MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

Log Cabin Hotel, Memorial Avenue, Penrith

Development Application Acoustic Assessment

SYDNEY
9 Sarah St
MASCOT NSW 2020
(02) 8339 8000

ABN 11 068 954 343
www.acousticlogic.com.au

The information in this document is the property of Acoustic Logic Consultancy Pty Ltd ABN 11 068 954 343 and shall be returned on demand. It is issued on the condition that, except with our written permission, it must not be reproduced, copied or communicated to any other party nor be used for any purpose other than that stated in particular enquiry, order or contract with which it is issued.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

Project ID	20200115.2
Document Title	Development Application Acoustic Assessment
Attention To	FDC Construction (NSW) Pty Ltd

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	7/04/2020	20200115.2/0704A/R0/JM	JM		TA
1	25/08/2020	20200115.2/2508B/R1/JM	JM		JM

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

TABLE OF CONTENTS

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

1 INTRODUCTION

Acoustic Logic Consultancy (ALC) have been engaged to conduct an assessment of potential noise impacts associated with the proposed reconstruction of the Log Cabin Hotel located off Memorial Avenue, Penrith.

This document addresses operational noise emissions from the site and its potential impact to nearby development.

ALC have utilised the following documents and regulations in the noise assessment for this development:

- Penrith City Council Development Control Plan (DCP) 2014;
- NSW Department of Industry - Liquor & Gaming (L&GNSW); and
- NSW Department of Environment and Heritage, *Environment Protection Authority (EPA) – Noise Policy for Industry (NPfI) 2017*.

This assessment has been conducted using Team2's architectural drawings for D.A Submission (Project No: 905, Rev 16, Dated: 21/08/2020).

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

2 SITE DESCRIPTION

The Log Cabin was operating as a licenced hotel, located at Memorial Avenue, Penrith, until it was destroyed by fire in 2012. Since then the lot has been cleared and remained empty. It is now proposed to reconstruct the Log Cabin. We note the following with regards to the Hotel's reconstruction in comparison to the previous:

- The new structure will be constructed on the same lot the previous Log Cabin occupied.
- The intended use of the premise will be the same to previous operations.
- There are no proposed changes in operating hours for the hotel and associated restaurant, bar and function areas;
- The new structure will be the same number of storeys as the previous;

The proposed Log Cabin will accommodate:

- External loading dock and beer garden on the northern side of the building;
- Internal coffee shop, gaming, restaurant dining, TAB and Bar on ground floor;
- External cocktail bar and seating on ground floor along the western side of the building, overlooking Nepean River;
- Internal restaurant dining, bar and function areas on level one;
- External deck seating for main vista and function areas on level one along the western side of the building, overlooking Nepean River; and
- A new external car park located on the eastern neighbouring lot over Memorial Avenue.

A site map highlighting the location of critical spaces is presented in Figure 2 below.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

2.1 PROPOSED OPERATING HOURS

The proposed operating hours are as follows:

Table 1 – Proposed Trading Hours

Day	Trading Hours
Monday	5:00am – 12:00am (Midnight)
Tuesday	5:00am – 12:00am (Midnight)
Wednesday	5:00am – 12:00am (Midnight)
Thursday	5:00am – 2:00am
Friday	5:00am – 2:00am
Saturday	5:00am – 2:00am
Sunday	10:00am – 10:00pm

With the following exceptions:

- Good Friday - 12:00pm (Noon) – 10:00pm
- Christmas Day - 12:00pm (Noon) – 10:00pm
- New Year's Eve - Normal opening time until normal closing time or 2:00 AM on New Year's Day, whichever is the later

2.2 SENSITIVE NOISE RECEIVERS

The nearest noise receivers around the site include:

- Receiver 1 – Double-storey residential house located south west of the site, at 1 Nepean Avenue, Penrith;
- Receiver 2 – Single and double-storey residential houses located south of the site over Memorial Avenue, at 2 to 14 Memorial Avenue, Penrith;
- Receiver 3 – Penrith Valley Inn, located east of the site, at 708 High Street, Penrith;
- Receiver 4 – Nepean Naval Maritime Museum, located north of the site over the Great Western Highway, at 42 Bruce Neale Drive, Penrith;

An Arial photo, measurement description and surrounding receivers are presented in Figure 1 below.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

Figure 1 – Aerial View of Site & Receivers
(Sourced from Google Maps 2020)

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

Figure 2 – Aerial View of Site & Receivers
(Sourced from Google Maps 2020)

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

3 EXISTING ACOUSTIC ENVIRONMENT

3.1 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies in level, due to fluctuations in local noise sources including road traffic. Accordingly, a 15 minute measurement interval is normally utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In the case of environmental noise three principle measurement parameters are used, namely L_{10}, L_{90} and L_{eq}.

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source depends on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of industrial noise.

3.2 BACKGROUND NOISE LEVELS

Background noise levels which will be used as a basis for this assessment are detailed in the following sections.

3.2.1 Measurement Equipment

Unattended noise monitoring was conducting using one Acoustic Research Laboratories Pty Ltd noise logger. The logger was programmed to store 15-minute statistical noise levels throughout the monitoring period. The equipment was calibrated at the beginning and the end of each measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode.

3.2.2 Measurement Location

An unattended noise monitor was installed next to the northern boundary of the closest residential receiver, located at 1 Nepean Avenue, Penrith. For a detailed location refer to Figure 1.

3.2.3 Measurement Period

Unattended noise monitoring was conducted from Thursday the 20th of February and Friday the 28th of February 2020.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

3.2.4 Measured Background Noise Levels

The background noise levels established from the unattended noise monitoring are detailed in the Table below.

3.2.4.1 Unattended Noise Measurements

NSW EPA's RBL assessment procedure requires determination of background noise level for each day (the ABL) then the median of the individual days as set out for the entire monitoring period.

Appendix One provides the results of the unattended noise monitoring. Weather affected data was excluded from the assessment. The processed Rating Background Noise Levels (lowest 10th percentile noise levels during operation time period) are presented in Tables below.

Table 2 -Summarised Rating Background Noise Level

Time Period	Rating Background Noise Level dBL_{A90}	Environmental Noise Level $dBL_{Aeq, Period}$
Day (7:00am – 6:00pm)	44	58
Evening (6:00pm – 10:00pm)	44	57
Night (10:00pm – 7:00am)	38	48
Night - Up to Midnight (10:00pm – 12:00am)[1]	41	48
Night - Past Midnight (12:00am – 7:00am)[1]	38	48

[1] - *These time periods have been presented in addition to the typical day/evening/night time periods as they are required to determine NSW Department of Industry - Liquor & Gaming (L&GNSW) acoustic criteria.*

In addition to the above noise monitoring an attended noise measurement was taken to determine a background noise spectrum.

Table 3 – Measured Background Noise Spectrum

Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	A-Wt
Noise Level (dB)	47	47	40	37	34	34	30	24	20	**38**

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

4 NOISE EMISSIONS CRITERIA

Noise emissions from the site have been assessed for noise emitted from base building mechanical plant, patrons occupying the restaurant and café, vehicles within the car park, vehicles using the drop off bay and trucks using the loading dock.

The noise emission from the site shall comply with the requirements of the following documents;

- Penrith City Council Development Control Plan (DCP) 2014;
- NSW Department of Industry - Liquor & Gaming (L&GNSW); and
- NSW Department of Environment and Heritage, *Environment Protection Authority (EPA) – Noise Policy for Industry (NPfI) 2017*.

