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GREAT WESTERN HIGHWAY UPGRADE PROGRAM - KATOOMBA TO BLACKHEATH

Noise and Vibration Technical Paper - addendum

6 October 2022

Aurecon

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Executive summary

This report is an addendum to Appendix H (Noise and Vibration Technical Paper) of the Great Western Highway East – Katoomba to Blackheath Review of Environmental Factors (the REF proposal). This addendum report has been prepared to address the proposed modifications (the revised design) in the for the Medlow Bath to Blackheath section of works.

This assessment addresses the following impacts on nearby sensitive receivers:

- Potential impacts from road traffic noise in accordance with the NSW 'Road Noise Policy' (RNP), Roads and Maritime Services' (Roads and Maritime) 'Noise Criteria Guideline' (NCG), 'Noise Mitigation Guideline' (NMG) and 'Environmental Noise Management Manual' (ENMM).
- Noise impacts from construction of the proposal in accordance with Roads and Maritime's 'Construction Noise and Vibration Guideline' (CNVG) and NSW Department of Environment, Climate Change & Water's 'Interim Construction Noise Guideline' (ICNG).
- Construction vibration from the proposal in accordance with Roads and Maritime's 'Construction Noise and Vibration Guideline' and NSW Department of Environmental & Conservation's 'Assessing Vibration; a technical guideline'.

Operational traffic noise

The assessment of road traffic noise in the 'Build' and 'No build' scenarios for the Opening year (2026) and Design year (2036) found that:

- 29 residences are predicted to exceed the NCG noise goals and qualify for the consideration of additional noise mitigation. This compares to 31 residences identified for the REF proposal assessment.
- The two receivers no longer requiring additional noise mitigation are located on Coachhouse Lane [redacted] in Medlow Bath. The minor changes in the revised design near these residences have marginally lowered the overall predicted noise levels by up to 1dB. As a result, the two residences are now no longer predicted to be 'acute' (i.e. ≥65dB(A) $L_{Aeq,15hr}$ or ≥60dB(A) $L_{Aeq,9hr}$).

In considering reasonable mitigation measures, several issues need to be considered, including noise impact, noise mitigation benefit, cost effectiveness and community views. Reasonable noise mitigation measures have been considered in the following order or priority:

- Provision of low noise pavement,
- Provision of noise barriers where feasible and reasonable, and heights designed in accordance with the methodology defined in the NMG,
- Provision of at property treatments.

Where the modifications to the design have occurred from the Medlow Bath to Blackheath section, low noise pavement was found to be not reasonable for both the REF proposal assessment and the revised design assessment. However, low noise pavement has been implemented in sections of the Katoomba to Medlow Bath design, as detailed in Appendix H of the REF.

Noise barriers were considered during for REF proposal assessment and were found to be not reasonable, as the construction of noise walls would be incompatible with the urban design objectives of the 'Great Western Highway, Katoomba to Mount Victoria Urban Design Framework' (GWHUDF). This outcome is consistent with other recent projects on Great Western Highway throughout the Blue Mountains. Based on the outcomes of the REF proposal assessment, noise barriers were not considered for the revised design assessment.

After the implementation of low noise pavement, it was found that:

- 23 residential receivers initially identified for additional noise mitigation remain above the relevant NCG noise criteria and qualify for the consideration of at-property treatment. This compares to 25 residential receivers identified in the REF proposal assessment. The two residences no longer considered for additional noise mitigation are located on Coachhouse lane in Medow Bath.
- Whilst the two residences on Coachhouse Lane are no longer identified for consideration of at-property treatment, given the marginal change in predicted noise levels, it would still be reasonable for these two residences to be provided at-property treatment.

Construction noise

An assessment of construction noise impact from the proposal has been undertaken. Noise emission from the construction of the proposal has predicted and assessed against the relevant noise criteria set by the Roads and Maritimes' '*Construction Noise and Vibration Guideline*' (CNVG).

The revised design proposal area from Medlow Bath to Blackheath was reassessed. The key findings are:

- During standard hours construction, exceedances of the NMLs are predicted throughout the study area. Residences generally are not predicted to be highly noise affected, however a total of 20 residences were identified as being highly noise affected, which is an additional 11 residences compared to the REF proposal assessment. These residences are located at the northern end of the proposal where the new active transport trail joins Valley View Road. This would not be for the full duration of the project and would only occur where the construction is nearby to the residences.
- For works outside standard hours, exceedances are predicted throughout the project study area. Impacts would be greatest during the night-time period for works occurring in Medlow Bath and for works occurring at the northern end of the proposal where the new active transport trail joins Valley View Road. All works outside standard construction hours would require justification, with noise and vibration mitigation measures provided in accordance with the CNVG.
- Residences within all NCAs that are located alongside the proposal alignment would be more noise affected by the construction works. However, as the proposal works move along the main

alignment, receivers would only be maximally affected while the works are occurring directly outside the residence.

Construction vibration

Potential vibration impacts to residential and other sensitive receivers have been assessed against the relevant guidelines for structural damage from vibration and for human disturbance. Dwellings within the minimum working distances for cosmetic damage and human annoyance have been identified. All heritage structures have been assessed for cosmetic damage.

Two heritage listed culverts were found to be within the minimum working distance for cosmetic damage based on the minimum screening limit. This outcome is unchanged from the REF proposal assessment.

Recommendations have been provided to manage and/or minimise noise and vibration where they occur. Mitigation and management measures for construction vibration have been provided.

A detailed Construction Noise and Vibration Management Plan should be prepared prior to construction, in accordance with the CNVG.

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1 Introduction

Transport for NSW (Transport) is proposing to widen the Great Western Highway, between Rowan Lane, Katoomba and Tennyson Road, Blackheath from one to two lanes in each direction (the proposal). The proposal is part of the Great Western Highway Upgrade Program which aims to provide a safer, more efficient connection between the Central West region of New South Wales (NSW), the Blue Mountains and Sydney.

The proposal consists of two sections:

- Katoomba to Medlow Bath – about 3.5 kilometres of highway between Rowan Lane at Katoomba and Bellevue Crescent at Medlow Bath
- Medlow Bath to Blackheath – about 1.8 kilometres of highway between Station Street, Medlow Bath and Tennyson Road, Blackheath.

Transport prepared a review of environmental factors (REF) to assess the potential environmental impacts of the proposal.

Following exhibition of the REF, the proposal design has been refined (referred to as 'the revised design') in response to stakeholder feedback and further design development to either realise social benefits earlier or to allow construction efficiencies.

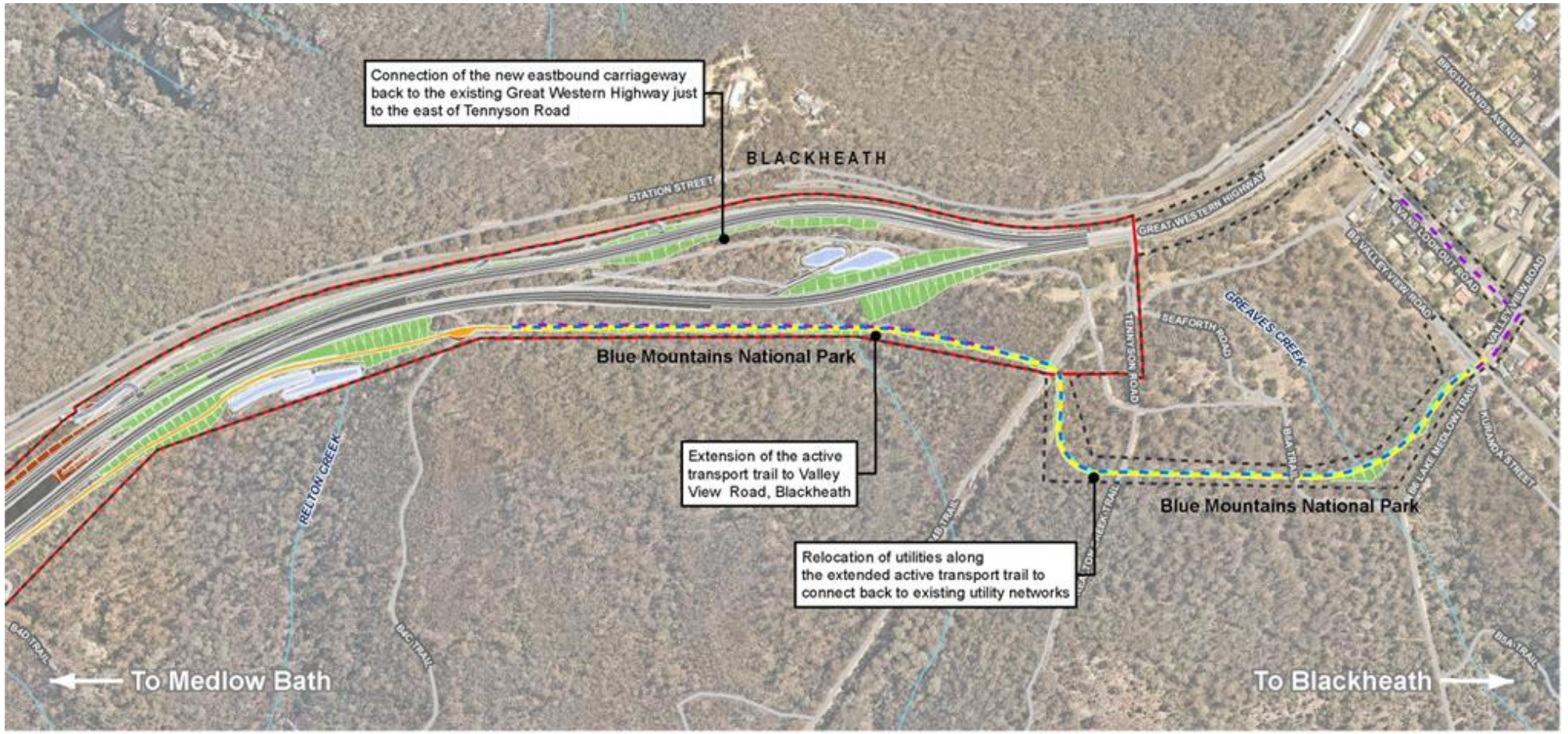
Figure 1 below indicates the locations where design changes are proposed in the revised design compared to the design outlined in the REF.

