

2/4 TARONGA PLACE, MONA VALE

NOISE IMPACT ASSESSMENT - PET CREMATORIUM

REPORT NO. 19179
VERSION A

MAY 2019

PREPARED FOR

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UNIT 6 / 372 EASTERN VALLEY WAY
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DOCUMENT CONTROL

Version	Status	Date	Prepared By	Reviewed By
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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

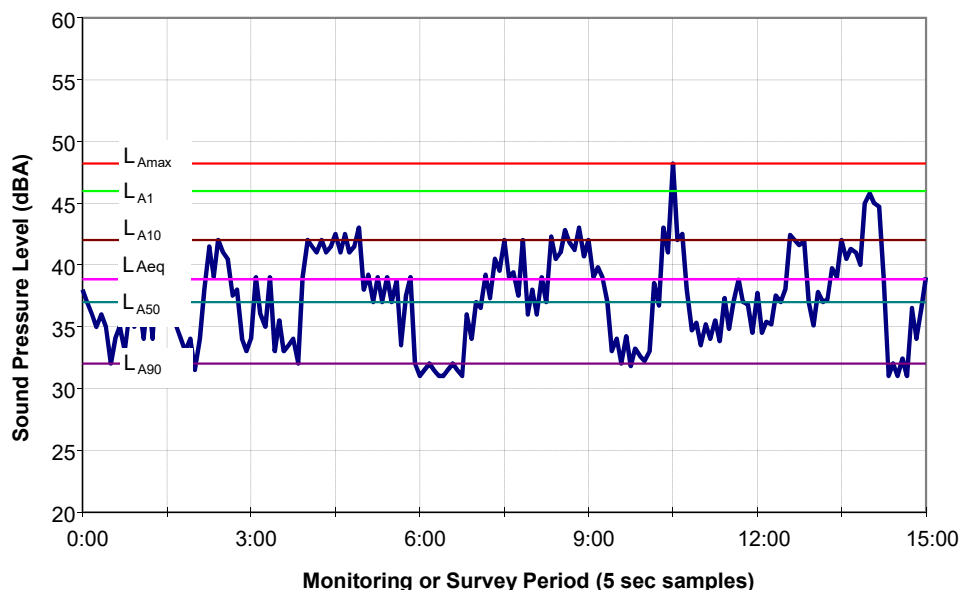
L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Typical Graph of Sound Pressure Level vs Time



1 INTRODUCTION

Wilkinson Murray has been engaged to conduct an assessment of noise emissions from the proposed Petbarn pet crematorium to be constructed at Unit 2, 4 Taronga Place, Mona Vale directly adjacent to their existing operation within Unit 1.

Noise emissions have been assessed against the noise emission guidelines nominated in the local council DCP and the Environmental Protection Authority (EPA) *Noise Policy for Industry* (NPfI).

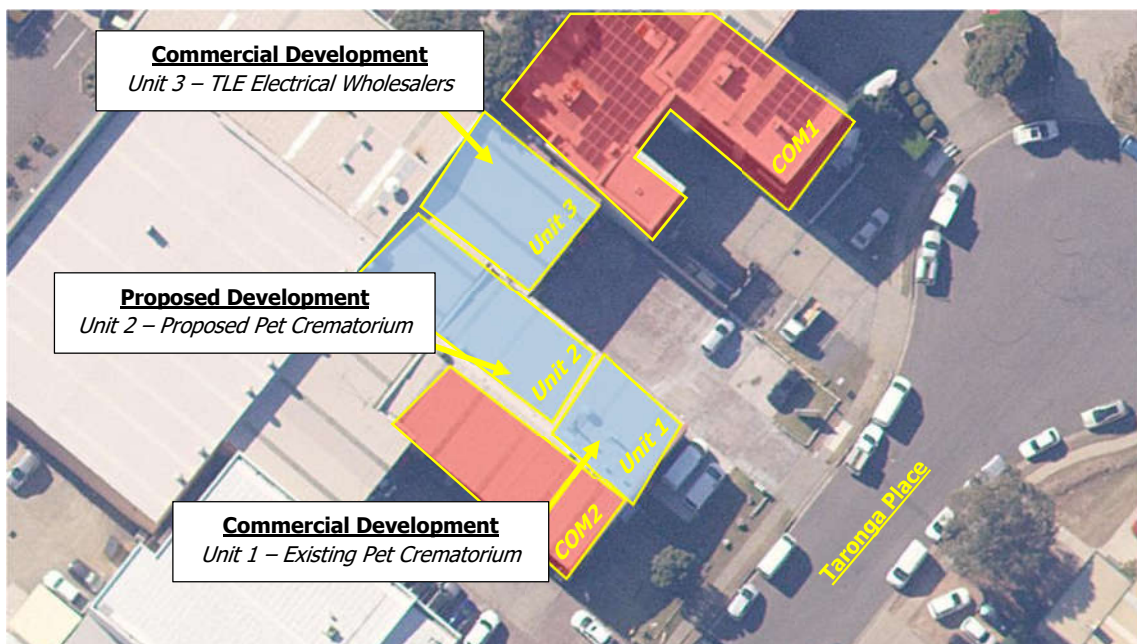
The following acoustic elements have been discussed in this document:

