
Environmental Noise Assessment Proposed Alterations and Additions Retail Floor Space, Restaurant & Function Centre

At:-

187 Fitzmaurice Street,
Wagga Wagga, NSW 2650

Prepared for:-

Vibe Corp Pty. Ltd.
C/- Camilla Rocks Planning
Wagga Wagga NSW 2650

Attention: Ms Camilla Rocks

Reference: 2207006E-R

Prepared by:-

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Camilla Rocks Planning on behalf of Vibe Corp Pty. Ltd. commissioned Harwood Acoustics Pty. Ltd., to carry out an acoustical assessment for proposed alterations and additions to an existing commercial building located at 187 Fitzmaurice Street, Wagga Wagga, NSW.

The alterations and additions will include Fitout as a retail space on the ground floor with a restaurant, bar and function centre on the first floor.

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TABLE OF CONTENTS

1.	INTRODUCTION AND SUMMARY	4
2.	SITE AND DEVELOPMENT DESCRIPTION	5
2.1	Site Description	5
2.2	Description of Proposal	5
3.	NOISE CRITERIA.....	7
3.1	NSW Liquor and Gaming	7
3.2	NSW Environment Protection Authority’s Noise Guide for Local Government	7
3.3	Measured Background Noise Levels	7
3.4	Project Specific Noise Goals	9
4.	RESTAURANT, BAR AND FUNCTION ROOM NOISE EMISSION	11
4.1	Patron and Music Noise	11
4.2	Mechanical Plant Noise	11
5.	NOISE LEVEL PREDICTIONS	12
5.1	Modelling Equations.....	12
5.2	Predicted Noise Levels.....	12
6.	NOISE CONTROL RECOMMENDATIONS	14
6.1	Building Construction	14
6.2	Amplified Music Levels.....	14
6.3	Mechanical Plant	15
7.	CONCLUSION	16

1. INTRODUCTION AND SUMMARY

Camilla Rocks Planning on behalf of Vibe Corp Pty. Ltd. commissioned Harwood Acoustics Pty. Ltd., to carry out an acoustical assessment for proposed alterations and additions to an existing commercial building located at 187 Fitzmaurice Street, Wagga Wagga, NSW (the Site). The Site is located on the north eastern side of Fitzmaurice Street at the intersection with Cadell Place and Crampton Street in a mixed commercial and residential area. There are commercial premises bounding the Site to the south and opposite Fitzmaurice Street to the west and south west. The closest residential receptors are located to the north west in Fitzmaurice Street and Crampton Street as shown in Figure 1. The nearest of these is at approximately 70 metres.

It is proposed to carry out alterations and additions to the commercial building at the Site which will include:-

- Extension of the ground floor to create an entrance, foyer, stairs, lift, amenities, bridal room and retail tenancy,
- Extensions to the first floor to create an entrance foyer (stairs and lift), restaurant, kitchen, function room, amenities and open deck with fire place.

The proposed alterations and additions are referred to overall henceforth as the Development.

Proposed floor plans are shown in Figures 2 and 3 and full details can be seen in Dion Argus's building design plans for project no. 2015, dated February 2022.

It is a requirement of Wagga Wagga City Council that an acoustical assessment be prepared to assess the potential for noise impacts from the Development at nearby residences.

The proposed operating hours of the Development are as follows:-

- 7 am to midnight 7 days per week for the restaurant, deck bar and function room, and
- 8 am to 8 pm 7 days per week for the retail tenancy.

Acceptable noise limits are derived from Liquor and Gaming NSW's standard noise criteria for patron and music noise and the NSW Environment Protection Authority's *Noise Guide for Local Government* 2013 noise goals for any mechanical plant servicing the development.

Recommendations are made in Section 6 of this Report to ensure that the noise limits are met at all residential receptors. Recommendations include advice on the construction of the new building elements and prescribing a maximum allowable level of amplified music in function room.

Providing the noise control recommendations are implemented and adhered to, the Liquor and Gaming NSW and EPA's acceptable noise limits can be met for this proposal as required by Wagga Wagga City Council.

2. SITE AND DEVELOPMENT DESCRIPTION

2.1 Site Description

The Site is located on the north eastern side of Fitzmaurice Street at the intersection with Cadell Place and Crampton Street in a mixed commercial and residential area. There are commercial premises bounding the Site to the south and opposite Fitzmaurice Street to the west and south west.

The nearest residential receptors are shown in Figure 1 below and the addresses are as follows:-

R1 – 200 Fitzmaurice Street

R2 – 1 Crampton Street



Figure 1. Location Plan – 187 Fitzmaurice Street, Wagga Wagga, NSW

(Source: www.metromap.com.au)

2.2 Description of Proposal

It is proposed to carry out alterations and additions to the commercial building at the Site which will include:-

- Extension of the ground floor to create an entrance, foyer, stairs, lift, amenities, bridal room and retail tenancy,
- Extensions to the first floor to create an entrance foyer (stairs and lift), restaurant, kitchen, function room, amenities and open deck with fire place.

Proposed floor plans are shown in Figures 2 and 3 and full details can be seen in Dion Argus's building design plans for project no. 2015, dated February 2022.

The proposed operating hours of the Development are as follows:-

- 7 am to midnight, 7 days per week for the restaurant, deck bar and function room, and
- 8 am to 8 pm, 7 days per week for the retail tenancy.



Figure 2. Proposed Ground Level Floor Plan

(source: Dion Argus's building design plan 1 for project no. 2015, dated February 2022.)

