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PROPOSED WEDDING VENUE - 63 OAKLANDS ROAD, MOUNT FROME - NOISE ASSESSMENT

Report 11.00541R-01

prepared for Kimberly Hubble

on 02/05/2024

REPORT PREPARED BY

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BASIS OF REPORT

This report has been prepared by **Acoustics Consultants Australia (ACA)** with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from ACA. ACA disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

REFERENCE	DATE	PREPARED	REVIEWED	AUTHORISED
11.00541R-01 - DRAFT	**5/04/2024**	**SF**	**MdlM**	**SF**
11.00541R-01 - FINAL	**2/05/2024**	**SF**	**MdlM**	**SF**

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1. INTRODUCTION

It is proposed to establish a seasonal wedding venue at 63 Oaklands Road, Mount Frome to be used for up to 20 wedding events per year with a maximum capacity of up to 100 patrons during the spring and autumn months. The proposal is for daytime use only, between the hours 10.00am to 6.00pm.

Acoustics Consultants Australia (ACA) has been engaged by to undertake a noise assessment for the premises.

The purpose of this assessment is to consider the potential for off-site noise emissions from the site to impact existing surrounding receivers in accordance with the provisions of the *NSW Noise Policy for Industry* (NPfI).

This assessment has determined that with judicious management the proposal may be expected to operate in compliance with NPfI and accordingly would not be expected to give rise to notable adverse noise effects on the closest residential receivers to the site.

By adhering to the recommendations in this report general compliance with the with NPfI requirements may be expected.

Further details of the methodology and Standards used to conduct the assessment, as well as the numeric assessment results are presented in the following sections of this report.

Acoustic terms used in this report are defined in the Glossary of **Appendix A**.

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2. SITE AND SURROUNDING AREA

The Mid-Western Regional Council Local Environmental Plan 2012 identifies the zoning of the site at 63 Oaklands Road, Mount Frome and surrounding sites as RU4 (Primary Production Small Lots).

An aerial view of the site and surrounding area is shown in **Figure 2.1**. and a site layout plan is shown in **Figure 3.1**.

Figure 2.1 Aerial View of Site and Surrounding Receivers

The closest residential receivers as shown in **Figure 2.1** are identified in **Table 2.1**.

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Table 2.1 Surrounding Receivers

ID	Address	Description	Distance
A	78 Oaklands Road	Dwelling	Dwelling approx 100 m from boundary and 260 m from Marquee
B	66 Oaklands Road	Dwelling	Dwelling approx 210 m from boundary and 320 m from Marquee
C	51 Oaklands Road	Dwelling	Dwelling approx 50 m from boundary and 70 m from Marquee
D	25 Oaklands Road	Dwelling	Dwelling approx 340 m from boundary and 350 m from Marquee
E	154 Rocky Waterhole Road	Dwelling	Dwelling approx 240 m from boundary and 290 m from Marquee
F	75 Oaklands Road	Dwelling	Dwelling approx 50 m from boundary and 220 m from Marquee