The design changes in the revised design include:

- Extending the new separate eastbound carriageway and the upgrade of the westbound carriageway to connect back to the existing Great Western Highway just to the east of Tennyson Road.
- Continuing the active transport trail in the Medlow Bath to Blackheath section to Valley View Road, Blackheath. The active transport trail would also serve as maintenance access to utilities, water quality basins and the national park (for approved access only).
- High voltage electricity, optical fibre and water main relocations between Medlow Bath and Blackheath have been extended and connected back to existing utility networks at Blackheath.
- Optimising the lane alignment tie-in near Coachhouse Lane.

The revised design would require an extension to the REF proposal area at the western end of the Medlow Bath to Blackheath section only. The revised proposal area has been developed as the footprint required for the construction of the revised design.

Figure 1: Design changes to the proposal



REF proposal area
Revised proposal area

Revised design

Active transport trail - proposed
Maintenance access
Cut
Fill

Pavement
Drainage basin
Extension to the active transport trail
Overhead 11kV high voltage electricity
Underground 11kV high voltage electricity
Underground optical fibre and water main

Source: Aurecon, Mott MacDonald, LPI, Nearmap

1:6,000 @A4
0 50 100 m

Projection: GDA2020 MGA Zone 56

Great Western Highway East

FIGURE 1: Design changes to the proposal following exhibition of the REF

2 Assessment objectives

2.1 Purpose

This noise and vibration assessment is an addendum to Appendix H of the proposal Review of Environmental Factors (REF). The report focuses on changes that have been made to the design from Medlow Bath to Blackheath following exhibition of the REF. The purpose of this report is to:

- Assess the operational traffic noise impacts from the revised design, identify where any additional traffic noise mitigation measures should be considered, and specify and design all the noise attenuation measures required for the revised design proposal.
- Assess potential construction noise and vibration impacts from the revised design, identity exceedances of the relevant criteria and provide recommendations to minimise impacts in accordance with the relevant guideline.

The outcomes of this report should be read in conjunction with the REF noise and vibration assessment for impacts in the Katoomba to Medlow Bath section of works.

This assessment addresses the following impacts on nearby sensitive receivers:

- Potential impacts from road traffic noise in accordance with the NSW 'Road Noise Policy' (RNP), Roads and Maritime Services' (Roads and Maritime) 'Noise Criteria Guideline' (NCG), 'Noise Mitigation Guideline' (NMG) and 'Environmental Noise Management Manual' (ENMM).
- Noise impacts from construction of the proposal in accordance with Roads and Maritime's 'Construction Noise and Vibration Guideline' (CNVG) and NSW Department of Environment, Climate Change & Water's 'Interim Construction Noise Guideline' (ICNG).
- Construction vibration from the proposal in accordance with Roads and Maritime's 'Construction Noise and Vibration Guideline' and NSW Department of Environmental & Conservation's 'Assessing Vibration; a technical guideline'.

2.2 Guidelines and background documents

The key reference documents relevant to noise and vibration management include:

- Road Noise Policy (RNP), NSW EPA, March 2011
- Noise Criteria Guideline (NCG), NSW Roads and Maritime Services, April 2015
- Noise Mitigation Guideline (NMG), NSW Roads and Maritime Services, April 2015
- Noise Model Validation Guideline, NSW Roads and Maritime Services, May 2018
- Environmental Noise Management Manual (ENMM), Roads and Traffic Authority, 2001
- NSW Noise Policy for Industry, Environment Protection Authority 2017

- Draft At-Receiver Noise Treatment Guideline, Roads and Maritime Services, June 2017
- Roads and Maritime Construction Noise and Vibration Guideline (Roads and Maritime 2016),
- NSW Interim Construction Noise Guideline (ICNG), Department of Environment and Climate Change 2009
- Assessing Vibration: a technical guideline, Department of Environment and Conservation, 2006

Part A Operational traffic noise assessment

3 Operational traffic noise criteria

3.1 Roads and Maritime Services' Noise Criteria Guideline

Traffic noise criteria are assigned to sensitive receivers using the NCG. The NCG provides guidance on how to apply the requirements of the RNP. The assessment timeframe for the criteria is in the year of opening and 10 years after opening, which for the proposal is 2026 and 2036, respectively.

The assessment area extends to where noise levels are dominated by other roads that are not being assessed as part of this project, as defined in the NCG. This is up to a maximum distance of 600 metres from the centreline of the outermost traffic lane on each side of the subject road.

The RNP and the NCG set road noise criteria based on the road's function in the road network and the type of road development. Residences may be assigned new, redeveloped, transition zone or relative increase criteria depending on how the project will influence noise levels. For each facade of the residence the most stringent applicable criteria will be used in the assessment.

Noise criteria are based on the road classification type that residences are affected by due to the road proposal. In some instances, residences may be exposed to noise from new and redeveloped roads or different functional classes. In this instance, the proportion of noise from each road is used to establish transition zone criteria and provides a smooth change in noise criteria between adjacent residences. A further check is made to prevent large increases in noise level using the relative increase criteria, described further below.

3.1.1 Project road classification

The REF proposal assessment identified the new bridge over the valley from Pulpit Hill near Explorers Road as being a new road, with all other sections of the design being redeveloped.

In the revised design, a section of the eastbound carriageway at the northern end of the proposal near residences on Station Street has been realigned to the west by more than six times the lane width of the existing Great Western Highway road corridor. This section of road which is approximately 200 metres in length has also been considered new. All other sections of the proposal have been identified as redeveloped as per the REF proposal assessment.

The 'redeveloped' and 'new' road assessment criteria for all project roads are identified on the aerial maps in APPENDIX B.

3.1.2 Transition zones

The transition zones for the proposal remain generally unchanged from the REF proposal assessment, with the exception of the new Type 1 transition zone where the new road joins the redeveloped road at the northern end of the proposal as described in Section 3.1.1 above. Given that the new section of road is only 200 metres in length, the transition zone does not contain any residential receivers as they are

dominated by either the redeveloped section of the Great Western Highway, or existing sections beyond the extent of works.

Given the above, there are no changes in road traffic noise criteria to any residences based on the proposed design changes.

3.1.3 Relative increase criteria

Consistent with the REF proposal assessment, the Relative Increase Criteria (RIC) does not apply to the proposal.

3.1.4 Traffic noise criteria for residential receivers

A summary of the applicable traffic noise criteria in accordance with the NCG for residential receivers is presented in the table below.

Table 1: NCG Criteria for residential receivers

Road category	Type of project/land use	Assessment criteria (dB)	
		Daytime (7am to 10pm)	Night-time (10pm to 7am)
Freeway/ arterial/ sub-arterial roads	1. Existing residences affected by noise from new freeway/arterial/sub-arterial road corridors	$L_{Aeq(15hr)}$ 55 (external)	$L_{Aeq(9hr)}$ 50 (external)
	2. Existing residences affected by noise from redevelopment of existing freeway/arterial/sub-arterial roads 3. Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15hr)}$ 60 (external)	$L_{Aeq(9hr)}$ 55 (external)
	4. Existing residences affected by both new roads and the redevelopment of existing freeway/arterial/sub-arterial roads in a Transition Zone[1]	Between $L_{Aeq(15hr)}$ 55-60 (external)	Between $L_{Aeq(9hr)}$ 50-55 (external)
	5. Existing residences affected by increases in traffic noise of 12dB(A) or more from new freeway/arterial/sub-arterial roads[2]	Between $L_{Aeq(15hr)}$ 42-55 (external)	Between $L_{Aeq(9hr)}$ 42-50 (external)
	6. Existing residences affected by increases in traffic noise of 12dB(A) or more from redevelopment of existing freeway/arterial/sub-arterial roads[2]	Between $L_{Aeq(15hr)}$ 42-60 (external)	Between $L_{Aeq(9hr)}$ 42-55 (external)

Notes

1. The criteria assigned to the entire residence depend on the proportion of noise from the new and redeveloped road. See the NCG for further information.
2. The criteria at each facade are determined from the existing traffic noise level plus 12dB(A).