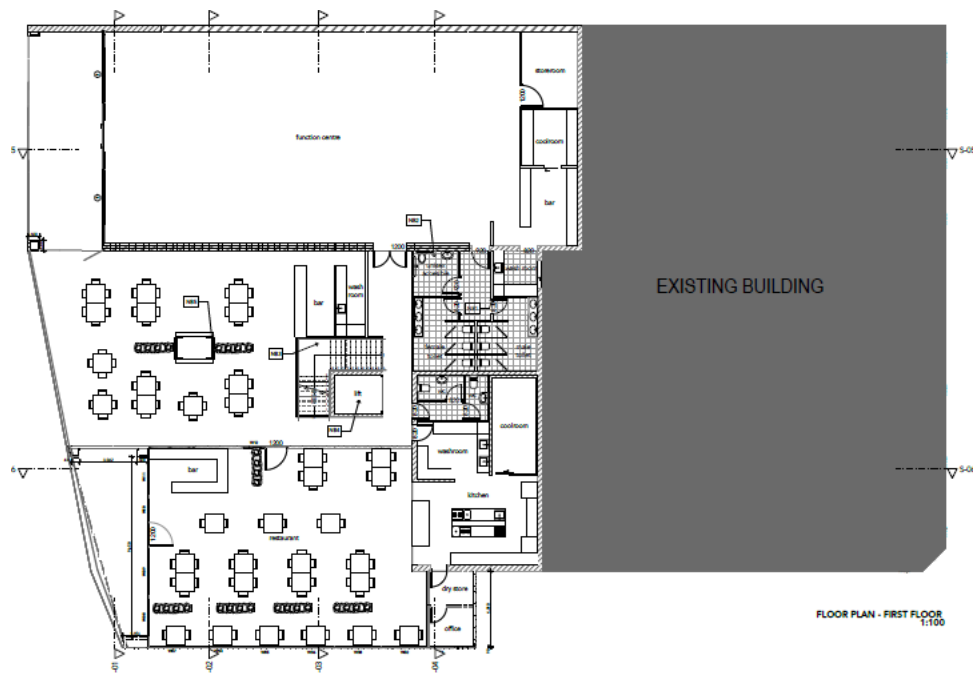


Figure 3. Proposed First Floor Plan

(source: Dion Argus's building design plan 2 for project no. 2015, dated February 2022.)

- The restaurant plan shows seating for 54 patrons,
- The deck bar shows seating for 42 patrons, and
- It is assumed the function centre has capacity for 150 patrons.

3. NOISE CRITERIA

This section outlines the noise guidelines applicable to this proposal and establishes the project specific noise goals.

This section outlines the noise guidelines applicable to this proposal and establishes the project specific noise goals.

3.1 NSW Liquor and Gaming

Liquor and Gaming NSW, requires the following in relation to noise emission from music and patrons inside licensed premises:-

“The L_{A10} noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz – 8 kHz inclusive) by more than 5 dB between 07:00 am and 12:00 midnight at the boundary of any affected residence.

The L_{A10} noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz – 8 kHz inclusive) between 12:00 midnight and 07:00 am at the boundary of any affected residence.

Notwithstanding compliance with the above, the noise from the licensed premises shall not be audible within any habitable room in any residential premises between the hours of 12:00 midnight and 07:00 am”.

The above criteria are conditioned in the Hotel’s liquor licence.

3.2 NSW Environment Protection Authority’s Noise Guide for Local Government

The Environment Protection Authority (EPA) published the *Noise Guide for Local Government* in June 2013. The policy is specifically aimed at assessing noise from light industry, shops, entertainment, public buildings, air conditioners, pool pumps and other noise sources in residential areas.

The EPA in Section 2.2.1 of the *Noise Guide for Local Government* states that a noise source is generally considered to be intrusive if the noise from the source when measured over a 15 minute period ($L_{eq, 15 \text{ minute}}$), exceeds the background noise ($L_{90, 15 \text{ minute}}$) by more than 5 dB.

This criteria ins in keeping with the EPA’s *Noise policy for Industry* (2017) Intrusiveness Noise Goals and generally with Council’s standard noise conditions.

The noise from the source is measured or assessed at the most affected point within the residential property boundary, or of that is more than 30 metres from the residence, at the most affected point within 30 metres of the residence. For upper floors the noise is assessed outside the nearest window.

3.3 Measured Background Noise Levels

In order to establish the noise design goals, it is necessary to determine the background noise levels in the vicinity of all potentially affected residential receptors.

The background noise level is defined by the EPA as ‘the underlying level of noise present in ambient noise when all unusual extraneous noise is removed’ and is considered to be represented by the $L_{A90, 15 \text{ minute}}$ descriptor. This is a statistical measure of the sound pressure level that is exceeded for 90 % of the time.

The EPA's *Noise Policy for Industry* 2017 provides a method for establishing a rating background noise level for each of three periods being the day time period (7 am to 6 pm), the evening time period (6 pm to 10 pm) and the night time period (10 pm to 7 am). This is done by deriving a single figure background noise level from monitoring $L_{90, 15 \text{ minute}}$ noise levels over a representative period of time, typically one week.

The noise criteria set by Liquor and Gaming NSW applies during the two periods of 7 am to 12 am and 12 am to 7 am, where the noise goal is derived from the background noise level at any given time under consideration.

It is often useful, particularly at the planning stage of a proposal to use the EPA's rating background noise levels for each period of the day, evening and night periods (or shoulder periods thereof) to establish realistic noise goals for licensed premises during the times of operation.

In this instance, a noise logger was placed at unit 6 / 200 Fitzmaurice Street (refer Figure 1) between Saturday 23 and Sunday 31 July 2022.

Rating background noise levels are shown in Table 2 below and instrumentation used during the noise surveys is shown in Appendix A.

Table 2 Rating Background Noise Levels – Fitzmaurice Street, Wagga Wagga, NSW

Period / Time of Day	Rating Background Level dBA ($L_{90, 15 \text{ minute}}$)	Existing Ambient Noise Levels dBA ($L_{eq, 15 \text{ minute}}$)
Day Time Period (7 am to 6 pm)	50	63
Evening Time Period (6 pm to 10 pm)	44	60
Early night (10 pm to 7 am)	40	57
Night Time Period (10 pm to 7 am)	33	54

Short-term attended background noise measurements were also taken at the site to establish the octave band centre frequency noise levels for the establishment of noise limits for licensed premises.

Short-term attended background noise levels were also measured in Crampton Street for comparison to the Fitzmaurice Street background noise levels at the same time.

