

3 Patawalonga Frontage

Acoustic Assessment

S8707C3

July 2026

sonus.

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1 INTRODUCTION

An acoustic assessment has been conducted for the proposed development of apartments (the **Development**) to be located at 3 Patawalonga Frontage, Glenelg North.

The Development will comprise of a five-storey building, with common spaces on the ground floor, and apartments on the four levels above. This assessment considers both the noise ingress into the apartments from aircraft noise, as well as the environmental noise generated by the mechanical plant and car parking associated with the Development.

Noise sensitive receivers (residences) are located in the vicinity of the site. The proposed development site is shown in relation to the nearby residences in Figure 1.



Figure 1: Proposed Development Site and Noise Sensitive Receivers

The following information has been provided as inputs to the assessment:

- Drawings by *Enzo Caroscio Architecture* for Project Number 24011, dated 12 December 2025
- Provisional mechanical plant selections provided by *BCA Engineers*.

2 NOISE INGRESS

2.1 Criteria

Ministerial Building Standard MBS 010 *Construction requirements for the control of external sound (MBS 010)* applies to “a Class 1, 2 or 3 building, a Class 4 part of a building and a Class 9c residential care building located within a noise attenuation area or an Australian Noise Exposure Forecast (ANEF) contour band of 20 or more” and establishes mandatory requirements for the building facade to adequately reduce internal noise levels from road and rail corridors, aircraft noise, and mixed-use areas in the vicinity.

The Development is located within an *ANEF 20* contour band of the South Australian *Planning and Design Code* (the **Code**). Therefore, the requirements of MBS 010 are mandatory at the Building Rules Consent stage. Acoustic treatments are required for the residential components of the development to ensure the noise from aircraft are adequately reduced.

The *Deemed-to-Satisfy (DTS)* approach of MBS 010 specifies acoustic treatment to each component of the facade based on the *Sound Exposure Category (SEC)* for that part of the building envelope. The SECs range from 1 to 5, with SEC 1 requiring a basic level of acoustic treatment and SEC 5 requiring extensive acoustic treatment.

For aircraft noise, MBS 010 uses the ANEF to determine the requirement for an assessment to be conducted and the Aircraft Noise Reduction (**ANR**) to objectively determine the level of noise reduction and treatment required.

The SEC of a building exposed to aircraft noise is determined by the following criteria:

1. Identifying if the site is within a projected ANEF contour band of 20 or more.
2. Locating the relevant ANR in decibels that applies to the building.
3. Determining the relevant SEC that applies to the identified ANR in accordance with Table 1.

Table 1: Sound Exposure Categories for Applicable ANRs

Applicable Aircraft Noise Reduction [dB(A)]	Sound Exposure Category
20 < 24	1
24 < 28	2
28 < 32	3
32 < 36	4
> 36	5

As the Development is within an ANR of 24, SEC 2 has been applied. The requirements of SEC 2 are shown in Table 2.

Table 2: MBS 010 acoustic requirements for building elements

SEC	Sound Insulation Requirements	
2	Ground floor	$R_w + C_{tr} \geq 45$ for all habitable rooms
	External walls	$R_w + C_{tr} \geq 45$ for all habitable rooms
	Windows and external glass doors	Dependant on area of window and external glass doors as a percentage of the floor area of the room
	External doors other than external glass doors	$R_w \geq 27$ for all habitable rooms
	Roof and ceilings of bedrooms	$R_w + C_{tr} \geq 35$
	Mechanical ventilation systems	$R_w \geq 25$ where natural ventilation is not provided

2.2 Assessment

2.2.1 Ground Floor

A minimum acoustic rating of $R_w + C_{tr}$ 45 is required for floors, however there are no apartments on the ground floor. Therefore, the acoustic requirement for the ground floor is not applicable.

While intermediate floors are not strictly required to be treated in accordance with the DTS provisions of MBS 010, it is recommended that exposed soffits and floors above achieve the acoustic rating of $R_w + C_{tr}$ 45. This can be achieved with a minimum 120mm thick concrete slab.

2.2.2 External Walls

The external walls must achieve the SEC 2 requirement of an $R_w + C_{tr} \geq 45$. As the proposed wall constructions are not yet detailed in the architectural drawings, examples of different types of wall constructions that meet the minimum requirements are provided in Table 3.