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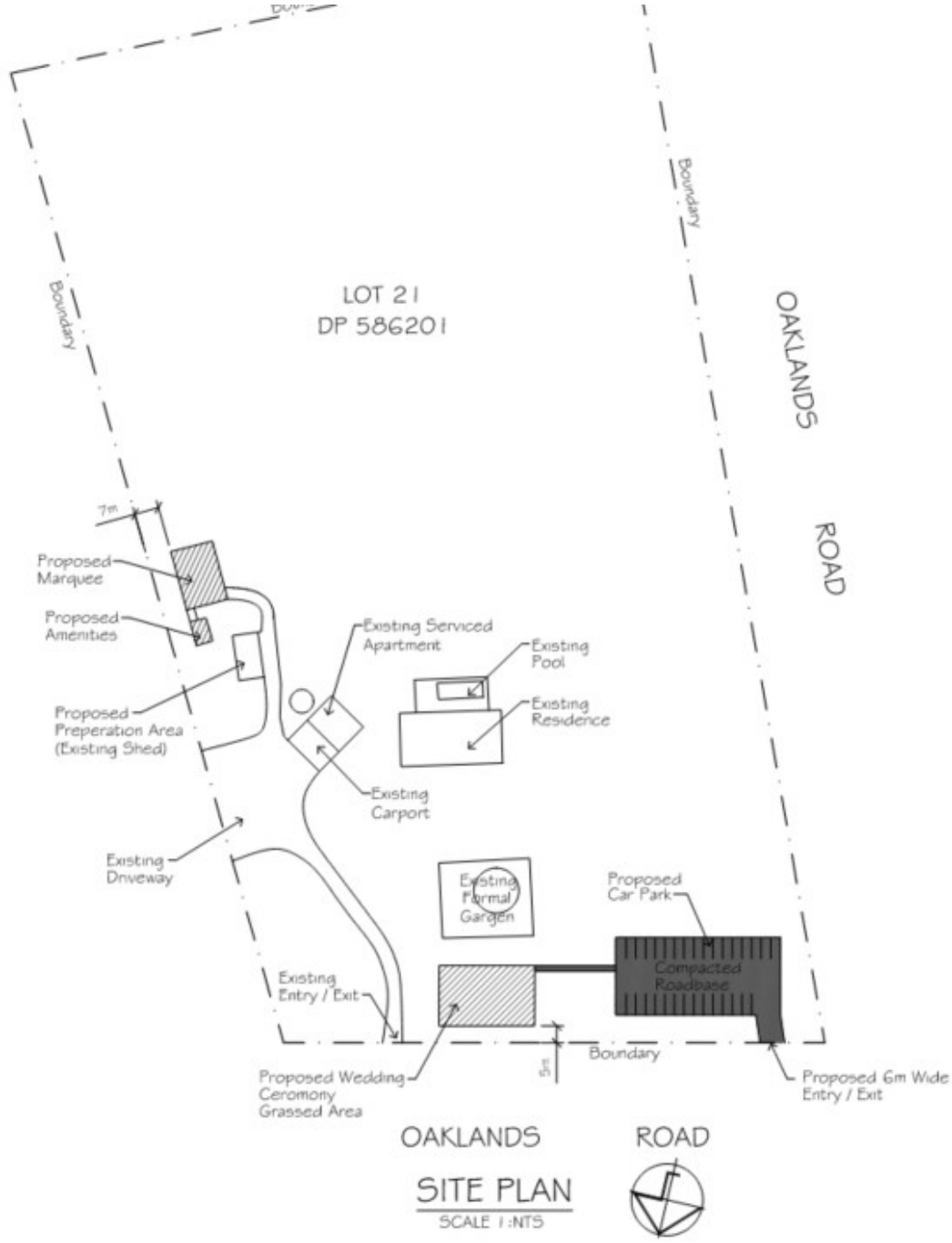
3. DESCRIPTION OF ACTIVITIES

The site plan shown in **Figure 3.1**. identifies the proposed locations of the key wedding venue components.

Figure 3.1 Site Plan



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Weddings at the site are proposed to occur up to 20 times per year during the spring and autumn months, with congregation sizes of up to 100 patrons.

Whilst a maximum capacity of 100 guests is proposed, the average congregation may likely be around 50 to 60 guests and these events are anticipated to be typically low key. Weddings would generally be conducted outdoors with receptions held within a dedicated marquee structure. Key activities would include:

- Daytime wedding ceremonies, typically conducted near the front (north) boundary of the site. Ceremonies would generally include short-term speech emissions.
- Daytime wedding receptions held within a dedicated marquee structure near the eastern site boundary. The most significant noise sources in this scenario would be patrons and background music i.e. acoustic guitar / vocals at background level only. Amplified live bands and/or DJs are not proposed.

Typically wedding receptions would occur on Saturdays up until 6.00 pm.

As identified in the **Figure 3.1**, the site would include:

- a dedicated car parking area for approximately 30 cars to the north-west of the site;
- a grassed area for ceremonies to the north of the site;
- amenities to the east of the site; and
- permanent marquee to the east of the site.

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4. EXISTING ACOUSTIC ENVIRONMENT

The subject site is located in a rural environment at a setback distance of > 2k from major roads. The background noise at the site is therefore relatively low and controlled by natural sounds.

For the purposes of assessment, in lieu of undertaking a background noise survey, the threshold background noise levels nominated by the *NSW Noise Policy for Industry* (NPfI) have been considered, as set out in **Table 4.1**.

