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Olsson & Associates Architects Pty Ltd

77-81 Auburn Rd & 19 Neutral Ave Birrong - DA Noise

DA Report

20E-24-0234-TRP-63489-1

19 December 2024

Job Title:	77-81 Auburn Rd & 19 Neutral Ave Birrong - DA Noise
Report Title:	DA Report
Document Reference:	20E-24-0234-TRP-63489-1

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Revision History:

Rev. #	*Comments / Details of change(s) made*	*Date*	*Revised by:*
Rev. 00	Original issue	17 Dec 2024	
Rev. 01	Client Comments	19 Dec 2024	CL

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1 INTRODUCTION

Vipac Engineers & Scientists Ltd (Vipac) was commissioned by Olsson & Associates Architects Pty Ltd to provide a Development Application (DA) noise assessment for the proposed development, located at 77-81 Auburn Road, Birrong NSW, 2143.

2 SITE LOCATION

The proposed mixed-use development consists of 5 stories with commercial space and residential apartments. It is located on the corner of Auburn Rd and Neutral Ave, in the B1 Neighbourhood Centre land zoning area. Figure 2.1 shows the location of the proposed development and the nearby potentially noise impacted receivers.

Figure 2.1: Location of Proposed Development

Table 2.1: Noise Sensitive Receiver Locations

Receiver	Classification	Address	Orientation to Subject Site	Distance to Subject Site (m)
R01	Residential	62 Auburn Rd	Northwest	20
R02	Residential	16 Neutral Ave	Northeast	20
R03	Residential	64 Auburn Rd	West	20
R04	Commercial	83-85 Auburn Rd	South	0
R05	Residential	17 Neutral Ave	East	0

3 REFERENCES

The following references were used in this assessment.

- EPA NSW Noise Policy for Industry 2017 (NPI)
- AS/NZS 2107:2016 – Acoustics-Recommended design sound levels and reverberation times for building interiors
- Building Code of Australia (BCA) / National Construction Code (NCC): Part F5 – Sound Transmission and Insulation.
- NSW Department of Planning, Development near rail corridors and busy roads – Interim Guideline 2008

Table 3.1: Architectural Drawing Sets

Drawing No.	Revision	Date	Description
SK00	J	13/09/2024	Cover
A-620	F	19/12/2024	Area Calculations
SK03	A	13/09/2024	Survey Plan
A-005	L	19/12/2024	Site Plan
A-100	O	19/12/2024	Basement 2 Plan
A-101	O	19/12/2024	Basement 1 Plan
A-102	Q	19/12/2024	Ground Level 1 Plan
A-103	N	19/12/2024	Level 2 Plan
A-104	M	19/12/2024	Level 3 Plan
A-105	M	19/12/2024	Level 4 Plan
A-106	G	19/12/2024	Level 5 Plan
A-200	K	19/12/2024	Elevations 1
A-201	K	19/12/2024	Elevations 2
A-300	I	19/12/2024	Sections 1
A-301	H	19/12/2024	Sections 2
A-302	H	19/12/2024	Sections 3
A-303	H	19/12/2024	Sections 4

4 NOISE MONITORING

Noise monitoring was conducted for a total of seven days from 05/12/2024 until 12/12/2024 to determine the existing noise environment of the subject site and the associated road noise.

Figure 4.1 shows the location of the noise logger. The noise logger was placed along Auburn Road, on the roof of a hardware store, data gathered from the logger will be used to determine the noise levels for the acoustic assessment.