3.1.5 Sensitive land uses

The NCG and RNP also set criteria for the assessment of traffic noise on non-residential sensitive land uses such as schools, hospitals, places of worship and recreation areas. Given that there are non-residential sensitive land uses that may be potentially impacted by traffic noise from the project, the following criteria are presented in the table below.

Table 2: NCG Criteria for non-residential sensitive land uses

Existing sensitive land use	Assessment criteria, dB(A)		Additional considerations
	Day (7am to 10pm)	Night (10pm to 7am)	
School classrooms	$L_{Aeq(1hr)}$ 40 (internal) when in use	–	In the case of buildings used for education or health care, noise level criteria for spaces other than classrooms and wards may be obtained by interpolation from the 'maximum' levels shown in Australian Standard 2107:2000 (Standards Australia 2000).
Hospital wards	$L_{Aeq(1hr)}$ 35 (internal)	$L_{Aeq(1hr)}$ 35 (internal)	
Places of worship	$L_{Aeq(1hr)}$ 40 (internal)	$L_{Aeq(1hr)}$ 40 (internal)	The criteria are internal, i.e. the inside of a church. Areas outside the place of worship, such as a churchyard or cemetery, may also be a place of worship. Therefore, in determining appropriate criteria for such external areas, it should be established what in these areas may be affected by road traffic noise. For example, if there is a church car park between a church and the road, compliance with the internal criteria inside the church may be sufficient. If, however, there are areas between the church and the road where outdoor services may take place such as weddings and funerals, external criteria for these areas are appropriate. As issues such as speech intelligibility may be a consideration in these cases, the passive recreation criteria (see point 5) may be applied.
Open space (active use)	$L_{Aeq(15hr)}$ 60 (external) when in use		Active recreation is characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion. Passive recreation is characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, e.g. playing chess, reading. In determining whether areas are used for active or passive recreation, the type of activity that occurs in that area and its sensitivity to noise intrusion should be established. For areas where there may be a mix of passive and active recreation, e.g. school playgrounds, the more stringent criteria apply. Open space may also be used as a buffer zone for more sensitive land uses.
Open space (passive use)	$L_{Aeq(15hr)}$ 55 (external) when in use		
Isolated residences in commercial or industrial zones	-	-	For isolated residences in industrial or commercial zones, the external ambient noise levels can be higher than those in residential areas. Internal noise levels in such residences are likely to be more appropriate in assessing any road traffic noise impacts, and the proponent should determine suitable internal noise level targets, taking guidance from Australian Standard 2107:2000 (Standards Australia 2000).

Existing sensitive land use	Assessment criteria, dB(A)		Additional considerations
	Day (7am to 10pm)	Night (10pm to 7am)	
Mixed use development	-	-	Each component of use in a mixed use development should be considered separately. For example, in a mixed use development containing residences and a childcare facility, the residential component should be assessed against the appropriate criteria for residences in Table 3, and the childcare component should be assessed against the childcare criteria below.
Childcare facilities	Sleeping rooms $L_{Aeq(1hr)}$ 35 (internal) Indoor play areas $L_{Aeq(1hr)}$ 40 (internal) Outdoor play areas $L_{Aeq(1hr)}$ 55 (external)	–	Multi-purpose spaces, e.g. shared indoor play/sleeping rooms should meet the lower of the respective criteria. Measurements for sleeping rooms should be taken during designated sleeping times for the facility, or if these are not known, during the highest hourly traffic noise level during the opening hours of the facility.
Aged care facilities	–	–	Residential land use noise assessment criteria should be applied to these facilities

Notes:

Land use developers must meet internal noise goals in the Infrastructure SEPP (Department of Planning NSW 2007) for sensitive developments near busy roads.

For sensitive land uses such as schools, hospitals, places of worship and childcare centres the criteria are applicable to internal areas. It is generally accepted that most buildings provide a noise reduction of at least 10dB(A) when windows are left 20% open, without providing additional treatment. Therefore, where the noise goals are internal, a 10dB(A) reduction from external noise levels to internal noise levels has been adopted to allow an external assessment.

3.1.6 NCG Project road noise criteria

The project road noise criteria for all receivers as defined in the REF proposal assessment has remain unchanged for the revised design assessment.

3.1.7 Project noise study area

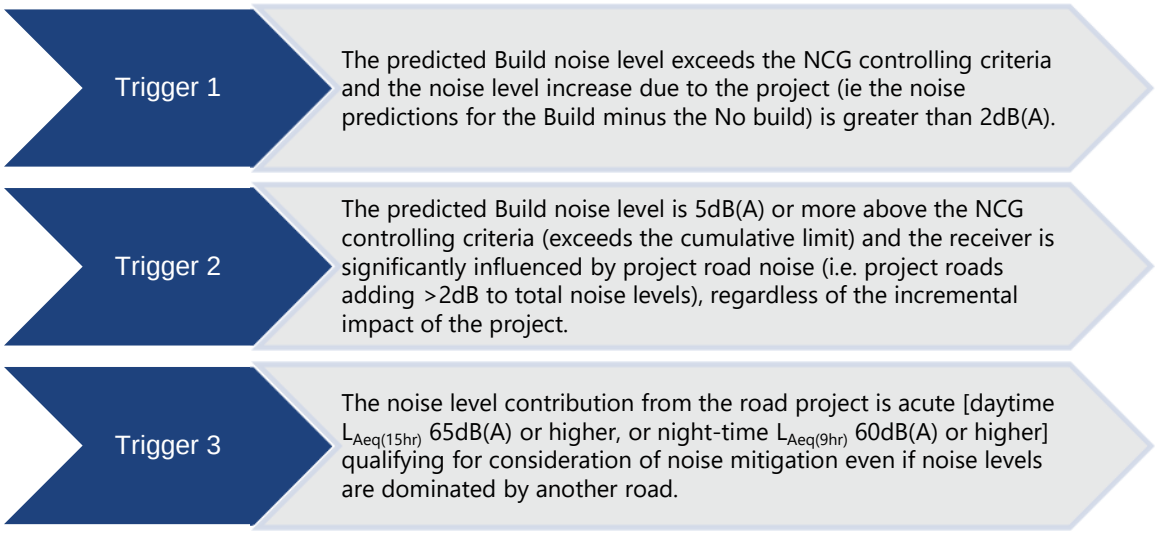
The Project noise study area as defined in the REF proposal assessment has remain unchanged for the revised design assessment.

4 Guidance on the evaluation of noise mitigation measures

The Roads and Maritime's Noise Mitigation Guideline (NMG) provides guidance in managing and controlling road traffic generated noise and describes the principles to be applied when reviewing noise mitigation. The NMG recognises that the criteria recommended by the NCG are not always practicable and that it is not always feasible or reasonable to expect that they should be achieved.

The NMG notes that the most effective way of minimising noise from vehicles and traffic is to control vehicle noise at the source. Where source measures are not practical, or do not provide sufficient noise reduction, additional methods are required to reduce levels to within acceptable margins. Such additional methods may include the use of noise barriers (noise walls or noise mounds) and/or consideration for at-property treatment of residences.

The NMG provides three triggers where a receiver may qualify for consideration of noise mitigation (beyond the adoption of road design and traffic management measures). These triggers are:



The eligibility of receivers for consideration of additional noise mitigation is determined before the benefit of additional noise mitigation (quieter pavement and noise barriers) is included. The requirement for the project is to provide reasonable and feasible additional mitigation for these eligible receivers to meet the relevant NCG controlling criteria. If the NCG criteria cannot reasonably and feasibly be satisfied with quieter pavement and noise barriers, then eligible receivers can be considered for at-property treatment.

5 Operational traffic noise assessment

This section outlines the noise modelling methodology used to predict noise levels, and the validation of the noise model. It also presents the noise mitigation measures that were considered on the proposal, as well as summarising the results of the assessment.

5.1 Noise modelling scenarios

To conduct the noise assessment, 10 separate traffic scenarios were required to be modelled and compared. The assessment considers both the 'Build' (with the proposal) and 'No build' (without the proposal) scenarios for the year of opening (2021) and 10 years after opening (2031). Table 3 summarises the scenarios that were modelled.