Table 4.1 Estimated Rating Background Noise Levels (RBLs)

Location	Rating Background Levels (RBLs)[1] L_{A90} (dBA)		
	Day	Evening	Night
Local Residences	35	30 (n/a)	30 (n/a)

Note 1: RBLs consistent with threshold background noise levels nominated by the NSW Noise Policy for Industry (NPfI).
Note 2: Day 7.00am–6.00pm; Evening 6.00pm–10.00pm; Night 10.00pm-7.00am.
Note 3: Only daytime period relevant given the proposed use.

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5. OPERATIONAL NOISE CRITERIA

Noise Policy for Industry (NPfI) Operational Noise Criteria

For the purpose of assessing the potential impact of airborne noise emissions from the site, reference is made to the guidance set out in the NSW Environment Protection Authority's *Noise Policy for Industry* (NPfI).

The NPfI provides a framework and process for deriving noise criteria for consents and licences that enable the EPA and others to regulate premises that are scheduled under the Protection of the Environment Operations Act 1997. Whilst specifically aimed at assessment and control of noise from industrial premises, the approaches documented can be used to provide guidance for the assessment of noise from other continuous or semi-continuous operational sources.

The NPfI criteria for industrial noise sources are based on the consideration of two components:

- Controlling the intrusive noise impacts for residents in the short term; and
- Maintaining noise level amenity for residents and sensitive receivers in other land uses.

The controlling Project Noise Trigger Levels (PNTLs) are determined following the establishment of the Project Intrusiveness Noise Levels and Project Amenity Noise Levels, with the PNTLs being the more onerous of the two.

Intrusiveness Noise Levels

The intrusiveness trigger levels within the relevant day and evening periods are determined as follows:

- $L_{Aeq,15\ minute}$ ≤ Rating Background Noise Level (RBL, L_{A90}) + 5 dB

$L_{Aeq,15minute}$ represents the equivalent continuous A-weighted sound pressure level of the source over 15 minutes, unless other descriptors are specified as more appropriate to characterise the source. (See attached Glossary of Terms for full definitions).

Intrusive noise levels are only applied to residential receivers (residences).

Considering the background noise levels described in **Section 4** and the proposed operational hours of the subject site, the daytime intrusiveness noise level applicable at the residential boundaries considered by this assessment is as follows:

- $L_{Aeq,15min}$ 40 dBA during the daytime (7.00am - 6.00pm).

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Amenity Noise Levels

The Amenity Noise Levels set limits on the total noise level from all industrial noise sources affecting a receiver.

Different amenity criteria apply for different types of receiver (e.g. residential, commercial, industrial) and different areas (e.g. urban, suburban, rural).

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The closest residential receivers are regarded as rural area residential receivers for the purposes of assessment, in terms of the receiver classifications identified by the NPfI.

For rural area residential receivers the NPfI nominates the recommended daytime amenity noise level of $L_{Aeq,Period}$ 50 dBA, which applies to noise from industrial sources. The NPfI nominates project amenity noise levels at 5 dB below the recommended amenity noise levels for individual sites where there is potential for cumulative industrial noise contributions from multiple sites.

With respect to the subject site, cumulative industrial noise is not considered a feature because no other industries are present in the area, or likely to be introduced into the area in the future. Accordingly, the identified recommended amenity noise levels are assigned as the project amenity noise levels for the development.

Additionally, to standardise the time periods for the intrusiveness and amenity noise levels, the NPfI recommends that the $L_{Aeq,15min}$ will be taken to be equal to the $L_{Aeq,Period}$ + 3 dB. Accordingly, the daytime project amenity noise level at the residential boundaries is:

- $L_{Aeq,15min}$ 53 dBA during the daytime (7.00am - 6.00pm).

Project Noise Trigger Levels (PNTLs)

The PNTLs reflect the most stringent noise level requirement from the criteria derived from both the intrusiveness and project amenity noise levels to ensure that intrusive noise is limited, and amenity is protected. The determined PNTLs applicable at the residential boundaries are shown in bold in **Table 5.1**.