- Measurements of background ambient noise levels at the nearest residential building surrounding the site;
- Establishment of noise emission guidelines for the development;
- Measurement of existing operational noise associated with the use of the existing crematorium operating at Unit 1, 4 Taronga Place;
- Evaluation of noise emissions from the use of the proposed pet crematorium.

The assessment has been conducted with reference to the architectural drawing set provided by Lefler Simes Architects dated 17 May 2019 (project ref: 4678).

The location of proposed crematorium at unit 2, 4 Taronga Place is shown in Figure 1-1 below.

Figure 1-1 – 4 Taronga Place, Mona Vale



2 SITE DESCRIPTION

The proposed pet crematorium is located in unit 2, 4 Taronga Place, Mona Vale. The site is located in the IN2 Light Industrial Zone as indicated in the detailed in the Northern Beaches Council land zoning maps.

We note that all surrounding development directly adjacent to the 4 Taronga Place site are also located within the *Light Industrial Zone* including an existing Petbarn pet crematorium located in unit 1, 4 Taronga Place.

The nearest noise sensitive residential receivers in the vicinity of the site are listed below:

- 77 Darley Street, Mona Vale located approximately 190m south-east (RES1)
- 1 Paul Close, Mona Vale located approximately 260m north-east (RES2);

In addition to the residential receivers, the nearest industrial receiver is located along the northern boundary of the property at 5 Taronga Place (COM1) and an adjoining. A detailed aerial image is shown below in Figure 2-1 indicating the location of the proposed pet crematorium and all surrounding noise sensitive receivers.