Table 3: Recommended External Wall Constructions

Facade Element	Acoustic Treatment Requirements
Concrete	Concrete with a minimum thickness of 125mm
Autoclaved Aerated Concrete	75mm thick <i>Hebel PowerPanel</i> fixed to 35mm top hats (note 530 kg/m³ density panels are required, therefore <i>PowerPanelXL</i> is not suitable) with 6mm external render. 90mm timber studs at minimum 600mm centres. 75mm thick fibreglass insulation with a minimum density of 11 kg/m³ in the cavity. - Resilient steel channels fixed to the inside of the studs (e.g. <i>Rondo 581</i>). - One layer of 16mm thick fire-rated plasterboard mounted to the channels.
Lightweight fibre cement cladding	- A layer of 9mm thick fibre cement cladding (<i>James Hardie Axon</i> or equivalent) 90mm timber studs at minimum 600mm centres. 75mm thick fibreglass insulation with a minimum density of 11 kg/m³ in the cavity. - Resilient steel channels fixed to the inside of the studs (e.g. <i>Rondo 581</i>). - Two layers of 16mm thick fire-rated plasterboard fixed to the channels.
	- A layer of 9mm thick fibre cement cladding (<i>James Hardie Axon</i> or equivalent). - One layer of 6mm thick compressed fibre cement sheet (minimum surface density of 11 kg/m²) fixed to 35mm top hats. 90mm timber studs at minimum 600mm centres. 75mm thick fibreglass insulation with a minimum density of 11 kg/m³ in the cavity. - Resilient steel channels fixed to the inside of the studs (e.g. <i>Rondo 581</i>). - One layer of 16mm thick fire-rated plasterboard fixed to the channels.

2.2.3 Windows and External Glass Doors

All windows and glazed doors must achieve the acoustic ratings provided in Table 4. An example *deemed-to-satisfy* construction is shown for each required acoustic rating, but other options can be used, provided the entire glazing system (the glass, seals, and frame) achieve the required rating.

Table 4: Glazing Recommendations

Room	Requirement	Window Recommendation	Sliding Door Recommendation
Bed 1 (including WIR for 2e and 2f)	$R_w + C_{tr} \geq 32$	10mm thick monolithic or laminated glass with awning type opening	12.5mm thick laminated glass sliding door
Bed 2 (excluding types 2a and 2d)	$R_w + C_{tr} \geq 30$	6mm thick monolithic or laminated glass with awning type opening	N/A
Bed 2 (apartment type 2a)	$R_w + C_{tr} \geq 32$	10mm thick monolithic or laminated glass with awning type opening	N/A
Bed 2 (apartment type 2d)	$R_w + C_{tr} \geq 34$	10.5mm thick laminated glass with awning type opening	N/A
Living/Kitchen	$R_w + C_{tr} \geq 30$	6mm thick monolithic or laminated glass with awning type opening	10mm thick monolithic or laminated glass sliding door

Other glazing options (double-glazed alternatives or opening arrangements) may be used provided they are installed in systems which achieve the minimum $R_w + C_{tr}$ ratings. These options may be considered prior to the mandatory assessment at Building Rules Consent. For example, Table 5 provides alternative double-glazed arrangements that may be used in place of single-glazed systems where required.

Table 5: Example double-glazed system replacements.

Single-Glazed Option	Double-Glazed Option
10.5mm thick laminated glass	A 10mm thick pane of laminated glass separated from a 6.38mm thick pane of glass by an airgap of 12mm
10mm thick monolithic or laminated glass	A 10mm thick pane of glass separated from a 6mm pane of glass separated by an airgap of 12mm
6mm thick monolithic or laminated glass	A 6mm thick pane of glass separated from a 6.38mm thick pane of laminated glass by an airgap of 12mm

All windows must have seals fitted to each edge of the openable window to restrict air infiltration. Any external glazed doors must have seals fitted to each edge of the door to restrict air infiltration and glazing set and sealed in an airtight, non-hardening sealant or a soft elastomer gasket glazing tape.

2.2.4 External Doors other than External Glass Doors

The current design shows no external doors other than external glass doors. Therefore, the acoustic requirement for external doors other than external glass doors is not applicable.