Table 3: Modelled scenarios

Modelled scenario	Label	Description
2a	2026 No build - day	Daytime based on 2026 'No build' scenario
2b	2026 No build - night	Night-time based on 2026 'No build' scenario
3a	2036 No build - day	Daytime based on 2036 'No build' scenario
3b	2036 No build - night	Night-time based on 2036 'No build' scenario
4a	2026 Build - day	Daytime based on 2026 with 'Build' scenario (without noise mitigation)
4b	2026 Build - night	Night-time based on 2026 with 'Build' scenario (without noise mitigation)
5a	2036 Build - day	Daytime based on 2036 with 'Build' scenario (without noise mitigation)
5b	2036 Build - night	Night-time based on 2036 with 'Build' scenario (without noise mitigation)
6a	2026 Build - day	Daytime based on 2026 with 'Build' scenario (with low noise pavement)
6b	2026 Build - night	Night-time based on 2026 with 'Build' scenario (with low noise pavement)
7a	2036 Build - day	Daytime based on 2036 with 'Build' scenario (with low noise pavement)
7b	2036 Build - night	Night-time based on 2036 with 'Build' scenario (with low noise pavement)

5.2 Noise modelling methodology

Noise modelling was undertaken using the Road Traffic Noise Module in the CadnaA noise modelling software. This noise modelling software is recognised and accepted by Transport for NSW, the NSW Environment Protection Authority and the NSW Department of Planning, Industry & Environment.

The traffic noise prediction model adopted by CadnaA is based on a method developed by the United Kingdom Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN88 method. The model predicts noise levels for free-flowing traffic and a modified method has been developed which enables an accurate prediction of noise from high truck exhausts to be considered.

The method predicts the $L_{A10(1hr)}$ noise levels, and a correction of -3dB(A) is applied to obtain the $L_{Aeq(1hr)}$ noise levels. The $L_{Aeq(1hr)}$ noise levels for the daytime 15 hour period from 7am to 10pm are then determined to derive the daily $L_{Aeq(15hr)}$ noise level. Similarly, the $L_{Aeq(1hr)}$ noise levels for the night-time nine hour period from 10pm to 7am are then determined to derive the night-time $L_{Aeq(9hr)}$ noise level.

The noise prediction model takes account of the following inputs:

Table 4: Summary of noise modelling parameters & assumptions

Parameters	Inputs
Study Area	Study area as shown in Figure 5 of the REF proposal assessment
Project road classification	All project roads classified as either new or redeveloped, as detailed in Section 3.1.1
Model geometry	
Source lines	All lanes of traffic on multi-lane roads considered individually. The traffic volumes and compositions provided in Table 5 have been evenly distributed over all traffic lanes.
Ground topography at receiver and road	Topographic 2m ground contour data obtained from Geoscience Australia Elvis website https://elevation.fsdf.org.au/
Road geometry	Design road geometry provided by Aurecon
Noise sensitive receiver locations, building heights, angle of view	From aerial and terrestrial photography, supplemented by site checks and surveys.
Receiver heights	• 1.5m above ground level to represent 1.5m above ground floor level • Additional 3m height for every additional floor assessed (i.e. 4.5m above ground for first floor, 7.5m for second floor etc.)
Noise barriers	No noise barriers included in 'No-build' or 'Build' assessment
Reflections from existing barriers, structures & cuttings on opposite side of road	Detailed within CoRTN algorithms and their application in Cadna-A
Traffic Parameters	
Traffic Volumes and Mix:	Opening year and Design year 'No build' and 'Build' scenarios: • As detailed in Table 5
Vehicle Speeds:	No Build and Build scenarios: • Sing posted traffic speeds as detailed in Table 5
Corrections to Model	
L10 to Leq correction	-3 dB(A)
Road surface correction	Existing and 'No build': • Dense Graded Asphalt (DGA AC14): 0 dB(A) 'Build' pre noise mitigation: • Dense Graded Asphalt (DGA AC14): 0 dB(A) 'Build' post noise mitigation • Dense Graded Asphalt (DGA AC14): 0 dB(A) • Open Graded Asphalt (OGA): -2dB(A)

Parameters	Inputs
Source height	Cars: • 0.5 m for car exhaust and tyres; 0 dB(A) correction to source level Heavy vehicles: • 0.5 m for truck tyres; -5.4 dB(A) correction to source level • 1.5 m truck engines; -2.4 dB(A) correction to source level • 3.6 m for truck exhaust; -8.5 dB(A) correction to source level
Facade correction	Validation: • 0 dB(A); all results presented as free field (i.e. no facade correction) 'No Build' and 'Build': • +2.5 dB(A); all results modelled to 1 m from building facades [RNP Table 7 (p17)]
Heavy vehicle correction	'No Build' and 'Build': • Six-category heavy vehicles source corrections in accordance with "A 6-category heavy vehicle noise emission model in free-flowing condition", Peng, Jeffrey; Parnell, Jeffrey; Kessissoglou, Nicole, Applied Acoustics 2018.
Cadna-A Noise Model Settings	
Calculation method	Ray-tracing method adopted, as opposed to angle-scan method
Ground absorption factor	0.75
Maximal search radius	3,000m

5.2.1 Opening and design year traffic volumes

Traffic data for Great Western Highway has been provided by Aurecon for future years 2026 (year of opening) and 2036 (design year) as shown in Table 5 below. This data was utilised for the noise modelling predictions. Traffic forecasts have been based on traffic counts undertaken in March and April 2021 at various locations along the Great Western Highway within the project area. It should be noted that this was at a time when there were no COVID "stay at home" directions in force.

Table 5: Forecasted traffic volumes

Road	Direction[1]	Vehicle classification[2]							
		Cl 1-2	Cl 3	Cl 4-5	Cl 6-8	Cl 9	Cl 10	Cl 11-12	Speed km/h[3]
Opening Year - 'No Build' Scenario									
Day 7am to 10pm									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	7960	1918	92	171	235	107	2	70
	EB	8831	952	170	111	267	107	2	70
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	9541	1422	146	190	236	109	4	70 / 60
	EB	8522	1459	120	159	286	127	12	70 / 60
Great Western Hwy North of Railway Pde, Medlow Bath	WB	7743	1692	82	163	237	107	5	60 / 80
	EB	8818	582	84	80	281	110	3	60 / 80
Night 10pm to 7am									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	629	239	33	25	105	39	1	70
	EB	621	117	27	19	82	32	0	70
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	782	205	48	43	144	45	3	70 / 60
	EB	587	182	27	24	84	41	3	70 / 60
Great Western Hwy North of Railway Pde, Medlow Bath	WB	544	246	31	32	122	41	3	60 / 80
	EB	641	87	19	16	85	39	1	60 / 80
Opening Year - 'Build' Scenario									
Day 7am to 10pm									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	7960	1918	92	171	235	107	2	70 / 80
	EB	8831	952	170	111	267	107	2	70 / 80
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	9541	1422	146	190	236	109	4	80 / 60
	EB	8522	1459	120	159	286	127	12	80 / 60
Great Western Hwy North of Railway Pde, Medlow Bath	WB	7743	1692	82	163	237	107	5	60 / 80
	EB	8818	582	84	80	281	110	3	60 / 80
Night 10pm to 7am									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	629	239	33	25	105	39	1	70 / 80
	EB	621	117	27	19	82	32	0	70 / 80
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	782	205	48	43	144	45	3	80 / 60
	EB	587	182	27	24	84	41	3	80 / 60

Road	Direction[1]	Vehicle classification[2]							
		Cl 1-2	Cl 3	Cl 4-5	Cl 6-8	Cl 9	Cl 10	Cl 11-12	Speed km/h[3]
Great Western Hwy North of Railway Pde, Medlow Bath	WB	544	246	31	32	122	41	3	60 / 80
	EB	641	87	19	16	85	39	1	60 / 80
Design Year - 'No Build' Scenario									
Day 7am to 10pm									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	8392	2302	111	205	282	128	2	70
	EB	9310	1142	204	134	320	128	2	70
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	10059	1706	176	227	283	131	5	70 / 60
	EB	8985	1751	144	190	344	152	14	70 / 60
Great Western Hwy North of Railway Pde, Medlow Bath	WB	8164	2030	98	196	284	128	6	60 / 80
	EB	9297	699	100	96	337	132	4	60 / 80
Night 10pm to 7am									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	664	286	39	30	127	47	2	70
	EB	655	140	33	22	98	38	1	70
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	825	246	57	51	173	54	3	70 / 60
	EB	619	218	33	29	101	49	4	70 / 60
Great Western Hwy North of Railway Pde, Medlow Bath	WB	574	295	37	38	146	50	4	60 / 80
	EB	676	104	22	20	102	47	2	60 / 80
Design Year - 'Build' Scenario									
Day 7am to 10pm									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	9664	2193	106	195	268	122	2	70
	EB	10721	1088	194	127	305	122	2	70
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	11583	1625	167	217	270	124	4	80
	EB	10346	1668	138	181	327	145	14	80
Great Western Hwy North of Railway Pde, Medlow Bath	WB	9401	1934	94	186	271	122	6	60
	EB	10706	666	96	91	321	126	4	60
Night 10pm to 7am									
Great Western Hwy South of Nellies Glen Rd, Katoomba	WB	764	273	38	29	121	45	2	70
	EB	755	134	31	21	93	36	1	70
Great Western Hwy Between Nellies Glen Rd & Foy Ave	WB	950	234	55	49	165	52	3	80
	EB	712	208	31	28	96	47	3	80

Road	Direction[1]	Vehicle classification[2]							
		Cl 1-2	Cl 3	Cl 4-5	Cl 6-8	Cl 9	Cl 10	Cl 11-12	Speed km/h[3]
Great Western Hwy North of Railway Pde, Medlow Bath	WB	661	281	35	36	139	47	3	60
	EB	778	99	21	19	97	45	1	60

Notes:

1. WB = Westbound, EB = Eastbound

2. C1-2 = Light vehicles, C3 = 2 axle rigid trucks, C4-5 = 3-4 axle rigid trucks, C6-8 = <6 axle articulated trucks, C9 = 6 axle articulated trucks, C10 =9 axle B-doubles, C11-12 = 12 axle B-triples

3. Where more than 1 speed is provided (i.e., 70 / 60), this indicates sections of road with the same traffic volumes, with varying posted speeds at different locations

5.3 Model validation

Table 6 below summarises the noise model validation results as presented in the REF proposal assessment.