Background noise levels at the nearest residences in Crampton Street were found to be 3 dB lower than those around the corner in Fitzmaurice Street during the day. This is due to the proximity to road traffic and applies during day time and early evening hours when the traffic flows are constant enough to impact the $L_{90, 15 \text{ minute}}$ noise level. Notwithstanding this, as a worst-case scenario, the rating background noise levels for Receptor R2 and those dwellings further along Crampton Street are assumed to be 3 dB lower than the RBLs shown in Table 2 during all time periods.

The measured octave band background noise levels have been adjusted to match the rating background noise levels and the resulting levels are shown in Table 3 below for each period.

Table 3 Octave Band and Overall L₉₀ Background Noise Levels

Time Period	Overall dBA	Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
R1 – 200 Fitzmaurice Street (as measured)										
Day time period (7 am to 6 pm)	50	60	57	51	46	46	47	42	36	34
Evening time period (6 pm to 10 pm)	44	54	51	45	40	40	41	36	30	28
Night time period (10 pm to 12 am)	40	50	47	41	36	36	37	32	26	24
R2 – 1 Crampton Street (3 dB lower)										
Day time period (7 am to 6 pm)	47	57	54	48	43	43	44	39	33	31
Evening time period (6 pm to 10 pm)	41	51	48	42	37	37	38	33	27	25
Night time period (10 pm to 12 am)	37	47	44	38	33	33	34	29	23	21

3.4 Project Specific Noise Goals

Noise emission from dining guests and patrons as well as background music is assessed against the Liquor and Gaming NSW criteria. Noise emission from any mechanical plant servicing the building is assessed against the NSW EPA's *Noise Guide for Local Government* (2013) criteria.

Based on the measured and adjusted background noise levels, the most stringent project specific noise goals are as follows: -

Mechanical Plant Noise at each Receptor (EPA Noise limits)

Receptor R1

- (50 + 5 =) **55 dBA** L_{eq, 15 minute} during the day,
- (44 + 5 =) **49 dBA** L_{eq, 15 minute} during the evening, and
- (33 + 5 =) **38 dBA** L_{eq, 15 minute} during the night.

Receptor R2

- (47 + 5 =) **52 dBA** L_{eq, 15 minute} during the day,
- (41 + 5 =) **46 dBA** L_{eq, 15 minute} during the evening, and
- (30 + 5 =) **35 dBA** L_{eq, 15 minute} during the night.

*Guests and Music Noise Limits at each Receptor (Liquor and Gaming NSW)***Table 4 L₁₀ Design Noise Goals at nearest residences**

Time Period	Overall dBA	Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
R1 – 200 Fitzmaurice Street										
Day time period (7 am to 6 pm)	55	65	62	56	51	51	52	47	41	39
Evening time period (6 pm to 10 pm)	49	59	56	50	45	45	46	41	35	33
Night time period (10 pm to 12 am)	45	55	52	46	41	41	42	37	31	29
R2 – 1 Crampton Street										
Day time period (7 am to 6 pm)	52	62	59	53	48	48	49	54	38	36
Evening time period (6 pm to 10 pm)	46	56	53	47	42	42	43	38	32	30
Night time period (10 pm to 12 am)	42	52	49	43	38	38	39	44	28	26

Discussion

For clarification, the reason the 'night time' noise limit for mechanical plant is lower than the 'night time period' noise limit for patron and music noise in Table 4, is because the night time noise limit in Table 4 is based on the background noise level between the hours of 10 pm and 12 midnight when the restaurant, function room and bar are operating. The noise limit for mechanical plant is based on the rating background noise level for the entire night time period (10 pm to 7 am), which is lower, as the mechanical plant may operate at any given time throughout the night period, especially refrigeration equipment.

4. RESTAURANT, BAR AND FUNCTION ROOM NOISE EMISSION

4.1 Patron and Music Noise

A noise model has been developed for the calculation of noise generated by people indoors or outdoors. This is based on sound pressure level data for one person as given in Kryter¹, Harris² and from the author's database compiled over many years of similar assessments.

Table 5 below shows the overall and octave band centre frequency sound power levels for human voice noise and background music which was used in the noise modelling.

Table 5 L₁₀ Sound Power Levels – Patrons Talking and Music Noise

Description	Overall dBA	L ₁₀ Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
One man talking loudly	83	50	55	65	73	87	79	74	68	60
One man talking with raised voice	72	46	51	61	67	72	67	62	58	51
One man talking normally	65	42	47	57	63	66	58	54	51	46
Background Music	75	60	65	70	73	71	70	69	65	63
Amplified music (function room – band or DJ)	105	94	99	98	101	105	100	93	90	88

The noise emissions of people talking was modelled based on measurements and data from other sites as well as the following:-

- Function room and Deck bar: patrons talking loudly (10%), patrons talking with raised voice (20%), patrons talking normally (20%) with the remainder not talking / listening (50%), and
- Restaurant: patrons talking with raised voice (30%), patrons talking normally (20%) and the remainder are not talking / listening (50%).

4.2 Mechanical Plant Noise

It is not known at the time of writing this report what specific new mechanical plant will be associated with the eatery. Mechanical plant is likely to include:-

- Kitchen exhaust fan,
- Air conditioning condenser units, and
- Refrigeration plant (cool room condenser).

Recommendations are made in Section 6 of this report to ensure that noise emission from any new mechanical plant servicing the eatery, does not exceed the acceptable noise limits at receptor locations.

¹ 'The Effects of Noise on Man' by Karl Kryter, Academic Press (1985)

² 'Handbook of Acoustical Measurements and Noise Control' 3rd Edition by Cyril M. Harris, McGraw-Hill Inc (1991)

5. NOISE LEVEL PREDICTIONS

5.1 Modelling Equations

For patrons within any enclosed areas, such as the restaurant and the function room, the level of noise emission has been calculated from the formula:-

$$Lp_2 = Lp_1 - R_w + 10 \log_{10} S - 20 \log_{10} r - 14 + DI \text{ dBA}$$

Where:

- Lp_2 is the predicted noise level at the receiver,
- Lp_1 is the internal noise level,
- R_w is the weighted sound reduction index of the building element (wall, roof, windows, openings, etc),
- S is the area of the building element (m^2),
- r is the distance between the receiver and the building element,
- DI is the directivity index of the façade.