2.2.5 Roof and Ceiling of Bedrooms

The roof and ceiling of bedrooms must all achieve the SEC 2 requirement of an $R_w + C_{tr} \geq 35$. The roof is currently documented as concrete. It is recommended that the concrete roof be at least 50mm thick to achieve this requirement.

2.2.6 Mechanical Ventilation systems

Ventilation is to be provided in the form of openable windows. If ventilation other than openable windows is proposed, it must be designed such that it achieves an R_w of at least 25 and be positioned facing away from the designated noise source. The rating can be achieved by incorporating acoustically lined ductwork to the system.

3 NOISE EMISSIONS

3.1 Criteria

The Development, and the nearby residences, are located within the *Urban Renewal Neighbourhood Zone* of the Code. The Code has been reviewed and the provisions considered relevant to the noise assessment are provided in Appendix A.

Performance Outcome (**PO**) 4.1 of the *Interface between Land Uses* section of the Code specifically requires that noise from a development does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers). The Deemed-to-Satisfy / Designated Performance Feature (**DTS/DPF**) for PO 4.1 references the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Policy**).

The Policy only applies to commercial and industrial noise, and therefore reference is made to the *Local Nuisance and Litter Control Act 2016* (the **Act**). In accordance with the Act, noise is considered to constitute a local nuisance where the noise has travelled from the domestic premises (the Development) to a habitable room, or an outdoor courtyard or entertainment area, on a neighbouring premises. In addition, where the level, nature or extent of the noise (including its volume, pitch, vibrational frequency, prevalence or frequency of occurrence) is such as to constitute an unreasonable interference with the enjoyment of the neighbouring premises by persons occupying those premises, this will also constitute a local nuisance in accordance with the Act.

The Act does not provide objective noise criteria for the assessment of noise emissions at the neighbouring premises. In these circumstances, reference is made to the recommendations of the World Health Organization *Guidelines for Community Noise (1999)* (the **WHO Guidelines**) with regard to annoyance. The WHO Guidelines consider the effects of sleep disturbance at nighttime and moderate annoyance during the day. The allowable levels are shown in Table 6.

Table 6: WHO Guidelines Criteria

Time of Day	Location	Average Noise Level (L _{eq})	Maximum Noise Level (L _{max})
Day	Inside	35 dB(A)	-
	Outside	50 dB(A)	-
Night	Inside	30 dB(A)	45 dB(A)
	Outside	45 dB(A)	60 dB(A)

As 4 Patawalonga Frontage is a recently built residence, it must also achieve the minimum requirements of MBS 010, which are the same SEC 2 constructions described in Section 2. In accordance with MBS 010, SEC 2 provides 32 dB(A) noise reduction across a facade. The assessment for 4 Patawalonga Frontage has been compared to the internal noise criteria shown in Table 6, in consideration of the acoustic treatment that has been applied.

3.2 Assessment

The noise levels at residences from the activity at the proposed Development have been predicted based on a range of previous noise measurements and observations at similar facilities. These include:

- Vehicle movements on site.
- Operation of mechanical plant.

As is typical at the Development Application stage, the proposed mechanical plant units have not yet been designed or selected. The assessment of the mechanical plant has considered a typical selection based on the proposed number of units, as provided by *BCA Engineers*, that being:

- Ground floor: common areas currently proposed to be served with multi-head VRV/VRF type vertical condensing unit in the restricted plant area behind lift. One *Daikin REYQ16BYM9* unit has been assumed.
- Level 1, 2 and 3: Four horizontal discharge condensing units double stacked in plantroom. Four *Daikin RZAV140F2V1* units have been assumed.
- Level 4: Two horizontal discharge high capacity units in plantroom. Two *Daikin VRV IV S RXYMQ9AY1* units have been assumed.

The sound power levels of the above activities and equipment are shown in Appendix B.

Based on the above, a noise model of the site has been developed using the *ISO 9613-2: 2024-01* prediction method as implemented by *SoundPLANnoise* software to predict the noise level resulting at the surrounding residences. The model considers the noise level generated by each noise source, the shielding effects provided by barriers and topography, and meteorological conditions that are conducive to noise propagation.