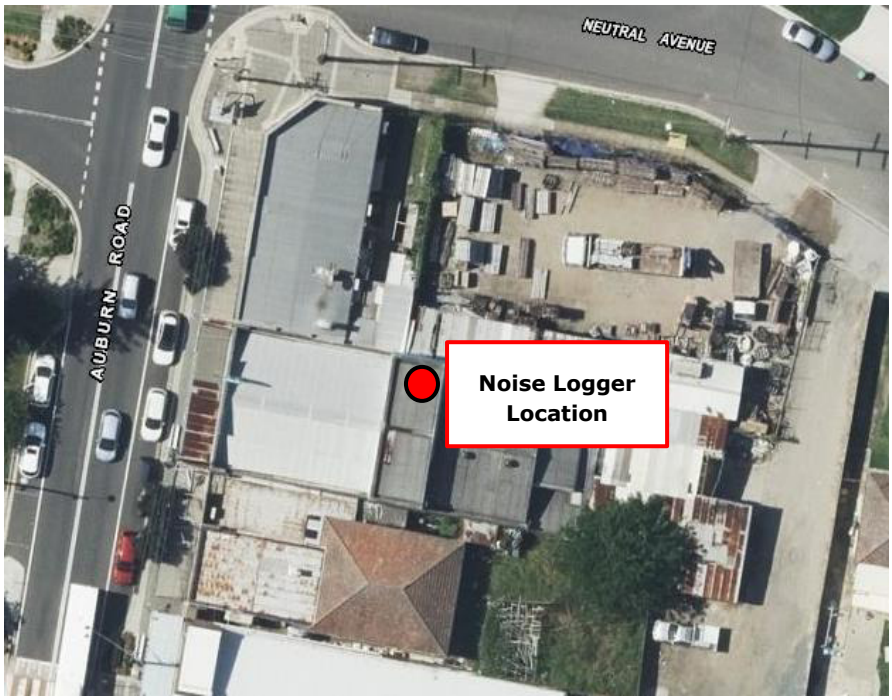


Figure 4.1: Location of Noise Logger

4.1 METHODOLOGY & INSTRUMENTATION

Existing background noise levels were measured continuously for a period of seven days with a Class 1 noise logger. The noise logger was configured to measure instantaneous noise levels with a 'Fast' time weighting and 'A' frequency weighting. A field reference check was conducted for the microphone immediately before and after the measurement sequence and the microphone was appropriately fitted with a windshield.

The L_{A90} is used to determine the Rating Background Level (RBL) for application throughout the acoustic assessment. This statistical measurement is the sound pressure level which is exceeded for 90% of the measurement period. The L_{Aeq} was also collected during the monitoring period and represents the equivalent continuous A-weighted sound pressure level of a continuous steady sound that has the same A-weighted sound energy as the actual time-varying sound.

Table 4.1: Equipment List

Instrument	Serial Number	Next Calibration Date
ACOEM Fusion Noise Logger 01dB	90-3553	29/02/2025
Bruel & Kjaer Acoustical Calibrator	2445463	18/04/2025

4.2 MEASUREMENT RESULTS

Measurement results obtained from the noise logger have been analysed in accordance with the procedures set out in the NSW Noise Policy for Industry (NPI) for determining existing background noise levels of the surrounding area. Results are shown in Table 4-2.

Table 4.2: Background & Ambient Noise Monitoring Results, Auburn Rd

Date	ABL (L_{A90})			L_{Aeq}		
	Day	Evening	Night	Day	Evening	Night
05/12/2024	52	49	36	64	62	59
06/12/2024	53	48	38	64	63	60
07/12/2024	37	50	38	59	61	57
08/12/2024	50	47	33	62	61	58
09/12/2024	52	47	34	63	63	60
10/12/2024	52	47	31	63	62	58
11/12/2024	52	47	35	63	62	58
12/12/2024	52	/	/	62	/	/
Median (RBL)	**52**	**47**	**35**	**/**	**/**	**/**
Log Average	**/**	**/**	**/**	**63**	**62**	**59**

Table 4.2 displays all the measurement values gathered during the 7-day unattended noise logging. Please refer to Appendix B for the noise logging graphs.

Table 4-3 provides the monitoring data from road traffic noise.

Table 4.3 Noise logger traffic noise measurement

Location	Day		Night	
	$L_{Aeq\ -\ 15hr}$	$L_{Aeq\ -\ Noisiest\ 1Hr}$	$L_{Aeq\ -\ 9hr}$	$L_{Aeq\ -\ Noisiest\ 1Hr}$
Auburn Road	63	**65**	59	**62**

5 NOISE CRITERIA

5.1 PROJECT SPECIFIC NOISE CRITERIA

The project specific noise criterion limits the noise that a development can make in accordance with the NSW Noise Policy for Industry (2017) to limit the effects of the proposed development on the existing sensitive receivers.

