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TN894-02F01 Whitehouse and Burgmanns traffic noise comparison (r4)

Aurecon

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New England Port to REZ - Whitehouse Lane & Burgmanns Lane - Traffic noise comparison

1 Introduction

EnergyCo is delivering the New England Renewable Energy Zone (REZ) network infrastructure project to provide a clean, affordable and reliable power supply for energy consumers across NSW.

Delivery of the New England REZ involves:

- Building renewable energy projects, such as solar farms, wind farms and battery energy storage systems
- Building transmission lines and energy hubs to connect these projects to electricity consumers.

Both require oversize and overmass (OSOM) equipment to be delivered to the Port of Newcastle and transported by road along designated routes to the New England REZ.

EnergyCo is working with Transport for NSW to determine the most suitable, low-impact route to transport oversize over-mass renewable energy components from the Port of Newcastle to the New England REZ (Port to REZ).

The OSOM route will include sections of the New England Highway and Oxley Highway, as well as selected local roads. Some upgrades may be required, such as pavement widening, drainage adjustments, intersection improvements and relocation of signage or utilities.

The route is being confirmed in stages as design progresses. As part of the route bypass of Tamworth Town Centre, Burgmanns Lane and Whitehouse lane were considered as part of the route assessment process.

The purpose of this traffic noise assessment is to compare potential traffic noise impacts from OSOM vehicles on both Burgmanns Lane and Whitehouse Lane, to provide additional information to assist in the route selection process.

2 Traffic data

Traffic data provided by Aurecon detailing the existing and future anticipated traffic movements are presented in Table 2-1. The future traffic data includes additional local traffic movements that are expected to be generated as a result of the road upgrades.

The number and timing of additional OSOM movements are yet to be confirmed. For the purpose of this assessment, a conservative allowance for additional OSOM vehicle movements has been included. Additionally, without confirmation at this point in time what time of day these movements may take place, the noise modelling considers OSOM movements could occur in the day or night period.

Table 2-1: Whitehouse Lane and Burgmanns Lane existing and predicted traffic data

Road Name	Typical speed	Day (7am to 10pm)			Night (10pm to 7am)		
		LV	HV	HV%	LV	HV	HV%
Whitehouse Lane (existing)	85	453	143	24%	53	21	28%
Whitehouse Lane (predicted after upgrade with OSOM)	85	701	236	25%	80	49	38%
Burgmanns Lane (existing)	85	195	65	25%	26	9	35%
Burgmanns Lane (predicted after upgrade with OSOM)	85	220	85	28%	30	25	45%

3 Traffic noise criteria

Noise impact on the surrounding road network due to additional vehicles associated with the Port to REZ project is assessed against the NSW 'Road Noise Policy' (RNP).

Section 2.2.2 of the RNP acknowledges that for some industries, heavy vehicles will need to access remote sites and may need to travel on local public roads, as is the case with the New England Port to REZ project. The RNP describes the route that heavy vehicles need to take through local districts as 'principal haulage routes'. The RNP also specifies that for these routes, the noise criteria for the route should match those for arterial/sub arterial roads, recognising that they carry a different level and mix of traffic to local roads.

Therefore, for this assessment, the base noise criteria for existing residences on Burgmanns Lane and Whitehouse Lane affected by additional Port to REZ traffic is presented in Table 3-1.

Table 3-1: RNP road traffic noise criteria for principal haulage route

Road Category	Type of Project/Land Use	Assessment Criteria, dB(A)	
		Day 7am – 10pm	Night 10pm – 7am
Freeway/arterial/sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq,(15hour)}$ 60 (external)	$L_{Aeq,(9hour)}$ 55 (external)

Further to the above, Section 3.4 of the RNP states the following for land use developments generating additional traffic:

> *"In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person*

and,

> *"For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use development, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'."*

The RNP states that in assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person. Therefore, where the increase is 2 dB or less, no further noise mitigation is considered to be required.

4 Traffic noise modelling and discussion

4.1 Predicted road traffic noise

Traffic noise calculations have been conducted using the CoRTN method to predict the increase in road traffic noise levels due to the project. Based on the traffic volumes presented in Table 2-1, the predicted road traffic noise impacts due to the road upgrades are shown in Table 4-1 and Table 4-2.

Table 4-1: Predicted road traffic noise levels for Whitehouse Lane

Assessment Period	RNP Criteria	Distance to roadway[1]	Predicted noise level, dB(A)		Noise level increase
			Existing	Future upgrade (with OSOM)	
Day	$L_{Aeq,(15hour)}$ 60	32m	54.4	56.5	+2.1
Night	$L_{Aeq,(9hour)}$ 55	32m	48.0	51.2	+3.2

Notes: 1. Based on distance to nearest residential dwelling, 242 Whitehouse Lane

Table 4-2: Predicted road traffic noise levels for Burgmanns Lane

Assessment Period	RNP Criteria	Distance to roadway[1]	Predicted noise level, dB(A)		Noise level increase
			Existing	Future upgrade (with OSOM)	
Day	$L_{Aeq,(15hour)}$ 60	28m	51.6	52.6	+0.6
Night	$L_{Aeq,(9hour)}$ 55	28m	45.2	48.8	+3.6

Notes: 1. Based on distance to nearest residential dwelling, 795 Burgmanns Lane

As presented in Table 4-1 and Table 4-2, the nearest residential properties on both Whitehouse Lane and Burgmanns Lane have sufficient setbacks such that their existing and future traffic noise levels are below the RNP road traffic noise criteria for principal haulage routes. Residential dwellings would need to be within approximately 15 m from the road edge to trigger any exceed the RNP haulage route criteria. Based on a review of aerial maps, there are no properties within these setback distances. Therefore no noise mitigation is required for either road should it be used as the OSOM route.

