DA ACOUSTIC REPORT – EARLY LEARNING CENTRE

167 Serpentine Road, Terrigal

ID: 12921 R01v4

29 September 2025

Prepared For:
Malachite Holdings Pty Ltd Superannuation Fund

167 Serpentine Road,
Terrigal NSW 2260
C/- Jarrod Lamshed, ARMADA Architecture Masterplanning and Design Agency

Email: jarrod@armadaarchitects.com.au

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Author: Sri Harsha Eati

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29/07/2025	4	Jarrod Lamshed	jarrod@armadaarchitects.com.au

Prepared By:
PJ Knowland Pty. Ltd.
t/a PKA Acoustic Consulting

PO Box 345, Lane Cove NSW 1595

ABN 87 256 407 546, ACN 621 896 204

T (02) 9460 6824 · **E** admin@pka.com.au

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The work reported herein has been carried out in accordance with the terms of membership. We stress that the advice given herein is for acoustic purposes only, and that the relevant authorities should be consulted with regard to compliance with regulations governing areas other than acoustics.

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1.0 INTRODUCTION

PKA Acoustic Consulting (PKA) have been commissioned to assess the acoustic interaction of the proposed Early Learning Centre (ELC) at 167 Serpentine Road, Terrigal (site) with the surrounding environment.

The assessment will be part of the DA approval documentation to be submitted to the Central Coast Council. The purpose of the assessment is to establish the noise impact into and from the proposed ELC operation and provide recommendations to comply with the relevant acoustic criteria where necessary.

2.0 SUMMARY

An acoustic assessment has been conducted to assess the noise intrusion into the surrounding premises. Noise criteria from the *NSW EPA Noise Policy for Industry 2017* and the *Association of Australasian Acoustical Consultants* (AAAC) *Guideline for Child Care Centre Acoustic Assessment* (v3.0, September 2020) were considered.

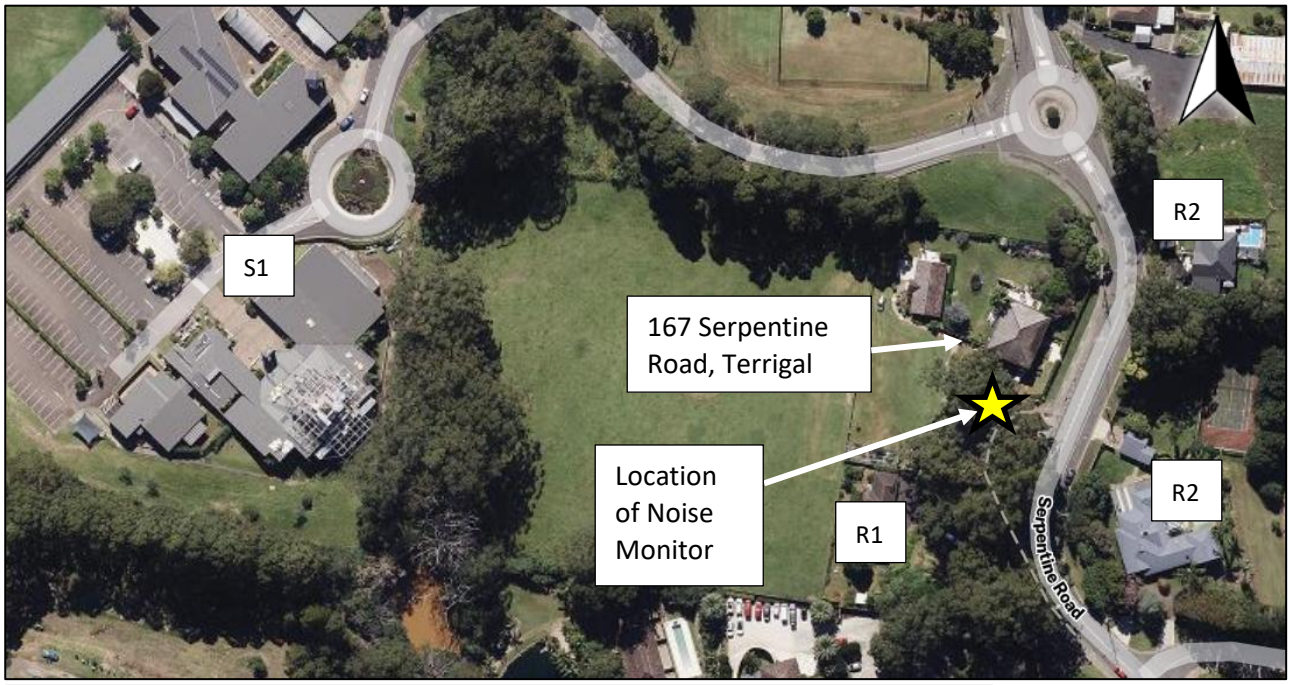
Noise breakout levels were calculated to the nearest sensitive receivers. Where exceedances occurred, recommendations were given to achieve compliance, and/or mitigations measures to be implemented. Providing the recommendations detailed in Section 6.0 are implemented, the proposed ELC premises at 167 Serpentine Road, Terrigal will comply with the established site-specific acoustic requirements.

3.0 SITE DESCRIPTION

The proposed early learning centre (ELC) premises are located at 167 Serpentine Road, Terrigal. The site is bound by Serpentine Road to the east, adjacent residential premises to the south and vacant land on the remaining sides.

The site location is shown below in Figure 3-1. A detailed summary of the surrounding receivers is presented in Section 5.2.

Figure 3-1 Site Location



The proposed centre has a total children capacity of 113 (0-2 years: 28 children, 2-3 years: 25 children and 3-5 years old – 60 children) and is proposed to operate between the hours of 7:30am and 5:30pm from Monday to Friday.

4.0 NOISE CRITERIA

4.1 NSW EPA Noise Policy for Industry

The policy sets out two separate criteria to ensure environmental noise objectives are met. The first criterion considers intrusive noise to residential properties and the second is set to ensure the amenity of the land use is protected. The lower value of both criteria is considered to be the Project noise trigger level, which is the limit of the $L_{Aeq\text{-}15min}$ noise level that must not be exceeded for the corresponding period of the day.

4.1.1 Intrusiveness Criterion

The intrusiveness of a stationary noise source may be considered acceptable if the average of the maximum A-weighted levels of noise, $L_{Aeq\ 15\ minute}$ from the source do not exceed by more than 5dB the Rating Background Level (RBL) measured in the absence of the source. This applies during all times of the day and night. There also exists an adjustment factor to be applied as per the character of the noise source. This includes factors such as tonal, fluctuating, low frequency, impulsive, intermittent etc. qualities of noise. The RBL is determined in accordance with Section 2.3 of the NSW EPA NPfI. The intrusiveness criterion is $L_{Aeq\ 15\ minute}$ < RBL+5.

4.1.2 Amenity Criterion

To limit continuing increases in noise levels, the maximum ambient noise level within an area from commercial noise sources should not normally exceed the levels as specified in Table 2.2 of the policy for the specified time of the day. The NPfI recommends the following Amenity Noise Levels for various receiver premises.

Table 4-1 Noise Criteria - Amenity for receiver buildings

Type of receiver	Time of day	Recommended Amenity Noise Level $L_{Aeq\ (period)}$
Residential (Suburban)	Day	55 dB(A)
	Evening	45 dB(A)
	Night	40 dB(A)
School Classroom	(Noisiest 1 hour period)	35 dB(A) – internal

To ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows:

Project amenity noise level for development = recommended amenity noise level **minus 5 dB(A).**

To standardise the time periods for the intrusiveness and amenity noise levels, this policy assumes that the Amenity **$L_{Aeq,15min}$** will be taken to be equal to the **$L_{Aeq,\ period}$ + 3 decibels (dB).**

4.2 AAAC Guideline for Child Care Centre Acoustic Assessment

Outdoor Play Areas

Base Criteria – With the development of childcare centres in residential areas, the background noise level within these areas can at certain times, be low. Thus, a base criterion of a contributed $L_{eq,15min}$ 45 dB(A) for the assessment of outdoor play is recommended in locations where the background noise level is less than 40 dB(A).

Background Greater Than 40 dB(A) – The contributed $L_{eq,15min}$ noise level emitted from an outdoor play and internal activity areas shall not exceed the background noise level by more than 5 or 10 dB at the assessment location, depending on the usage of the outdoor play area. AAAC members regard that a total time limit of approximately 2 hours outdoor play per morning and afternoon period should allow an emergence above the background of 10 dB (ie background +10 dB if outdoor play is limited to 2 hours in the morning and 2 hours in the afternoon).

Up to 4 hours (total) per day – If outdoor play is limited to no more than 2 hours in the morning and 2 hours in the afternoon, the contributed $L_{eq,15\ minute}$ noise level emitted from the outdoor play shall not exceed the background noise level by more than 10 dB at the assessment location.

