



Acoustic Assessment Self Service Dog Wash 1 Palm Road Newport

Client:
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Attention: Mr Ben Brown

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GLOSSARY

NOISE

Noise is produced through rapid variations in air pressure at audible frequencies (20 Hz – 20 kHz). Most noise sources vary with time. The measurement of a variable noise source requires the ability to describe the sound over a particular duration of time. A series of industry standard statistical descriptors have been developed to describe variable noise, as outlined in Section 2 below.

NOISE DESCRIPTORS

L_{eq} – The sound pressure level averaged over the measurement period. It can be considered as the equivalent continuous steady-state sound pressure level, which would have the same total acoustic energy as the real fluctuating noise over the same time period.

dB – Decibels. The fundamental unit of sound, a Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell. Probably the most common usage of the Decibel in reference to sound loudness is dB sound pressure level (SPL), referenced to the nominal threshold of human hearing. For sound in air and other gases, dB(SPL) is relative to 20 micropascals (μPa) = 2×10^{-5} Pa, the quietest sound a human can hear.

A-WEIGHTING

"A-weighting" refers to a prescribed amplitude versus frequency curve used to "weight" noise measurements in order to represent the frequency response of the human ear. Simply, the human ear is less sensitive to noise at some frequencies and more sensitive to noise at other frequencies. The A-weighting is a method to present a measurement or calculation result with a number representing how humans subjectively hear different frequencies at different levels.

1 INTRODUCTION

1.1 SUMMARY

Acoustic Dynamics is engaged by BBF Town Planners on behalf of Sydney Animal Hospital Northern Beaches to assess noise emission resulting from the operation of mechanical plant and associated noise emission from a self serve dog wash located adjacent to the eastern side boundary at 1 Palm Road, Newport, NSW.

This document provides the results of a site visit, noise measurements and an assessment of the noise emission level resulting from the operation of the Dog Wash at the potentially most affected residential receivers of 3 Palm Road, Newport, NSW.

This document is prepared in accordance with the various acoustic assessment requirements of Pittwater Council and the NSW Environment Protection Authority (EPA) and provides an assessment of noise emission at the subject site.

1.2 LOCATION AND BACKGROUND INFORMATION

The subject self serve dog wash is located between the existing veterinary clinic building and brick fence on the eastern boundary and is approximately 20 metres from the car park entrance (northern boundary) of the site.

Acoustic Dynamics understands that complaints from the resident at 3 Palm Road, directly next to the veterinary clinic, have been received regarding the operation of the self serve dog wash and associated noise emission. Acoustic Dynamics also understands that these complaints have since been reported to Pittwater Council.

The location of the subject self serve dog wash and attended measurement locations are shown in the Location Map and Aerial Photo presented within **Appendix A**.

1.3 SCOPE

Acoustic Dynamics has been engaged to provide a noise emission assessment from the self serve dog wash and associated noise emissions at nearby sensitive receiver locations.

The scope of the assessment is to include the following:

- Review of legislation and Council criteria relevant to the external mechanical noise and associated noise emission with the self serve dog wash;
- Travel to site to conduct inspections and testing;
- Conduct noise measurement to establish background noise levels at the subject site; and
- Measurement and calculation of noise emission from the self serve dog wash and associated noise to determine the external noise emission at nearby receiver locations.

2 ASSESSMENT CRITERIA AND STANDARDS

Acoustic Dynamics has conducted a review of the local council, state government and national legislation that is applicable to noise assessment at the subject site. The relevant sections of the legislation are presented below. The most stringent criteria which have been used in the assessment of noise emission from the adjacent commercial premises are summarised below.

2.1 PITTWATER COUNCIL CRITERIA

2.1.1 LOCAL ENVIRONMENT PLAN

A review of Pittwater Council Local Environment Plan (LEP) 2014 was conducted. No relevant acoustic requirements and relevant noise criteria were presented within the LEP.

2.1.2 DEVELOPMENT CONTROL PLANS

A review of Pittwater Council Development Control Plan (DCP) 2003 (incorporating amendments 1 – 19 in effect from 14 November 2015) was conducted. The following requirements relate to noise emission.

“C2 DESIGN CRITERIA FOR BUSINESS DEVELOPMENT

C2.10 Pollution Control

Controls

All developments must be designed, constructed, maintained, and operated in a proper and efficient manner to prevent air, water, noise or land pollution.