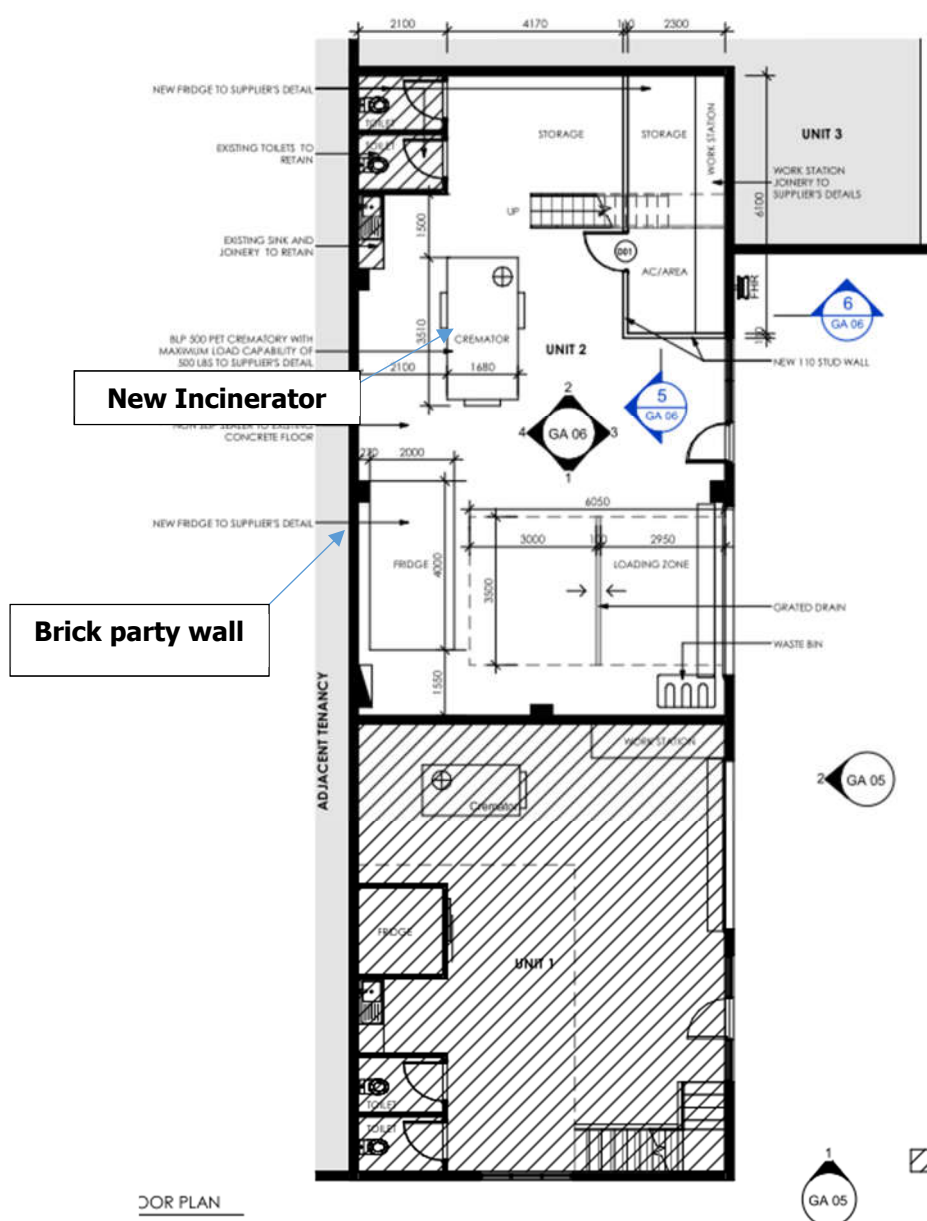
Figure 2-1 - Site Location & Sensitive Receivers



Given the proposed site is located in an existing industrial zone, there are multiple other noise industrial noise sources in the area including the Sydney Busses depot located at 8 Darley Close and the Pittwater Place Shopping Centre carpark located adjacent to the RES1 receiver. It was noted on site that noise at the RES1 location was elevated by noise from these noise sources.

The proposed development involves the fit-out of the unit 2, 4 Taronga Place commercial tenancy to include a single incinerator and associated exhaust plant. The external shell of the building is not to be altered as part of the development. The existing structure is primarily of brick construction with light-weight metal deck roofing. A 110mm brick party wall separates unit 2 from the adjoining industrial tenancy (COM2) to the south as shown in Figure 2-2 below.

Figure 2-2 - Proposed Floor Plan



The crematorium is proposed to operate between 8am and 12 midnight 7 days per week.

The main noise generating plant expected to be operating at the site is primarily associated with the B&L BLP-500 incinerator system as below in Figure 2-3.

Figure 2-3 - BLP-500 Incinerator



As no acoustic data is available for the BLP-500, measurements of operational noise at the existing pet crematorium in the adjacent commercial tenancy were conducted to determine a typical noise level associated with the system, though it would be expected that the modern B&L BLP-500 incinerator system will emit less noise than the existing system in unit 1.

3 EXISTING NOISE ENVIRONMENT

Background noise levels have been measured at the nearest residential receivers to determine the ambient background noise levels in the area. The details of the on-site measurements and recorded noise levels are presented in the following sections.

The details of the environmental and operational noise measurements are presented in the following sections.

3.1 Background Noise Levels

Measurements of the existing environmental noise levels at the boundary of the nearest noise sensitive residential receivers have been conducted to determine the ambient background L_{A90} noise level in the area.

The background noise measurements were conducted in the night-time period between 11.30pm and 12.00am while the existing crematorium was not in operation. No noise from the existing crematorium affected the measurements of background noise levels.

The noise levels were recorded in fair conditions with no meteorological interference and are representative of the background noise level at the location of the nearest noise sensitive residential receivers.