More than 4 hours (total) per day – If outdoor play is not limited to no more than 2 hours in the morning and 2 hours in the afternoon, the contributed $L_{eq,15\ minute}$ noise level emitted from the outdoor play area shall not exceed the background noise level by more than 5 dB at the assessment location.

4.3 Traffic Noise Intrusion – EPA Road Noise Policy

The EPA's Road Noise Policy (RNP) provides internal and external noise criteria for childcare facilities due to traffic noise intrusion as follows:

Figure 4-1 Excerpt from the EPA Road Noise Policy (Traffic Noise Intrusion)

Existing sensitive land use	Assessment criteria – dB(A)		Additional considerations
	Day (7 a.m.–10 p.m.)	Night (10 p.m.–7 a.m.)	
8. Childcare facilities	Sleeping rooms $L_{Aeq,\ (1\ hour)}$ 35 (internal) Indoor play areas $L_{Aeq,\ (1\ hour)}$ 40 internal) Outdoor play areas $L_{Aeq,\ (1\ hour)}$ 55 (external)	–	Multi-purpose spaces, e.g. shared indoor play/sleeping rooms should meet the lower of the respective criteria. Measurements for sleeping rooms should be taken during designated sleeping times for the facility, or if these are not known, during the highest hourly traffic noise level during the opening hours of the facility.

4.4 NSW EPA Interim Construction Noise Guideline

The *NSW EPA Interim Construction Noise Guideline* (ICNG) is being used in performing this assessment. The document aims at managing noise from construction works regulated by the EPA. The provided noise limits based on Rating Background Level (RBL) and associated limits in reference to operational hours, to residential receivers These are presented in the following Table 4-2.

Table 4-2 Construction Noise Breakout Requirements at Residential Receivers (ICNG)

Time of day	Management level $L_{Aeq\ (15\ min)}$	Application
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences), if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.

Table 4-3 Construction Noise Levels Criteria at Non - Residential Receivers (EPA ICNG)

Receiver Type	Noise Management Level ($L_{Aeq-15min}$) When In Use
Commercial	70 dB(A)
Industrial	75 dB(A)
Educational Facilities	45 dB(A) (internal)
Hospital/ Medical	45 dB(A) (internal)
Place of Worship	45 dB(A) (internal)
Passive Recreation	60 dB(A)
Active Recreation	65 dB(A)

4.5 Construction Vibration Criteria

As demolition and excavation are proposed, there is the potential for vibration impact on the neighbouring buildings' amenity and on structures. The EPA ICNG states that human comfort (amenity) vibration is to be measured and assessed in accordance with *Assessing Vibration – a technical guideline* (DECC 2006).

In general, structural damage due to vibration can be of concern when hammering, blasting, vibration rolling, crushing, piling and other vibration inducing construction works are carried out.

The EPA ICNG does not have specific structural vibration damage criteria however the RTA Environmental Noise Management Manual (2001) recommends the use of the following Standards:

- British Standard BS 7385: Part 2: Evaluation and Measurement for Vibrations in Buildings – Part 2 Guide to Damage Levels from Ground-Borne Vibration
- AS 2187.2 Explosives-Storage, transport and use, Part 2: Use of Explosives
- German Standard DIN 4150, Part 3: Structural Vibration in Buildings: Effects on Structures

5.0 ASSESSMENT

5.1 Noise Survey

5.1.1 Methodology

Unattended noise monitoring was conducted on site between 16th and 24th October 2024 to record the existing ambient noise levels. The noise monitor was programmed to store the L_n percentile noise levels for each 15-minute sampling period. Measurements were made of L_{min}, L_{max}, L_{90}, and L_{eq} and were later retrieved for analysis. The position of the noise monitors is shown in Figure 3-1. The results and summary of the noise monitoring are listed in graphical form in Appendix C of this report.

Where adverse weather events or repeatable non-relevant transient events were observed, audio recordings were used to identify events that artificially increased the ambient noise levels, and these periods were excluded accordingly.

The assessment periods for weekdays are defined by the NSW NPfI are as Daytime: 7 am to 6 pm, Evening: 6 pm to 10 pm and Night: 10 pm to 7 am.

5.1.2 Instrumentation

Noise measurements were conducted using the following equipment:

- Sound analyser NTi XL2 Type 1, Serial number A2A- 20149-E0.
- Sound calibrator Larson Davis CAL200, Serial number 11419.

The instruments were calibrated before and after the noise measurements and there were no adverse deviations between the two. The analysers are type 1 and comply with AS IEC 61672.2-2004. The instruments carry traceable calibration certificates.

5.2 Sensitive Areas and Residential Receivers

The following is the summary of the sensitive residential receivers of the noise impact from the activity at the proposed centre as shown in Figure 3-1.

Residential Receiver 1 (R1) – Located along the southern boundary directly adjacent to the site at 169 Serpentine Road, Terrigal. This receiver will be potentially affected by the outdoor play area and car park activity.

Residential Receiver 2 (R2) – Located to the east of the site, across the road at 98 and 100 Serpentine Road. This receiver will be potentially affected by car parking.

School Receiver (S1) - Located to the west of the site, at a distance of more than 120m away. Although facing the outdoor play area, it is not anticipated to be adversely affected by the noise generated.

Other residential receivers to the east are located at a significant distance away and the noise impact from the use of the centre is anticipated to achieve compliance readily.

5.3 Site Specific Acoustic Criteria

The following table presents a summary of the project noise goals for the project.

Table 5-1 Project Noise Goals for Noise Breakout to Surrounding Residential Receivers

Receiver Type	Period	Measured RBL (L_{A90})	NSW Noise Policy for Industry Criteria		AAAC Criteria for Play Areas (RBL > 40dB(A)) $L_{Aeq15min}$
			Amenity $L_{Aeq15min}$	Intrusiveness $L_{Aeq15min}$	
Residential (Sub-Urban)	Day 7am to 6pm	46 dB(A)	53 dB(A)	51 dB(A) (Trigger Level)	51 dB(A) for more than 4 hours of play 56 dB(A) for up to 4 hours of play
	Evening 6pm to 10pm	41 dB(A)	43 dB(A)	46 dB(A)* (Trigger Level)	N/A
	Night 10pm to 7am	31 dB(A)	38 dB(A)	35 dB(A)* (Trigger Level)	N/A

*The centre is proposed to be used only during the daytime hours and therefore, the evening and night criteria is not applicable in this instance and have only been provided for indicative purposes.

The following table presents the repeatable loudest $L_{Aeq-1hr}$ measured traffic noise levels at the proposed setback directly facing Serpentine Road.

Table 5-2 Project Noise Goals – Traffic Noise Intrusion Goals within Childcare Development

Measured (Noisiest Repeatable) $L_{Aeq-1hour}$	Childcare Facility Sensitive Space and Indoor Acoustic Criteria $L_{Aeq-1hour}$	Traffic Noise Reduction Required
Measured Traffic Noise Level at Proposed Setback facing Central Coast Highway (Daytime) 57 dB(A)	Sleeping Rooms 35dB(A)	22 dB(A)
	Indoor Play Areas 40dB(A)	17 dB(A)
	Outdoor Play Areas 55dB(A)	2 dB(A)

Due to the orientation of the outdoor and indoor play areas along with any sleeping areas are located away from the traffic activity and therefore, no further acoustic measures will be necessary to achieve the required indoor acoustic criteria.

Assuming the construction is proposed during normal daytime working hours 7am to 6 pm, the noise criteria are presented in the following table.

Table 5-3 EPA NSW Interim Construction Noise Guidelines Criteria for Site

Receivers	Measured Daytime Background $L_{A90\text{-}period}$	Noise affected level (Criterion) $L_{Aeq\text{-}15min}$	Highly Noise Affected (Criterion) $L_{Aeq\text{-}15min}$
Residential Receivers	46 dB(A)	56 dB(A)	75 dB(A)
School Receivers	Same as above	45 dB(A) (internal)	N/A

5.4 Assessment of Play Areas (Indoor and Outdoor)

5.4.1 Noise Modelling Parameters

Noise levels of children at play were obtained from the AAAC *Guidelines for Childcare Noise Assessment* (v3). The following noise levels were obtained from the document:

- 10 Children aged 1-2 years old at play 78 dB(A) SWL
- 10 Children aged 2-3 years old at play 85 dB(A) SWL.
- 10 Children aged 3-5 years old at play 87 dB(A) SWL.

Along with the dB(A) values specified above, octave band sound power level spectrum data published in the report was used in the modelling.

Furthermore, the AAAC guideline states that where applicable, an adjustment to the sound power levels of – 6 dB could be applied in each age group for children involved in passive play.

Noise calculations of the indoor areas were added to the calculated impact. For indoor play areas, the following $L_{Aeq\text{-}15min}$ spatial average Sound Power Levels were considered based on previous measurements conducted by PKA in similar premises.

- 81 dB(A) for Indoor Play Areas 0-2 years.
- 88 dB(A) for Indoor Play Areas 2-3 years.
- 92 dB(A) for Indoor Play Areas 3-5 years.