Development and business operation must comply with the Protection of the Environment Operations Act 1997, and any relevant legislation.

Compliance with the NSW Environment Protection Authority Industrial Noise Policy (January 2000).”

2.2 NSW EPA'S PROTECTION OF THE ENVIRONMENT OPERATIONS ACT

2.2.1 THE EPA'S POEO 1997

In addition to the above, Acoustic Dynamics advises that commercial noise emission within Pittwater Local Government Area must not generate “offensive noise”, as defined within the Protection of the Environment Operations (POEO) Act 1997. Within the POEO Act 1997, “offensive noise” is defined as follows:

““offensive noise” means noise:

(a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:

(i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted,
or

(b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.”

Council can enforce the above planning controls under the Environmental Planning and Assessment Act of 1979.

2.3 NSW EPA'S ENVIRONMENTAL NOISE CRITERIA

2.3.1 THE EPA'S INDUSTRIAL NOISE POLICY

The EPA, in its Industrial Noise Policy (INP) document published in January 2000, outlines and establishes noise criteria for industrial or other noise sources in various zoning areas.

To establish the current acoustic environment at the subject site in accordance with the guidelines of the NSW EPA's INP, operator-attended noise measurements were undertaken at the subject site on Saturday 30 April 2016 between the hours of 10am and 12pm.

Following the general procedures outlined in the EPA's INP, a summary of the measured noise levels and environmental noise criteria is presented in **Table 2.1**.

Table 2.1 – Summary of Noise Criteria and Measured Noise Levels (15 minute)

Location	Time of Day	L _{Aeq} Acceptable Noise Level (ANL) [dB]	L _{A90} Rating Background Noise Level (RBL) [dB]	Measured L _{Aeq} [dB]	Intrusive L _{Aeq} Noise Criterion [dB]
Nearest residential receivers	Daytime (7am to 6pm) ¹	60	52 ²	60 ²	57
	Evening (6pm to 10pm)	50	46	62	51

Note: 1) 8am to 6pm on Sundays and public holidays.

2) Measurements taken on 30 April 2016. All other criteria and noise levels have been taken from the Acoustic Dynamics report (No. 2511L003.RH.081024).

The EPA's INP specifies additional noise emission level corrections that should be applied when a noise source is determined to include “modifying factors” that can vary the perceived intrusiveness of a noise source. Such modifying factors include tonal, low frequency, impulsive, or intermittent noise.

Acoustic Dynamics advises that the noise emission from the nearby mechanical plant associated with the self serve dog wash would be considered “intermittent” and would

therefore require a penalty of 5 dB during night-time operation, yet the hours of operation are during the daytime and evening period only and therefore do not apply.

2.4 INSTRUMENTATION & MEASUREMENT STANDARDS

All noise measurements are conducted in accordance with Australian Standard 1055.1-1997, "Acoustics - Description and Measurement of Environmental Noise Part 1: General Procedures". Acoustic Dynamics' sound measurements are conducted using precision sound level meters conforming to the requirements of IEC 61672-2002 "Electroacoustics: Sound Level Meters – Part 1: Specifications". The reference sound pressure level was checked prior to and after the measurements using the acoustic calibrator and remained within acceptable limits.

3 SITE SURVEY AND MEASUREMENTS

3.1 BACKGROUND NOISE LEVEL

Short term operator-attended background noise measurements were conducted between 10am and 12pm on Saturday 30 April 2016 and at the northern boundary of the nearest residential receiver located at 3 Palm Road, Newport.

Based on measurements from the "Operational Noise Emission Assessment" report by Acoustic Dynamics, report no. 2511L003.RH.081024, dated 29 October 2008, short term operator-attended daytime measurements and associated relevant calculations, **Table 3.1** summarises the measured ambient background noise level and the relevant noise criteria generally used in these applications (being $L_{A90} + 5$ dB).

Table 3.1 – Summary of Measured Background Noise Levels and Relevant Noise Criteria

Location	Time of Day	$L_{A90,15\text{minute}}$ Background Noise Level [dB]	L_{Aeq} Noise Emission Criterion [dB]
3 Palm Rd Newport	Daytime (7am to 6pm)	52	57
	Evening (6pm to 9pm)	46	51

The prevailing weather conditions during the operator-attended noise measurements were calm and did not influence the noise measurements taken.