The predictions have been based on the following assumed activity within any 15-minute period (the default assessment period of the Policy):

- 6 vehicle movements into or out of the parking lot beneath the site.
- Continuous operation of all mechanical plant.

To achieve the criteria, it is recommended to install full height acoustic louvres, such as acoustic louvres with performance equivalent to *Fantech SBL1*, between the mechanical plant area of each level and the southern edge of the Development. The areas have been shown on Figure 2, Figure 3, Figure 4 and Figure 5 in **RED**.

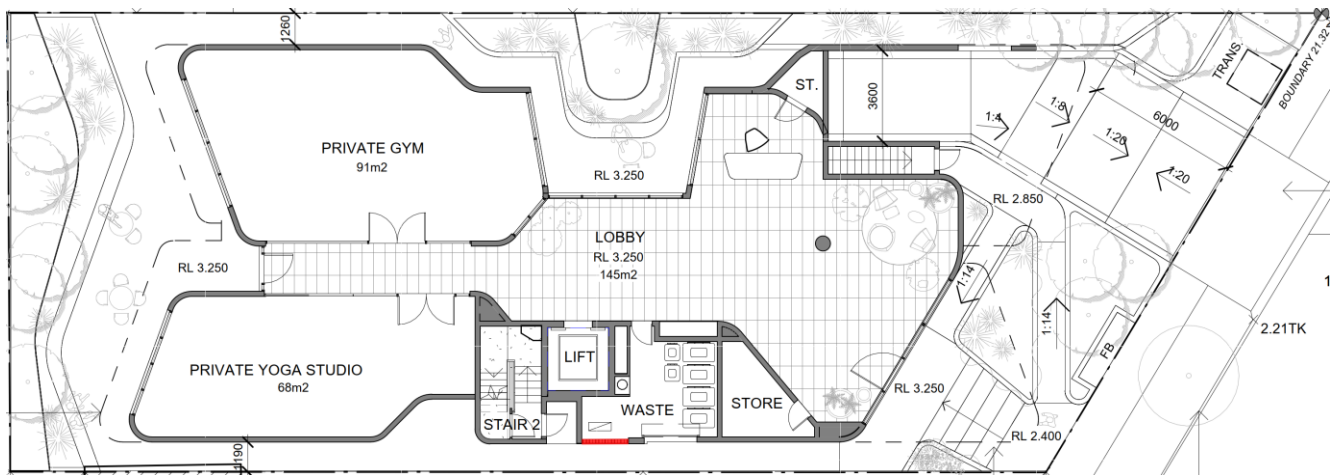


Figure 2: Ground Floor Louvres

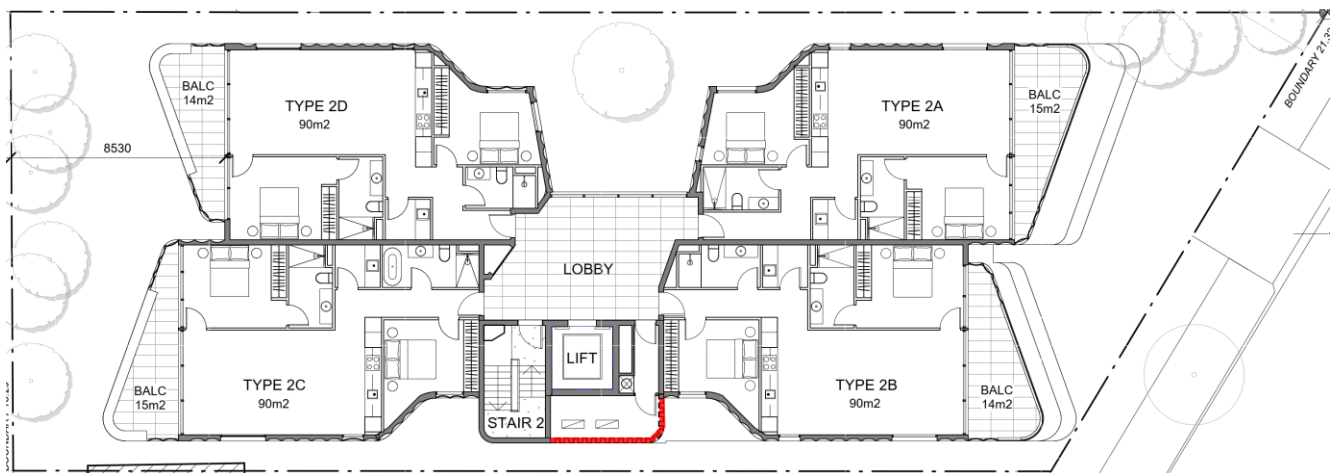


Figure 3: First Floor Louvres

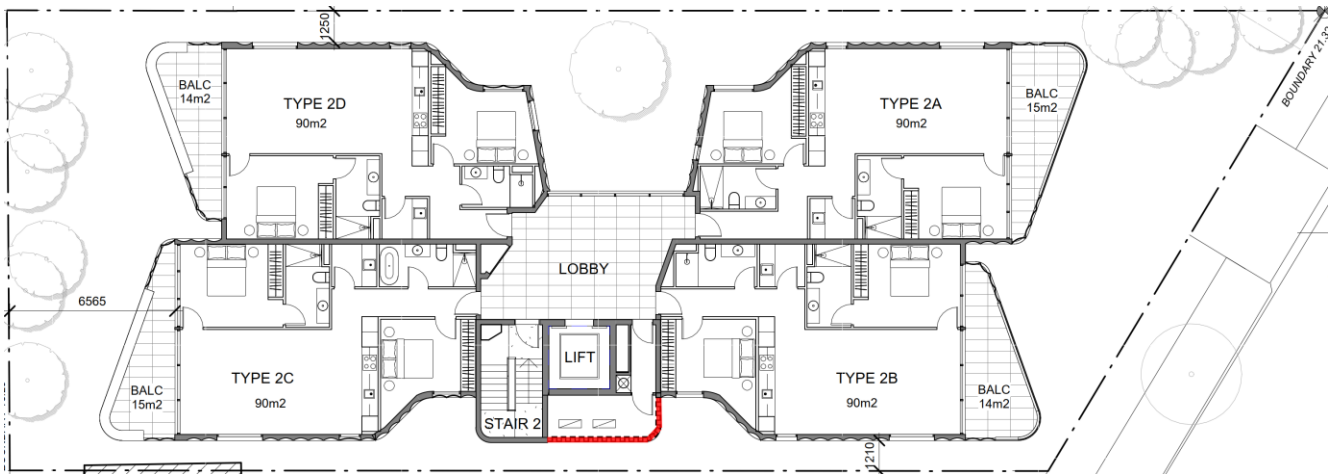


Figure 4: Second and Third Floor Louvres

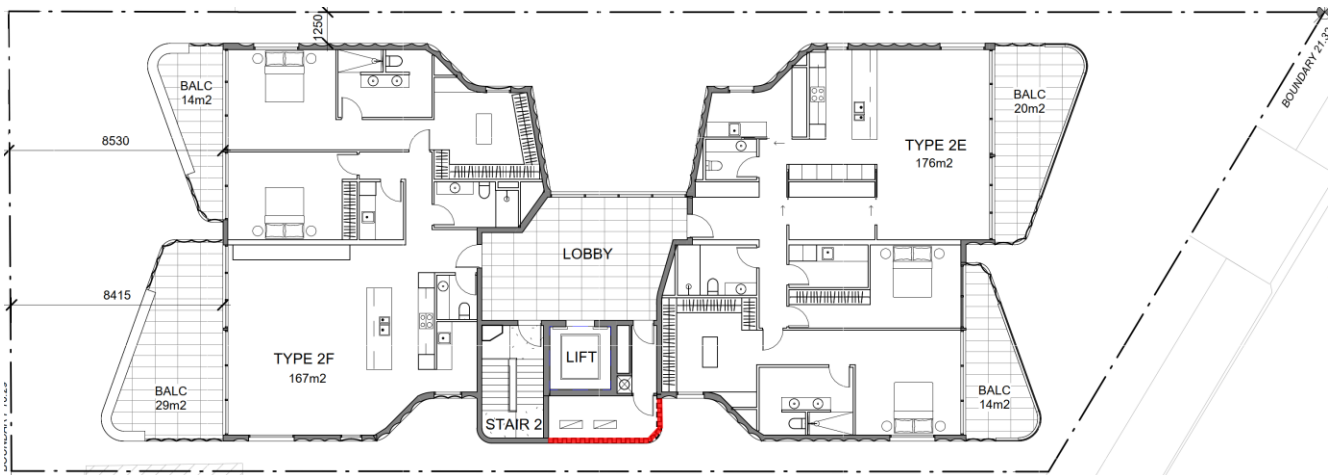


Figure 5: Fourth Floor Louvres

The predicted noise levels based upon the assumed activity and the inclusion of the recommended louvres are shown in Table 7.