Based on the client provided architectural plans and plan of management, the parameters were adopted in the preparation of the SoundPLAN noise model. The module of SoundPLAN uses the ISO 9613-2:1999 Attenuation of Sound During Propagation Outdoors. This standard assumes a moderate downwind from the source to the receptor (between 1m/s and 5m/s measured at a height of 3m to 11m) or a moderate ground-based temperature inversion and therefore presents a conservative result if compared to neutral weather conditions.

Play area heights and building elevations were based on the levels in the provided plans. Source heights were considered to be 1m in height from the adjusted ground heights based on the AAAC document and generally accepted guidelines. Since the sensitive receivers surrounding the premises are all ground floor residential buildings, calculation heights assumed a receiver height of 1.5m (representative of general ground floor window heights).

Based on the provided plans, a 1.8m tall glass balustrade was incorporated into the noise model. It was assumed that a minimum 100mm gap would be present at the base of the balustrade to allow for drainage, and this was accounted for in the modelling.

The carpark and vehicular activity considered in based on the provided traffic management plan. Based on a worst-case scenario of peak movements detailed in the report, and considering the number of proposed car spots, a noise model was prepared using SoundPlan. The model utilized the methodology outlined in the Bayerisches Landesamt für Umwelt's published document titled "Parking Area Noise" (2007), which details how to estimate the sound power level of a car park based on relevant parameters.

5.4.2 Results of Noise Impact Calculations

The results of the noise modelling are presented in the table below. The modelling graphics (Appendix C) show the noise impact to the surroundings including the effects of façade reflection. The following is the summary of noise impact results (of combined indoor and outdoor play activity and the carpark) at residential boundaries including the effects of the acoustic recommendations made in Section 6.0 of this report.

Table 5-4 Sound Pressure Levels at Receiver from Outdoor Play Areas

Description of Receiver	Worst-Case Noise Impact Result from Noise Modelling at Receiver	AAAC Criteria $L_{Aeq-15min}$ (Unrestricted Use of the Outdoor Play Area)	Complies?
Residential Receiver R1 (Ground Floor)	42 dB(A)	Daytime 51 dB(A)	Yes
			Yes
Residential Receiver R2 (Ground Floor)	45 dB(A)	(Project Trigger Level is also 51dB(A))	Yes
			Yes
School Receiver (S1)	<25 dB(A)	35 dB(A) internal – noisiest 1-hour period (Npfl)	Yes

A shown in the above table, the results of the noise modelling indicate that acoustic compliance will be achieved on site. To achieve and maintain this compliance, the recommendations made in Section 6.0 of this report must be implemented and adhered to.

6.0 RECOMMENDATIONS

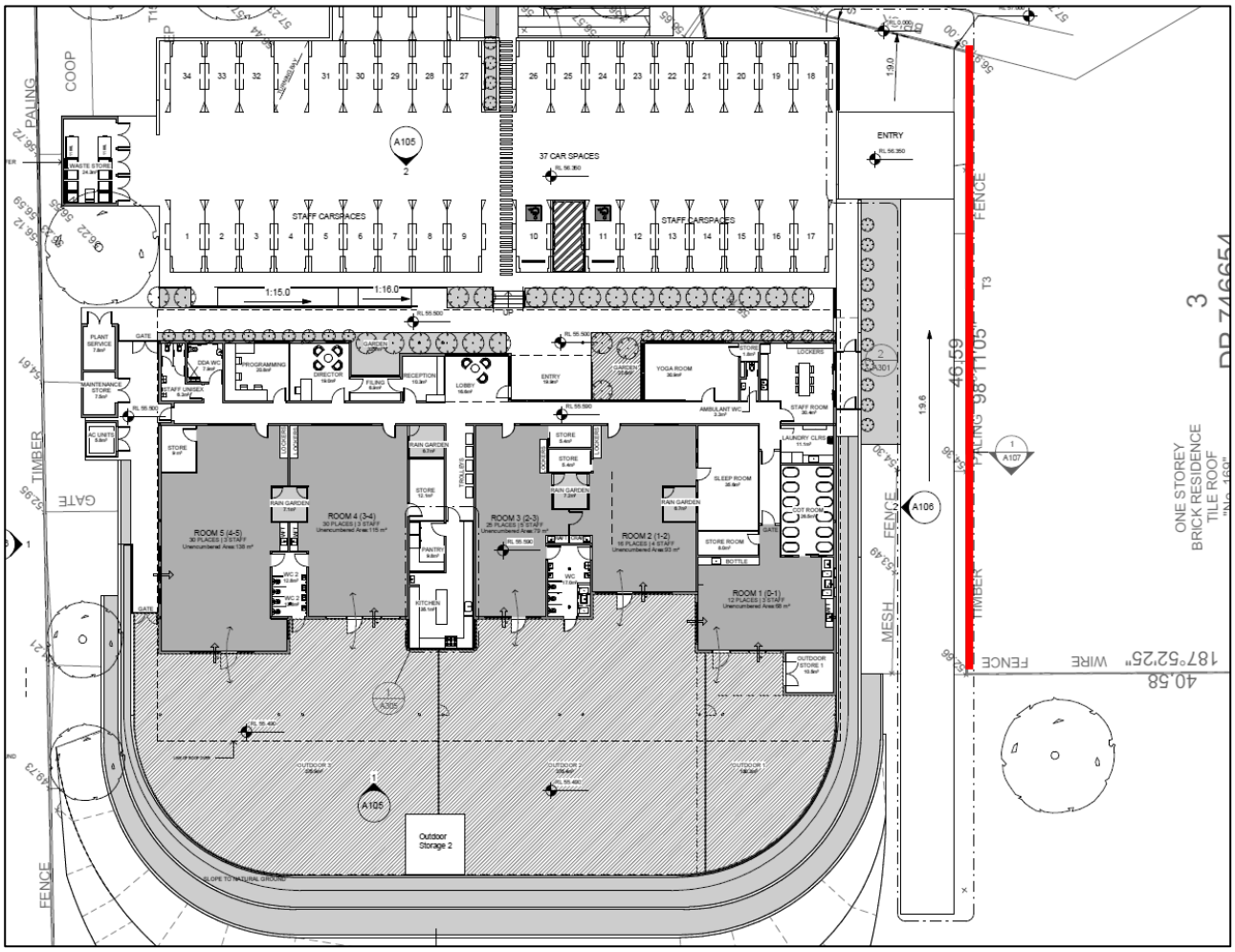
The following recommendations are required to ensure that acoustic compliance is achieved. The recommendations have been based on data provided to PKA for the preparation of this report and assumptions made in the calculations.

1. Boundary Treatment (Section to be viewed in colour)

Acoustic fences either at the boundary or the retaining wall line (indicated by the **red** line) of min. **1.8 m height** must be installed at the boundary as shown in Figure 6-1 below. The acoustic fences must have a minimum acoustic performance of R_w25. Structural requirements must be checked with the relevant authority. The acoustic barrier must be of solid construction (with no air gaps or penetrations including the connections and structural bases) such as:

- Timber fence with double lapped boards of standard 15mm thickness, allowing a continuous thickness of 30mm.
- Polycarbonate Transparent Sheeting (selection must ensure the R_w rating is met).
- Aerated Concrete panels such as Hebel.
- Masonry or Precast concrete panels.
- Any combination of the above.

Figure 6-1 Extent of Recommended Acoustic Barrier



2. Reverberation Treatment

The under-croft sections of the outdoor play area roof must include a coverage of 30% with acoustic absorptive material with a minimum Noise Reduction Co-efficient (NRC) 0.8. The coverage must be equally distributed along the entire roof for an even performance. Weatherproof requirements must be checked with the manufacturer of the material.

3. Car Park Activity

- Signage must be displayed clearly to ensure patrons in the carpark are aware of potential noise generation activity and to conduct their drop-offs quieter during the early morning hours.
- The car park drive in area and parking should be limited to 10 km/hr to keep noise emissions low.

4. Outdoor Plant and Equipment

The selection of any future outdoor mechanical and plant equipment must be checked so that the rated sound power/pressure levels will comply at the boundary of the sensitive residences (existing and proposed) with the EPA NPfI Project Trigger Levels listed in Table 5-1. All selections and location of the proposed mechanical plant must be checked by an acoustic consultant prior to installation to ensure ongoing compliance.

5. Construction Noise & Vibration Goals

If the preparation of a Construction Noise & Vibration Management Plan is required by the certifying authority, the noise criteria established in Sections 4.4, 4.5 and Table 5-3 must be considered.