For patrons located outside on the first floor deck, the level of noise emission at the receptor has been calculated from the formula: -

$$L_{eq} = L_w + Dc - A$$

Where:

- L_w is the sound power level of the noise source,
- Dc is directivity correction, and
- A is the attenuation that occurs during the propagation from source to receiver.

The term A in the equation includes attenuation from geometric divergence (distance loss), atmospheric absorption, ground absorption, barrier effects and other miscellaneous effects.

This model derives from the International Standard ISO 9613-2 (1996(E)) '*Acoustic – Attenuation of sound during propagation outdoors Part 2 General method of calculation*'. The method described in the Standard is general in the sense that it may be applied to a wide variety of noise sources and covers the major mechanism of sound attenuation. The method allows for propagation conditions with the wind blowing from the source to the receiver.

5.2 Predicted Noise Levels

The predicted noise levels at each receptor are shown in the following Tables, where: -

- Table 6 shows the level of noise emission predicted at receptor R1, and
- Table 7 shows the level of noise emission predicted at receptor R2.

Table 6 Predicted L₁₀ Noise Levels – Receptor R1

Description	Overall dBA	Predicted L ₁₀ Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
Noise Goal – to 6 pm	55	65	62	56	51	51	52	47	41	39
Noise Goal – to 10 pm	49	59	56	50	45	45	46	41	35	33
Noise Goal – to 12 am	45	55	52	46	41	41	42	37	31	29
Restaurant	25	<10	11	14	19	24	20	16	10	<10
Deck bar	29	15	20	22	27	30	24	17	<10	<10
Function room	38	37	42	37	37	40	31	23	15	10
Combined	39	37	42	37	38	40	32	25	17	13
Complies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7 Predicted L₁₀ Noise Levels – Receptor R2

Description	Overall dBA	Predicted L ₁₀ Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
Noise Goal – to 6 pm	52	62	59	53	48	48	49	54	38	36
Noise Goal – to 10 pm	46	56	53	47	42	42	43	38	32	30
Noise Goal – to 12 am	42	52	49	43	38	38	39	44	28	26
Restaurant	22	<10	10	12	16	21	17	13	<10	<10
Deck bar	26	12	17	19	24	26	21	14	<10	<10
Function room	34	26	31	28	35	28	18	<10	<10	10
Combined	35	26	31	28	32	36	29	20	13	10
Complies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Predictions in Tables 6 and 7 assume the following:-

- All areas are operating at full capacity (refer Section 2.2) simultaneously,
- Building construction as detailed in Section 6 of this Report,
- All other recommendations made in Section 6 of this Report are implemented and continue to be adhered to.

6. NOISE CONTROL RECOMMENDATIONS

The noise level predictions made in Section 5 of this Report are based on the following noise controls being implemented and adhered to.

6.1 Building Construction

External Walls

- Existing external walls of masonry construction will be acceptable,
- Any proposed new external walls are to be of masonry construction (e.g. minimum 100 mm thick concrete, double brick, brick veneer or equivalent).

Roof / Ceiling – see also Section 6.2 below.

- The roof of the building will be of corrugated sheet steel construction,
- Heavy duty vapour barrier is to be laid below the roof,
- The ceiling in the function room should comprise one layer of 13 mm thick standard plasterboard below the sheet steel roof,
- Ceilings in all other rooms (on the first floor) may comprise one layer of 10 mm thick standard plasterboard below the sheet steel roof,
- Minimum 50 mm thick glasswool or polyester insulation should be laid between the ceiling joists, (min. density 10kg/m³)

Glazing

- All glazed windows and doors in the restaurant and function room should achieve a minimum weighted sound reduction index (R_w) rating of **25** (e.g. 4 or 5 mm thick float glass),
- Calculations assume that all glazing is fixed and that only the two sliding doors to the terraces of either the restaurant or function room are open at any given time,
 - If this is not the case and the windows are operable, then all windows to the function room must remain closed whilst amplified music is played.

6.2 Amplified Music Levels

- Amplified music in the function room should not exceed an (L_{10}) sound pressure level of **88 dBA** when measured over a 3-minute period at 3 metres from the speakers,
- This level equates to a sound power level of 105 dBA which is a high level based on, for example, a live band, medium to high level of pre-recorded amplified music (i-Pod, DJ, etc).
- Any music played in the restaurant or outside the building in the deck bar, if required, should not exceed an energy-average sound pressure level (L_{eq}) of **70 dBA** when measured over a 3-minute period at 3 metres from the speakers,
 - This is a low level of background music to accompany dining guests, for example, and is a level where conversation can easily be maintained without the need to raise voices.

An electronic noise limiting device may be installed inside the function room. The device may be calibrated and set to a level that ensures the noise limits are achieved. The device will provide a warning to the management, DJ, or artist via LED sequential lighting that the maximum noise level is close to being reached. If the pre-set noise limit is reached and then exceeded for a period of approximately 10 seconds, the power to the sound system may be disconnected. The option to disconnect the power is optional as the device may be used simply as an indication of the noise levels being emitted.

The electronic device can provide an assurance that the noise levels can be controlled without the need to rely on human intervention.

All amplified music should be controlled through an in-house sound system that is directed through the noise limiting device.

Once purchased the noise limiter will be required to be installed by an electrician and the level set up by a qualified acoustical consultant. An example of a noise limiting device is provided in the attached Appendix C.

Also, a sound level meter may be purchased from an electronics store so that the owner or duty manager may 'spot check' for noise compliance during or prior to functions. Whilst the sound level meter will not necessarily be a Class 1 or Type 2 instrument, the sound level meter can be calibrated by a suitably qualified acoustical consultant to determine where the level that the meter displays that equates to the levels recommended in Section 6.2 at 3 metres from the loudspeakers.

There should be no function activity at the site after midnight on any day.

6.3 Mechanical Plant

Any mechanical plant associated with the proposal must not exceed the Intrusiveness Noise goals established in Section 3.3 of this report when measured at the nearest receptor locations over a period of 15 minutes.

Receptors R1

- **55 dBA** $L_{eq, 15 \text{ minute}}$ during the day,
- **49 dBA** $L_{eq, 15 \text{ minute}}$ during the evening, and
- **38 dBA** $L_{eq, 15 \text{ minute}}$ during the night.