Table 6: Noise model validation

Location	ID	$L_{Aeq,15hr}$ Daytime noise level			$L_{Aeq,9hr}$ Night-time noise level		
		Measured	Modelled	Variation	Measured	Modelled	Variation
[redacted]	L1	58.5	59.9	1.4	57.8	56.5	-1.3
	L2	60.0	62.0	2.0	57.5	57.7	0.2
	L3	63.8	62.4	-1.4	60.9	59.5	-1.4
	L4	55.7	57.1	1.4	53.8	54.2	0.4
	L6	57.5	56.6	-0.9	53.4	54.1	0.7
Mean variation				**0.5**			**-0.3**
Median				**1.4**			**0.2**

Notes:

* All results presented as free field

5.4 Traffic noise modelling results (pre-mitigation)

Table 7 below details the results of the noise modelling and summarises the number of receivers that exceed the traffic noise criteria and qualify for consideration of additional noise mitigation before any road corridor treatments such as quieter pavement or noise barriers have been considered. All receivers that exceed the traffic noise criteria are residential. A detailed list of all assessed receivers is provided in APPENDIX C. In total, there are 29 residential receivers identified for consideration of additional noise mitigation. This is reduced from the 31 receivers identified in the REF proposal assessment and the cause of the reductions is discussed in Section 5.5. These residences are identified on maps in APPENDIX D. The extents of all NCAs are shown in Appendix B of the REF noise and vibration assessment.

Table 7: Receivers identified for additional noise mitigation (pre mitigation)

NCA	Receivers identified for additional noise mitigation	
	REF proposal assessment	Revised design assessment
NCA01	0	0
NCA02	5	3
NCA03	8	8
NCA04	4	4
NCA05	8	8
NCA06	6	6
NCA07	-*	-*

NCA	Receivers identified for additional noise mitigation	
	REF proposal assessment	Revised design assessment
Total	31	29

Notes:

* Receivers in NCA07 are beyond 600 metres from the nearest project road and have not been considered in the operational traffic noise assessment.

5.5 Discussion of results (pre-mitigation)

5.5.1 NCA01

In NCA01 there are no changes in the outcomes of the revised design from the REF proposal assessment. For the three residences located on Station Street on the western side of Great Western Highway at the northern extent of the proposal, noise levels are predicted to reduce by approximately 1dB(A) relative to the REF proposal assessment as a result of the eastbound alignment being relocated approximately 100 metres to the west near these receivers.

For all other receivers in NCA01, noise levels are generally predicted to remain unchanged, with no predicted increases from the REF proposal assessment.

Overall, for receivers in NCA01, the outcomes of the revised design assessment are consistent with the REF proposal. Residences are not predicted to experience a noticeable increase in traffic noise due to the proposal (i.e. less than 2dB(A) increase). In NCA01 there are no receivers identified for additional noise mitigation.

5.5.2 NCA02

In NCA02, the REF proposal assessment identified five residences for additional noise mitigation, whereas the revised design assessment has identified three residences have been identified for additional noise mitigation. The two residences that no longer require additional noise mitigation are [redacted] Coachhouse Lane. The change in predicted noise level at these residences is a reduction of 1dB(A), which results in these two residences no longer being considered 'Acute' (i.e. ≥65dB(A) $L_{Aeq,15hr}$ or ≥60dB(A) $L_{Aeq,9hr}$).

The reduction in noise level is likely due to minor changes in the design alignment which has shifted the lanes on the overpass approximately 0.5 to 1 metre to the west, reducing line of sight to road traffic on the approach to the rail overpass.

A comparison of the results from the REF proposal and revised design assessment in the design year for the five residences are provided in Table 8 below.

Whilst the two residences at [redacted] Coachhouse Lane are no longer identified for consideration of at-property treatment, given the marginal change in predicted noise levels, it would still be reasonable for these two residences to be provided at-property treatment if it has already been offered based on the outcomes of the REF assessment.

Table 8: Comparison of receivers identified for additional noise mitigation in NCA02 (REF vs Addendum assessment)

NCA	NCA ID	Receiver Address	Facade		Design Year				Trigger 1 Increase (Build - No Build)		NCG noise criteria		Consider at-property treatment?
					No Build		Build		Design Year				
			Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	
					dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
REF proposal assessment													
NCA02	2496	[redacted]	0	W	67	62	66	61	-0.7	-0.8	60	55	YES
NCA02	1987		0	W	65	61	65	60	-0.1	-0.4	60	55	YES
NCA02	2716		0	W	65	60	65	60	-0.1	-0.4	60	55	YES
NCA02	2623		0	E	69	64	68	63	-0.1	-0.4	60	55	YES
NCA02	2946		0	E	68	63	67	62	-0.7	-0.9	60	55	YES
Revised design assessment													
NCA02	2496	[redacted]	0	W	67	62	66	61	-0.9	-1	60	55	YES
NCA02	1987		0	W	65	61	64	59	-0.8	-1.1	60	55	NO
NCA02	2716		0	W	65	60	64	59	-0.8	-1.1	60	55	NO
NCA02	2623		0	E	69	64	68	63	-0.3	-0.4	60	55	YES
NCA02	2946		0	E	68	63	67	62	-0.8	-0.9	60	55	YES

5.5.3 NCA03 to NCA06

As there are no changes to the design alignment in the Katoomba to Medlow Bath section of the proposal, the results for NCA03 to NCA06 remain unchanged to the REF proposal assessment.

6 Operational noise mitigation measures

6.1 NMG options and priority of noise mitigation measures

The NMG states that priority should first be given to reducing noise during corridor planning and road design where there may be greater opportunity to provide cost effective integrated outcomes with better urban design. Following corridor planning and road design, Section 7 of the NMG indicates the following priority order for noise mitigation:

> *"Options for noise mitigation measures are listed below in the order of preference…:*
>
> 1. *Quieter pavement surfaces*
> 2. *Noise mounds*
> 3. *Noise walls*
> 4. *At-property treatments*
>
> *For it to be considered reasonable to provide quieter pavement surfaces, noise mounds and noise walls there needs to be four or more closely spaced receivers that benefit. Where there are four or more closely spaced receivers the specific combination of noise mitigation measures is subject to further evaluation"*

All reasonable and feasible traffic management and road design options to minimise noise have been considered as part of the design process and are incorporated into the road design. Therefore, the following sections assess how feasible and reasonable the remaining mitigation options are in accordance with the order of priority stated above

6.2 Low noise pavement surfaces

Where the modifications to the design have occurred from Medlow Bath to Blackheath, low noise pavement was found to be not reasonable in the REF proposal assessment. This outcome remains unchanged for the revised design assessment.

However, low noise pavement has been implemented in sections of the Katoomba to Medlow Bath design, as detailed in the REF proposal assessment.

Should low noise pavement be included as part of the proposal, it would reduce the number of properties requiring additional treatment from 29 to 23 residences.

6.3 Noise barriers

Noise barriers were considered during for REF proposal assessment and were found to be not reasonable, as the construction of noise walls would be incompatible with the urban design objectives of the 'Great Western Highway, Katoomba to Mount Victoria Urban Design Framework' (GWHUDF). This

outcome is consistent with other recent projects on Great Western Highway throughout the Blue Mountains. Based on the outcomes of the REF proposal assessment, noise barriers have not been considered for the revised design assessment.

6.4 At-property treatment

With the implementation of low noise pavement, the operational traffic noise assessment results for all receivers are presented in detail in APPENDIX E. A total of 23 residences would qualify for at-property treatment and are detailed in APPENDIX E, and shown on the map in APPENDIX F. These results are indicative only and are based on the current design, and subject to detailed design review and community consultation.

At-property treatment is considered for dwellings that remain above the NCG criteria after all other noise mitigation measures are exhausted. Site inspections of individual properties should be carried out to confirm the current state of dwellings, any existing noise treatments, and any constraints on the implementation of property treatment.