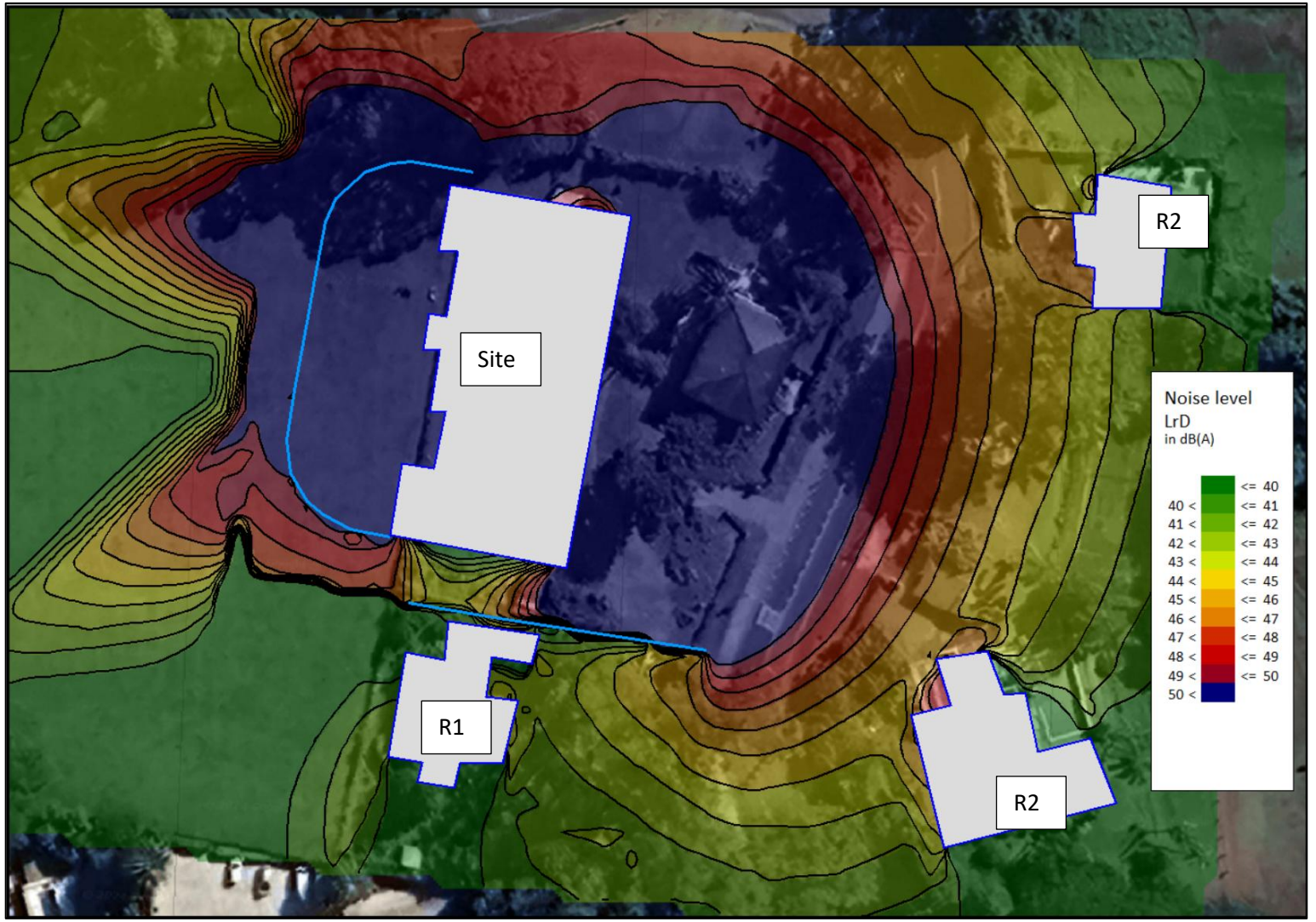
APPENDIX A DRAWINGS USED TO PREPARE REPORT

This report was prepared using architectural drawings provided by Armada Architects for the Proposed Early Learning Centre at 167 Serpentine Road, Terrigal.

No.	Rev.	Title	Date
A100	K	Title + Location	29-07-2025
A101	K	Site Plan	29-07-2025
A102	K	Roof Plan	29-07-2025
A103	K	Ground Floor Level	29-07-2025
A105	K	Elevations 1	29-07-2025
A106	K	Elevations 2	29-07-2025
A107	K	Sections	29-07-2025
A200	I	Demolition Plan	22-04-2025
A302	K	Detailed Boundary Sections	29-07-2025
A303	K	Detailed Boundary Sections	29-07-2025
A304	K	Detailed Fence Plan + Sections	29-07-2025
A304	K	Detailed Fence Plan	29-07-2025

APPENDIX B NOISE MODELLING RESULTS

Results of Noise Impact Modelling from the Use of the Centre (Children activity & Carpark) including the effects of façade reflection including the effects of the recommended acoustic barriers.



APPENDIX C NOISE MEASUREMENTS (GRAPHICAL)

12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

		Background Noise Levels L_{A90} dB							Existing Noise Levels L_{Aeq} dB						
		Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00			Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00		
		Measured	Corrected	Measured	Corrected	Measured	Corrected		Measured	Corrected	Measured	Corrected	Measured	Corrected	Sunday or Public Holiday?
Wednesday	16/10/2024			41.3	41.3	34.1	34.1	Wednesday 16/10/2024			54.0	54.0	50.1	50.1	
Thursday	17/10/2024	45.0	45.0	40.2	40.2	32.8	32.8	Thursday 17/10/2024	55.7	55.7	56.5	56.5	49.0	49.0	
Friday	18/10/2024	46.1	46.1	43.9	43.9	30.6	30.6	Friday 18/10/2024	56.5	56.5	57.2	57.3	47.5	47.5	
Saturday	19/10/2024	46.1	46.1	41.8	41.8	29.5	29.5	Saturday 19/10/2024	55.1	55.1	56.0	56.0	53.7	53.7	
Sunday	20/10/2024	47.2	47.2	44.2	44.2	35.8	35.8	Sunday 20/10/2024	54.6	54.6	55.5	55.5	51.1	51.1	Y
Monday	21/10/2024	49.3	49.3	39.0	39.0	30.5	30.5	Monday 21/10/2024	56.6	56.6	51.7	51.7	48.6	48.6	
Tuesday	22/10/2024	44.3	44.3	39.6	39.6	32.3	32.3	Tuesday 22/10/2024	54.9	54.9	55.2	55.2	49.8	49.8	
Wednesday	23/10/2024	44.3	44.3	40.2	40.2	30.1	30.1	Wednesday 23/10/2024	55.2	55.2	55.8	55.8	49.2	49.2	
Thursday	24/10/2024							Thursday 24/10/2024							
Rating Background Level (RBL)		**46**	**46**	**41**	**41**	**31**	**31**	**Average Noise Level (L_{Aeq})**	**56**	**56**	**56**	**56**	**50**	**50**	

12921 Serpentine Road (167), Terrigal

Project Address: 167 Serpentine Road, Terrigal

Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

Descriptor		Existing Noise Levels dB					Sunday or Public Holiday?
		Leq 15hr 07:00 - 22:00 **Leq** Measured	**Leq 9hr** 22:00 - 07:00 **Leq** Measured	**L10 18hr** 07:00 - 00:00 **L10** Measured	**Day Leq 1hr** 07:00 - 22:00 **Leq 1hr** Measured	**Night Leq 1hr** 22:00 - 07:00 **Leq 1hr** Measured	
Wednesday	16/10/2024		50.1	59.6		56.3	
Thursday	17/10/2024	55.9	49.0	60.2	57.7	56.0	
Friday	18/10/2024	56.7	47.5	61.0	58.3	52.9	
Saturday	19/10/2024	55.3	53.7	59.1	56.7	54.1	
Sunday	20/10/2024	54.7	49.3	58.8	55.8	55.4	Y
Monday	21/10/2024	55.7	48.6	59.7	57.8	55.4	
Tuesday	22/10/2024	55.0	49.8	59.3	56.8	56.7	
Wednesday	23/10/2024	55.4	49.2	59.9	57.0	56.2	
Thursday	24/10/2024			61.4			
Average Noise Level		**56**	**50**	**60**	**57**	**56**	