Receptor R2

- **52 dBA** $L_{eq, \text{period}}$ during the day time period,
- **46 dBA** $L_{eq, \text{period}}$ during evening time period, and
- **35 dBA** $L_{eq, \text{period}}$ during the night time period.

The predicted level of mechanical plant noise will depend upon the type of plant, location, sound power level and times of operation.

As an example, the sound power level of various items of mechanical plant should not exceed the levels shown below:-

- Refrigeration compressor – **75 dBA**, assumes this operates 24 hours and is located no closer than 75 metres from the nearest residence and is intermittent* in character at night,

- Air conditioning condenser – **75 dBA**, assumes this operates up to midnight and is located no closer than 75 metres from any residence and is intermittent* in character at night.
- Kitchen exhaust fan – **90 dBA**, assumes this operates up to 10 pm only and is located no closer than 75 metres from any residence.

* Intermittent means the level varies by more than 5 dB at night, e.g. a thermostat controlled condenser or compressor that switches on and off or ramps up and down.

In any event, a final assessment will be required once mechanical plant selections have been made. However, the acceptable noise limits can easily be achieved from mechanical plant noise for this proposal without significantly onerous noise controls, if required at all.

7. CONCLUSION

An assessment of the potential noise impact arising from proposed alterations and additions to the commercial building at 187 Fitzmaurice Street, Wagga Wagga, NSW was undertaken.

Provided recommendations made in Section 6 of this report are implemented and continue to be adhered to, the level of noise emission from the proposal can meet the design noise goals derived from Liquor and Gaming NSW and the NSW EPA as required by Wagga Wagga City Council.



Matthew Harwood, MAAS

Director & Principal Consultant
Harwood Acosutics Pty. Ltd.

Attachments:-

Important Note

Appendix A – Noise Survey Instrumentation

Appendix B – Noise Survey Results

Appendix C – Example electronic noise limiter

Important Note

*All products and materials suggested by Harwood Acoustics Pty. Ltd. are selected for their acoustical properties only. Recommendations made in this report are intended to resolve acoustical problems only, therefore all other properties such as aesthetics, air flows, chemical, corrosion, combustion, construction details, decomposition, expansion, fire rating, fumes, grout or tile cracking, loading, shrinkage, smoke, ventilation etc. are outside Harwood Acoustic's field of expertise and **must** be checked with the supplier or suitably qualified specialist before purchase.*

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Noise Survey Instrumentation	Appendix A
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The instrumentation used during the noise surveys consisted of the following: -

Description	Model No.	Serial No.
Bruel & Kjaer Sound Level Meter	2250	3009189
SVANTEK Acoustical Calibrator	SV34A	58762
Infobyte Noise Logger Im4	Im4	104

The Bruel and Kjaer Model 2250 sound level meter conforms to Australian Standards AS IEC 61672.1-2004: 'Electroacoustics - Sound level meters – Specifications' as a Class 1 precision sound level meter and has an accuracy suitable for both field and laboratory use.

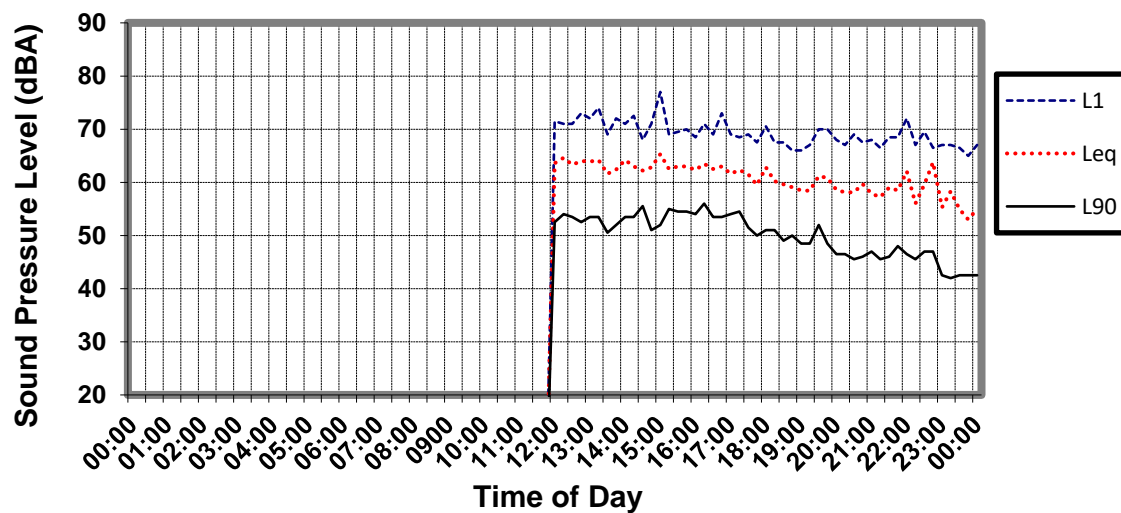
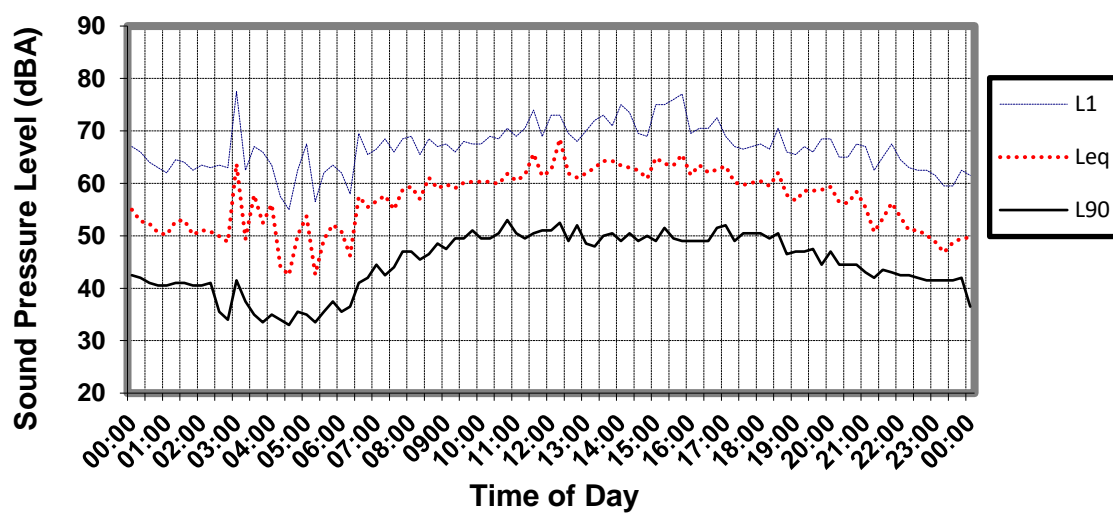
The infobyte Model Im4 noise logger conforms to Australian Standard AS1259:2-1990 'Acoustics - Sound Level Meters' as a Type 2 precision sound level meter and has an accuracy suitable for field use.