All measurements were conducted using a Brüel & Kjær Type 2250 sound level meter (SLM). This SLM is a type approved system, offering Class 1 performance according to IEC 61672-1:2013 *Electroacoustics – Sound level meters – Part 1: Specifications* and has current calibration with National Association of Testing Authorities, Australia requirements (NATA). It is calibrated in accordance with IEC 61672-3:2013 *Electroacoustics – Sound level meters – Part 3: Periodic tests*. The A-weighting filter of the meter was selected, and the time weighting was set to “Fast”. The field calibration of the meter was checked before and after the measurements with a Brüel & Kjær Type 4231 sound level calibrator (SLC) and no significant drift was noted. This SLC is a Class 1 calibrator according to AS IEC 60942-2004 *Electroacoustics – Sound calibrators* and has been calibrated to the same Standard.

The Brüel & Kjær Type 2250 and Brüel & Kjær Type 4231 hold current laboratory calibrations in accordance with NATA and our in-house Quality Assurance Procedures.

The measured background noise levels which form the basis for the night-time noise emission goals for the development is presented in Table 3-1 below.

Table 3-1 - Measured Background Noise Level

Location	Time	Rating Background Noise
		Level (RBL) L _{A90,15min}
RES1: 77 Darley Street, Mona Vale	11.25pm – 11.40pm	40
RES2: 1 Paul Close, Mona Vale	11.45pm – 12.00am	36

It was noted during the measurement of ambient noise that noise associated with other mechanical plant operating in the area was clearly audible at the boundary of the RES1 building.

4 NOISE EMISSION GUIDELINES

The following documents have been referenced in forming the noise emission guidelines for the development:

- Northern Beaches Council Development Control Plan (DCP)
- EPA Noise Guide for Local Government (NGLG) and Noise Policy for Industry (NPfI)

4.1 Northern Beaches Council DCP

Section D3 of the Northern Beaches Council DCP takes the noise emission criteria from the existing Warringah Council DCP which nominates the following regarding noise emissions from mechanical plant and equipment:

D.3 Noise

- 1) *Noise from combined operation of all mechanical plant and equipment must not generate noise levels that exceed the ambient background noise by more than 5dB(A) when measured in accordance with the NSW Industrial Noise Policy at the receiving boundary of residential and other noise sensitive land uses.*

We note condition D.3 references the NSW Industrial Noise Policy which has been superseded by the NSW Noise Policy for Industry (NPfI) which is discussed below.

4.2 EPA Noise Policy for Industry

The EPA's *NPfI* addresses noise guidelines for emissions from new developments at various receiving land uses. The *NPfI* nominates two criteria for assessment, "Amenity" and "Intrusiveness".

The intrusiveness criteria seek to limit the level of impact that a new noise source creates on an existing environment. The guideline nominates that noise from new noise sources should not exceed the background noise level by more than 5dB as below.

Table 4-1 - EPA NPfI Intrusiveness Noise Levels

Receiver Location	Time of Day ¹	RBL L _{A90} dB	Intrusiveness Criteria L _{Aeq} dB
RES1	Night	40	45
RES2	10pm-7am	36	41

Table 2.2 of the *NPfI*, nominates recommended amenity noise levels (RANL) for various receiver types. The amenity criteria are designed to limit the combined ambient noise level from all industrial noise sources, existing *and* new.

To ensure the noise emission contribution from all industrial noise sources remain within the levels presented in table 2.2 (see Table 4-2 below) a *Project Amenity Noise Level* (PANL) applies

for each new source of industrial noise by subtracting 10dBA from the emission levels shown below.

Table 4-2 - Recommended Amenity Noise Levels (RANL)

Receiver Type	Noise Amenity Area	Time of Day ¹	L _{Aeq} dB
Residential	Suburban	Day	55
		Evening	45
		Night	40
Industrial	All	When in Use	70

Note: 1. Daytime 7.00am-6.00pm, Evening 6.00pm-10.00pm, Night 10.00pm-7.00am.

To standardise the noise emission levels to account for the effect of short-term noise events that may skew the noise levels measured over a 15-minute period, the NPfI nominates that an additional 3dBA must be added to the amenity L_{Aeq, period} noise levels listed above.