Acoustic Dynamics has been advised by the proponent that the hours of operation for the self serve dog wash are the same as the Veterinary Clinic, which are 7 days a week, 7:00am to 9:00pm.

3.2 OPERATIONAL NOISE LEVEL MEASUREMENTS

Noise intrusion measurements were undertaken at the eastern boundary of 1 Palm Road, Newport between 10:00am and 12:00pm on Saturday 30 April 2016.

The weather conditions during the noise measurement surveys were calm, and did not affect the results. To quantify the maximum likely noise emissions during the evening period, the measurements were taken when the self serve dog wash was fully operational with associated noise emissions, including patron and dog sounds, considered to be typical. Acoustic Dynamics advises that throughout the measurement there were intermittent periods of inactivity from individual noise emissions (dog bark, dryer on/off, patrons talking etc), resulting in a varying noise level.

The relevant environmental noise emission criteria, in accordance with the NSW Environment Protection Authority (EPA) have been established and predicted based on the attended day-time background noise measurements conducted and relevant data from the aforementioned Acoustic Dynamics report.

Acoustic Dynamics advises that the noise emission levels presented below are conservatively based on maximum capacity operations (i.e. worst case scenario, self serve dog wash in continuous use over each 15 minute period) at the subject site. Acoustic Dynamics advises that such a scenario is unlikely to occur for the majority of the time.

Acoustic Dynamics presents a summary of our attended measurements in **Table 3.3** below.

Table 3.3 – Summary of Noise Emission Levels (15 minute)

Receiver location	Measurement and location	Time of Measurement	Type of noise emission	Measured $L_{Aeq(15min)}$ [dB]
Western boundary of resident (3 Palm Road)	Loc 1 Meas't 1	10:35	Dog Wash Operating - Water wash ON - Dryer hose ON - Dog shaking/moving - Patrons talking loudly - Traffic from Barrenjoey Rd (constant) - General residential bird talk	64
	Loc 1 Meas't 3	10:43	Dog Wash Operating - Water wash ON - Dryer hose ON - Dog moving/barks - Patrons talking loudly - Traffic from Barrenjoey Rd (constant) - General residential bird talk	65
	Loc 1 Meas't 5	10:48	Dog Wash NOT Operating - Water wash OFF - Dryer hose OFF - No dog moving/barks - No patrons talking loudly - Traffic from Barrenjoey Rd (constant) - General residential bird talk	61
1m inside western boundary of resident (3 Palm Road)	Loc 2 Meas't 2	10:37	Dog Wash Operating - Water wash ON - Dryer hose ON - Dog shaking/moving - Patrons talking loudly - Traffic from Barrenjoey Rd (constant) - General residential bird talk	62
	Loc 2 Meas't 4	10:45	Dog Wash Operating - Water wash ON - Dryer hose ON - Dog moving/barks - Patrons talking loudly - Traffic from Barrenjoey Rd (constant) - General residential bird talk	61
	Loc 2 Meas't 6	11:52	Dog Wash NOT Operating - Water wash OFF - Dryer hose OFF - No dog moving/barks - No patrons talking loudly - Traffic from Barrenjoey Rd (constant) - General residential bird talk	58

4 NOISE EMISSION ASSESSMENT

The following section provides an assessment of the acoustic impact of maximum operational noise emission associated with the use and operation of the self serve dog wash at nearby residential receivers, against the various criteria and objectives outlined in section 3 above.

Based on the drawings and information provided by the proponent, Acoustic Dynamics has undertaken noise modelling and calculations to determine the maximum predicted contributed noise emission levels at the nearest receiver locations, resulting from the following activities associated with the self serve dog wash operations:

- Water wash bay with hose;
- Dryer hose;
- Dog moving/barking; and
- Patrons talking loudly.

Acoustic Dynamics has undertaken noise modelling and calculations based on the following, conservatively high, assumptions for the likely maximum operations of the self serve dog wash, within a 15 minute period during daytime and evening hours:

- Two (2) patrons per dog arriving to and leaving from the dog wash;
- A complete dog washing cycle of 3 minutes per dog; and
- A maximum of five (5) dogs being washed in any 15 minute period.

The calculated maximum noise emission levels at the nearest residential receiver location (directly adjacent a 3 Palm Road to the east), resulting from the operation of the self serve dog wash, are presented against the relevant criteria in **Table 3.4**.