12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

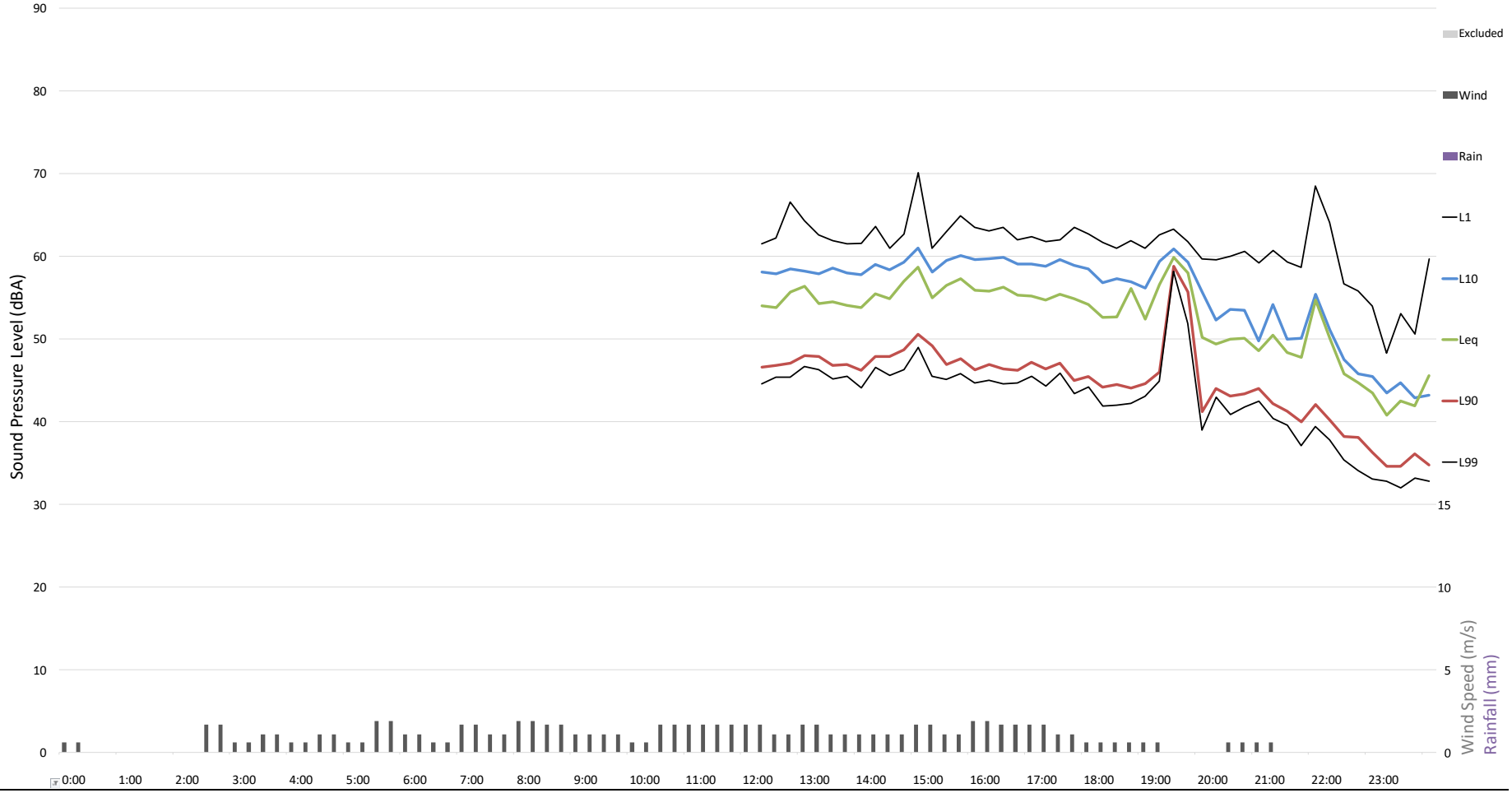
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB			54.0	54.0	50.1	50.1
L_{A90} dB			41.3	41.3	34.1	34.1

16/10/2024 Wednesday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

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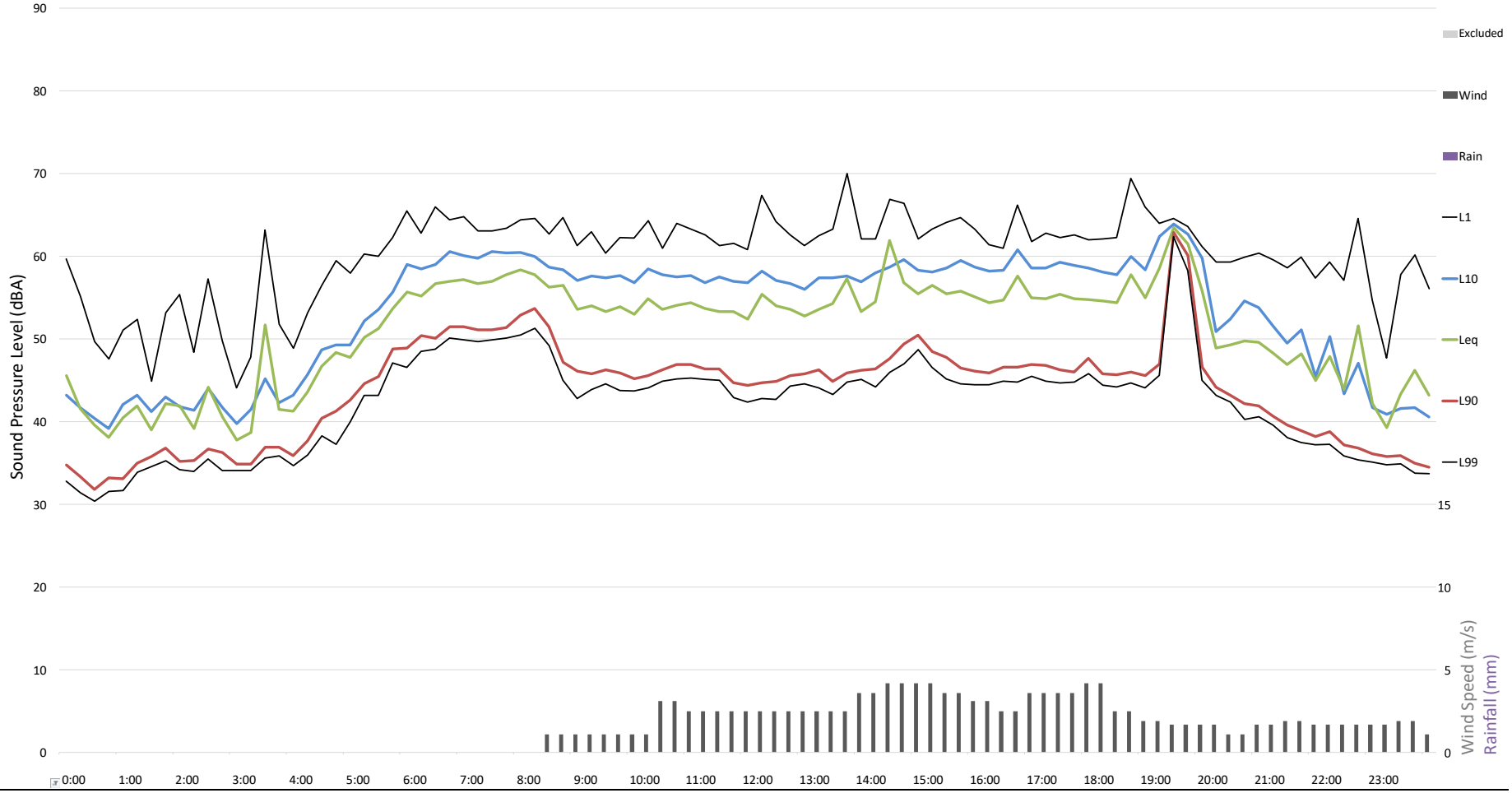
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	55.7	55.7	56.5	56.5	49.0	49.0
L_{A90} dB	45.0	45.0	40.2	40.2	32.8	32.8