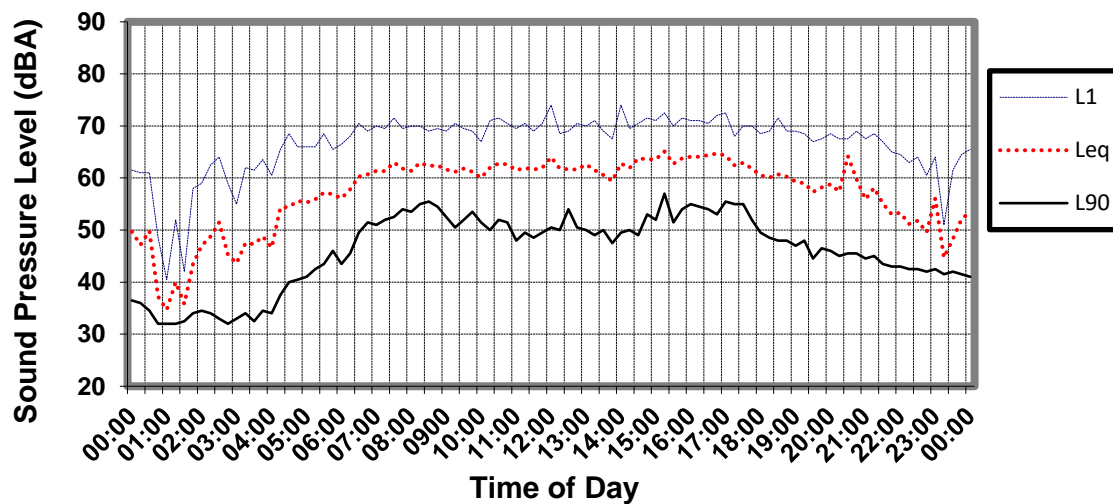
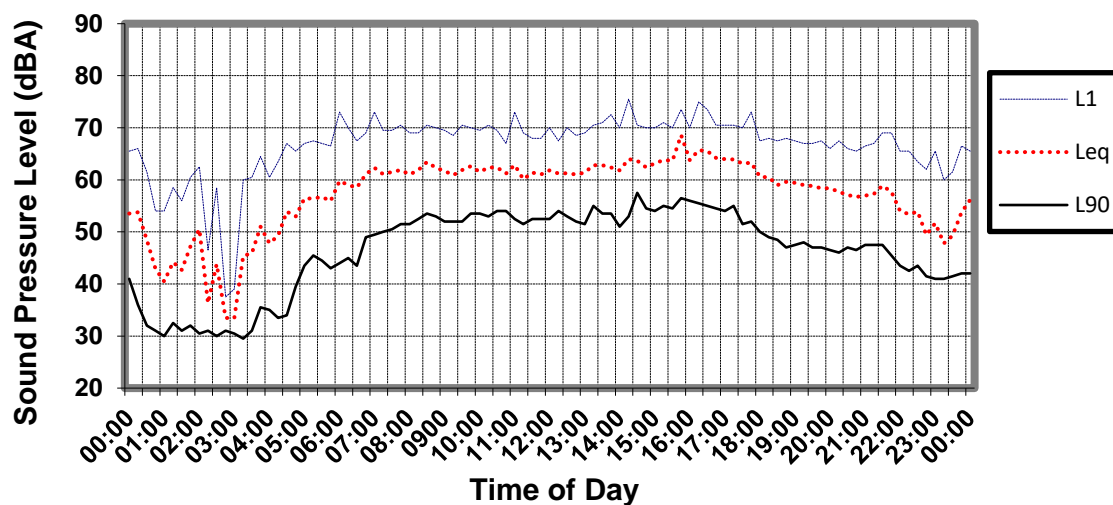
The calibration of the sound level meter and logger was checked before and after the measurement periods. No significant system drift occurred over the measurement periods.