5.1.1 AMENITY NOISE CRITERIA

The amenity criterion is based on noise criteria specific to land use and associated activities. It aims to limit continuing increases in noise levels. The maximum ambient noise level within an area should not normally exceed the acceptable noise levels specified in Table 5.1.

Table 5.1: Amenity Noise Levels

Receiver	Noise Amenity Area	Time of Day	L_{Aeq}, dB(A)
Residential	Urban	Day	60
		Evening	50
		Night	45
Commercial Premises	All	When in use	65

5.1.2 INTRUSIVENESS NOISE CRITERIA

The intrusiveness criterion states that the equivalent continuous noise level of the source should not be more than 5 decibels above the measured background level when measured over a 15-minute period. It aims to control intrusive noise impacts in the short term for residences.

The intrusiveness criterion is summarised as follows:

$L_{Aeq,\ 15\ minute} \leq$ rating background level + 5 dB

5.1.3 PROJECT SPECIFIC NOISE LEVELS

In assessing the noise impact from industrial sources, both the intrusive and the amenity criteria must be considered for residential receivers. The more stringent of the intrusive or the amenity criteria sets the project specific noise level.

Table 5.2: Project Specific Noise Level

Receiver	Indicative Noise Amenity Area	Time of Day	Rating Background Level (RBL)	Intrusiveness Criterion dB(A)	Amenity Criterion dB(A)	Project Specific Noise Level dB(A)
Residence	Urban	Day	52	57	60	**57**
		Evening	47	52	50	**50**
		Night	35	40	45	**40**
Commercial Premises	Commercial Activities	When in use	-	-	65	**65**

In assessing noise levels at residences, the noise level is to be assessed at the most affected point on or within the residential property boundary or, if this is more than 30m from the residence, at the most-affected point within 30m of the residence. In assessing noise levels at commercial or industrial premises, the noise level is to be assessed at the most-affected point on or within the property boundary.

5.2 INTERNAL STEADY STATE NOISE REQUIREMENTS

Table 5.3 shows the residential noise criteria for both road and rail noise as specified in the Infrastructure SEPP and further referenced in Development near Rail Corridors and Busy Roads – Interim guideline. These requirements only apply if the traffic count is >40 000 AADT or the road is a freeway, tollway, or transit way. In this case the noise level is advisory.

Table 5.3: Indoor noise level requirement for developments near rail corridors and busy roads

Type of occupancy	L_{Aeq}, dB(A)	Applicable time period
Sleeping areas (bedroom)	≤ 40	Day 7am to 10 pm
	≤ 35	Night 10 pm to 7 am
Other habitable rooms (excl. garages, kitchens, bathrooms & hallways)	≤ 40	At any time

Indoor design sound levels for other indoor spaces within the development have been extracted from the Australian Standard 2107: *Acoustics – Recommended design sound levels and reverberation times for building interiors*; this standard provides a recommended indoor noise level for various occupant buildings/spaces. The relevant spaces within this development are presented in Table 5.4.

Table 5.4: Indoor Noise Criteria extracted from the AS/NZS 2107

Type of Occupancy	Type of Activity	Design Sound Levels, L_{Aeq} dB(A)
Residential – Houses and apartments in suburban area or near minor roads	Apartment common areas	45 to 50
	Living Areas	30 to 40
	Sleeping Area (Nighttime)	30 to 35
	Enclosed car park	Less than 65
Commercial	Small retail stores (general)	Less than 50
	Coffee shops, restaurants	40 to 50

5.3 NCC SOUND INSULATION REQUIREMENTS

The walls between units must meet the requirements outlined in NCC – Building Code of Australia, Section F5. The relevant requirements are listed in Table 5.5.