In summary, after applying all changes to noise emission levels discussed above the PANL should be calculated as below:

$$PANL = RANL - 5dBA + 3dBA$$

Therefore, the project amenity noise levels applicable at the residential receivers surrounding the site is as below.

Table 4-3 - Project Amenity Noise Level (PANL)

Receiver Type	Noise Amenity Area	Time of Day ¹	PANL L _{Aeq} dB
Residential	Suburban	Day	48 ²
		Evening	43
		Night	38

Note: 1. Daytime 7.00am-6.00pm, Evening 6.00pm-10.00pm, Night 10.00pm-7.00am.

Note: 2. PANL = RANL - 10dBA + 3dBA for day period given number of industrial noise sources operating in the day between the development and noise sensitive receivers.

The project amenity noise levels listed above should be utilised when assessing noise emissions from the site.

If compliant noise levels from the operation of the crematorium can be demonstrated in the night-time period, then compliance will be achieved at all times through the day.

5 ASSESSMENT OF NOISE EMISSIONS

5.1 Existing Crematorium Operational Noise

Noise levels generated by the use of the existing crematorium at unit 1, 4 Taronga Place have been recorded at the site. Noise measurements were recorded at the crematorium while operating under normal conditions with all noise generating plant in operation.

Internal noise recorded within the commercial tenancy was primarily driven by the incinerator and associated exhaust plant.

The operational noise levels recorded at the site are as below:

Table 5-1 - Operational Noise Levels - Pet Crematorium

Plant Items	Location	Measured L _{Aeq,15min}
Incinerator and Associated Plant	Internal Reverberant SPL	73dB
	Rooftop Exhaust @ 6m from exhaust outlet	59dB

The noise levels recorded within the existing crematorium have been used to assess noise emissions from the proposed crematorium, though it is expected that the more modern equipment shown in Figure 2-3 will be significantly quieter than the existing plant operating in unit 1.

5.2 Calculation of Operational Noise

The internal operational noise levels measured on site (see Table 5-1) have been used to calculate noise emissions to the nearest residential and commercial receivers from the use of the new Petbarn crematorium.

Given the distance to the nearest residential receivers is in excess of 150m and there are multiple buildings separating the residential receivers from the pet crematorium, noise levels have been predicted based on a conservative allowance of 15dB in relation to shielding from surrounding buildings.

Calculations have been made based on all plant and equipment required to operate the incinerator are operating at the site in the night-time period up to 12-midnight with plant sound levels as measured on site.

The calculated noise level at the nearest residential receiver and at the nearest commercial boundary are shown in Table 5-2 below.

Table 5-2 - Calculated Noise Emissions from Pet Crematorium – Night Period

Location	Noise Emission Goal (Night Period) L_{Aeq} (15 min)	Calculated Noise Level at Receiver L_{Aeq} (15 min)	Comment
RES1: 77 Darley Street	38	16	Complies with noise emission goals at RES1
RES2: 1 Paul Close	38	14	Complies with noise emission goals at RES2
COM1: 5 Taronga Place	70	56	Complies with noise emission goals at COM1

The results of predicted noise emissions to the nearest receivers indicates compliance with the noise emission goals for the project. Noise from the development is expected to be acceptable and will have no adverse impact at the surrounding receivers.

In addition to noise to the surrounding residential and commercial receivers, an assessment of noise through the common wall separating the proposed crematorium and the adjoining commercial development to the south has been conducted.

Assuming an internal sound pressure level as presented in Table 5-1 within the proposed pet crematorium, noise levels passing through the 110mm brick wall will result in an internal noise level of 41dB which is acceptable for noise within an industrial tenancy.

6 CONCLUSION

An assessment of operational noise emissions from the proposed Petbarn pet crematorium at Unit 2 within the 4 Taronga Place industrial site has been conducted.

Industrial noise has been assessed in accordance with local council guidelines and the NSW EPA *Noise Policy for Industry (NPfI)* as presented in section 4.

The predicted noise levels indicate compliance with the criteria at the location of the nearest noise sensitive residential receiver and the nearest commercial receiver adjacent to the site for operational noise emissions in the night-time period. The calculated noise emissions are presented in section 5.

Noise from the use of the crematorium is not expected to have any impacts at the nearest noise sensitive receivers surrounding the development at any time while in operation.