4.1 PENRITH CITY COUNCIL DEVELOPMENT CONTROL PLAN

The Penrith City Council DCP (2014) does not have any noise emission objectives for commercial premises. Therefore, the NSW DI *Liquor & Gaming* (L&GNSW) and NSW EPA *Noise Policy for Industry* (NPfI) will be adopted.

4.2 NSW LIQUOR AND GAMING (PATRON NOISE)

When assessing noise emissions from licensed premises, noise emissions must comply with the acoustic requirements generally imposed by the NSW L&G. These guidelines relate to noise generated by patrons and by music. The requirements are set out below:

- *The L_{10} noise level emitted from the premises shall not exceed 5dB above the background L_{90} sound level in any Octave Band Centre Frequency (31.5kHz to 8kHz inclusive) between the hours of 7.00am to 12.00 midnight when assessed at the boundary of the nearest affected residential premises.*
- *L_{10} noise level emitted from the premises shall not exceed the background L_{90} sound level in any Octave Band Centre Frequency (31.5kHz to 8kHz inclusive) after midnight when assessed at the boundary of the nearest affected residential premises.*
- *After midnight, noise emissions from the Place of Pubic Entertainment are to be inaudible within any habitable rooms in nearby residential properties.*

The following assessment criteria have been determined based on the noise levels measured. These apply when measured outside the open window of a residential facade.

Table 3 – Noise Emission Objectives Criterion (dB(A) $L_{10,15min}$)

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
7:00am – 10:00pm (BG+5dB)	58	58	51	48	45	45	41	35	31	**49**
10:00pm – Midnight (BG+5dB)	55	55	48	45	42	42	38	32	28	**46**
Midnight – 7:00am (BG+0dB)	47	47	40	37	34	34	30	24	20	**38**

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

4.3 NSW NOISE POLICY FOR INDUSTRY (VEHICLE & PLANT NOISE)

The NPfI provides guidelines for assessing noise impacts from developments. The recommended assessment objectives vary depending on the potentially affected receivers, the time of day, and the type of noise source. The NPfI has two requirements which both have to be complied with, namely an intrusiveness criterion and an amenity criterion.

4.3.1 Intrusiveness Criterion

Section 2.3: Project Intrusiveness Noise Level

"The intrusiveness of an industrial noise source may generally be considered acceptable if the level of noise from the source (represented by the L_{Aeq} descriptor), measured over a 15-minute period, does not exceed the background noise level by more than 5 dB when beyond a minimum threshold. This intrusiveness noise level seeks to limit the degree of change a new noise source introduces to an existing environment.

Table 4 – NPfI Project Intrusiveness Criteria

Receiver	Time of day	Background Noise Level dB(A)L_{90}	Intrusiveness Criteria dB(A)$L_{eq(15min)}$
Residential Receivers	Day (7am - 6pm)	44	54
	Evening (6pm - 10pm)	44	54
	Night (10pm - 7am)	38	48

4.3.2 Amenity Criterion

Section 2.4: Amenity Noise Levels and Project Amenity Noise Levels

"To limit continuing increases in noise levels from application of the intrusiveness level alone, the ambient noise level within an area from all industrial noise sources combined should remain below the recommended amenity noise levels specified in Table 2.2 where feasible and reasonable. The recommended amenity noise levels will protect against noise impacts such as speech interference, community annoyance and some sleep disturbance.

The recommended amenity noise levels represent the objective for total industrial noise at a receiver location, whereas the project amenity noise level represents the objective for noise from a single industrial development at a receiver location."

Table 2.2 on page 11 of the policy has four categories to distinguish different residential areas. They are rural, suburban, urban and urban/industrial interface. The subject site has been assessed against noise emission criteria in accordance with the 'Suburban' category.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

Table 5 – NPfI Project Amenity Criteria

Type of Receiver	Time of Day	Recommended Acceptable Noise Level dB(A)$L_{eq(15min)}$
Residential (suburban)	Day (7am - 6pm)	53
	Evening (6pm - 10pm)	43
	Night (10pm - 7am)	38
Hotels	Day (7am - 6pm)	58
	Evening (6pm - 10pm)	48
	Night (10pm - 7am)	43
Commercial	When in Use	63

4.3.3 Sleep Disturbance Criterion

The NPfI states the following with regards to sleep disturbance, 'Maximum noise level event assessment':

> *"The potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages. Where the subject development/premises night-time noise levels at a residential location exceed:*
>
> - *$L_{Aeq,15min}$ 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or*
> - *L_{AFmax} 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,*
>
> *a detailed maximum noise level event assessment should be undertaken.*
>
> *The detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period. Some guidance on possible impact is contained in the review of research results in the NSW Road Noise Policy.*
>
> *Other factors that may be important in assessing the extent of impacts on sleep include:*
>
> - *how often high noise events will occur;*
> - *the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the subject development.*
> - *whether there are times of day when there is a clear change in the noise environment (such as during early-morning shoulder periods)*
> - *current scientific literature available at the time of the assessment regarding the impact of maximum noise level events at night.*
>
> *Maximum noise level event assessments should be based on the L_{AFmax} descriptor on an event basis under 'fast' time response.*
>
> *The detailed assessment should consider all feasible and reasonable noise mitigation measures with a goal of achieving the above trigger levels."*

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

Table 6 – NPfI Sleep Disturbance Criteria

Receiver	Period	Background Noise Level dB(A)L_{90}	Sleep Disturbance Criteria
Residential Receivers	Night 10:00pm – 7:00am	38 dB L_{A90}	43 dB $L_{Aeq,15min}$
			53 dB L_{AFmax}

4.3.4 Summarised Noise Emission Criteria

Noise emission criteria to all residential receivers surrounding the development has been summarised below:

Table 7 – Summarised Noise Emission Criteria (Vehicle & Plant Noise)

Receiver	Time of day	Governing Project Criteria
Residential	Day (7am - 6pm)	53 dB(A) $L_{eq,15min}$
	Evening (6pm - 10pm)	43 dB(A) $L_{eq,15min}$
	Night (10pm - 7am)	38 dB(A) $L_{eq,15min}$
		53 dB(A) L_{Fmax}
Hotels	Day (7am - 6pm)	58 dB(A) $L_{eq,15min}$
	Evening (6pm - 10pm)	48 dB(A) $L_{eq,15min}$
	Night (10pm - 7am)	43 dB(A) $L_{eq,15min}$
Commercial	When in Use	63 dB(A) $L_{eq,15min}$

Table 8 – Summarised Noise Emission Criteria (Patron Noise)

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
7:00am – 10:00pm (BG+5dB)	58	58	51	48	45	45	41	35	31	**49**
10:00pm – Midnight (BG+5dB)	55	55	48	45	42	42	38	32	28	**46**
Midnight – 7:00am (BG+0dB)	47	47	40	37	34	34	30	24	20	**38**[1]

[1] - *In addition to complying with this spectrum after midnight, the noise source must be inaudible within any habitable rooms in nearby residential properties.*

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

5 NOISE EMISSION ASSESSMENT

5.1 MECHANICAL PLANT NOISE

Detailed plant selection has not been undertaken at this stage, as plant selections have not been determined. Detailed acoustic review should be undertaken at CC stage to determine acoustic treatments to control noise emissions to satisfactory levels. Satisfactory levels will be achievable through appropriate plant selection and location and, if necessary, standard acoustic treatments such as duct lining, acoustic silencers and enclosures.