Table 5.5: NCC Acoustic Requirements

SEPARATING PARTITIONS	Minimum NCC Requirement
WALLS AND FLOORS	
Walls between sole occupancy	Rw + Ctr 50
Walls between apartments and stairway, public corridors, public lobby or the like	Rw 50
Walls between wet areas (bathrooms, sanitary compartment, laundry or kitchen) and a habitable room (other than kitchen) in adjoining apartments	Rw + Ctr 50 & of discontinuous construction
Walls between a plant room or lift shaft and a sole occupancy unit	Rw 50 & of discontinuous construction
Doors assemblies located in a wall between an apartment and a stairway, public corridor, public lobby or the like	Rw 30
Floors between sole occupancy units or between a sole occupancy unit and plant room, lift shaft, stairway, public corridor, public lobby or the like.	Rw + Ctr 50 & Ln,w < 62
DOORS	
Door assemblies located in a wall between an apartment and a stairway, public corridor, public lobby or the like.	Rw 30
SERVICES	
(a) a duct, soil, waste or water supply pipe including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one sole occupancy unit	
(i) if the adjacent room is a habitable room (other than a kitchen); or	Rw + Ctr 40
(ii) if the room is a non-habitable room	Rw + Ctr 25
(b) a storm water pipe that passes through a sole occupancy unit	
(i) if the adjacent room is a habitable room (other than a kitchen); or	Rw + Ctr 40
(ii) if the room is a non-habitable room	Rw + Ctr 25

Note, according to the NCC requirements:

1. For the purpose of complying with the NCC 2011 sound insulation requirements, the $R_w + C_{tr}$ must be determined in accordance with AS/NZS 1276.1 or ISO 717.1, using results from laboratory measurements.
2. Discontinuous construction means a wall system having a minimum 20mm cavity between two separate leaves with:
   - for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and,
   - For other than masonry, there is no mechanical linkage between leaves except at the periphery.
   - A staggered stud wall, which has a common top and bottom plate, is not considered to be discontinuous.
3. A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating pump or other pump

5.4 NSW INTERIM CONSTUCTION NOISE GUIDELINES

Section 4.1 of the NSW Interim Construction Noise Guideline (ICNG) provides construction noise management levels for various noise sensitive receivers and what to do if the construction noise exceeds the management levels. The receiver criteria applied to this development is shown in Table 5.6 and Table 5.7.

Noise Affected (Day) = RBL + 10 dB
Noise Affected (Evening/Night) = RBL + 5 dB

Table 5.6: Residential Noise Management Level

Time of day	Management level, ($L_{Aeq, 15\ minute}$)	How to Apply
Recommended standard hours Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays and Public Holidays	Noise affected **62 dB(A)**	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected **75 dB(A)**	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences. 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected Evening: **52 dB(A)** Night: **40 dB(A)**	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements section 7.2.2.

Table 5.7: Commercial Land Uses Noise Management Level

Land Use	Management Level $L_{Aeq\ (15min)}$ (applies when properties are being used)
Offices, retail outlets	70 dB(A)

A further noise and vibration management plan can be completed by a suitably qualified engineer once the development application has been approved.

6 MINIMUM CONSTRUCTION REQUIREMENTS

6.1 ROAD NOISE INTRUSION

SoundPLAN computer noise modelling software was used to predict noise levels at the façades. The use of the software and referenced modelling methodology is accepted for use in the state of NSW by NSW EPA for environmental noise modelling purposes.

Since no official traffic volume data from Transport of NSW is present for Auburn Road, the unattended logger data was used to calibrate the digital model to project road noise levels in 10-years' time, this is then used to determine the minimum building construction requirements of the development.

Verification of the traffic volume via a traffic engineer would provide a more accurate prediction. The following items were used for modelling purposes:

- 50 kph speed limit
- Bituminous surface
- Day 97/3%, Night 100/0% Car to Truck Ratio
- Current ADT Volume of 15,600
- 3% increase of Traffic Volume per year

Table 6.1 lists the predicted maximum façade noise levels for each floor. This data was used to determine the minimum construction requirements, such as external wall, roof and glazing.

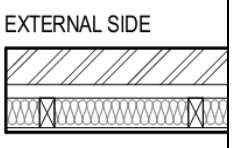
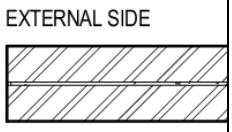
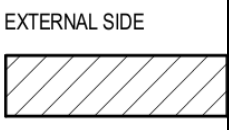
Table 6.1 SoundPlan Model Noise Levels per Unit

Façade Direction	Noise Level dB(A)				
	Ground Floor (Level 1)	Level 2	Level 3	Level 4	Level 5
West	64.4	65.6	65.1	64.4	63.8
South	45.0	47.6	49.7	52.6	55.4
East	44.8	46.6	47.2	47.7	48.1
North	55.4	57.4	58.2	58.0	57.8

6.2 EXTERNAL WALLS

The recommended acoustic rating of all external walls is Rw ≥ 50. Examples of walls that meet requirements are shown in Table 6.2. Alternative systems can be used provided the Rw rating is satisfied, however an acoustic review is recommended at CC stage.

