HERRING STORER ACOUSTICS

ULTIMO DESIGN AND CONSTRUCTION

44 PLANET STREET MIXED USED DEVELOPMENT CARLISLE

ACOUSTIC ASSESSMENT

OCTOBER 2025

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44 PLANET STREET MIXED USE DEVELOPMENT
PERTH

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ULTIMO DESIGN AND CONSTRUCTION

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APPENDICIES

1.0 INTRODUCTION

Herring Storer Acoustics was commissioned to undertake a review of the proposed development of 44 Planet Street, Carlisle with regards to compliance with Part F7 of the *National Construction Code* (NCC) and the *Environmental Protection (Noise) Regulations 1997*.

Part F7 of the NCC details the requirements for sound transmission and insulation of residential type buildings.

The report is based upon the development approval drawings.

2.0 CRITERIA

2.1 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 2.1 summarises the deemed to satisfy requirements of Part F7.

TABLE 2.1 – 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
Unit to part of a different classification	R_W not less than 50 dB.	NO
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.

2.2 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 2.2. For commercial premises, the allowable or assigned noise levels are the same for all hours of the day. Table 2.2 also lists the assigned noise levels for commercial premises.

TABLE 2.2 – 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
Commercial premises	All hours	60	75	80

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 2.3 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS

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

Where the noise emission is music, then any measured level is adjusted according to Table 2.4 below.

TABLE 2.4 – ADJUSTMENTS TO MEASURED MUSIC NOISE LEVELS

Where **impulsiveness** is not present	Where **impulsiveness** is present
+10 dB(A)	+15 dB(A)

3.0 NCC REQUIREMENTS

3.1 WALL CONSTRUCTION

Acoustic requirements per the NCC for walls are listed in Appendix A.

3.2 FLOOR CONSTRUCTION

Level 1 apartment floors above the ground floor hallway require an R_w rating of no less than 50 dB.

3.3 SOIL AND WASTE PIPES

Due to the design of the building, there is understood to be no soil and waste pipes located in shafts or ceiling spaces, associated with a different SOU to that SOU.

3.4 GENERAL BUILDING NOTES

S28C3 of the NCC (included in Appendix B) lists details regarding the installation of building elements separating SOUs.

4.0 NOISE EMISSIONS

Noise emissions from the development include noise from mechanical plant servicing the apartments and noise associated with the commercial tenancies including mechanical plant, patron noise and potentially music played within.

4.1 INFLUENCING FACTOR

The development is located on the edge of the local centre adjacent to residences on Planet and Mars Streets. An illustration of the surrounding area is included in Figure 4.1.