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Table 5.1 Project Noise Trigger Levels for Operational Noise Emissions, dBA

Receivers	Area Classification	Period[1]	RBL[2] $L_{A90(15min)}$	Intrusiveness[3] $L_{Aeq(15min)}$	Project Amenity $L_{Aeq\ (15min)}$
Residences A - F	Rural	Day	35	**40**	50+3 = 53
		Evening	n/a	n/a	n/a
		Night	n/a	n/a	n/a

Note 1: Daytime: 7.00am–6.00pm; Evening: 6.00pm–10.00pm; Night-time: 10.00pm-7.00am.
Note 2: RBL = Rating Background Level.
Note 3: Intrusive criterion only applicable to residential receivers.
Note 4: Given the proposed operating hours of the site, only daytime levels are applicable to this assessment.

In assessing noise levels at residences, the noise level is to be assessed at the most affected point within 30 m of the dwellings on the adjoining properties.

Managing operational noise emissions from the site to within the identified PNTL would ensure general compliance with the NPfI, with respect to both amenity and intrusive noise impacts.

It is anticipated that the identified criteria would not apply at any particular residence if the proponent has an agreement with the owner/s of the relevant residence to generate higher noise levels. Notwithstanding, it would be expected that any such agreement must be evidenced in writing and a copy provided to Council in advance in order for the exemption to apply.

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6. OPERATIONAL NOISE ASSESSMENT

Noise emissions from the site would principally be generated by patrons during ceremonies on the lawn and within the marquee, acoustic music within the marquee and vehicles movements within the car park area.

To provide an estimate of the typical-worst case noise contribution from the site at the adjoining residential sites, noise from the identified sources has been predicted using the SoundPLAN Version 8.2 environmental noise modelling software.

The SoundPLAN program is used and recognised internationally and is also recognised by the EPA as a preferred computer noise model.

Factors that are addressed in the noise modelling are:

- Noise source locations and sound power levels;
- Screening from structures (buildings, structures etc.);
- Receiver locations and heights;
- Ground topography;
- Noise attenuation due to geometric spreading;
- Ground absorption;
- Atmospheric absorption; and
- Influence of meteorology.

Site Configuration and Principal Operational Noise Sources

For the purposes of this assessment typical worst-case daytime noise scenarios have been considered, with the following assumptions applied regarding the on-site noise sources:

Daytime Scenario 1 – Car Park Activities

- 30 vehicle movements (1 per space) within car park area

Daytime Scenario 2 – Wedding Ceremonies on Grassed Area

- 100 wedding guests on grassed wedding ceremony area – (Full capacity – 30% talking at raised vocal effort level)
- Background at low music level (e.g. guitar / strings, no amplified music or bass beat)

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Daytime Scenario 3 – Wedding Reception Activities within Marquee

- 100 wedding guests within marquee – (Full capacity – 30% talking at raised vocal effort level)
- Acoustic guitarist / vocalist only (no amplified live bands, no percussion, no DJs, no bass beat)

Noise Source Levels

Guidance set out in the Association of Australasian Acoustical Consultants' (AAAC) *'Licensed Premises Noise Assessment Technical Guideline (Version 2.0)'* has been considered in the estimation of patron noise emissions from the premises.

Additionally, a low background music level of up to L_{Aeq} 70 dBA (internal $L_{Aeq,15min}$ reverberant sound pressure level within the centre of the marquee) has been assumed.

Table 6.1 below summarises the noise data used in the assessment.

Table 6.1 Noise Source Levels

	1/3 Octave Band Sound Level – dB								
Metric	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
Patron Noise									
Patron Noise (100 patrons, raised voice, group numbers = 3) – typical Sound Pressure Levels for one patron at 1m									
L_{eq}	-	56	63	65	62	57	52	44	**66**
Acoustic Music (e.g. Acoustic Guitar/Vocals) at Background Listening Level									
Acoustic Guitar / Vocal – 1/3 Octave Band Sound Level – dBA									
L_W	-	86	87	90	88	84	78	70	**95**
Car Park (30 Movements)									
Typical Starting Car – 1/3 Octave Band Sound Level – dBA									
L_W	69	78	77	84	93	94	92	86	**98**

The modelling assumes the marquee will be provided with heavy PVC walls and any openings on the eastern and northern sides would be closed and (with no gaps) during receptions.

The predicted typical worst-case noise levels that may be expected to arise external to the identified receivers are set out in **Table 6.2**.