Noise emissions from all mechanical services to the closest residential receiver should comply with the requirements outlined in Section 4.3.4 of this report, and should be reviewed at CC stage, once equipment selections have been made.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

5.2 VEHICLE NOISE

5.2.1 Loading Dock

The proposed Log Cabin has an external loading dock located on the north-east corner of the building. See Figure 2 for location of loading dock relative to the Log Cabin structure.

This loading dock is expected to be used by food delivery trucks, vans, Garbage trucks and various other services. Of these the garbage truck utilising the loading dock will be the loudest activity and therefore will be used as the worst case for the purposes of this assessment.

In addition to the above, the following will be assumed:

- The garbage truck has a sound power level of 105dB(A)L_{eq}.
- The loading dock will not be used between the hours of 6:00pm and 7:00am.
- All recommendations outlined in section 6 of this report have been implemented.

5.2.2 Vehicle Turning Hammerhead

It is proposed to construct a Hammerhead turning bay at the end of Memorial avenue to allow traffic travelling up Memorial Avenue, in front of the Log Cabin, to easily turn around and leave the site. See Figure 2 for location of turning hammerhead relative to the Log Cabin structure.

This turning hammerhead is expected to be used by busses, small vehicles and vans dropping off patrons, food or providing other services to the Log Cabin. For the purpose of this assessment the following will be assumed:

- All vehicles are travelling at 10-20km/hr while using the hammerhead turning bay.
- Each vehicle has a sound power level of 84dB(A)L_{eq}.
- Each bus and/or van has a sound power level of 95dB(A)L_{eq}.
- Up to 16 vehicles utilise the hammerhead turn every hour during the day/evening.
- Up to 8 vehicles utilise the hammerhead turn every hour during the night.
- Up to 8 busses/vans utilise the hammerhead turn every hour during the day/evening.
- All recommendations outlined in section 6 of this report have been implemented.

5.2.3 Car Park

The proposed Log Cabin has a large external car park located on the neighbouring lot, over Memorial Avenue. See Figure 1 and 2 for location of car park relative to the Log Cabin structure and surrounding receivers.

The land, though undeveloped did use to serve as parking space to the Log Cabin during its operation prior to 2012. The proposed bitumen car park has a maximum capacity of 214 vehicles. For the purpose of this assessment the following will be assumed:

- All vehicles are travelling at 10-20km/hr while entering and commuting within the car park.
- Each vehicle has a sound power level of 84dB(A)L_{eq}.
- A person slamming a vehicle door has a sound power level of 92dB(A)L_{max}.
- The full capacity of the carpark enter/leave in a period of 1 hour during the day/evening.
- A quarter of the capacity of the car park enter/leave in a period of 1 hour during the night.
- All recommendations outlined in section 6 of this report have been implemented.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

5.2.4 Cumulative Predicted Vehicle Noise Levels

Table 9 – Predicted Traffic Noise Levels

Receiver	Time of day	Predicted Noise Levels dB $L_{Aeq,15min}$	Criteria dB $L_{Aeq,15min}$	Complies
Receiver 1: Residential Nepean Avenue	Day (7am - 6pm)	43	≤ 53	Yes
	Evening (6pm - 10pm)	43	≤ 43	Yes
	Night (10pm - 7am)	36	≤ 38	Yes
Receiver 2: Residential Memorial Avenue	Day (7am - 6pm)	43	≤ 53	Yes
	Evening (6pm - 10pm)	43	≤ 43	Yes
	Night (10pm - 7am)	36	≤ 38	Yes
Receiver 3: Penrith Valley Inn	Day (7am - 6pm)	46	≤ 58	Yes
	Evening (6pm - 10pm)	46	≤ 48	Yes
	Night (10pm - 7am)	41	≤ 43	Yes
Receiver 4: Nepean Naval Maritime Museum	When in Use	42	≤ 63	Yes

Table 10 – Predicted Traffic Noise Levels (Sleep Disturbance)

Receiver	Time of day	Predicted Noise Levels dB L_{AFmax}	Criteria dB L_{AFmax}	Complies
Receiver 1: Residential Nepean Avenue	Night (10pm - 7am)	52	≤ 53	Yes
Receiver 2: Residential Memorial Avenue	Night (10pm - 7am)	48	≤ 53	Yes

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

5.3 PATRON NOISE

5.3.1 Beer Garden

The proposed Log Cabin has a ground floor external beer garden located on the northern side of the building. See Figure 2 for location of beer garden relative to the Log Cabin structure.

The beer garden will have amplified music playing and patrons are expected to predominantly seated in this area. For the purpose of this assessment the following will be assumed:

- The average sound power per patron is 80dB(A)L_{10}, with one in every two patrons speaking at once.
- Music (amplified) is played at background noise levels, (sound pressure of 65dB(A)L_{10}. No amplified or live music is permitted in any of the external areas.
- Music (amplified) is no permitted in all external areas after midnight.
- The Beer Garden is at maximum capacity up to Midnight.
- Patron numbers are to be restricted to 80 people after midnight.
- All recommendations outlined in section 6 of this report have been implemented.

5.3.2 Internal Restaurant & Function Areas

The proposed Log Cabin has a coffee shop, gaming area, restaurant dining, TAB, Bars and multiple function areas located inside.

For the purpose of this assessment the following will be assumed:

- The average sound pressure level within all the entertainment areas is 80dB(A)L_{eq}.
- All entertainment areas are at maximum capacity.
- After midnight all entry doors temporarily open. (Although the door will primarily be closed, the "door open" prediction is used to represent a worst-case scenario noise emission, as patrons enter/leave the site)
- All recommendations outlined in section 6 of this report have been implemented.

5.3.3 Ground & Level One External Deck Areas

The proposed Log Cabin has a ground floor and level 1 external deck area. The deck area is expected to be used by patrons attending the restaurant and bars, while the level 1 deck area will also accommodate patrons from the function areas.

For the purpose of this assessment the following will be assumed:

- The average sound pressure level within all the entertainment areas is 77dB(A)L_{eq}.
- All deck areas are at maximum capacity up to Midnight.
- Patron numbers are to be restricted to 20 people on each floor (40 people total) after midnight.
- Music (amplified) is played at background noise levels, (sound pressure of 65dB(A)L_{10}. No amplified or live music is permitted in any of the external areas.
- Music (amplified) is no permitted in all external areas after midnight.
- All recommendations outlined in section 6 of this report have been implemented.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

5.3.4 Cumulative Predicted Patron & Music Noise Levels

Table 11 – Predicted Patron Noise Emissions to Receiver 1: Nepean Avenue 10:00pm to Midnight

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
Predicted Noise Level	31	31	38	37	42	37	30	20	6	**42**
10:00pm – Midnight Criteria	55	55	48	45	42	42	38	32	28	**46**
Complies	✓	✓	✓	✓	✓	✓	✓	✓	✓	**Yes**

Table 12 – Predicted Patron Noise Emissions to Receiver 1: Nepean Avenue Midnight to 2:00am

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
Predicted Noise Level	23	23	30	29	33	29	21	11	-3	**33**
Midnight – 7:00am Criteria	47	47	40	37	34	34	30	24	20	**38**
Complies	✓	✓	✓	✓	✓	✓	✓	✓	✓	**Yes**

Table 13 – Predicted Patron Noise Emissions to Receiver 2: Memorial Avenue 10:00pm to Midnight