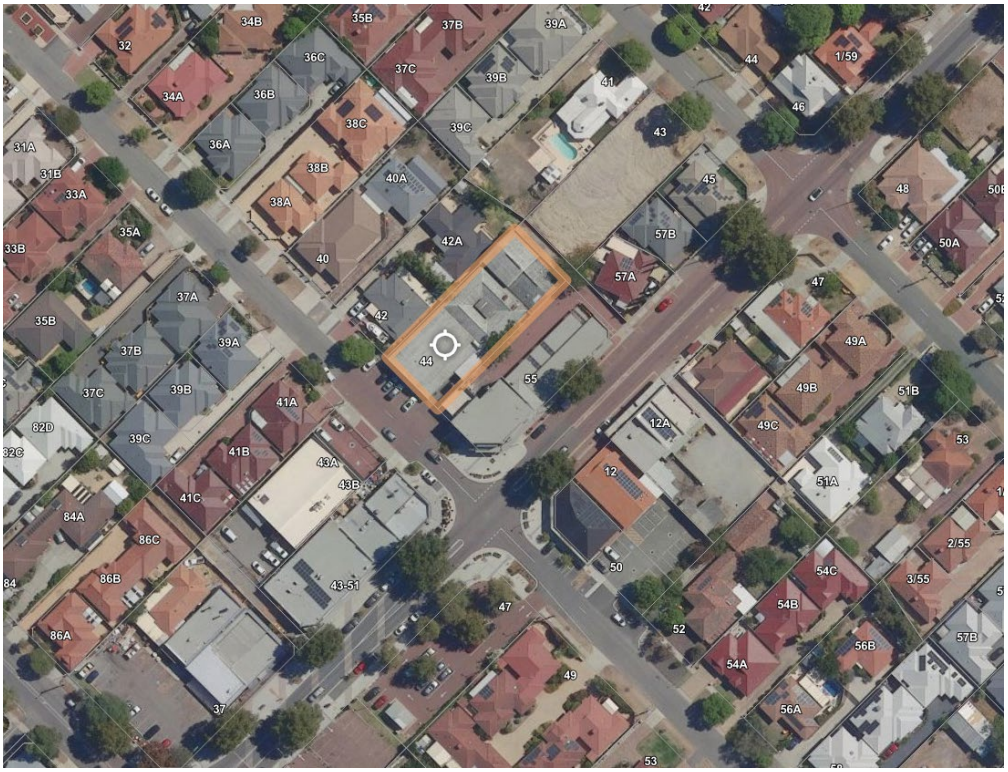

FIGURE 4.1 – SURROUNDING AREA

The influencing factor for these nearby residences is calculated as follows:

TABLE 4.1 – INFLUENCING FACTOR CALCULATION

Component	Contribution	Influencing Factor (dB)
Commercial within 100m	20%	1
Secondary Road within 100m	Archer Street (11,000 vpd)	2
Total		**3**

As such the assigned levels for these receivers is summarised in Table 4.2.

TABLE 4.2 - 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	48	58	68
	0900 - 1900 hours Sunday and Public Holidays	43	53	68
	1900 - 2200 hours all days	43	53	58
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	38	48	58

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.

4.2 NOISE EMISSIONS FROM APARTMENTS

The main source of noise associated with the apartments within the development is the mechanical services. Emissions from these sources will be required to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*.

As mechanical services can operate during the night period the critical assigned level is the night time L_{A10} of 38 dB. These emissions are typically tonal in nature and hence carry a +5 adjustment to their assessable level. The design level for mechanical plant selections is therefore 33 dB(A) at the nearest residences.

Given the design of the apartments screens the neighbouring premises from the mechanical plant this criteria should not be onerous to meet.

4.3 NOISE EMISSIONS FROM COMMERCIAL TENANCIES

The development includes two commercial tenancies, one retail and one hospitality. The noise emissions from these are required to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* and a noise impact assessment would form part of the development application for each operator.

4.3.1 Mechanical Plant

Noise associated with mechanical plant such as air conditioners and kitchen exhausts is assumed to be present during the night period so the critical assigned level is the night time L_{A10} of 38 dB. These emissions are typically tonal in nature and hence carry a +5 adjustment to their assessable level. The design level for mechanical plant selections is therefore 33 dB(A) at the nearest residences, including the apartments that are part of this development.

Air conditioner coolers are located on a plant deck adjacent to the first floor apartments. This deck is screened from the neighbouring residences on all sides. The kitchen exhaust is located on the southeastern flank of the roof, away from nearby noise sensitive receivers. It is expected that mechanical plant selections which will comply with the requirements of the *Regulations* will not be difficult to achieve.

4.3.2 Hospitality Noise

Patron noise, music played within the hospitality unit and noise associated with deliveries must comply with the Regulations.

For continuous noise sources such as patron noise and music the key criteria for night time operation (including mornings before 7:00 or 9:00 on Sundays) is the L_{A10} of 38 dB. It is understood that the proposed capacity for the hospitality unit is 120 patrons.

The alfresco area is located on the southeastern side of the building, providing significant noise attenuation to the residences next door. A preliminary assessment of the alfresco area finds noise received at the most affected receiver (apartment 4 of the proposed development) from 50 patrons within the alfresco area to be 37 dB(A) which meets the criteria.

Noise egress through the roof of the hospitality unit is a potential risk. While not an issue for patron noise, if loud music is to be played inside the venue an upgraded roof construction may be required.

A noise impact assessment for hospitality operations will form part of both the development approval and liquor license application for the operator. The requirements for a café or small bar to comply with the *Regulations* are not expected to be difficult to meet.