At-receiver noise mitigation measures such as building treatments and localised screens may replace or supplement at-road mitigation, subject to a reasonable and feasible assessment, only in the following circumstances:

- Isolated single residences or isolated groups of closely spaced residences as defined in the NMG;
- Where the affected community expresses a preference for at-receiver treatment and the cost is less than a combination of a barrier and at-receiver treatment;
- Where noise barriers or quieter pavements alone do not achieve the level of noise mitigation (insertion loss) required;
- Where the only applicable noise criteria are internal (eg places of worship, hospitals or schools and childcare facilities where play areas meet external criteria); and
- Where other noise mitigation measures have been shown not to be feasible or reasonable

These treatments are generally limited to acoustic treatment of the building elements or courtyard fences where they reduce noise to habitable spaces. The installation of courtyard fences close to the dwelling may also protect outdoor living spaces.

Architectural treatments that upgrade building elements are generally simpler to apply to masonry structures. Lightly clad timber frame structures should be evaluated more closely in consultation with a noise specialist. Caution should be exercised before providing treatments for buildings in a poor state of repair, as they may be less effective in these cases and may not provide any appreciable noise reduction benefit.

The architectural treatments provided by TfNSW include:

- Fresh air ventilation systems that meet Building Code of Australia requirements with the windows and doors shut (Note; in certain circumstances air conditioning that includes fresh air intake or ceiling fans may also be considered, particularly where adverse climate conditions prevail);
- Upgraded windows, glazing and solid core doors on the exposed façades of substantial structures only (eg masonry or insulated board cladding each with sealed underfloor);
- Upgrading window and door seals;
- The sealing of wall vents;
- The sealing of the underfloor below the bearers and appropriately treating sub-floors ventilation; and
- The sealing of eaves.

Upgraded windows and doors must have a minimum sound reduction index (Rw) of 30 based on the performance of the entire door or window set. Higher performance may be required in some instances and consideration given to traffic spectrum corrections to the sound reduction index. Alternative at-receiver treatments are:

- The installation of courtyard fences that break line of site between the affected façade window and the road where they are feasible and reasonable and are preferred by the owner.

The implementation of at-property treatment for the two heritage listed dwellings would need to consider the heritage status. This may prevent certain types of upgrades to the facades, including upgrading glazing and frames. A review of at-property treatment for these residences would be required during detailed design to determine if it is feasible to implement.

The Roads and Maritime's At-Receiver Noise Treatment Guideline (Draft) has been preproduced in Table 9 below.

Table 9: Treatment package types - At-Receiver Noise Treatment Guideline (Draft)

Construction	Treatment package type				
	1	2	3	4	5
Exceedance, dB(A)	**1 to 5**	**6 to 8**	**9 to 11**	**12 to 14**	**>14**
All	· Optional ceiling fans · Mechanical ventilation (MV)2 · New acoustic seals for windows · Seal around window architraves /doorjambs . Seal all vents and openings	· As per category 1 treatments · External solid core door (40mm) with perimeter acoustic seals, drop seals and threshold seals			
Brick veneer or double brick Window area less than or equal to 20% lower floor area		For 6 dB(A) exceedance: · 6.38 mm laminate and roof insulation (R4.0 215mm thick) or 6.5mm lam with acoustic interlayer For 7 dB(A) exceedance: · 8.5mm lam with acoustic interlayer or 10.38mm lam For 8 dB(A) exceedance: · 8.5mm lam with acoustic interlayer or 10.5mm lam with acoustic interlayer or 10mm acrylic panel with nominally 100 mm gap or >4m secondary window with 100mm gap or equivalent	· Roof insulation (R4.0 215mm thick) For 9 dB(A) exceedance: · 8.5mm lam with acoustic interlayer or 10.38mm lam Otherwise: · 10.5mm lam with acoustic interlayer or 10mm acrylic panel with nominally 100m gap or >4mm secondary window with 100mm air gap or equivalent	· >4mm secondary window with 100mm gap, or equivalent · Roof insulation (R4.0 215mm thick)	· >6mm secondary window with nominally 100mm gap, or equivalent · Roof insulation (R4.0 215mm thick)
Brick veneer or double brick Sliding door area less than or equal to 50% wall area	6.38mm lam, or equivalent	6.5mm lam with acoustic interlayer, or equivalent Roof insulation (R4.0 215 mm thick) Or: 8.5 mm lam with acoustic interlayer or equivalent	8.5 mm lam with acoustic interlayer or >4mm secondary window with nominally 100mm gap, or equivalent Roof insulation (R4.0 215mm thick)	>6mm secondary window with nominally 100mm gap, or equivalent Roof insulation (R4.0 215 mm thick)	>6mm secondary window with nominally 100 mm gap, or equivalent Roof insulation (R4.0 215 mm thick)

Construction	Treatment package type				
	1	2	3	4	5
Exceedance, dB(A)	**1 to 5**	**6 to 8**	**9 to 11**	**12 to 14**	**>14**
Lightweight Window area less than or equal to 20% floor area	• Seal subfloor • Roof insulation (R4.0 215mm thick)	• As per Category 1 treatments For 8 dB(A) exceedance: • 10mm acrylic panel with nominally 100mm gap, or equivalent • Re-sheet wall lining (1x6mm fibre cement sheeting with nominal board weight of 11kg/m2 and 1x13mm plasterboard with nominal board weight of 10.5 kg/m2 to finish or equivalent) • Wall insulation (R2.7 90mm thick) • Otherwise: • 10mm acrylic panel with 100mm air gap, or equivalent • Additional wall lining (1x13mm plasterboard with nominal board weight of 10.5 kg/m2 to finish, or equivalent)	• As per Category 1 treatments • 10mm acrylic panel with nominally 100mm gap, or equivalent • Re-sheet wall lining (1x6mm fibre cement sheeting with nominal board weight of 11kg/m2 and 1x13mm plasterboard with nominal board weight of 10.5 kg/m2 to finish, or equivalent) • Wall insulation (R2.7 90mm thick) • Resilient mount to isolate wall lining and stud	• As per Category 1 treatments • >4mm secondary window with nominally 100mm gap, or equivalent • Re-sheet wall lining (1x6mm fibre cement sheeting with nominal board weight of 11kg/m2 and 1x13mm plasterboard with nominal board weight of 10.5 kg/m2 to finish, or equivalent) • Wall insulation (R2.7 90mm thick) • Resilient mount to isolate wall lining and stud	• As per Category 1 treatments • >6mm secondary window with nominally 100mm gap, or equivalent • Re-sheet wall lining (1x6mm fibre cement sheeting with nominal board weight of 11kg/m2 and 1x13mm plasterboard with nominal board weight of 10.5 kg/m2 to finish, or equivalent) • Wall insulation (R2.7 90mm thick) • Resilient mount to isolate wall lining and stud

Part B Construction noise and vibration assessment

7 Overview of construction works

Construction activities generate noise and vibration of varying levels depending on the activities being carried out and the proximity to sensitive receivers such as residential areas. The type of work carried out during construction often involves the use of large plant and machinery, sometimes moving along the proposal alignment and sometimes working in a fixed location, which can cause varying noise and vibration at nearby receivers. These aspects of construction can exacerbate noise levels from the works and their effects, causing annoyance to those affected.

This section of the report provides an outline of the key noise and vibration works that would be carried out to complete the proposal; an explanation of relevant limits set by regulations, codes and standards; typical emission levels and an outline of noise and vibration control and management techniques that can be implemented to mitigate noise and reduce annoyance to the surrounding community.

7.1 Description of works and staging

The construction staging is proposed to be split into two packages, being Katoomba to Medlow Bath, and Medlow Bath to Blackheath. The work methodology may be modified or refined during detailed design due to engineering constraints or to minimise environmental impacts, including:

- onsite conditions identified during pre-construction activities,
- ongoing refinement of the detailed design,
- outcomes of community consultation, including submissions on the REF.

The indicative activities associated with each construction stage for the Medlow Bath to Blackheath revised design are summarised in Table 10 below.

The revised design modifications do not change the equipment to be used or the expected duration of works, however the modified activities occurring in the northern section of the project include:

- Additional site preparation and establishment works associated with the high voltage electricity, optical fibre and water main relocations located in NCA01 to the south of residences on Evans Lookout Road,
- Works associated with the construction of the active transport trail (earth works/road works/drainage and finishing works) in the Medlow Bath to Blackheath section to Valley View Road, Blackheath.