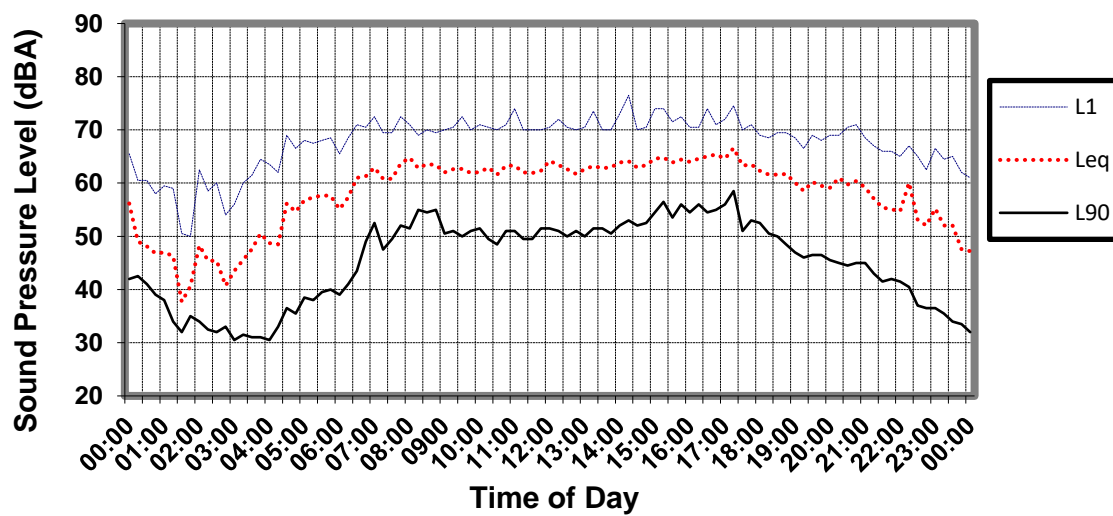
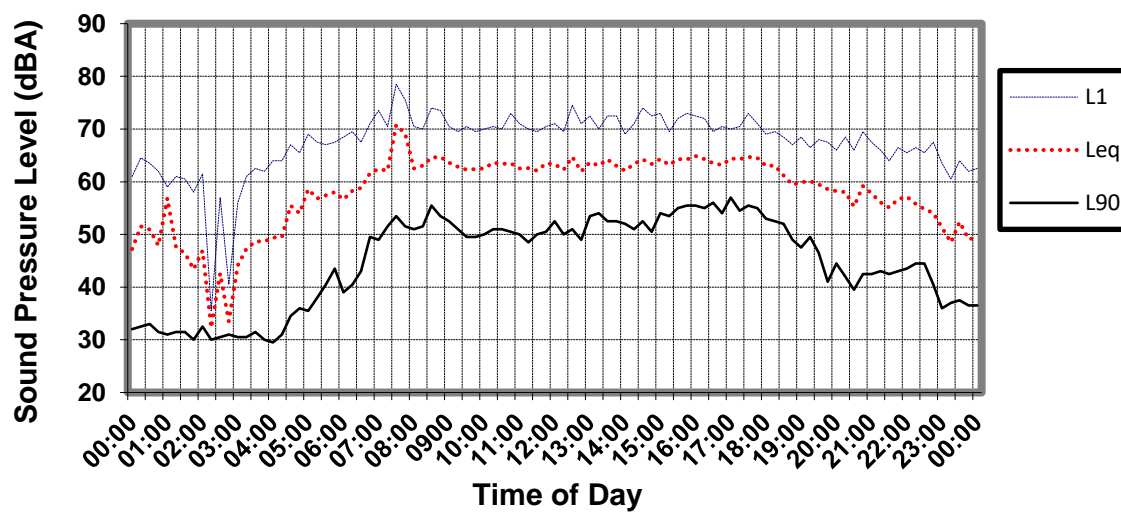
The sound level meter, logger and calibrator were previously checked, adjusted and aligned to conform to the factory specifications and issued with conformance certificates as required by the regulations.

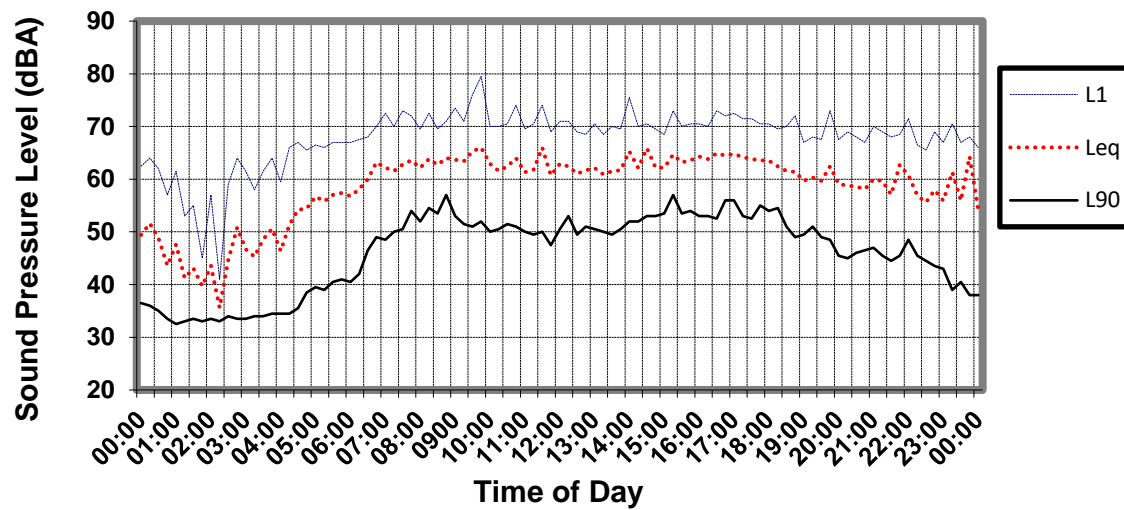
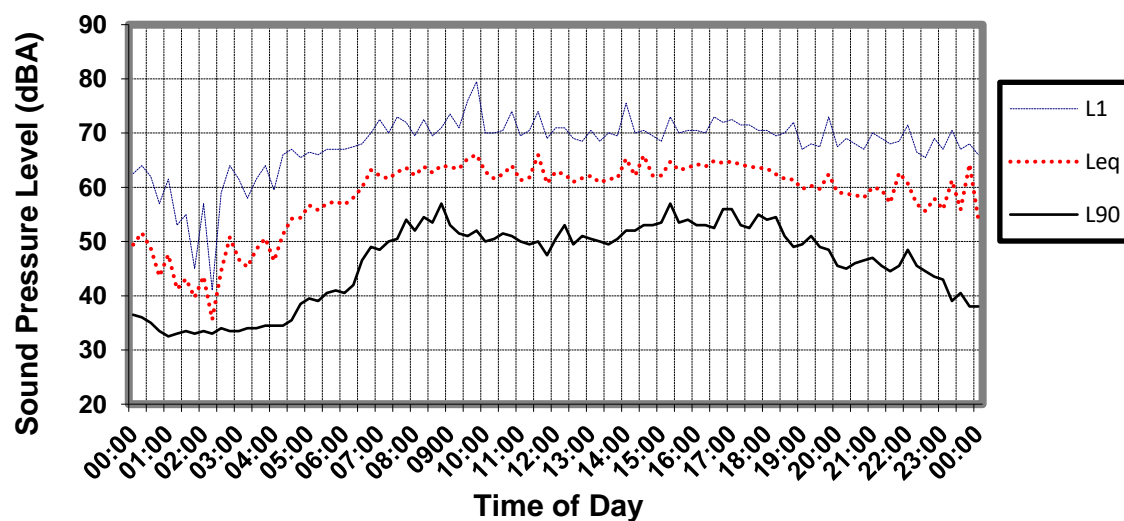
Noise Survey Results