Table 7: Predicted Outdoor Noise Levels

Location	Average Noise Level (L_{eq})	Maximum Noise Level (L_{max})
Outdoor Noise Level Criteria	45 dB(A)	60 dB(A)
South (2 Patawalonga Frontage)	45 dB(A)	50 dB(A)
West (along North Esplanade)	36 dB(A)	44 dB(A)
Indoor Criteria	30 dB(A)	45 dB(A)
North (4 Patawalonga Frontage)	10 dB(A)	37 dB(A)

The criteria are therefore achieved at all noise sensitive receivers.

4 CONCLUSION

A noise assessment has been conducted for the proposed development of apartments to be located at 3 Patawalonga Frontage, Glenelg North.

The noise ingress from aircraft noise has been assessed using the deemed-to-satisfy approach of the Ministerial Building Standard MBS 010 *Construction requirements for the control of external sound*. The assessment has provided recommended constructions for the external walls, windows and external glass doors, roof and ceilings of bedrooms and mechanical ventilation in accordance with the requirements of Sound Exposure Category 2 within MBS 010. Based upon the implementation of the recommended constructions, the design of the Development will achieve the deemed-to-satisfy requirements of MBS 010.

The assessment of noise emissions has considered the noise levels at the surrounding noise sensitive receivers, being residences, from activity at the site. Predictions include the noise from mechanical plant and car parking noise. Reference has been made to the *Local Nuisance and Litter Control Act 2016* and World Health Organization *Guidelines for Community Noise (1999)* to establish the criteria for the assessment. Predicted noise levels will achieve the criteria at all sensitive receiver locations subject to the recommendations provided within this report. The recommendations consist of acoustic louvres installed in specific locations to reduce the noise from the proposed mechanical plant.

APPENDIX A: PLANNING AND DESIGN CODE

PART 3 – OVERLAYS

Aircraft Noise Exposure Overlay

DESIRED OUTCOME

1. Development sensitive to aircraft noise is designed and located to manage noise intrusion to reduce land use conflict and protect human health.

<i>Performance Outcome</i>	<i>Deemed-to-Satisfy Criteria / Designated Performance Feature</i>
Land Use and Intensity	
<i>PO 1.1</i> Buildings that accommodate activities sensitive to aircraft noise are designed and located to minimise aircraft noise intrusion and provide appropriate interior acoustic amenity.	<i>DTS/DPF 1.1</i> Buildings accommodating sensitive receivers are not located within an area having an ANEF value of 30 or more

PART 4 – GENERAL DEVELOPMENT POLICIES

Interface between Land Uses

Desired Outcome (DO)

- DO 1** Development is located and designed to mitigate adverse effects on or from neighbouring and proximate land uses.

<i>Performance Outcome</i>	<i>Deemed-to-Satisfy Criteria / Designated Performance Feature</i>
General Land Use Compatibility	
<i>PO 1.2</i> Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or zone primarily intended to accommodate sensitive receivers is designed to minimise adverse impacts.	<i>DTS/DPF 1.2</i> None are applicable.
Activities Generating Noise or Vibration	
<i>PO 4.1</i> Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).	<i>DTS/DPF 4.1</i> Noise that affects sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria.