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
Predicted Noise Level	28	28	36	35	41	38	34	26	15	**42**
10:00pm – Midnight Criteria	55	55	48	45	42	42	38	32	28	**46**
Complies	✓	✓	✓	✓	✓	✓	✓	✓	✓	**Yes**

Table 14 – Predicted Patron Noise Emissions to Receiver 2: Memorial Avenue Midnight to 2:00am

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
Predicted Noise Level	22	22	29	29	34	32	26	17	5	**36**
Midnight – 7:00am Criteria	47	47	40	37	34	34	30	24	20	**38**
Complies	✓	✓	✓	✓	✓	✓	✓	✓	✓	**Yes**

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

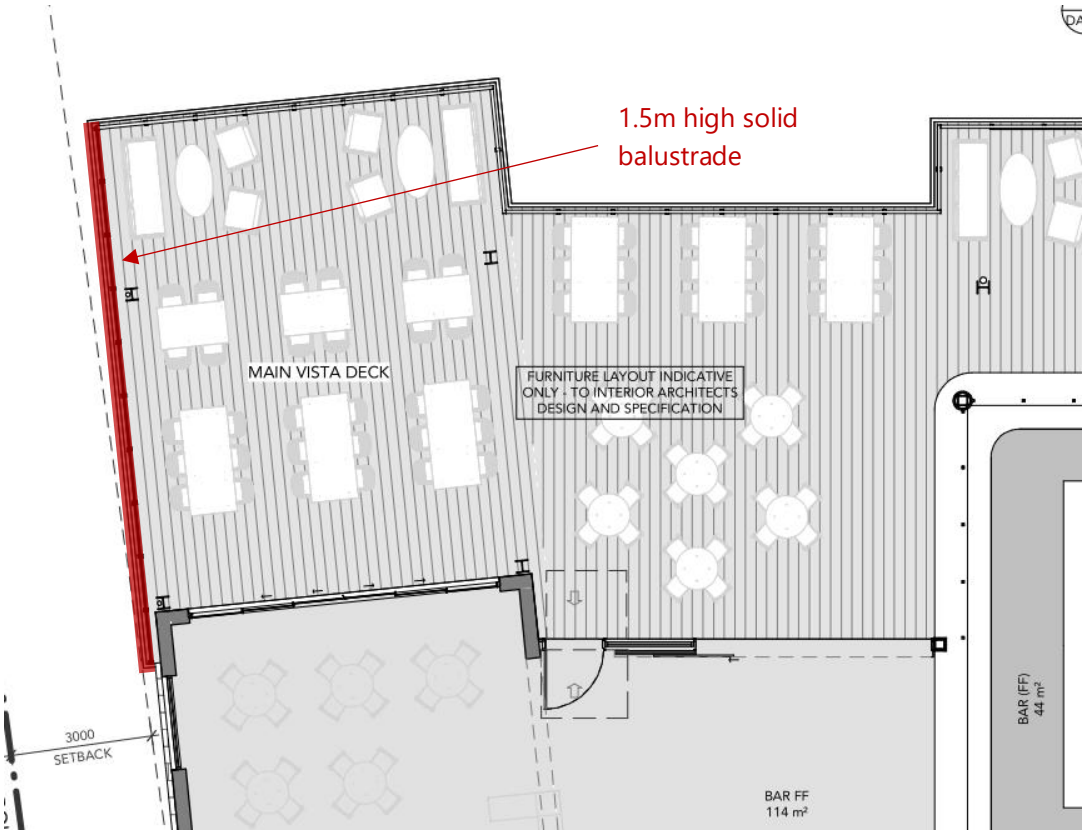
Table 15 – Predicted Patron Noise Emissions to Non-Residential Receivers

Receiver	Time of day	Predicted Noise Levels dB $L_{Aeq,15min}$	Criteria dB $L_{Aeq,15min}$	Complies
Receiver 3: Penrith Valley Inn	Day (7am - 6pm)	40	≤ 58	Yes
	Evening (6pm - 10pm)	37	≤ 48	Yes
	Night (10pm - 7am)	37	≤ 43	Yes
Receiver 4: Nepean Naval Maritime Museum	When in Use	42	≤ 63	Yes

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

6 RECOMMENDATIONS

- The loading dock will not be used between the hours of 6:00pm and 7:00am.
- The carpark is to be sign posted with a speed limit of no more than 20km/hr
- The level 1 deck area is to have a 1.5-meter high solid balustrade along the full length of the southern end of the external deck.



- Windows within all entertainment areas along the southern façade of the building are to be installed with minimum 10.38mm Laminate glazing with minimum reduction index Rw34, all other areas should have minimum 6.38mm Laminate glazing with minimum reduction index Rw 31.
- Music (amplified) within external areas is to be played at background noise levels, (sound pressure of 70dB(A)L_{10}.
- No live music is permitted in any of the external areas after 10:00pm.
- Music (amplified) is not permitted in all external areas after midnight.
- After midnight, patron numbers are to be limited within external areas:
    - Beer Garden: 80 Patrons
    - Ground Floor External Deck: 20 Patrons
    - Level 1 External Deck: 20 Patrons
- After midnight all entry doors are to be closed, with the exception of egress and ingress.

Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

7 CONCLUSION

This report presents an acoustic assessment of noise emissions associated with the Log Cabin proposed to be constructed on Memorial Avenue, Penrith.

Provided that the acoustic treatments set out in section 6 of this report are adopted noise emission will comply with relevant EPA NPfI, Council and Office of Liquor and Gaming acoustic requirements.

Please contact us should you have any further queries.