Table 10: Indicative construction staging and general activities

Stage	Activities	Duration (weeks)	Maximum daily deliveries (trucks)	Maximum daily workforce
Medlow Bath to Blackheath				
Site Preparation	• Clearing trees, mulching • Utility investigations • Potential removal of redundant utilities and relocation of existing ones	6	6	10
Site establishment	• Clearing and grubbing • Topsoil stripping • Hardstand construction • Utilities services • Material storage areas • Temporary security fencing • Temporary pedestrian fencing • Temporary access road to compound sites • Installation of water quality and sediment control measures • Temporary traffic control barriers, signage and lighting along the full length of the existing roadway in order to separate the construction site from passing traffic	6	15	30
Earthworks	• Embankment foundation treatments • Construction of the new fill embankments • Excavation of major cuttings	28	50	10
Roadworks	• The works would be split into constructing the westbound carriageway first and then the eastbound carriageway. • Road construction would include: • Removal and demolition of existing pavements • Embankment foundation treatments • Construction of the new embankment • Excavation of cuttings • Utility works typically including communications, power, gas, water and sewer (where necessary) along with ITS and TCS networks • Construction of the pavement layers including the subbase and asphalt layers • Reinforced earth retaining walls • Tie-ins to existing pavement at the southern and northern limits	28	14	50
Drainage works	• Construction of larger transverse drainage structurers (box culverts) • Installation of drainage pit and pipe systems • Construction of the open drainage channels and permanent controls.	57	28	56

Stage	Activities	Duration (weeks)	Maximum daily deliveries (trucks)	Maximum daily workforce
Finishing works	• Installation of sign structures including piling, concrete works and installation of overhead steel structure • Installation of road furniture (i.e. lighting, safety barriers and guideposts) • Pavement marking • Installation of urban design treatments and features • Landscaping works • Removal of all remaining temporary works such as traffic control barriers, ancillary facilities and lighting • Rehabilitation work will include batter protection and landscaping plus reinstatement of all disturbed areas.	8	19	28

7.2 Construction hours

7.2.1 Standard construction hours

The standard hours for construction are defined in Table 11 based on Roads and Maritime's '*Construction Noise and Vibration Guideline*' (CNVG). Whilst the standard construction hours are not mandatory, limiting construction works to within standard construction hours as much as practicable assists in managing noise or vibration impact by limiting potentially noisy and vibration causing activities to the daytime, when background noise levels are higher, and by providing respite from construction noise and vibration during the evening, overnight, and on weekends.

7.2.2 Extended construction hours

To reduce the overall construction timeframe of the proposal to provide relief to the Blue Mountains community, Transport seeking approval for 'extended construction hours' for this public infrastructure project. This would provide additional work hours at the end of each day (Monday to Friday) and on Saturday afternoon. Extended construction hours would apply across the full length of the proposal and would be limited to daylight hours, with potentially shorter working periods throughout winter months. The proposed extended construction hours are:

- Monday to Friday: 6am to 7am
- Monday to Friday: 6pm to 7pm
- Saturday: 1pm to 5pm

For the Saturday afternoon period between 1pm to 5pm, it is proposed to extend the standard construction hours, rather than being assessed as OOHW. The proposed extended construction hours are included in Table 11 below.

Most construction work would be carried out within these proposed working hours. This would include:

- ancillary facility operation including stockpiling and general office duties
- removal and delivery of materials, plant, and equipment such as cranes
- establishment of temporary traffic management controls and facilities enabling traffic switches so that traffic flows can be maintained during construction
- earthworks, including haulage, placement, and compaction
- piling driving and/or boring at bridges and retaining walls
- utility adjustments and relocations
- pavement and concrete finishing works.

The reasons for the proposed extension of hours, and for out-of-hours work, are presented in the following section.

7.2.3 Night work

Certain work may still need to occur outside these hours to minimise disruption to customers, pedestrians, road users and nearby sensitive receivers. Any out of hours work would be undertaken in accordance with the Construction Noise and Vibration Guidelines (Roads and Maritime, 2016). Typically, specific work and activities that may be required to be undertaken out-of-hours would include:

- tie-in work at either end which would require some night-time work for asphalt paving to maintain safety of road users
- bridge structure works when launching the bridge deck
- adjustment to line marking
- temporary safety barrier placement
- work in the rail corridor
- traffic switches to reduce inconvenience to road users, avoid traffic delays during daytime or peak traffic periods and to provide safety for construction workers working on the existing highway
- minor services adjustment
- ancillary facility operations required to support any activities which may occur out of hours
- concrete batch plant operations.

A concrete batch plant is proposed to be located at the Woodlands Road, Katoomba ancillary facility. To provide concrete, the batch plant would need to operate 1.5 hours before and one hour after the proposed construction work hours.

7.2.4 Justification for the extended working hours

Transport is investigating opportunities for longer standard construction hours for the proposal to complete the construction of the proposal sooner to allow relief from construction for the travelling public and local communities from the construction activities. In particular, this is due to the construction that would be occurring for the GWHUP between Katoomba and Lithgow for a long period of time which would result in construction and consultation fatigue to communities along the Great Western Highway.

- by extending standard working hours by two hours every day and four hours on a Saturday, this would:
- reduce the volume of traffic on the roads during peak hours due to construction staff and some construction vehicles travelling to and from the work site outside peak traffic periods
- potentially bring forward the opening date for the proposal and minimising overlapping construction timeframes for different GWHUP projects
- cause less traffic disruption and noise and visual amenity impacts to the community, local business, motorists, pedestrians and cyclists as work would be completed earlier than currently predicted
- provide a safer road and active transport network earlier than planned.

Longer working days would result in a direct increase in productivity across the proposal, making maximum and most efficient use of existing equipment and resources. This would result in a safer work environment and a more attractive employment proposition.

The proposed extended construction working hours would be unlikely to result in significant impacts on the amenity of affected sensitive receivers. This is because of the location of the proposal in a mostly sparsely populated area. In particular, through the Medlow Bath to Blackheath section, sensitive receivers that would be impacted by amenity are located at the northern end of Medlow Bath, with no receivers located along the remaining length.

The proposed construction hours and consideration of the effects would be discussed with the community and potentially affected receivers before construction.

7.2.5 Summary of construction hours

Table 11: Construction hours

Construction hours	Monday to Friday	Saturday	Sunday/ Public holiday
Recommended standard construction hours			
Standard hours	7am to 6pm	8am to 5pm	No work
Outside recommended standard construction hours			
Extended construction hours	6am to 7am 6pm to 7pm	N/A	N/A

Construction hours	Monday to Friday	Saturday	Sunday/ Public holiday
Out-of-Hours Work (Day)	N/A	5pm to 6pm	8am to 6pm
Out-of-Hours Work (Evening)	7pm to 10pm	6pm to 10pm	6pm to 10pm
Out-of-Hours Work (Night)	10pm to 6am	10pm to 8am	10pm to 8am

8 Construction noise and vibration objectives

8.1 Construction noise management levels

The CNVG has been developed for the assessment of construction noise and vibration for Roads and Maritime projects. This guideline refers to the ICNG for the setting of Noise Management Levels (NMLs).

The CNVG provides guidance for assessing and mitigating construction noise and vibration. There are two parts of the CNVG that are used to determine the type of assessment required to be undertaken:

- Duration of the impact to affected receivers,
- Number of affected receivers.

Based on the proposed duration of construction works and number of affected receivers, a quantitative assessment in accordance with the CNVG has been undertaken.

8.1.1 Residential receivers

Table 12, reproduced from the ICNG, sets out the noise management levels and how they are to be applied for residential receivers.

The rating background level (RBL) is used when determining the management level. The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours).

Table 12: Noise management levels at residential receivers

Time of day	Management level $L_{Aeq\ (15min)}$ *	How to apply
Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or public holidays	Noise affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq(15min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.

Time of day	Management level $L_{Aeq\ (15min)}$ *	How to apply
	Highly noise affected 75dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: - Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community. For guidance on negotiating agreements see section 7.2.2 *[of the ICNG]*.

* Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 metres above ground level. If the property boundary is more than 30 metres from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 metres of the residence. Noise levels may be higher at upper floors of the noise affected residence.

8.1.2 Sleep disturbance

The ICNG recommends that where construction works are planned to extend over more than two consecutive nights, maximum noise levels and the extent and frequency of maximum noise level events exceeding the RBL should be considered. In line with the ICNG, further guidance is taken from the NSW Environmental Criteria for Road Traffic Noise (ECRTN) (Environment Protection Authority 1999).

To assess the likelihood of sleep disturbance, an initial screening level of L_{Amax} <LA90,15min + 15 is used. In situations, where this results in an internal screening level of less than 45 dB(A) (internal), a minimum internal screening level of 45 dB(A) is set. Note that this is equivalent to an external maximum noise level of 55 dB(A) with windows open or 65 dB(A) with closed windows, based on an outside-to-inside noise reduction of respectively 10 dB(A) and 20 dB(A).

Where there are noise events found to exceed the initial screening level, further analysis is made to identify:

- The likely number of events that might occur during the night assessment period
- Whether events exceed an 'awakening reaction' level of 55dBA L_{Amax} (internal) that equates to an external NML of L_{Amax} 75 dB(A) (assuming closed windows).

The ICNG recommends that where construction works are planned to extend over more than two consecutive nights, maximum noise levels and the extent and frequency that maximum noise levels exceed the RBL should be analysed.

8.1.3 Residential construction noise management levels

Table 13 presents the construction noise management levels for residential receivers within the noise study area.