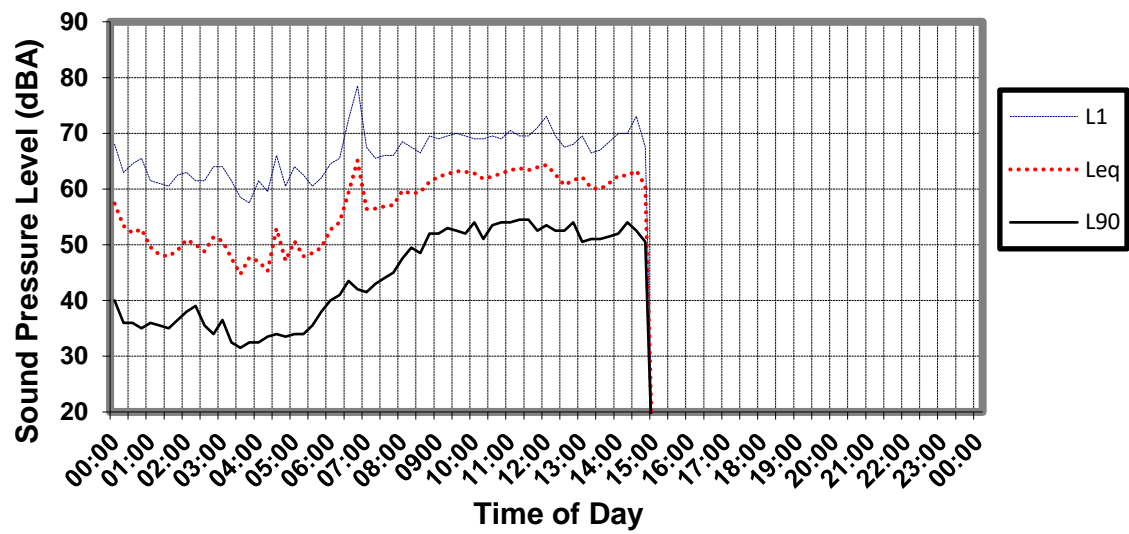
Appendix B

Saturday July 23rd 2022Sunday July 24th 2022

Monday July 25th 2022**Tuesday July 26th 2022**

Wednesday July 27th 2022**Thursday July 28th 2022**

Friday July 29th 2022**Saturday July 30th 2022**

Sunday July 31st 2022

SOUND MONITOR



CLUBS
HOTELS
NIGHT
CLUBS
INDUSTRIAL
ENTERTAINMENT
VENUES
COMMUNITY
CENTRES

The Technology, Sound and Vision Pty. Ltd. Model CSM-2 is a Calibrated Sound Monitor, programmable for a wide range of sound levels and environmental situations meeting noise control legislation guidelines.

It is used in Function Centres, Entertainment Venues and industrial applications where sound levels are limited to comply with the local authority requirements.

When the sound level has exceeded the preset levels, the unit will temporarily render the controlled sound equipment dysfunctional by either removing the source of power or disconnecting the audio feed as appropriate to the situation.

SOUND MONITOR

SPECIFICATIONS

System Operating Voltage:	240v AC 50Hz
Main Control Unit:	Powered from 240/16 Volt, 1.5 Amp AC Plugpack.
Visual Display Unit:	Lamp Supply, 24V DC LED's, optional 240V AC model available.
Sensitivity:	60dB to 129dB.
Response:	LINEAR: +/- 1dB, 30Hz to 8KHz. or "A" WEIGHTING as per "A" curve or LO-PASS: -3dB point Factory set at 200Hz. Range adjustable from 50Hz to 1kHz. Roll-off at 24dB per octave.
LED Level Display:	-18VU to +9VU in 3dB steps.
Trigger Level:	+/- 0.5dB.
"ON" Delay	Switchable, 2, 4 or 6 seconds.
"OFF" Delay	2, 20 seconds OR remote reset.
Timing Accuracy:	+/- 2%
Relay Contacts:	Change-Over, 3 Amps.
VISUAL DISPLAY UNIT (VDU)	Green Lamp: -12 VU Blue Lamp: -6 VU Red Lamp: 0 VU (Trigger)

*Calibration by Bruel & Kjaer 4230 Calibrator or equivalent.

*Specifications subject to change without notice.

SENSING MICROPHONE

This is a precision instrument reproducing a flat sound level response over the entire audible frequency range. The microphone is located within the area to be monitored as determined by the authorities and wired back to the main control unit. Should the microphone be disconnected or the cable cut, the inhibit relay in the unit will operate.

CONTROL UNIT

Installed in an area usually accessible by responsible staff. Access to the controls within the cabinet requires a key.

FEATURES:

- Audio attenuator with a range setting from 60 to 129dB.
- Selector switch to enable an audio response of Linear, "A" weighting or a Lo-Pass filter to be set.
- On delay time switch 2, 4 or 6 seconds.
- Off delay time switch 2, 20 seconds or remote re-set function.
- Function switch for calibrating and testing purposes.
- LED VU Level meter.
- LED Microphone fault indicator.
- LED Exceed indicator.
- LED Trigger indicator.
- LED Inhibit indicator.
- LED Power on indicator.
- Change-over relay contacts from inhibit relay.

VISUAL DISPLAY UNIT

Usually mounted in the vicinity of the band or disco to provide a visual display of the audio levels.

Three lamps are incorporated
Green – Indicates levels 12dB below threshold

Blue – Indicates levels 6dB below threshold

Red – Indicates threshold level

Manufactured by:



TECHNOLOGY,
SOUND & VISION
PTY. LTD.
ACN: 060 101 920

Over 30 years experience in the Sound Monitor Industry

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