Table 4.1 – Measured Maximum External Mechanical Noise Emission & Relevant Criteria (No Mitigation)

Receiver Location	Source	Measured Contributed Noise Level $L_{Aeq(15\text{ min})}$	Time Period	Intrusive Criterion L_{Aeq}	Complies with Applicable Criterion?
3 Palm Rd Newport boundary (2m from source)	Self serve dog wash and associated noise	64	Day	57	No
		64	Evening	51	No
3 Palm Rd Newport (1m inside boundary, 3m from source)	Self serve dog wash and associated noise	62	Day	57	No
		62	Evening	51	No

Acoustic Dynamics advises that the above calculated noise emission levels are conservatively based on the maximum source noise levels and maximum capacity operations (i.e. worst case scenario) at the subject site.

The predicted airborne noise emission levels presented above include allowances for relevant distance, direction and shielding losses, however the calculated noise emission levels do not account for the acoustic benefit provided by the recommendation detailed within section 7 below.

The calculated maximum noise emission levels at the nearest residential receiver location (directly adjacent at 3 Palm Road), resulting from the operation of the self serve dog wash, following the incorporation of the recommendation contained within section 7 are presented against the relevant noise emission criteria in **Table 4.2**.

Table 4.2 – Measured Maximum External Mechanical Noise Emission & Relevant Criteria (with Mitigation)

Receiver Location	Source	Measured Contributed Noise Level $L_{Aeq(15\text{ min})}$	Time Period	Intrusive Criterion L_{Aeq}	Complies with Applicable Criterion?
3 Palm Rd Newport boundary (2m from source)	Self serve dog wash and associated noise	55	Day	57	Yes
		55	Evening	51	No ¹
3 Palm Rd Newport (1m inside boundary, 3m from source)	Self serve dog wash and associated noise	50	Day	57	Yes
		50	Evening	51	Yes

Note: 1) To ensure acoustic compliance is achieved, Acoustic Dynamics recommends limiting the hours of operation to daytime hours only (see recommendations below).

Further to the predicted noise emission levels presented within **Table 4.2** above, Acoustic Dynamics advises that the use and operation of the subject self serve dog wash after following the incorporation of the recommendations contained within section 7 of this report, will achieve compliance with the relevant noise emission criteria, and is unlikely to cause adverse impact to the acoustic amenity of nearby residential receivers.

5 RECOMMENDATIONS

Further to the noise prediction calculation results presented within **Table 4.1** above, Acoustic Dynamics advised that noise mitigation and management measures are required to be incorporated into the subject self serve dog wash to ensure noise emission compliance is achieved.

1. Operating Hours

The proposed car wash should operate during daytime hours only, as follows:

- 7:00am to 6:00pm Monday to Saturday; and
- 8:00am to 6:00pm on Sundays and public holidays.

2. Proposed Dog Wash Shelter

Sydney Animal Hospitals are proposing to create a semi-enclosed shelter over the existing dog wash machine, between the existing store rooms on either side. The preliminary drawing (SK. 01, dated 18 April 2016) shows a metal sheet roof capped with 'acoustic insulation' on the underside.

6 CONCLUSION

Acoustic Dynamics has conducted an acoustic assessment of noise emission associated with the operation of a self serve dog wash machine and associated noise emissions, located along the eastern boundary within the lot at 1 Palm Road, Newport, NSW.