Table 6.2: External Wall Systems Examples

No.	Diagram	Wall Description	Manufacturers Data/Predicted	R_w / R_w+C_{tr}
WT02		110mm Clay[1], 40mm cavity, 90mm seasoned Timber Stud, Insulation[2], 13mm Plasterboard	Predicted	55/48
WM01		2x 110mm masonry[1]	Predicted	51/47
WM02		190mm Block Work[1]	Predicted	50/45

[1] Masonry density of 1600kg/m^3 was used in the INSUL Prediction
[2] 50mm thick of 10kg/m^3 fibreglass insulation was used in this prediction.
[3] Fibre cement with surface mass of 9.4kg/m^2 was used in the INSUL Prediction.

6.3 EXTERNAL ROOF

The recommended acoustic rating for compliance of the roof is Rw ≥ 45. Alternative systems can be used provided the Rw rating is satisfied, however an acoustic review is recommended at CC stage.

Table 6-3 provides an example of a compliant roof system:

Table 6.3: Roof System Examples

System	Description	Prediction Performance
Roof System 1	A steel sheet roof of minimum 0.42mm thick with at minimum Bradford Anticon 55 insulation over battens, ceiling joist or trusses at 600mm max centres over one layer of 13mm GYPROCK FYRCHECK plasterboard with 215 Gold Batts 4.0 cavity infill	Rw 46
Roof System 2	200 mm thick Concrete Slab (Density 468 kg/m^3)*	Rw 59

*The density of the concrete slab may influence the acoustic performance of a floor system. A denser concrete will increase the noise reduction performance, while a lighter concrete will transmit more noise.

6.4 GLAZING

The minimum glazing requirements for the development are shown in Table 6.4. The rooms most affected are the rooms facing Auburn Road. Standard 5mm glass typically achieves an **Rw ≥ 24**, which is sufficient for facades not specified Table 6.4. It should be noted that the glazing requirements were calculated based on the recommendation that external walls will have a minimum Rw 50 acoustic rating and the roofing will have a minimum Rw 45 acoustic rating.

Table 6.4: Glazing Requirements

façade Direction	Location	Minimum R_w rating
Northwest	Bedrooms	38
	Living rooms	32
West	Bedrooms	36
	Living rooms	32
North	Bedrooms	32
	Living rooms	30
South	Living rooms	33
North	Commercial	24
West	Commercial	26

Certified laboratory test certificates should be supplied for the window glazing assemblies at the subsequent Construction Certificate stage for review. Table 6.5 provides typical Rw values for various windows, and their corresponding thickness. This table should only be used as a guide for window Rw values, as different glass manufacturers have different ratings and thicknesses for their systems.

Table 6.5: Typical Window Reduction Weighting (R_w) Value

Glazing	Minimum R_w rating	Window Seals
4mm Float	30	Acoustic Seals
6.38mm Laminate	33	Acoustic Seals
12.76mm Laminate	38	Acoustic Seals

6.5 INTERTENANCY WALLS

All intertenancy walls must have an Rw + Ctr ≥ 50. In addition, all walls between bathrooms, kitchens (wet areas) and bedrooms, living rooms must have discontinuous construction.

An example of a wall system that satisfies BCA requirements for intertenancy walls is shown in Table 6.6. Alternative systems can be used provided the Rw rating is satisfied, however an acoustic review is recommended at CC stage.