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Table 6.2 Predicted Noise Levels External to Receivers

Receiver / Address	Predicted Noise Level $L_{Aeq,15min}$ (dBA)			Daytime Project Noise Trigger Level (PNTL) $L_{Aeq,15min}$ (dBA)	Complies?		
	Scenario				Scenario		
	1	2	3		1	2	3
A - 78 Oaklands Road	30	<30	<30	40	Yes	Yes	Yes
B - 66 Oaklands Road	<30	<30	<30	40	Yes	Yes	Yes
C - 51 Oaklands Road	<30	32	40	40	Yes	Yes	Yes
D - 25 Oaklands Road	<30	<30	<30	40	Yes	Yes	Yes
E - 154 Rocky Waterhole Road	<30	<30	<30	40	Yes	Yes	Yes
F - 75 Oaklands Road	<30	<30	<30	40	Yes	Yes	Yes

Note: Scenario 1: Car Park Activity; Scenario 2: Ceremonies on Lawn; Scenario 3: Wedding Receptions within Marquee.

Considering typical worst-case scenarios, the wedding site noise levels estimated at the closest residential sites are predicted to remain in compliance with the daytime PNTL as shown in **Table 6.2**.

Section 7 of this report recommends a number of measures that would be applied to manage noise emissions from the site. These measures will be incorporated in the Plan of Management for the premise.

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7. RECOMMENDATIONS

Table 7.1 outlines noise mitigation recommendations to manage potential noise impacts on residents from daytime wedding events on the site. The table is divided in 3 sections:

- Treating the source: This refers to ways of reducing emissions directly at the source of sound generation (i.e. sound system, speakers).
- Treating the path: This refers to treatment to the medium that is physically in between the source and the receivers (i.e. air paths, buildings, reflective surfaces, supporting structures).
- Management: This refers to measures that will be required by the management to minimise noise from operations.

Table 7.1 Noise Mitigation Options

Item #	Recommendation	Reasoning
Treating the Source		
1	Foreground amplified music not to be played on site. Music to be limited to only modest level acoustic guitar / vocals (or similar). Live bands, percussion and/or DJs are not proposed.	To avoid music as a conditional dominant source. To ensure that music sound levels remain within compliance levels.
2	Music to be played at background listening levels only. Indicatively, not over approx. L_{Aeq} 70 dB at listeners' locations. If used, loudspeakers with a frequency response below 125 Hz shall be limited or equalised to reduce all frequencies below 125 Hz. Subwoofers shall not be used. The in-house system is to be operated by specifically trained staff. A system protocol is to be followed to avoid unwanted operation that would compromise the sound levels on site. The layout of the marquee shall be arranged such that the loudspeakers are orientated away from the closest residences on neighbouring properties and angled downwards to reduce noise spillage.	
3	Music may be played at background listening levels provided that breakout noise through the marquee does not dominate the overall outdoor levels on the site. Management to ensure music levels are not dominant or notably audible at the closest sensitive receivers.	
4	If practicable an audio sound limiter system may be used to actively measure and limit RMS sound levels. The limiter may be configured and tested during commissioning and over the first month of operations to confirm that music levels do not exceed L_{Aeq} 70 dB at the centre of the marquee. In lieu of this a sound level meter may be used to actively monitor levels.	
5	Patrons to be limited to no more than 100 persons at any time.	To limit internal noise levels within the

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Item #	Recommendation	Reasoning
		marquee and reduce noise breakout.
6	Vehicles: Use signage to encourage good conduct, driving behaviour and practices within the site and parking areas. Ensure delivery vehicles accessing the site are generally well maintained and serviced to minimise noise emissions. Discourage the use of horns etc. Ensure that loads are secured to the vehicles to avoid unnecessary rattling etc.	To reduce risk of cumulative site noise
Treating the Path		
7	The reception marquee to be provided heavy PVC walls. Any openings on the eastern and northern sides to be closed with no gaps during receptions.	To reduce noise breakout from the marquee.
Management		
8	Staff to proactively manage music and patron noise within the site during receptions. All music will cease at 5:45pm and all events shall conclude no later than 6.00pm.	To minimise site noise emissions.
9	Staff to adhere to Responsible Service of Alcohol principles thus reducing the likelihood of patrons causing noise and participating in anti-social activities.	
10	The proponent shall keep a record of sound pressure levels in the marquee while amplification equipment is in use to ensure music levels do not exceed $L_{Aeq,15min}$ 70 dBA in the centre of the space.	
11	Deliveries of goods to site to occur between the hours of 8.00 am and 6.00 pm only.	
12	Waste disposal to occur between the hours of 8.00 am and 6.00 pm only and noise generated by the sorting / disposal of empty bottles to be managed by undertaking this activity within the marquee of other acoustically screened areas.	
13	Signage to be installed to remind patrons to limit noise when leaving the premises.	
14	The proponent shall provide to all adjoining, adjacent and nearby residents a contact telephone number and email address that can be used by a complainant to contact the manager of the function centre in the event of a noise complaint. Notices shall be provided to the owners/occupiers of: - 78 Oaklands Road - 66 Oaklands Road - 51 Oaklands Road - 25 Oaklands Road - 154 Rocky Waterhole Road - 75 Oaklands Road	To pro-actively manage any noise complaints that may occur