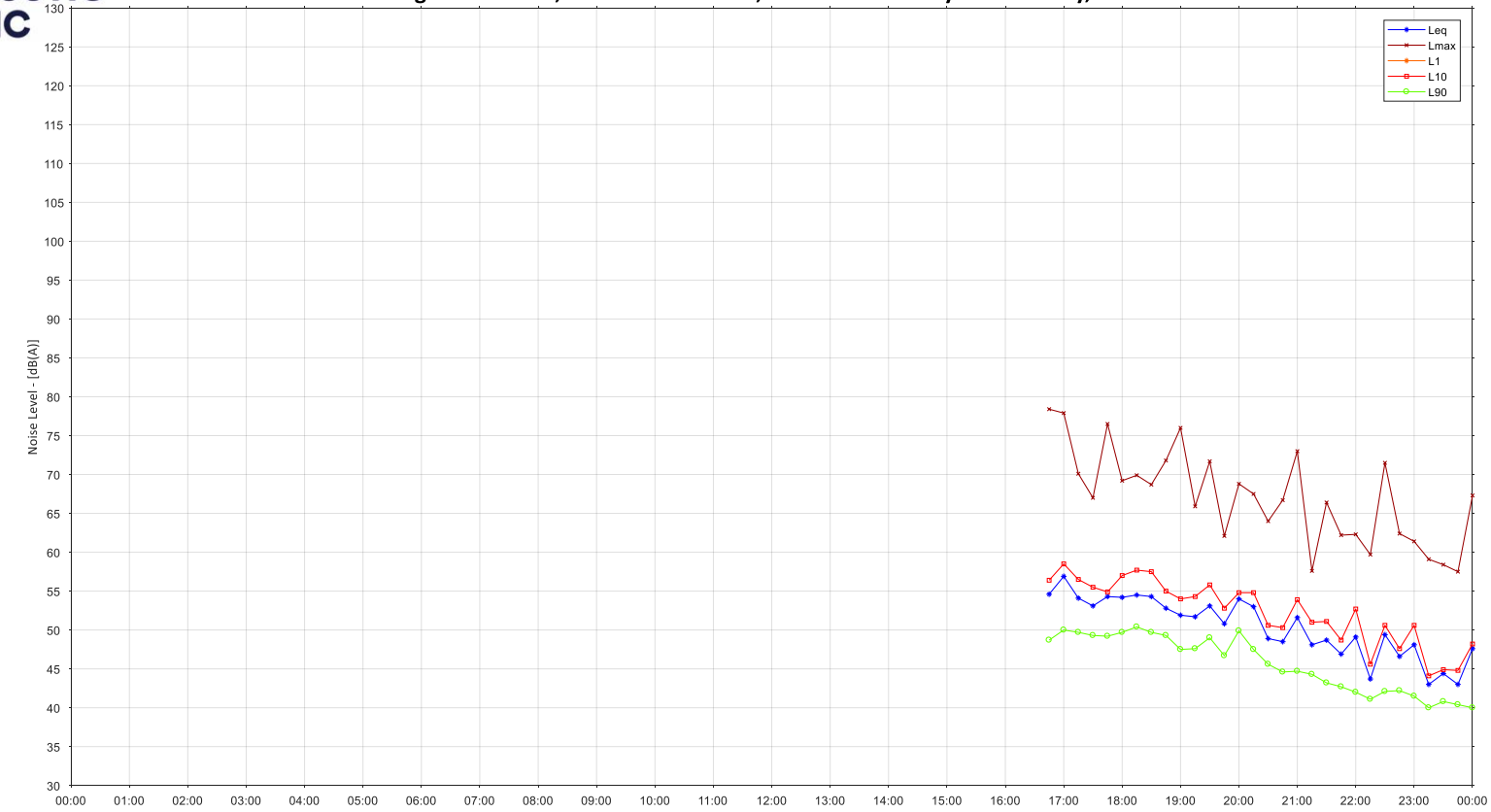
Yours faithfully,

Acoustic Logic Consultancy Pty Ltd
Jenna MacDonald

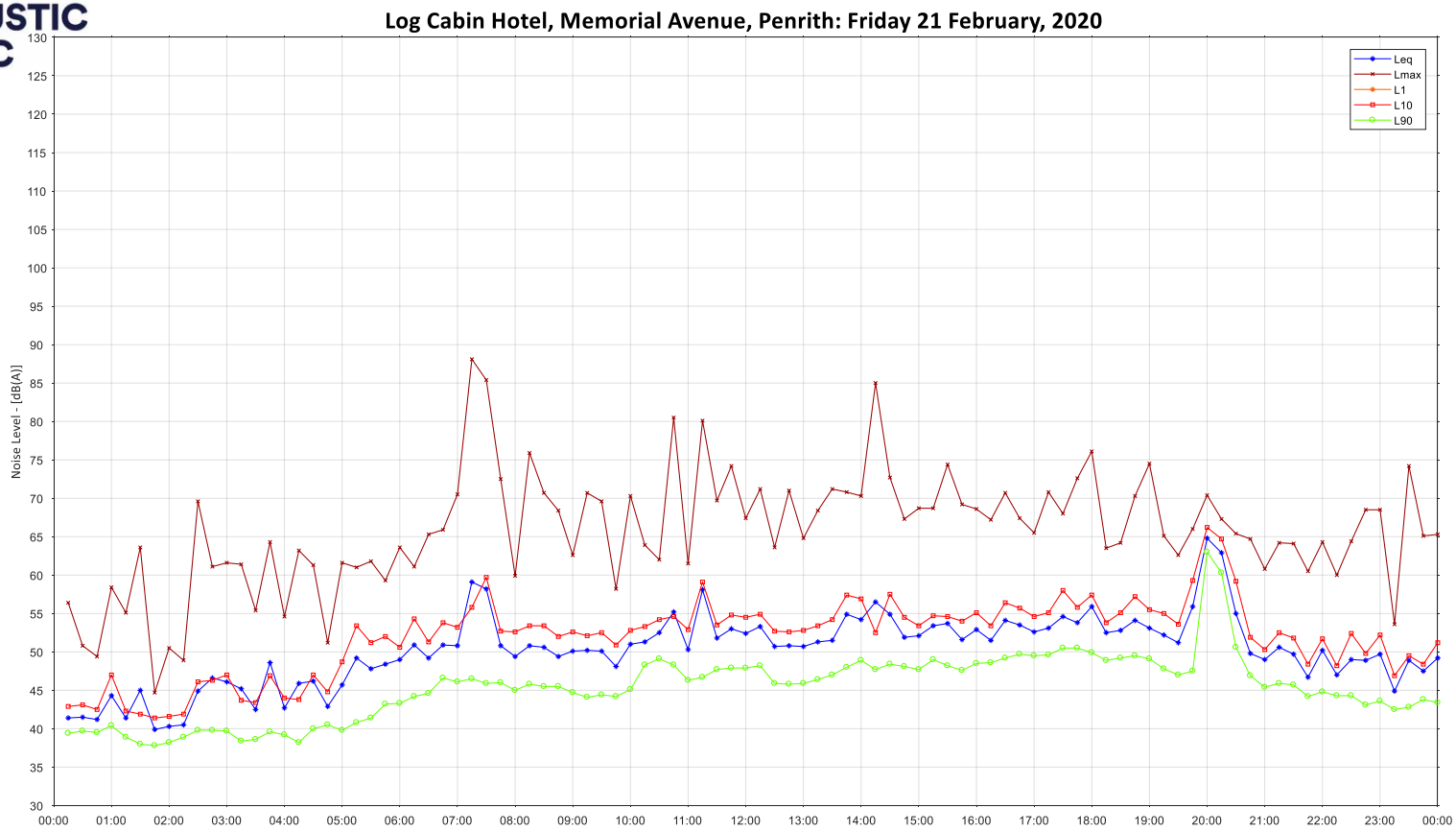
Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