Table 6.6: Undertenancy Wall System Examples

System	Wall Description	R_w / R_w + C_{tr}
Wall System 1	13mm Standard plasterboard, 75mm HEBEL Power Panel, 35mm gap, 64mm steel stud, 50mm (11kg/m^3) Bradford Glasswool, 2 x 13mm Standard Plasterboard.	67/56 Discontinuous
Wall System 2	10mm plasterboard, 70mm timber studs at 450mm maximum centres, 50mm (11kg/m^3) Bradford Glasswool, 20mm air gap, 75mm HEBEL Power Panel, 20mm gap, 70mm timber studs at 450mm maximum centres, 50mm (11kg/m^3) Bradford Glasswool, 10mm Plasterboard.	66/52 Discontinuous
Wall System 3	13mm Standard plasterboard, 75mm HEBEL Power Panel, 35mm gap, 70mm timber studs at 450mm maximum centres, 75mm (11kg/m^3) Bradford Glasswool, 13mm Standard Plasterboard.	63/52 Discontinuous

6.6 INTERTENANCY FLOORS

All intertenancy floors must have an Rw + Ctr ≥ 50 and Ln,w + C_I< 62.

Examples of floor systems that satisfy BCA requirements for intertenancy floors are shown in Table 6.7.

Table 6.7: Floor System Examples

System	Description	Prediction Performance
Floor System 1	Vinyl/carpet with underlay or tiled floor with 5mm Vibramat underneath, 200mm thick HEBEL Floor Panel, 150mm air gap, 75mm 11kg/m3 glasswool insulation or equal, Resilient hangers, 13mm thick plasterboard	Rw + Ctr = 57dB According to the Hebel database this floor system complies with the relevant Ln,w + C_I requirement
Floor System 2	Regupol 5512 5mm underlay under 8mm timber laminate planks, 150 mm concrete, steel C-Joist (1.0-1.6mm) (90 mm x 38 mm), 90 mm air gap, 50 mm 11kg/m³ glasswool 11kg/m³, 1 layer of 13mm standard plasterboard	Rw + Ctr = 63dB Ln,w + C_I = 50dB

6.7 ACOUSTIC SEALANTS

Where acoustic constructions are provided, all joints should be overlapped, and penetrations and gaps are to be fully sealed with acoustic sealant similar to:

- Bostik Fireban 1 or Seal'n'Flex;

- Hilti CP606 Firestop;
- CSR Gyprock Firemastic;
- Sika Firerate;
- Ramset Blaze Brake 201;
- Any other acoustic sealant that is polyurethane (non-hardening) with a minimum specific gravity > 1.5.

Vipac should review any proposed alternatives.

6.8 GAPS AND SEALS

Junctions are required to be sealed airtight to achieve the required acoustic ratings between spaces. General guidelines for acoustic seals are as follows:

- All junctions and penetrations should be sealed airtight, and seals are to extend continuously along the length of the junction — to both sides of the partition;
- For walls where more than one layer of wall lining is required, all linings should be overlapped to minimise potential gaps between linings;
- It is recommended that plasterboard or other wall linings are cut such that the junction is as close a flush fit as possible. The maximum gap between joints in wall linings should not exceed 3mm.

For air gaps, the following detailing should be applied to maintain an adequate airtight seal through acoustic rated elements. For the following air gaps, the following details are recommended:

- Gaps < 5mm – hard pack with glass wool insulation (minimum 32kg/m^3) and apply mastic.
- Gaps > 5mm and up to 20mm: Pack with backing rods and dense insulation (50mm, 48kg/m^3 glass wool) to seal and mastic.
- Gaps > 20mm – pack with insulation, and patch with Plasterboard (the same thickness and number of layers as the base partition (applied either side) leaving small gap (~5mm), which can be sealed with mastic.
- Recommended Mastic Sealants, are as follows:
  - Sikaflex "Pro;
  - Bostik "Fireban One";
  - Gyprock "Seal 'n Flex".

6.9 SERVICES/HYDRAULIC PIPING

Hot and cold water pipes do not need to be treated when penetrating an acoustic rated wall; however the gaps around the piping are required to be treated as per Section 6.8. All pipes, fittings and fixtures need to be isolated from the partitions by means of resilient sleeves or mounts. For partitions, Rw 45 or greater, services piping should be caulked at the penetration on both sides. The gap between the pipe and the gypsum board should not exceed 20 mm, where gaps exceed 20 mm the gap should be reduced to 20 mm by adding an additional piece of gypsum/plasterboard, or a sheet metal disk to cover the gap.

7 CONCLUSION

Vipac has conducted a DA noise assessment for the proposed development located at 77-81 Auburn Road & 19 Neutral Avenue, Birrong NSW, 2143.