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Item #	Recommendation	Reasoning
	The proponent shall adopt the following protocol for recording and addressing any noise complaints: • Noise complaints will be managed through the complaints telephone number and email address to be operated by the proponent. The telephone number / email address shall be included on the notification to residents and on the venue website. • Any complaints shall be investigated immediately and where validated by subjective assessment and/or by noise measurement action shall be taken to reduce noise levels, as appropriate. • A response shall be provided to all complainants within 2 hours of the complaint. • Records of all received noise complaints shall be recorded in a complaints log which will include: - the name and address of the complainant - the nature of the complaint(s) and time(s)/date(s) of any disturbance(s) - actions taken to investigate the complaint(s) - remedial actions undertaken by the proponent or event organiser to reduce any disturbances - details and times/dates of follow up responses made to the complainant The complaints record shall be maintained on-site and be provided to the Mid-Western Regional Council on request.	
15	Recommendations of this report to be included in the Plan of Management, which is to be periodically reviewed and updated.	To pro-actively plan for effective noise control

It is expected that with the implementation of the noise mitigation measures set out above, noise levels at sensitive receivers would be controlled to within acceptable compliance margin of the NSW NPfI.

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8. CONCLUSION

Acoustics Consultants Australia (ACA) has undertaken an evaluation of noise emissions from the proposed use of the site at 63 Oaklands Road, Mount Frome as a seasonal daytime only wedding venue.

The site would be used to host weddings and daytime receptions up to 20 times per year with a maximum capacity of up to 100 patrons during the spring and autumn months. The proposal is for daytime use only. Guests would depart the site by 6.00pm.

ACA's assessment has determined that with judicious management of music noise levels, the site may operate in general compliance with the NPfI noise criteria.

Recommendations have been identified to control and manage noise emissions from the site.

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APPENDICES

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APPENDIX A: Glossary of Acoustic Terms

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1 Sound Level (or Noise Level)

The terms “sound” and “noise” are to some degree interchangeable, however, in common usage “noise” is often used to refer to unwanted sound.

Sound may be defined as any pressure variation that the human ear can detect. The human ear responds to a wide range of changes in sound pressure. As the greatest sound pressures to which the human ear responds are 10,000,000 times greater than the lowest, the decibel (dB) scale, by the use of logarithms is used to express sound pressure levels more conveniently.

The standard reference sound pressure used to define a Sound Pressure Level is 2×10^{-5} Pascals (Pa).

The decibel is defined as ten times the logarithmic ratio of two pressures. The smallest perceptible change is approximately 1 dB.

Sound Pressure Level is typically abbreviated as SPL, L_P, or L.

2 “A” Weighted Sound Pressure Level

The most common frequency rating is ‘A-Weighting’. The A-weighting frequency response curve is designed to approximate the sensitivity of the human ear. The symbol L_A represents A-weighted Sound Pressure Level - The overall broadband level of a sound/noise is typically expressed as a dB(A) level.

Human hearing is most sensitive mid frequencies sounds (500 Hz to 4000 Hz), and less sensitive at higher and lower frequencies. Therefore, the level expressed in dB(A) correlates strongly with the perceived loudness of the sound/noise.

A change in sound pressure level of 1-2 dB is barely noticeable to most people, whilst a 3-5 dB change is perceived as a small but noticeable change in loudness. A 10 dB change is perceived as an approximate doubling or halving in loudness. The table below present the sound pressure levels of some common sources.

