence, achieving compliance with the day period criteria would also result in compliance with the night period criteria and the day period has been used for the assessment.

For information, the results of the monitoring are shown graphically in Appendix D with Figure 3.1 showing the location map, and Figure 3.2 showing the monitor in situ.



FIGURE 3.1 - NOISE MONITOR LOCATION PLAN



FIGURE 3.2 - NOISE MONITOR IN SITU

### 4. MODELLING

Modelling of noise received within the development from the Australind Bypass / Forrest Highway was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN) algorithms.

The road traffic volumes have been used from the current and future data for the roadway. For The input data for the model included the parameters detailed in Table 4.1.

Parameter	Forrest Highway
Annual Increase %	0.2%
Current 2020 Traffic Flow (vpd) Counted	31,560
Current 2025 Traffic Flow (vpd) Calculated	31,877
Future 2045 Traffic Flow (vpd) Calculated using MRWA ROM model figures	33,176
Road Surface	Dense Graded Asphalt
Percentage Heavy Vehicles (%)	10.3%
Speed (km/hr)	70
Façade Reflection	+2.5 dB

Note: We note that with the difference between the L<sub>Aeq,8hr</sub> and the L<sub>Aeq,16hr</sub> being greater than 5 dB(A), achieving compliance with the day period criteria will also achieve compliance with the night period criteria. Therefore, noise modelling was only undertaken for the day period and the results are shown graphically in Appendix B.

The future road traffic volumes were based on information provided by the MRWA ROM department (shown in Appendix E) and the traffic maps.

#### Advice provided was that;

Our Bunbury Model suggests that the projected compound growth rate for Australind Bypass, Australind is in the order of:

- 1.5% per annum without Bunbury Outer Ring Road
- 0.2% per annum with Bunbury Outer Ring Road

Please apply to observed counts from https://trafficmap.mainroads.wa.gov.au/map

Other input data for the model included:

- Traffic data from MRWA ( <u>https://mrapps.mainroads.wa.gov.au/TrafficMap/</u> )
- Traffic as provided by the MRWA ROM Department (Scott Hazebroek) reference #43073, noted above and as attached in Appendix E.
- Noise source heights for the three road source strings (Passenger Vehicles, Heavy Vehicles Engine and Heavy Vehicle Exhausts) are +0.5, +1.5 and +3.6m, with a noise correction of -0.8 and -8.0 applied to the heavy vehicle's engine and exhaust noise sources.
- Topographical data, with the ground level within the development based on natural ground levels as per surveys conducted.
- A +2.5 dB adjustment to allow for façade reflection.
- Development receiver heights at 1.4m above ground level.
- Future buildings located on the boundary Lots of the development (assumed to be present for future road traffic volumes).
- Calculations based on CoRTN algorithms.
- Other parameter listed in SPP 5.4 as to guidance for modelling road traffic noise / assessment.

Noise modelling for road noise was undertaken for the following scenarios:

- S1 Current Calibration purposes.
- S2 Future Increased traffic volumes and future residential dwellings and a 1.8m rear fence.

For the noise modelling of future traffic, it has been assumed that the percentage of future heavy vehicles remains the same as for the current traffic flows. In this case, we believe that this is a conservative approach, as we believe that the percentage of heavy vehicles would fall over time.

### 5. TRAFFIC NOISE ASSESSMENT

Using the data contained in Table 4.1, modelling was carried out under existing conditions for calibration. The SoundPlan model for the site has been set up for the 2045 scenario.

The following noise contour plot presents the results of the noise modelling to the individual Lots within the subdivision.



FIGURE 5.1 – FUTURE NOISE LEVELS

## 6. DESIGN CONSIDERATIONS

Based on the noise levels shown in Figure 5.1, the appropriate quiet house design considerations for each Lot are included below. For ease of reporting, Figure 6.1 shows the reference allocated to each Lot.



FIGURE 6.1 LOT REFERENCE

Location	Future Noise Level	Quiet House Design Package
Lot A	59	Package B And Notification on Title
Lot B	58	Package B And Notification on Title
Lot C	59	Package B And Notification on Title
Lot D	58	Package B And Notification on Title
Lot E	60	Package B And Notification on Title
Lot F	55	And Notification on Title
Lot G	53	Nil
Lot H	46	Nil

 TABLE 6.1 – QUIET HOUSE DESIGN REQUIREMENTS

Deemed to satisfy Quiet House Design Packages are contained in Appendix C.

### 7. CONCLUSION

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development of Lot 25 Jubilee Road, Glen Iris from vehicles travelling on Forrest Highway has been undertaken.

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

External	
Day	Maximum of 55 dB(A) L <sub>Aeq</sub>
Night	Maximum of 50 dB(A) L <sub>Aeq</sub>
Internal	

Sleeping Areas	35 dB(A) L <sub>Aeq(night)</sub>
Living Areas	40 dB(A) L <sub>Aeq(day)</sub>

The results of the acoustic assessment indicate that noise received at the ground floor of the development, from future traffic, would exceed the "target" noise level. Therefore, noise amelioration in the form of quiet house design is required.