APPENDIX ONE:
UNATTENDED NOISE MONITORING DATA

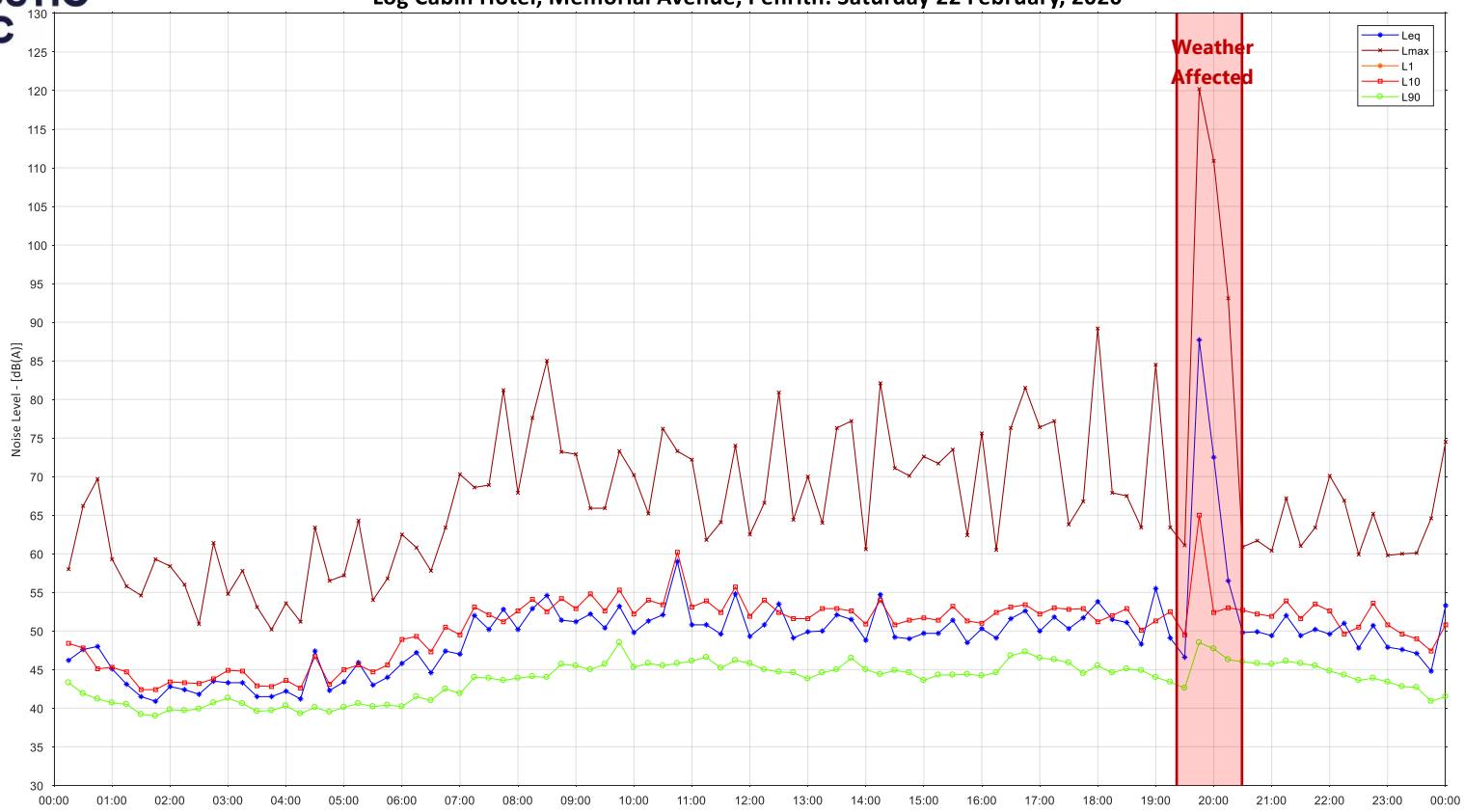
Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020



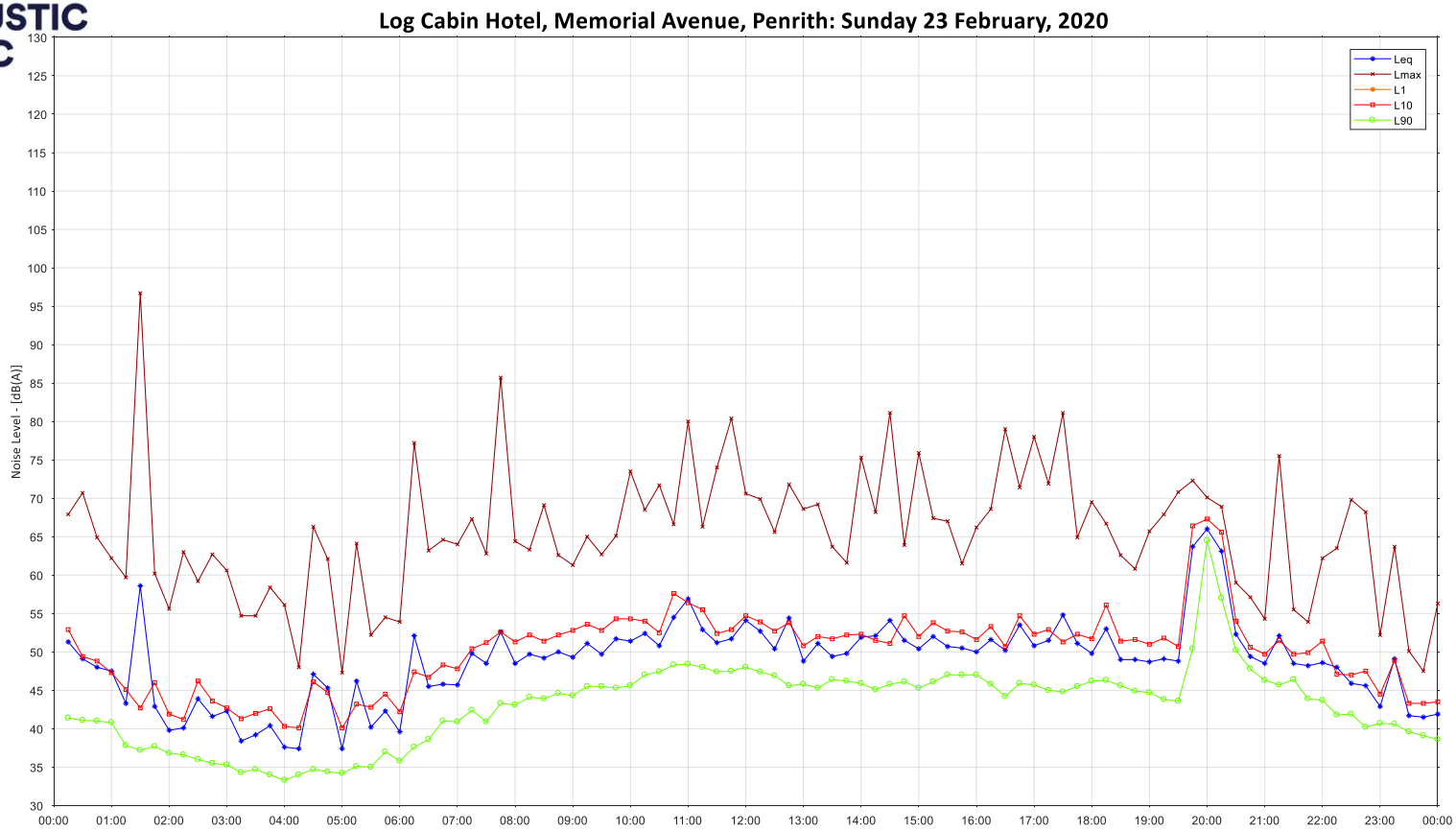
Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020