When comparing predicted traffic noise levels for the existing and upgraded roads, Burgmanns Lane has the greater total increase in noise, being +3.6 dB at night, compared to +3.2 dB increase at night on Whitehouse Lane.

5 Conclusion

Whitehouse Lane and Burgmanns Lane are two potential OSOM routes for the Port to REZ project. Traffic noise modelling has been conducted for both roads considering existing traffic (without project) and future traffic (with road upgrades and additional vehicles).

In terms of additional noise, Burgmanns Lane is predicted to have the greatest noise increase during the night time period, being +3.6 dB compared to an increase on Whitehouse Lane of +3.2 dB.

No noise mitigation is triggered for residential properties on either road, as the predicted noise levels are below the RNP criteria for principal haulage routes.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
17.07.2026	Draft	0	1	[redacted]		
03.08.2026	Final Draft		2			
17.08.2026	Final		3			
08.09.2026	Final #2		4			

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APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dBThe sound of a rock band 120dBDeafening
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.

L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

APPENDIX B Location map
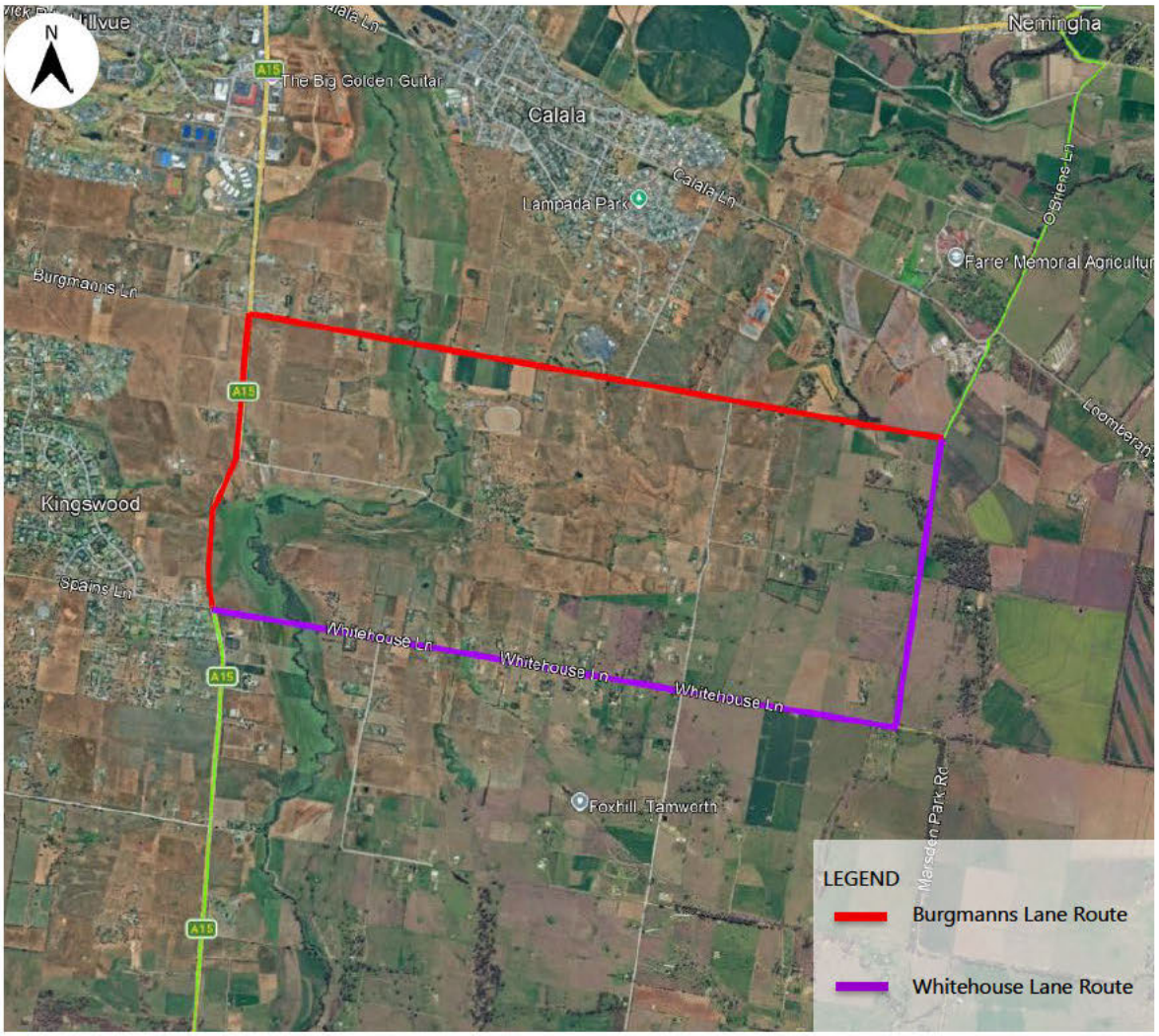
Figure 1: Aerial imagery of Whitehouse Lane and Burgmanns Lane