Based upon the predicted noise levels and assessments, the proposed development is expected to comply with the project specific noise criterion, the standards set out by the NCC, and NSW Noise Policy (Industry), provided the recommendations in this report are implemented.

Appendix A Glossary of Terminology

Decibel, dB:

Unit of acoustic measurement. Measurements of power, pressure and intensity. Expressed in dB relative to standard reference levels.

dB (A):

Unit of acoustic measurement weighted to approximate the sensitivity of human hearing to sound frequency.

Sound Pressure Level, L_p (dB), of a sound:

20 times the logarithm to the base 10 of the ratio of the r.m.s. sound pressure to the reference sound pressure of 20 micro-Pascals. Sound pressure level is measured using a microphone and a sound level meter and varies with distance from the source and the environment.

Sound Power Level, L_W (dB), of a source:

10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 Pico Watt. Sound power level cannot be directly measured using a microphone. Sound power level does not change with distance. The sound power level of a machine may vary depending on the actual operating load.

Ambient Sound:

Of an environment: the all-encompassing sound associated with that environment, being a composite of sounds from many sources, near and far.

Background noise:

The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed.

Percentile Level - L_{90}, L_{10}, etc:

A statistical measurement giving the sound pressure level which is exceeded for the given percentile of an observation period, e.g. L_{90} is the level which is exceeded for 90% of a measurement period. L_{90} is commonly referred to as the "background" sound level.

$L_{AEQ,T}$:

Equivalent continuous A-weighted sound pressure level. The value of the A-weighted sound pressure level of a continuous steady sound that, within a measurement time interval T, has the same A-weighted sound energy as the actual time-varying sound.

Rating Background Level – RBL:

Method for determining the existing background noise level which involves calculating the tenth percentile from the L_{A90} measurements. This value gives the Assessment Background Noise Level (ABL). Rating Background Level is the median of the overall ABL.