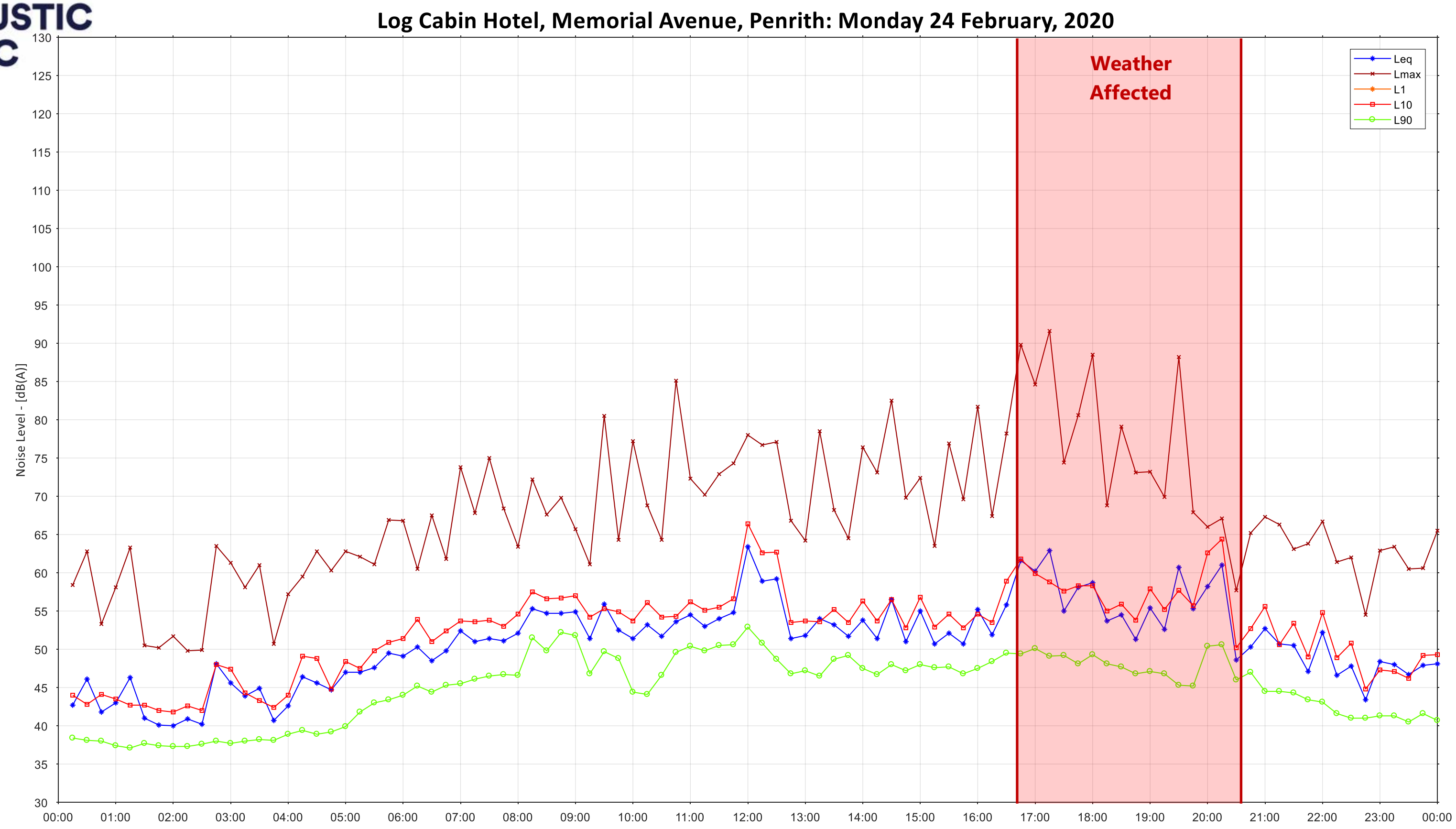
Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020



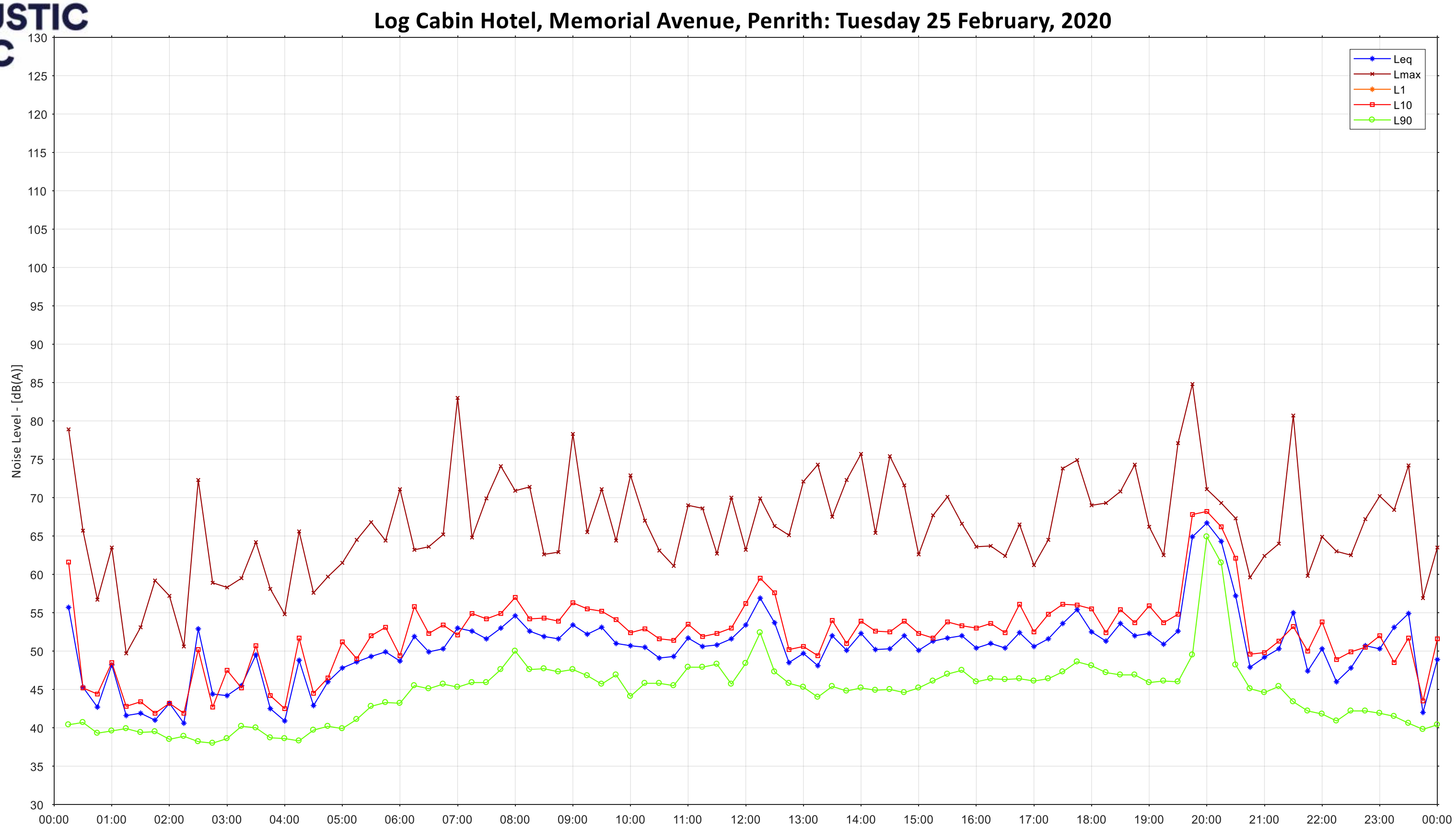
Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