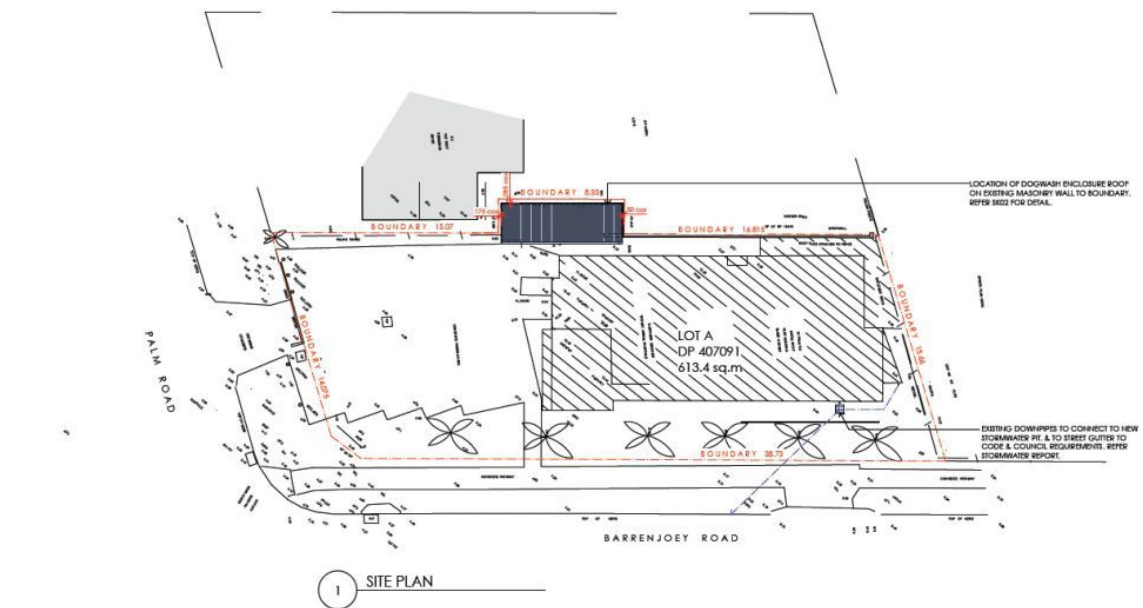
A review of applicable noise standards and local authority noise criteria was conducted. Noise levels were assessed in accordance with the requirements of:

- Pittwater Council; and
- NSW Environment Protection Authority (EPA).

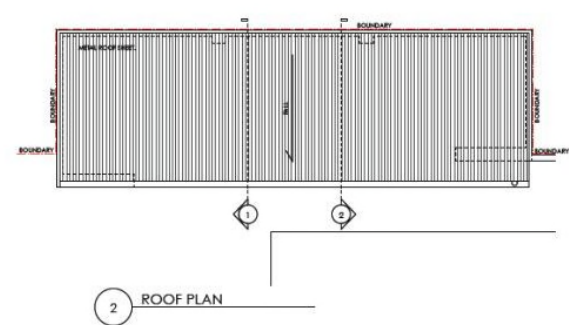
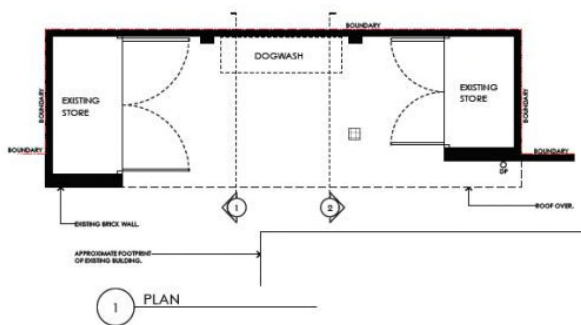
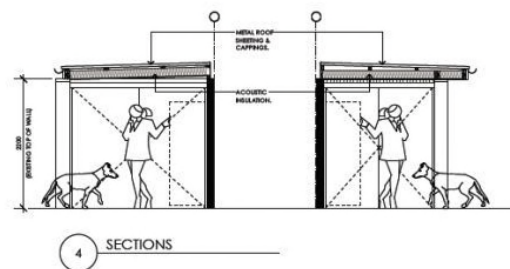
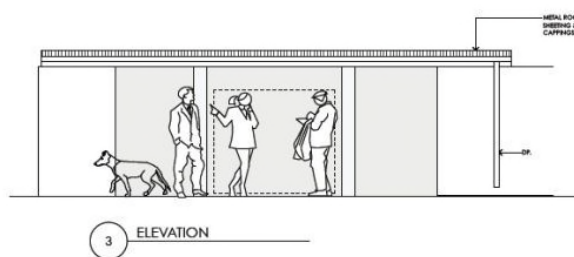
The measured background noise level, and relevant noise emission criterion are presented in section 3. The assessment of noise emission at 1 Palm Road, Newport resulting from the operation of a self serve dog wash machine and associated noise is presented in section 4, with recommendations to achieve acoustic compliance detailed within section 5.

We trust that the above information meets with your present requirements and expectations. Please do not hesitate to contact us on 02 9908 1270 should you require more information.

A.3 DRAWINGS



Site Plan



Dog Wash Shelter Plans, Elevation & Sections