Appendix B Noise Monitoring Graphs

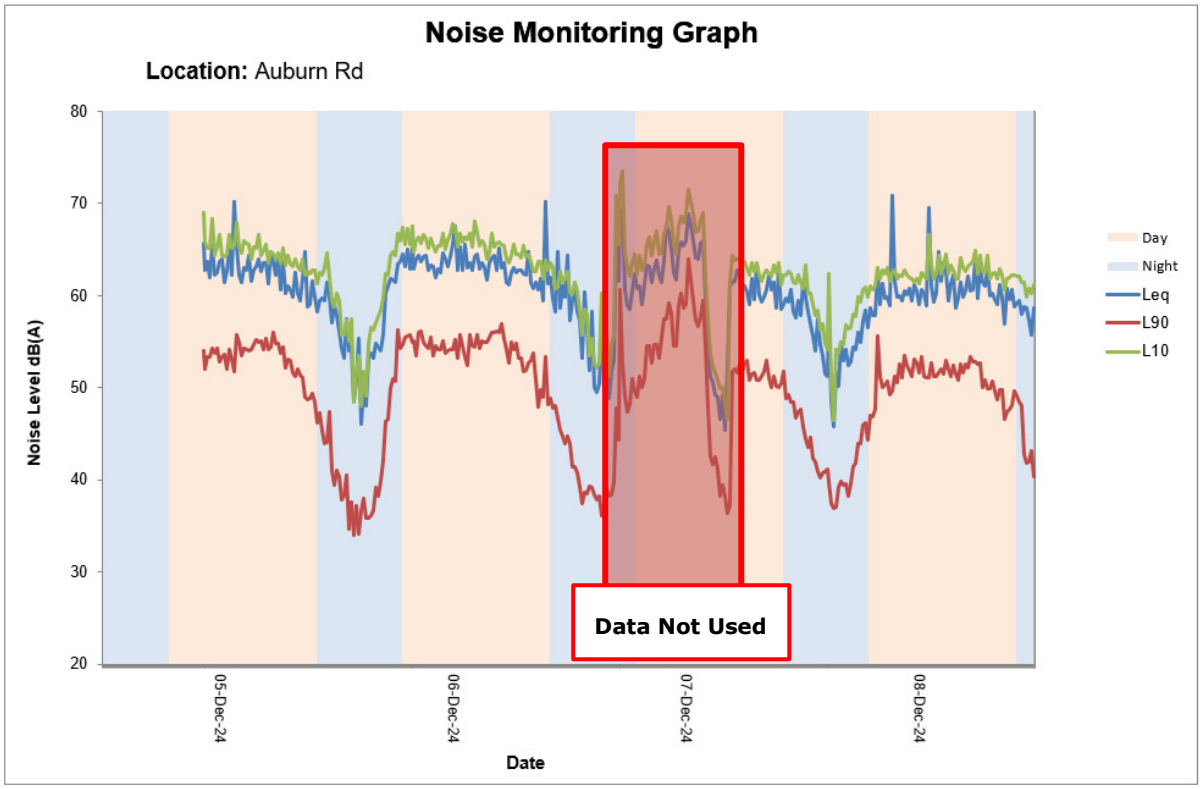


Figure 7.1 Noise Logger Graph 4-Day Period

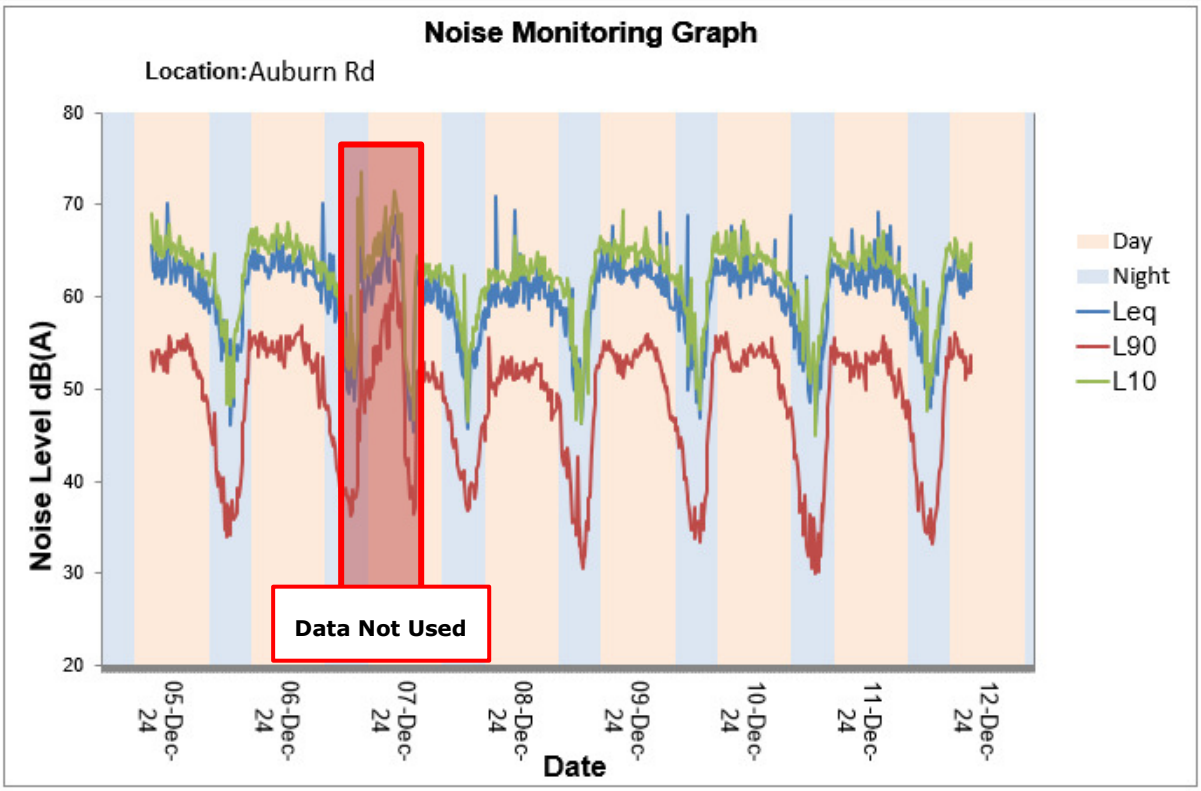


Figure 7.2 Noise Logger Graph 8-Day Period