APPENDIX B: SOUND POWER LEVEL

Table 8: Sound Power Levels

Activity	Noise Source	Sound Power Level
Car Park	Car moving (per car)	82 dB(A)
Mechanical Plant	Daikin REYQ16BYM9 (per unit)	86 dB(A)
	Daikin RZAV140F2V1 (per unit)	70 dB(A)
	Daikin VRV IV S RXYMQ9AY1 (per unit)	76 dB(A)

Reid, Joanne (DHUD)

From: Simon Moore <smoore@sonus.com.au>
Sent: Thursday, 9 July 2026 6:06 PM
To: Reid, Joanne (DHUD)
Cc: Enzo Caroscio; James Levinson; Fabian Barone
Subject: RE: 3 Patawalonga Frontage - Updated Acoustic Report

Hi Jo,

In the report, we have adopted the hierarchy for the noise assessment location in accordance with the EPA Noise Policy.

This is explained in the extract below (this is from the guidelines for the use of the EPA Noise Policy):

Clauses 11(3), (4) and (5) set the rules for the selection of the measurement location on the noise affected premises. These clauses establish a selection hierarchy for a relevant measurement location as follows:

- Inside, if acoustic treatments have been applied to the building or habitable room.
- Outside, away from other vertical reflecting surfaces.
- Outside, close to reflecting surfaces, for passive recreation areas only.
- Inside, at the plane of an opening.
- Inside a room with the openings into that room closed.

Acoustic treatments are installations which improve acoustic performance of a noise affected premises above the minimum requirements of the Australian Building Code. This may include improvements such as double glazing, roller shutters, etc. This does not have to be a comprehensive understanding of the building standard of the noise affected premises. If the occupant understands that extra insulation for noise has been installed on premises, then the noise affected premises is said to have acoustic treatments.

The first choice of the selection hierarchy requires noise measurements to be undertaken internally based on the indicative noise levels as determined in [clause 5\(8\)](#) if acoustic treatments have been applied to the building to protect it from external noise and provide improved internal noise amenity. Noise measurements are to be taken inside the room with the benefit of the acoustic treatment(s).

If no noise attenuation has been installed at the receiver, an external measurement location 3.5 metres from any vertical reflecting surface can be used in the first instance, if it is deemed 'practicable and relevant' by the investigating officer.

The building at 4 PF is quite new (see below) and as part of the building rules consent it must comply with the mandatory requirements of MBS 010 to protect against aircraft noise intrusion. It therefore has acoustic treatments installed which improves the acoustic performance above the minimum requirements of the Australian Building Code, and the relevant assessment location is therefore indoors.

The building at 2 PF is old and would likely pre-date the MBS 010 and requirements to protect against aircraft noise intrusion. Therefore the relevant assessment location is external to the building.

Note that it is more onerous to achieve the external noise targets than the internal targets. There may be some buildings along the Northern Esplanade that also have acoustic treatments installed which improves the acoustic performance above the minimum requirements of the Australian Building Code, however as the external targets are achieved at those locations then the internal noise targets are also inherently achieved.

LOCATION OF PROPOSED DEVELOPMENT:

Location reference: 4 PATAWALONGA FRTG GLENELG NORTH SA 5045		
Title ref.: CT 5517/448	Plan Parcel: F1091 AL40	Council: CITY OF HOLDFAST BAY

DECISION:

Decision type	Decision (granted/refused)	Decision date	No. of conditions	No. of reserved matters	Entity responsible for decision (relevant authority)
Planning Consent	Granted	19 Nov 2021	2	0	David Hutchison - Access Planning (SA) Pty Ltd - Planning Level 1
Building Consent	Granted	22 Dec 2022	20	0	Peter Xerri - Building Rules Consent Private Certifiers Pty Ltd - Building Level 1
Development Approval - Planning Consent; Building Consent	Granted	10 Jan 2023	22	0	City of Holdfast Bay

Please let me know if you have any further questions.

Regards,
Simon

Simon Moore

Manager

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From: Reid, Joanne (DHUD) <joanne.reid@sa.gov.au>

Sent: Thursday, 9 July 2026 5:26 PM

To: Simon Moore <smoore@sonus.com.au>

Cc: Enzo Caroscio <enzo@enzocaroscio.com>; James Levinson <jlevinson@hwle.com.au>; Fabian Barone <fabian@fabricpd.com.au>

Subject: RE: 3 Patawalonga Frontage - Updated Acoustic Report

You don't often get email from joanne.reid@sa.gov.au. [Learn why this is important](#)

OFFICIAL

Hi Simon,

Thank you for the updated report.