17/10/2024 Thursday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

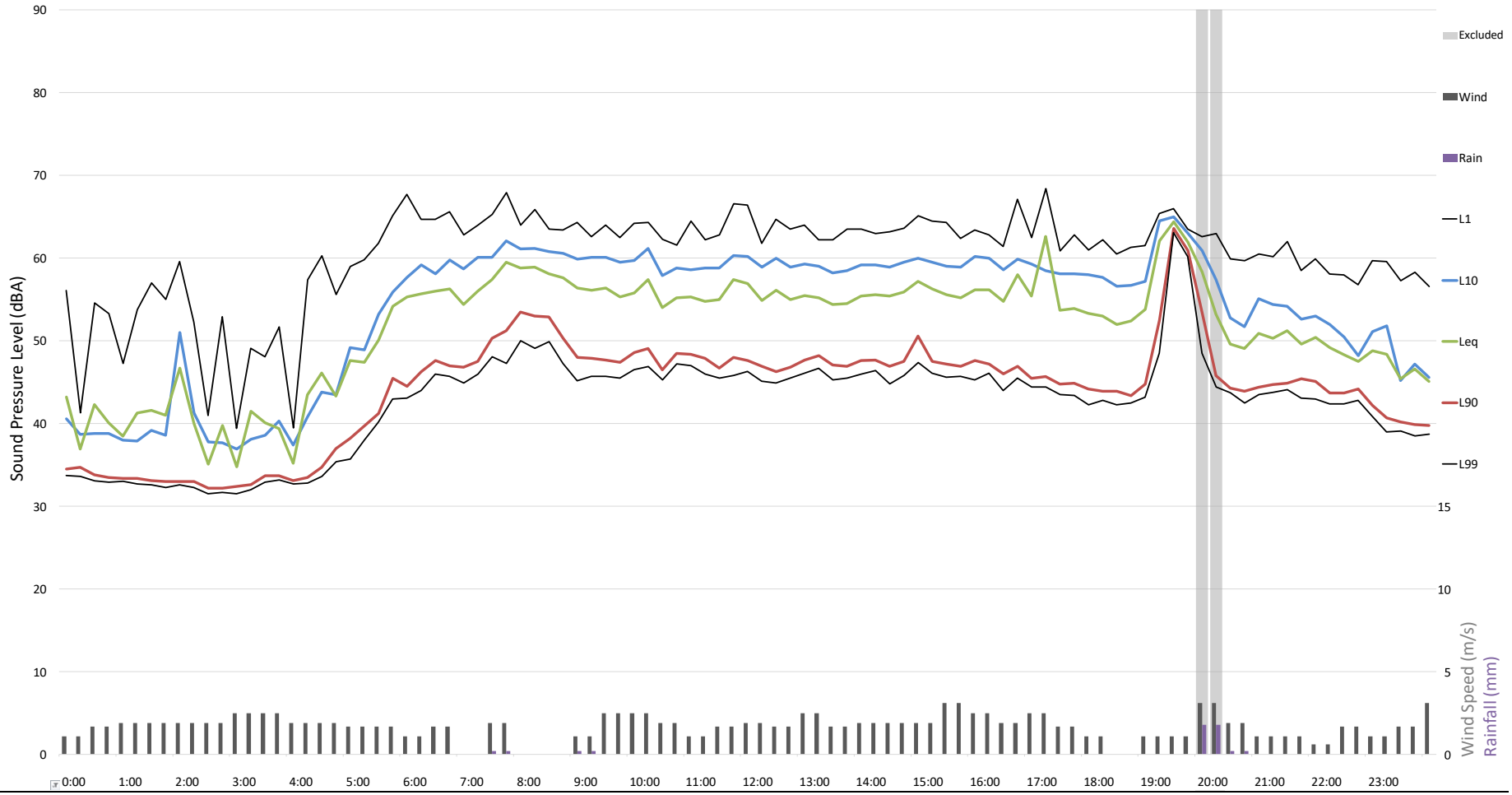
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	56.5	56.5	57.2	57.3	47.5	47.5
L_{A90} dB	46.1	46.1	43.9	43.9	30.6	30.6

18/10/2024 Friday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

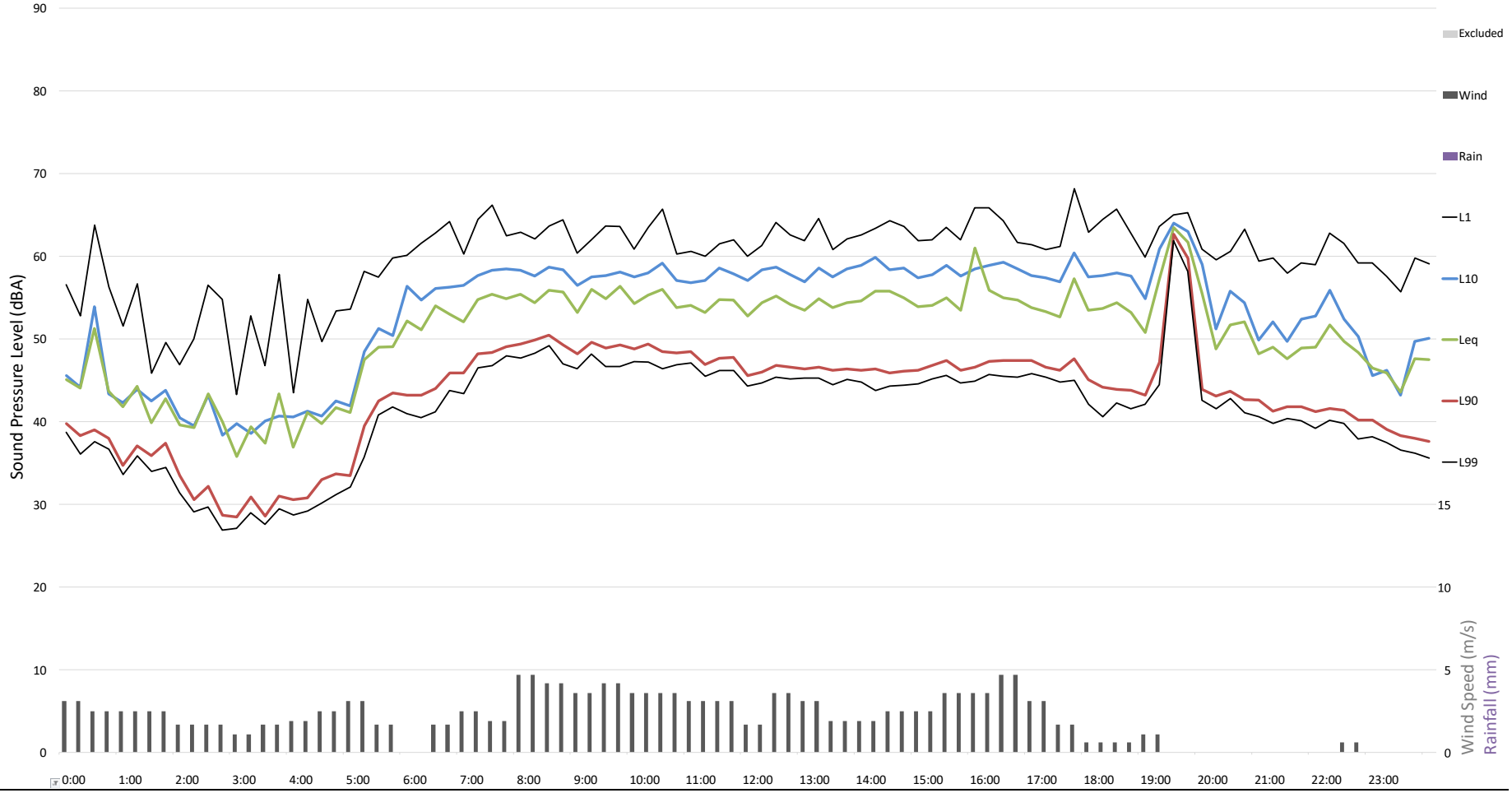
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	55.1	55.1	56.0	56.0	53.7	53.7
L_{A90} dB	46.1	46.1	41.8	41.8	29.5	29.5

19/10/2024 Saturday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

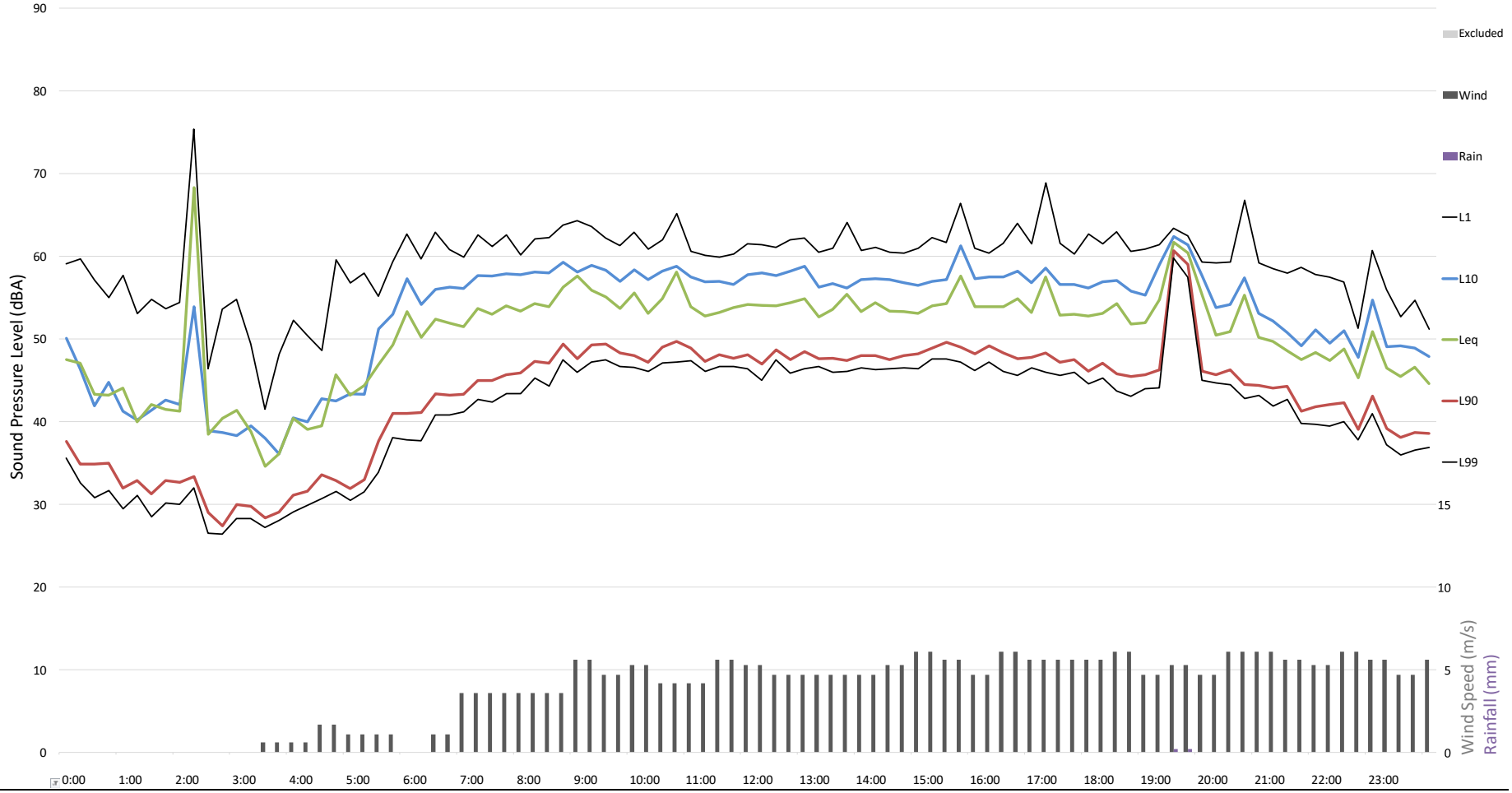
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 08:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 08:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	54.6	54.6	55.5	55.5	51.1	51.1
L_{A90} dB	47.2	47.2	44.2	44.2	35.8	35.8

