

16 May 2016

WM Project Number: 02147-DAS1 Our Ref: DC 160516 bcResidential Stage 1 CC Email: <u>NYeung@villagebuilding.com.au</u>

Nelson Yeung CEC4 7 / 92 Hoskins Street P.O. Box 178 Mitchell ACT 2911

Dear Daniel

Re: Tralee Development - Stage 1 Residential Traffic Noise Assessment - Potential Future Sub - Arterial Road (Road 2) adjacent to Road 15

Council has requested a traffic noise assessment as follows:

6. Noise

a) Noise Impacts of Future Local Sub-Arterial Road (Road 2)

The north-western corner of proposed subdivison section AD is located approximately 50 metres from Road 2, (identified as a future sub-arterial road), and approximately 25 metres from land where a future local sub-arterial road is identified (adjacent to Road 15). Clause 3.2 – Local Sub-Arterial Road of the Guidelines requires compliance with the EPA's Environmental Criteria for Road Traffic Noise for residential development along local sub-arterial roads. The submitted acoustic assessment (Appendix 14) has only assessed compliance in relation to impacts from Road 1.

Please submit an acoustic assessment of the impacts of the identified future sub-arterial (Road 2) and future local sub-arterial road (adjacent to Road 15) on the proposed residential lots within block AD, and whether these lots will comply with the EPA's Environmental Criteria for Road Traffic Noise.

Accordingly Wilkinson Murray has conducted an assessment of potential traffic noise based on the current design and predicted traffic flows as detailed in the following sections.

The assessment relates to noise associated with projected future traffic flows, provided by the Traffic Consultant Arup, on residences adjacent to Road 15 in section AD.

Figure 1 show the proposed road location and the nearest potential future residences in section AD.



Wilkinson Murray Pty Limited · ABN 39 139 833 060

Level 4, 272 Pacific Highway, Crows Nest NSW 2065, Australia • Offices in Orange, Qld & Hong Kong + 61 2 9437 4611 • f + 61 2 9437 4393 • e acoustics@wilkinsonmurray.com.au • w www.wilkinsonmurray.com.au

ACOUSTICS AND AIR

1:300@A3



Figure 1 Proposed Residences section AD

SECTION 1 - TYPICAL TREATMENT ALONG ROAD 15

TRAFFIC NOISE CRITERIA

It is noted that the *EPA's Environmental Criteria for Road Traffic Noise* has been superseded by the NSW Government's *NSW Road Noise Policy (RNP). Therefore* noise criteria for assessment of road traffic noise are set out in the NSW Government's *NSW Road Noise Policy (RNP)*.

Table 1 sets out the assessment criteria for residences to be applied to particular types of project, road category and land use.

Road category	Type of project/land use	Assessment criteria – dB(A)		
		Day (7 a.m.–10 p.m.)	Night (10 p.m.–7 a.m.)	
Freeway/ arterial/	1. Existing residences affected by noise from new freeway/arterial/sub-arterial road corridors	L _{Aeq} , (15 _{hour)} 55 (external)	L _{Aeq} , (9 hour) 50 (external)	
roads	 Existing residences affected by noise from redevelopment of existing freeway/arterial/sub- arterial roads 	L _{Aeq, (15 hour)} 60 (external)	L _{Aeq, (9 hour)} 55 (external)	
	 Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments 			

Table 1Traffic Noise Criteria extracted from the NSW RNP

It is noted that the criteria apply to existing residences however we have applied the Sub arterial category consistent will council's intent. In summary the noise assessment criteria at the new residential receivers

- L_{Aeq,15hr} day 55 dBA; and
- LAeq,9hr night 50 dBA

PREDIEDIECTED TRAFFIC NOISE LEVELS

The noise level contribution of future vehicle movements on the future sub-arterial consistent with the traffic flows on along Dunns Creek Road as advised by traffic consultants ARUP. Noise levels at the façade of future residences has been predicted in Cadna noise modelling using the *Calculation of Road Traffic Noise (CORTN)* traffic noise prediction technique.

The predicted noise levels are based on the following information:

•	Distance from the future road to residences	approximately 24 - 30 m.
•	Fence barriers as indicated in Figure 1	1.2 and 1.8 m fencing.
•	Facade Reflection	2.5 dBA.
•	Road Surface	Open Grade Asphalt.
•	Average Vehicle Speed	60 km/hr.

Traffic flow data for the year 2031 has been provided by Arups as follows:

Road Segment	Scenario 2a		Scenario 2b		Scenario 2c	
	7am – 10pm	10pm – 7am	7am – 10pm	10pm – 7am	7am – 10pm	10pm – 7am
Dunns Creek Road	3,744 (2.5%)	416 (2.6%)	7,605 (2.1%)	845 (2.2%)	5,346 (2.2%)	594 (2.4%)

Table 6.2 Traffic volumes and heavy vehicle proportions

The worst case scenario 2b traffic volumes have been predicted as follows;

- Daytime Traffic (15hr) 7,605 vehicles (2.1 % heavy Vehicles),
- Night Traffic (9 hrs) 845 vehicles (2.2 % heavy Vehicles),

Figures 2 and 3 show predicted details predicted future traffic noise levels from Road 2 due the above traffic movements in scenario 2b.

Figure 2 Daytime Predicted Traffic Noise Levels at Residences - LAeq, period – dBA



Figure 3 Nighttime Predicted Traffic Noise Levels at Residences - LAeq, period – dBA



Table 1 summarises typical traffic noise levels at future residences

Period	Predicted Traffic Noise Levels	External Noise Criteria	Exceedance
Daytime (7am – 10 pm)	53-57	55	Up to 2
Night (10 pm-7 am)	46 -49	50	0

Table 1 Predicted Traffic Noise Levels at Residences - LAeq, period - dBA

A review of results indicated compliance at all residences for the day and night periods with the exception of a small 1-2 dBA exceedance at residences in the day period only. It is noted that such an exceedance is marginal in nature. Any further noise reduction would require a solid fence on this boundary.

It is further noted that development in areas subject to aircraft noise, of the *Queanbeyan Local Environmental Plan (South Tralee) 2012* the future residences will be required to meet the indoor design sound levels shown in Table 3.3 (Indoor Design Sound Levels for Determination of Aircraft Noise Reduction) in AS 2021—2000. This means that the glazing of the residences will have a higher level of acoustic performance to address aircraft noise. This improved glazing also will result in lower internal traffic noise levels when compared to standard glazing which would result in internal noise levels below the internal noise objectives of AS2107:2000 *Recommended design sound levels and reverberation times for building interiors*.

These predictions are based on scenario 2b which has higher traffic projections than alternative scenarios. As such noise levels associated with other scenarios will be lower than the noise levels presented in this assessment.

Accordingly potential noise levels at residences in section AD due to a future sub arterial road to the North of Road 15 (known as Road 2) is considered acoustically acceptable given the constraints of fence types and the provision of noise control treatment for aircraft noise.

We trust this meets you needs. Please contact us if you have any further queries.

Yours faithfully WILKINSON MURRAY

Brian Clarke Senior Associate