Sound Pressure Level dB(A)	Noise Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely loud
110	Grinding on steel	
100	Loud car horn at 3 m	Very loud
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

In addition to A-weighting, other less commonly applied frequency weightings include B, C and D weightings. Unweighted or Linear levels are sound levels measured without any weighting. These are expressed as simply dB, or dB(lin) or dB(Z).

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3 Sound Power Level

The rate at which a noise source emits acoustic energy is defined by its Sound Power Level. Sound Power Levels are also expressed in decibel units (dB or dB(A)). Sound Power is typically identified as SWL or LW. The standard reference sound power used to define a Sound Power Level is 1 x 10^{-12} Watts (W).

4 Statistical Noise Levels

Environmental noise levels from various sources in the environment will vary in level over time. Statistical exceedance levels are typically expressed as L_{AN} levels (i.e. the A-weighted sound pressure level exceeded for N% of a specific measurement period.

The most commonly used statistical noise levels are as follows:

L_{Amax} Maximum noise level over a sample period (typically measured on fast time-weighting response).

L_{A1} Noise level exceeded for 1% of a sample period (typically 15-minute interval).

L_{A10} Noise level exceeded for 10% of a sample period (typically 15-minute interval).

L_{A90} Noise level exceeded for 90% of a sample period. This noise level is commonly used to describe the background noise level (in the absence of the source under investigation).

L_{Aeq} A-weighted equivalent noise level. This is equivalent to the steady sound level containing the same amount of acoustical energy as the time-varying sound. Often referred to as the average noise level.

ABL Assessment Background Level. This is the single figure background level representing each assessment period (day, evening and night) for each day. It is determined by calculating the lowest 10th percentile background noise level (LA90) for each period.

RBL Rating Background Level. This is the median value of the ABL values for each period (day, evening, night), determined over several days of measurements.

5 Building Acoustics Terms

A number of terms are used to describe the acoustic performance of building elements including sound transmission loss and impact isolation. The most commonly used terms are as follows:

R_w Weighted sound reduction index. The R_w is a typical measure for the sound insulation performance for a wall or floor system in a laboratory. The R_w in the BCA is used for the selection of appropriate construction systems.

R_w+C_{tr} Weighted sound reduction index with spectrum adaptation term. The R_w+C_{tr} is the weighted sound reduction index with a correction factor Ctr added that helps to quantify the low frequency performance. The R_w+C_{tr} in the BCA is used for the selection of appropriate construction systems.

$D_{nT,w}$ Weighted standardised level difference. The $D_{nT,w}$ is a typical measure for the sound insulation performance for a wall or floor system in a laboratory. The $D_{nT,w}$ in the BCA is used for the determination of airborne noise in the field.

$D_{nT,w}+C_{tr}$ Weighted standardised level difference with spectrum adaptation term. The $D_{nT,w}+C_{tr}$ is the weighted standardised level difference with a correction factor Ctr added that helps to quantify the low frequency performance. The $D_{nT,w}+C_{tr}$ in the BCA is used for the determination of airborne noise in the field.

$L_{n,w}+C_I$ Weighted normalised impact sound pressure level with spectrum adaptation term. The $L_{n,w}+C_I$ is a typical measure of the impact/structure borne noise between two spaces in a laboratory. A reduction in the $L_{n,w}+C_I$ corresponds to an improvement in impact isolation. The $L_{n,w}+C_I$ in the BCA is used for the selection of appropriate impact isolation systems.

$L_{nT,w}+C_I$ Weighted standardised impact sound pressure level with spectrum adaptation term. The $L_{nT,w}+C_I$ is a typical measure of the impact/structure borne noise between two spaces in the field. A reduction in the $L_{nT,w}+C_I$ corresponds to an improvement in impact isolation. The $L_{nT,w}+C_I$ in the BCA is used for the determination of impact

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noise in the field.

FSTC Field sound transmission class. The FSTC is a typical measure for the sound insulation performance for a wall or floor system in a building. The FSTC is used in the City of Sydney Council DCP for the selection of appropriate construction systems.

IIC Impact isolation class. The IIC is a typical measure of the impact/structure borne noise between two spaces in a laboratory. The IIC is used in City of Sydney Council DCP for the selection of appropriate impact isolation systems.

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