20/10/2024 Sunday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

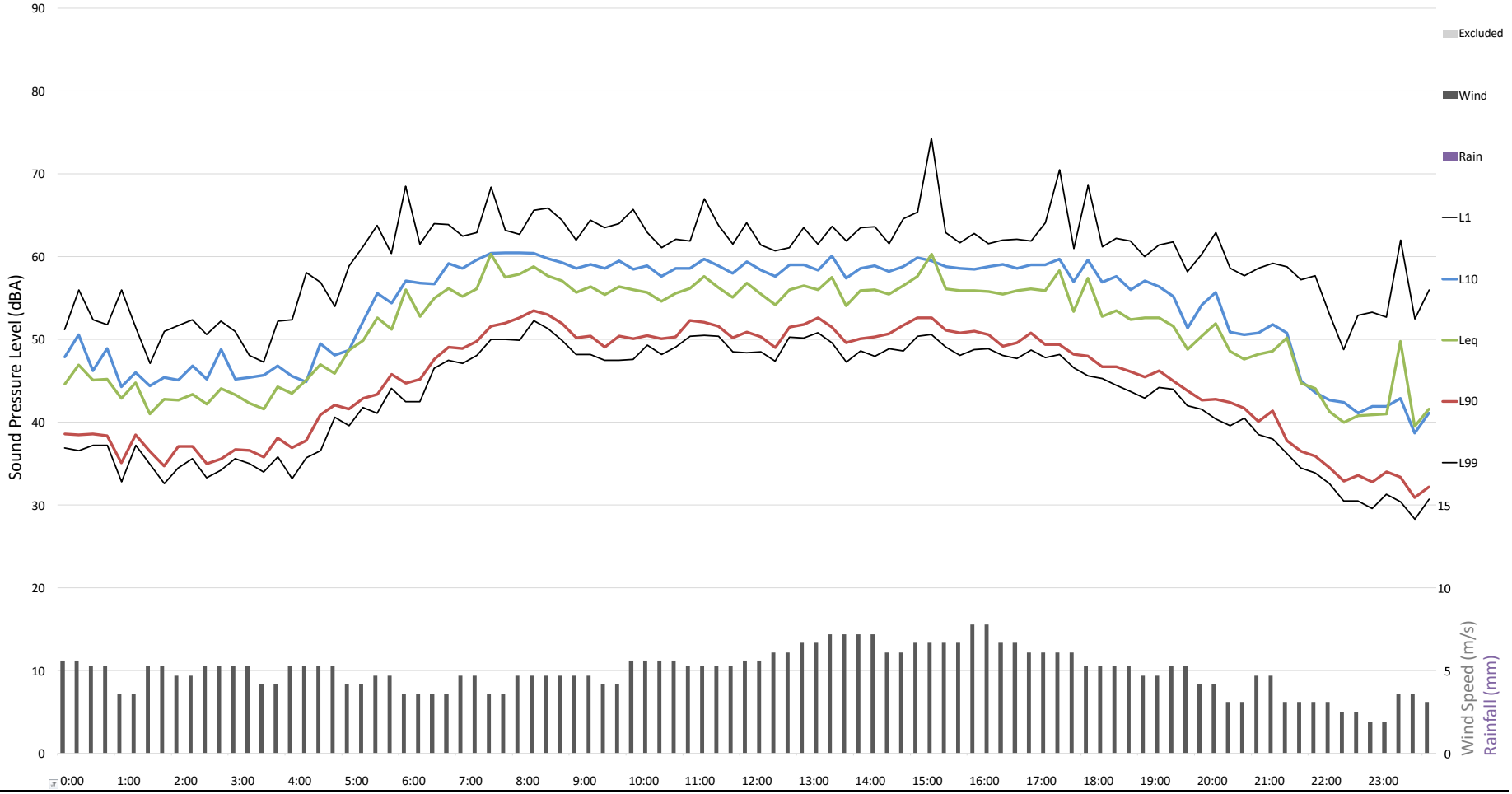
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	56.6	56.6	51.7	51.7	48.6	48.6
L_{A90} dB	49.3	49.3	39.0	39.0	30.5	30.5

21/10/2024 Monday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

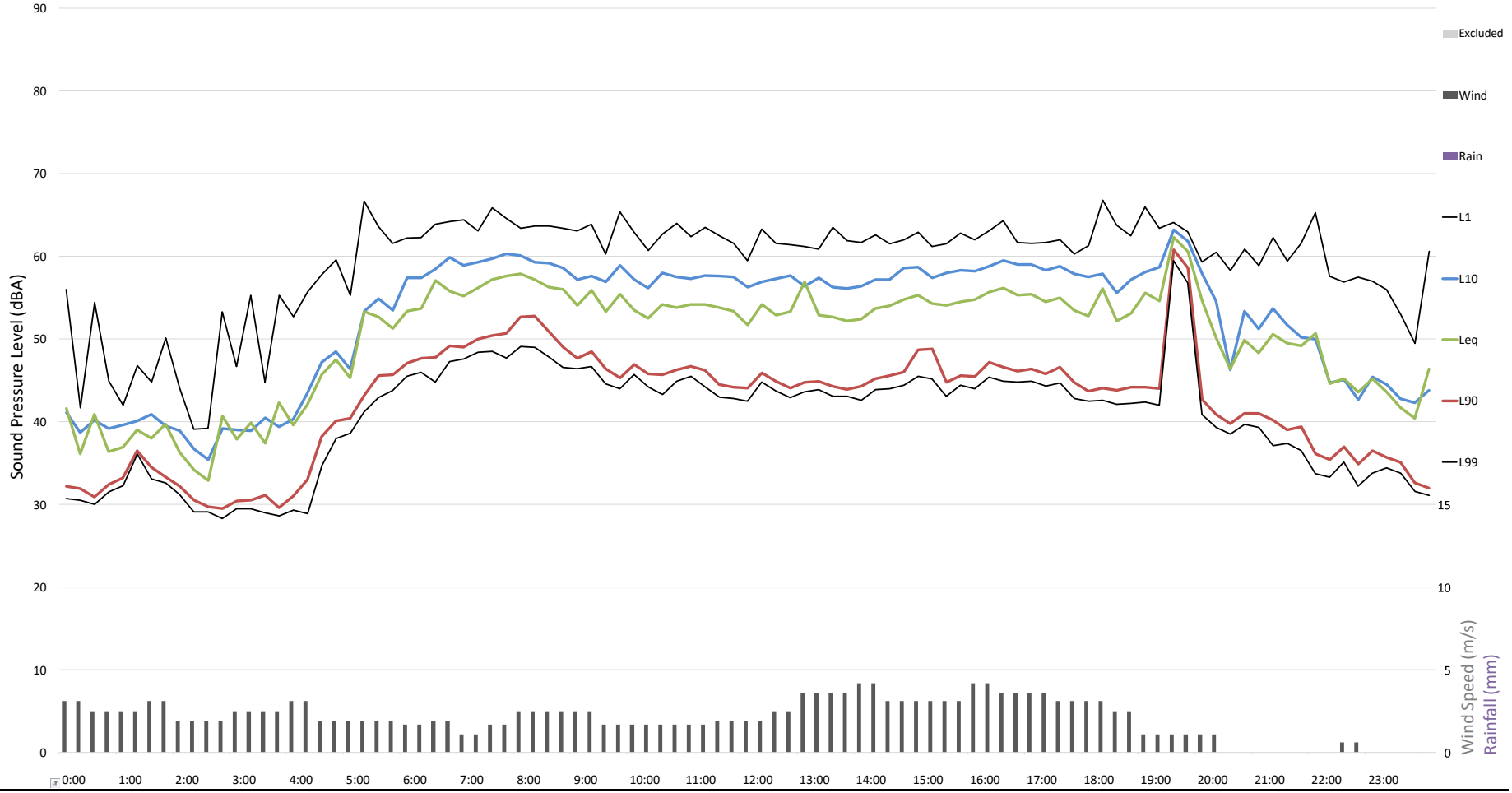
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	54.9	54.9	55.2	55.2	49.8	49.8
L_{A90} dB	44.3	44.3	39.6	39.6	32.3	32.3

