

8 March 2019

**Your Reference:** Academy Close, Campbell ACT

**Our Reference:** 0272 R01 2.docx

Jonathon Thompson  
Development Manager  
PPG, Defence Housing Australia  
Level 2, 287 Elizabeth Street  
Sydney NSW 2000

**Dear Jonathon,**

**RE: Acoustic Report Addressing Road Traffic Noise on Site**

## 1 Executive Summary

Noise levels were measured at the worst affected boundary of Academy Close at  $L_{Aeq}$  58 dB during peak hour. It is expected that with standard house construction techniques the internal noise levels of the future proposed houses along Fairbairn Ave should be in the order of  $L_{Aeq}$  35 dB during peak hour and quieter in the evening and night. Noise levels of houses located further into the estate being significantly less than this utilising the same construction. Noise levels within bedrooms during hours of use as specified in Australian/New Zealand Standard AS/NZS 2107:2016 *Acoustic – Recommended design sound levels and reverberation times for building interiors (AS 2107)* will be significantly quieter than  $L_{Aeq}$  35 dB.

Also, it is understood that a further Works Application for the design and construction of the houses will be lodged with the NCA and this application will further assess acoustic requirements.

## 2 Introduction

Defence Housing Australia has engaged Paradigm 42 to investigate noise levels on the above site to inform the approval process for delivery of a number of houses for Defence personnel.

This report is meant for lodgement to the NCA to show that noise levels can be attenuated with standard construction. In this report we have:

1. Measured noise levels on site;
2. Reported on criteria;
3. Compared the measured noise levels with the criteria;
4. Provided impacts of noise on the proposed properties.

## 3 Criteria

### 3.1 External Criteria

There is no criteria for external noise levels on a property from road traffic noise in the ACT. This was confirmed by Peter Ryan of the ACT EPA.

### 3.2 Internal Criteria

Australian/New Zealand Standard AS/NZS 2107:2016 *Acoustic – Recommended design sound levels and reverberation times for building interiors (AS 2107)* provides a guideline for internal noise levels for different spaces. The relevant section has been reproduced below in Table 1

**Table 1: AS 2107 noise levels for residential buildings**

	Type of occupancy/activity	Design sound level, ( $L_{Aeq,t}$ ) range
7	RESIDENTIAL BUILDINGS	
	Houses and apartments in suburban areas or near minor roads—	
	Living areas	30 to 40
	Sleeping areas	30 to 35
	Work areas	35 to 40

## 4 Measurements

Attended measurements were conducted on Monday 7 May 2018 commencing just before the afternoon peak hour, and extending into peak hour. The following instrumentation was used:

1. Svantek 971 SLM serial # 39005;
2. Bruel and Kjaer field calibrator.

Location of the measurements is below in Figure 1. The location was chosen to be representative of noise at the most noise affected boundary of the properties.

Times and noise levels are below in Table 2, below. Measurements were for 15 minutes each. Noise levels did not vary by a significant amount, and should be rounded to  $L_{Aeq}$  58 dB.

**Table 2: Measured Noise Levels at Academy Close, Campbell**

Start time	$L_{Aeq}$	$L_{A01}$	$L_{A10}$	$L_{A90}$
16:34:26	<b>58.16</b>	63.9	60.1	54.7
16:49:26	<b>57.90</b>	63.5	59.5	55.1
17:04:26	<b>57.86</b>	62.2	59.6	55.1
17:19:26	<b>57.73</b>	62.5	59.4	55.2

The decimal places should be ignored and rounded to the nearest whole numeral.

The parameter of most interest is  $L_{Aeq}$  as this is the parameter specified in AS 2107.

Figure 1: Masterplan with measurement location



### 5 Discussion

#### 5.1 External

Noise levels were not particularly high. Other jurisdictions (Queensland for example) set a level of  $L_{A10}$  63 dB. Noise levels will be further reduced within the backyard of the proposed residences with a back fence. If this is slightly upgraded to be a noise barrier the noise levels at 1.5 metres above ground level will be reduced by 5 dB at mid frequencies.

We would expect noise levels at first floor level to be slightly higher than the measurements by about 2 dB.

#### 5.2 Internal

The weak point to noise attenuation in a house is the windows and doors. Assuming rooms have large windows facing the Fairbairn Avenue, we have calculated that standard construction will provide adequate attenuation to comply with *AS 2107*. Windows and glazed doors should achieve a minimum attenuation of RW 24. This can normally be achieved with 4 mm float glass without acoustically rated seals.

### 6 Conclusion

There is no reason due to noise that residential premises can achieve a high level of noise amenity on this site, using careful design and standard construction materials and techniques.

Yours Faithfully

Alan Subkey  
Director