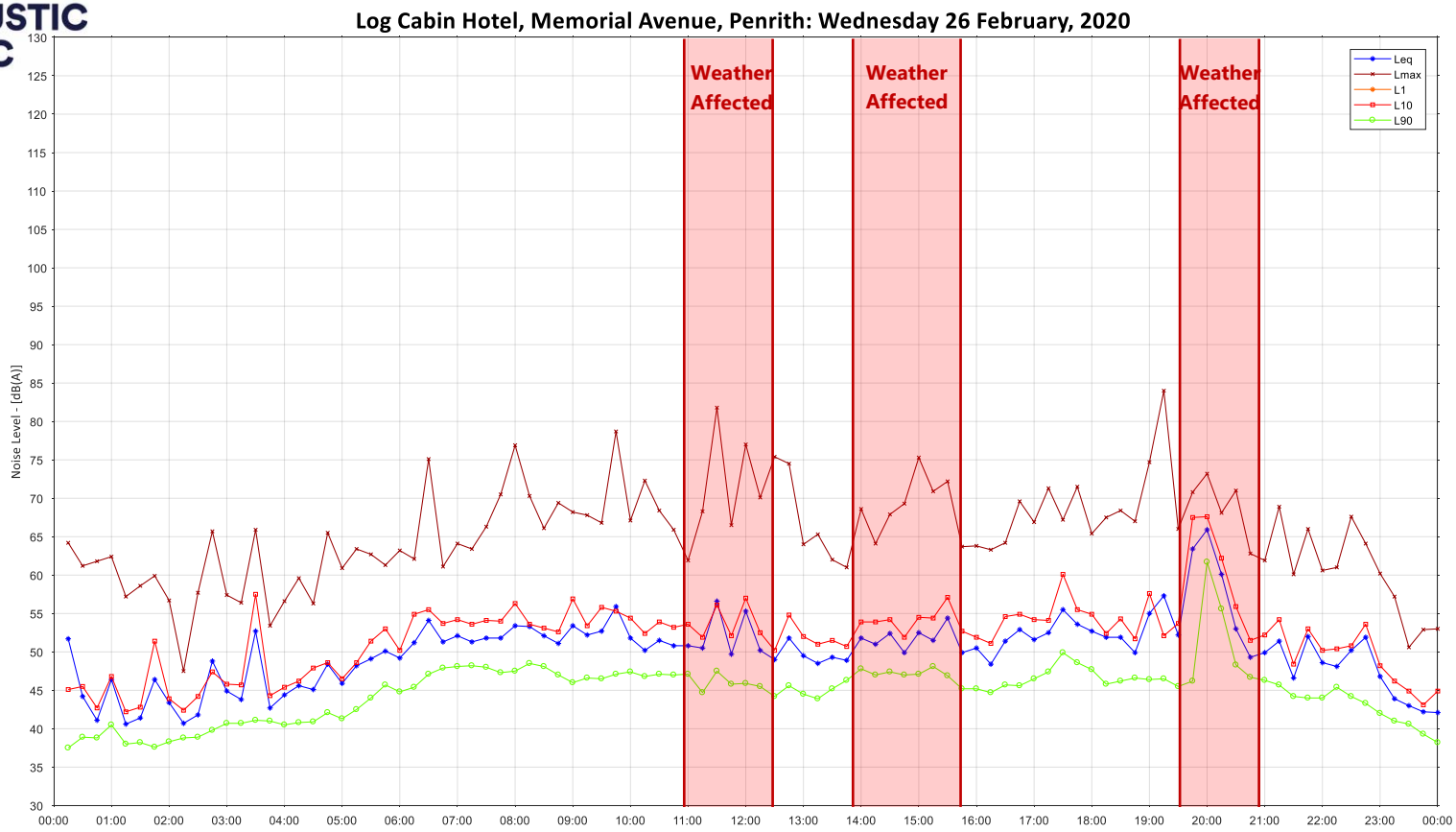


Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020


Log Cabin Hotel, Memorial Avenue, Penrith: Monday 24 February, 2020
Weather
Affected
Leq
Lmax
L1
L10
L90
Noise Level - [dB(A)]
130
125
120
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00

ACOUSTIC LOGIC

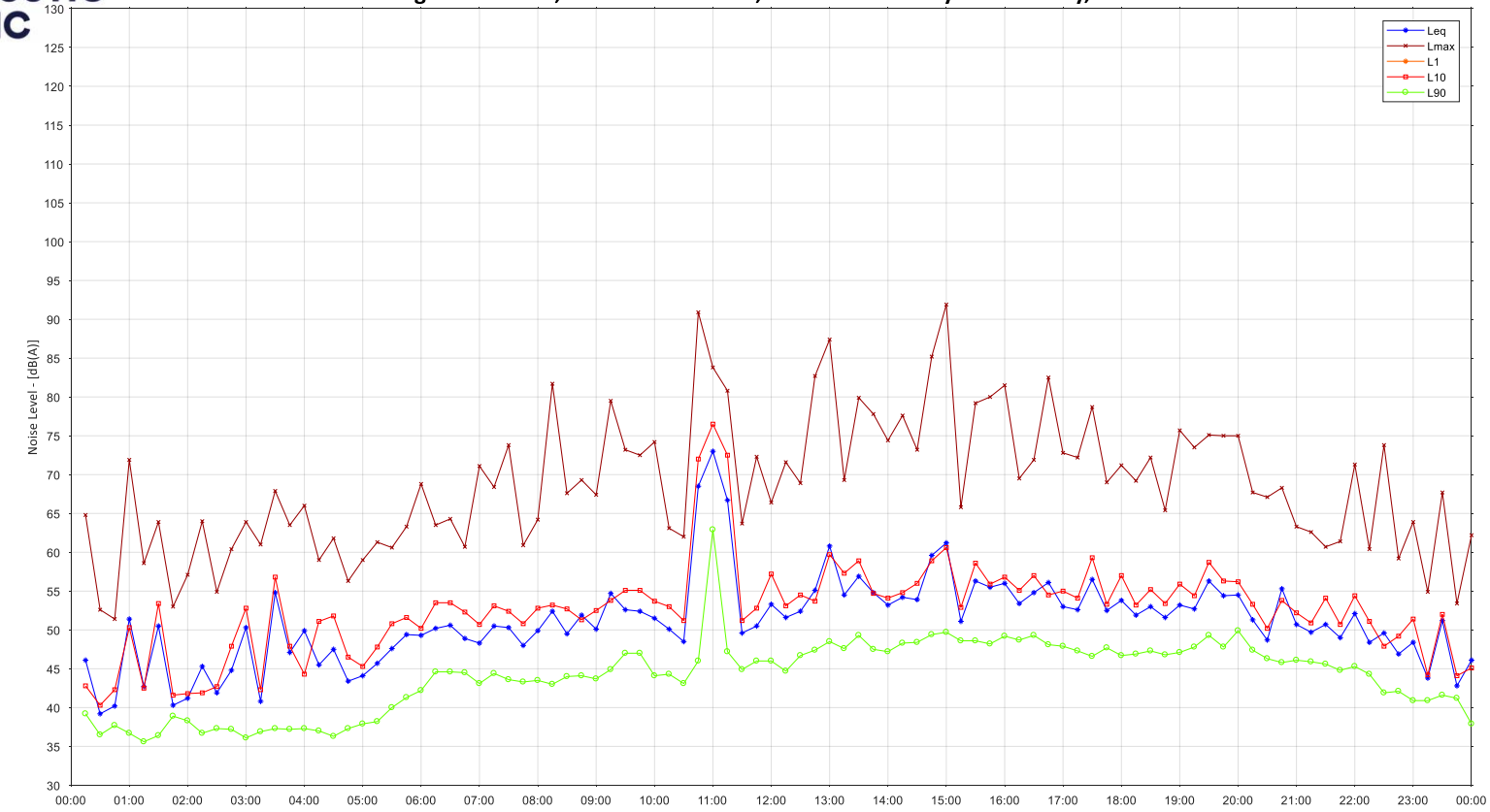




Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

ACOUSTIC LOGIC

Log Cabin Hotel, Memorial Avenue, Penrith: Thursday 27 February, 2020



Document Set ID: 9281110
Version: 1, Version Date: 03/09/2020

Log Cabin Hotel, Memorial Avenue, Penrith: Friday 28 February, 2020