22/10/2024 Tuesday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

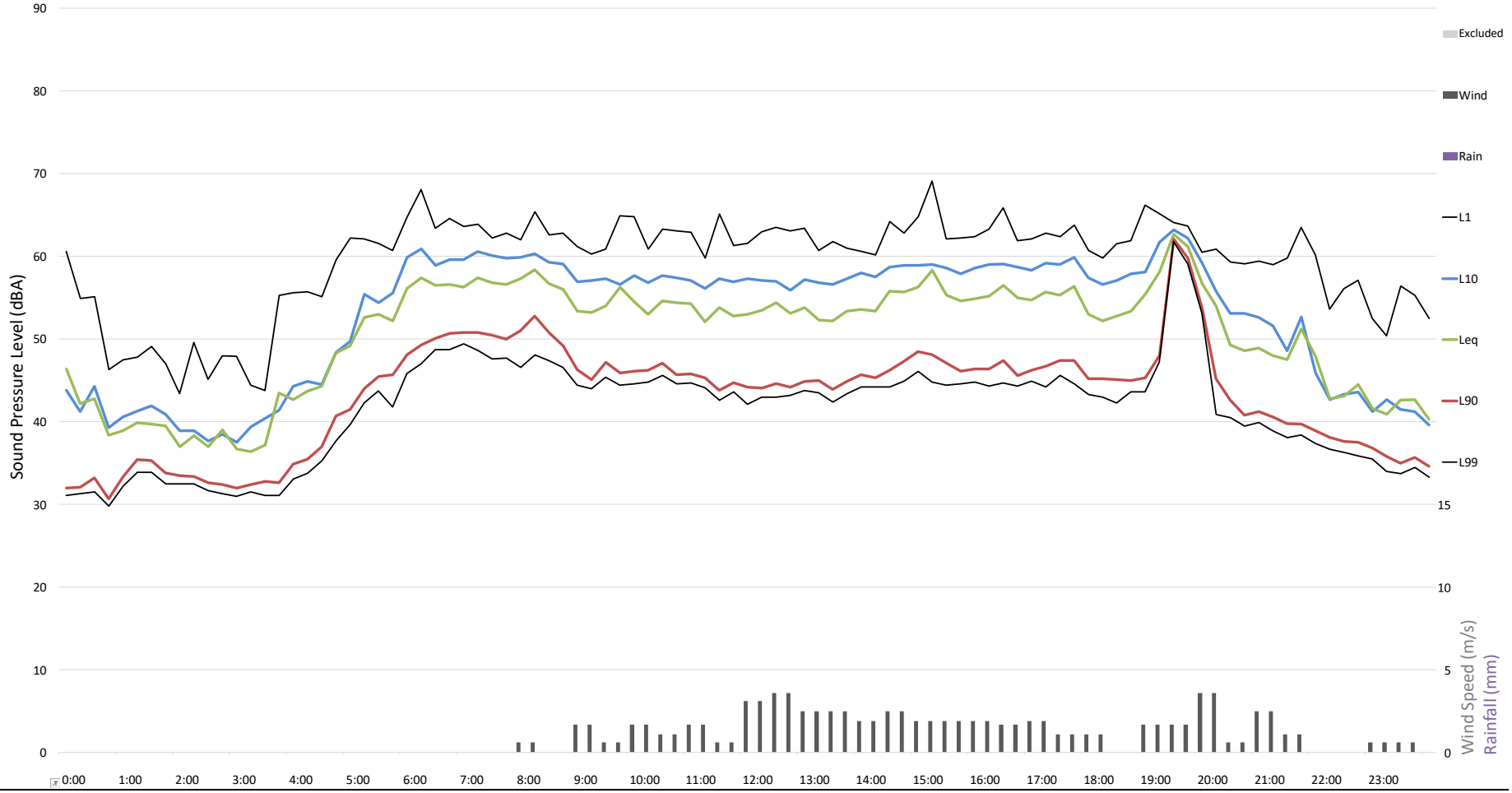
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	55.2	55.2	55.8	55.8	49.2	49.2
L_{A90} dB	44.3	44.3	40.2	40.2	30.1	30.1

23/10/2024 Wednesday

Existing Ambient Noise Levels (dBA)



12921 Serpentine Road (167), Terrigal

PKA Acoustic Consulting

Project Address: 167 Serpentine Road, Terrigal

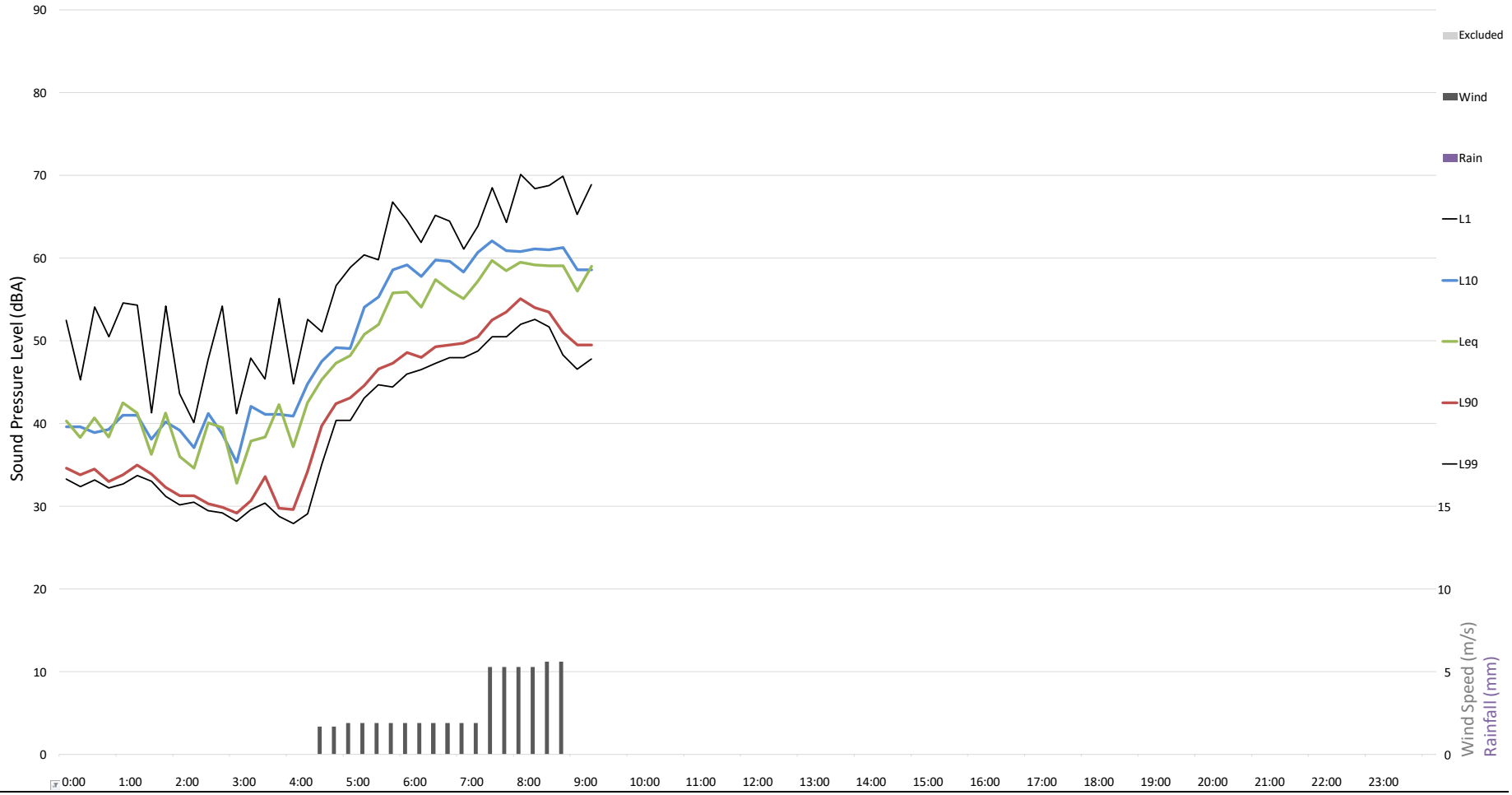
Logger Location: At Exisitng Site Front Setback, Close to Residential Boundary, Measuring Existing Ambient Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB						
L_{A90} dB						

24/10/2024 Thursday

Existing Ambient Noise Levels (dBA)



PO Box 345, Lane Cove 1595

+612 9460 6824 — admin@pka.com.au