Table 13: Construction noise management levels at residential receivers

NCA	Logger ID	L_{A90} rating background level (RBL)					Noise management level (NML) $L_{Aeq(15min)}$						Sleep disturbance screening criterion $L_{Amax\ dB(A)}$
							Standard hours (RBL+10dB)	Extended/out-of-hours work (OOHW) (RBL+5dB)					
		Day	Shoulder 1	Evening	Night	Shoulder 2	Day	Day	Shoulder 1	Evening	Night	Shoulder 2	
NCA01	L1	48	39	33	30	32	58	53	44	38	35	37	55
NCA02	L2	45	38	31	30	34	55	50	43	36	35	39	55
NCA03	L3	47	40	33	30	35	57	52	45	38	35	40	55
NCA04	L4	45	40	33	30	32	55	50	45	38	35	37	55
NCA05	L5	44	38	32	30	32	54	49	43	37	35	37	55
NCA06	L6	47	40	38	30	34	57	52	45	43	35	39	55
NCA07	L7	36	35	30	30	33	46	41	40	35	35	38	55

* Only receivers in NCA01 to NCA03 are relevant to the extent of works of the revised design assessment

8.1.4 Non-residential receiver construction noise management levels

Table 14 sets out the ICNG noise management levels for non-residential receivers. Table 15 provides the ICNG noise management levels for all assessed non-residential receivers in the proposal study area.

Table 14: Noise management levels at non-residential land uses

Land use	Where objective applies	Management level $L_{Aeq\ (15\ min)}$
Classrooms at schools and other educational institutions	Internal noise level	45 dB(A)
Hospital wards and operating theatres	Internal noise level	45 dB(A)
Places of worship	Internal noise level	45 dB(A)
Active recreation areas	External noise level	65 dB(A)
Passive recreation areas	External noise level	60 dB(A)
Community centres	Depends on the intended use of the centre.	Refer to the 'maximum' internal levels in AS2107 for specific uses.
Commercial premises	External noise level	70 dB(A)
Industrial premises	External noise level	75 dB(A)

Notes: Noise management levels apply when receiver areas are in use only.

Table 15: All non-residential receiver noise management levels

Address	Land use	NML $L_{Aeq(15\ minute)}$ dB(A)	comments
14 VALLEY VIEW ROAD, BLACKHEATH	Commercial	70	When premise is in use. External.
13-17 BRIGHTLANDS AVENUE, BLACKHEATH	Hotel	60	NML of 60dB(A) is external equivalent of 40dB(A) internal goal with windows closed
52-88 GREAT WESTERN HIGHWAY, MEDLOW BATH	Commercial	70	When premise is in use. External.
MEDLOW BATH RAILWAY STATION	Commercial	70	When premise is in use. External.
40 GREAT WESTERN HIGHWAY, MEDLOW BATH	Commercial	70	When premise is in use. External.
42 GREAT WESTERN HIGHWAY, MEDLOW BATH	Commercial	70	When premise is in use. External.
90-98 GREAT WESTERN HIGHWAY, MEDLOW BATH	Commercial	70	When premise is in use. External.
8 RAILWAY PARADE, MEDLOW BATH	Commercial	70	When premise is in use. External.
1 RAILWAY PARADE, MEDLOW BATH	Commercial	70	When premise is in use. External.
50 GREAT WESTERN HIGHWAY, MEDLOW BATH	Commercial	70	When premise is in use. External.
102 CAMP STREET, KATOOMBA	Commercial	70	When premise is in use. External.
12 WHITTON STREET, KATOOMBA	Commercial	70	When premise is in use. External.
12-16 POWER HOUSE LANE, KATOOMBA	Commercial	70	When premise is in use. External.
98-100 CAMP STREET, KATOOMBA	Commercial	70	When premise is in use. External.
12 COOPER STREET, KATOOMBA	Commercial	70	When premise is in use. External.
30-34 COOPER STREET, KATOOMBA	Commercial	70	When premise is in use. External.
2 COOPER STREET, KATOOMBA	Commercial	70	When premise is in use. External.
17 COOPER STREET, KATOOMBA	Commercial	70	When premise is in use. External.
6 COOPER STREET, KATOOMBA	Commercial	70	When premise is in use. External.
16 COOPER STREET, KATOOMBA	Commercial	70	When premise is in use. External.
298 BATHURST ROAD, KATOOMBA	Hotel	60	NML of 60dB(A) is external equivalent of 40dB(A) internal goal with windows closed
2 VALLEY ROAD, KATOOMBA	Hotel	60	NML of 60dB(A) is external equivalent of 40dB(A) internal goal with windows closed
3-9 VALLEY ROAD, KATOOMBA	Industrial	75	When premise is in use. External.
1-17 VERDUN STREET, KATOOMBA	Childcare	55	Daytime NML of 55dB(A) is external equivalent of 45dB(A) internal goal for classrooms with windows open.
2-6 MINNI HA HA ROAD, KATOOMBA	Commercial	70	When premise is in use. External.
1B ORIENT STREET, KATOOMBA	Commercial	70	When premise is in use. External.
10 MISTRAL STREET, KATOOMBA	Commercial	70	When premise is in use. External.

NCA	Address	Land use	NML $L_{Aeq(15\ minute)}$ dB(A)	comments
NCA07	5-7 CAMP STREET, KATOOMBA	Hotel	60	NML of 60dB(A) is external equivalent of 40dB(A) internal goal with windows closed
NCA07	1A ORIENT STREET, KATOOMBA	Hotel	60	NML of 60dB(A) is external equivalent of 40dB(A) internal goal with windows closed
NCA07	2-38 SOUTH STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	49-89 WOODLANDS ROAD, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	79 BARTON STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	91 BARTON STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	16 MISTRAL STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	60 WOODLANDS ROAD, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	32 WOODLANDS ROAD, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	89 BARTON STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	17 TWYNAM STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	23-37 BARTON STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	62 WOODLANDS ROAD, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	41 BARTON STREET, KATOOMBA	Industrial	75	When premise is in use. External.
NCA07	173-181 GREAT WESTERN HIGHWAY, KATOOMBA	Hospital	65	NML of 60dB(A) is external equivalent of 45dB(A) internal goal with windows closed
NCA07	75-77 NORTH STREET, KATOOMBA	Place of worship	55	NML of 55dB(A) is external equivalent of 45dB(A) internal goal for places of worship with windows open, when in use. Ref: ICNG p13
NCA07	124-128 VICTORIA STREET, KATOOMBA	Place of worship	55	NML of 55dB(A) is external equivalent of 45dB(A) internal goal for places of worship with windows open, when in use. Ref: ICNG p13

* Only receivers in NCA01 to NCA03 are relevant to the extent of works of the revised design assessment

8.2 Construction-related road traffic noise

When trucks and other vehicles are operating within the boundary of a construction site, road vehicle noise contributions are included in the overall predicted $L_{Aeq(15minute)}$ construction site noise emissions. When construction-related traffic moves onto the public road network a different noise assessment methodology is appropriate, as vehicle movements would be regarded as 'additional road traffic' rather than as part of the construction site.

On roads located immediately adjacent to construction sites, the community may associate heavy vehicle movements with the project works. However, once the heavy vehicles move further from construction sites onto major collector or arterial roads, the noise may be perceived as being part of the general road traffic.

Noise from construction traffic on public roads is not assessed under the ICNG, although the guideline does reference the Environmental Criteria for Road Traffic Noise (Environment Protection Authority, 1999), which has been superseded by the RNP. 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. For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments (in this case the construction area), any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'without construction' scenario.

Where the road traffic noise levels are predicted to increase by more than 2 dB as a result of construction traffic, consideration would be given to applying feasible and reasonable noise mitigation measures to reduce the potential noise impacts and preserve acoustic amenity.

In considering feasible and reasonable mitigation measures where the relevant noise increase is greater than 2 dB, consideration would also be given to the actual noise levels associated with construction traffic and whether or not these levels comply with the following road traffic noise criteria in the RNP:

- 60 dB $L_{Aeq(15hour)}$ day and 55 dB $L_{Aeq(9hour)}$ night for existing freeway/ arterial/ sub-arterial roads.
- 55 dB $L_{Aeq(1hour)}$ day and 50 dB $L_{Aeq(1hour)}$ night for existing local roads.

8.3 Construction vibration criteria

8.3.1 Construction vibration effects

Effects of ground vibration on buildings resulting from construction may be segregated into the following three categories:

- Human comfort – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed.
- Effects on building contents – vibration where the building contents may be affected.

- Effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

8.3.2 Disturbance to building occupants

Assessment of potential disturbance from construction vibration on human occupants of buildings is made in accordance with the guideline 'Assessing Vibration; a technical guideline' (DECC, 2006). The guideline provides criteria which are based on the British Standard BS 6472-1992 'Guide to evaluation of human exposure to vibration in buildings (1-80Hz)'.

The vibration dose values recommended in the guideline 'Assessing Vibration; a technical guideline' are presented in Table 16.

Table 16: Vibration Dose Values for intermittent vibration

Place and Time	Preferred Vibration Dose Value (VDV) in $m/s^{1.75}$	Maximum Vibration Dose Value (VDV) in $m/s^{1.75}$
Critical areas[1] (day or night)	0.1	0.2
Residential buildings 16 hr day	0.2	0.4
Residential buildings 8 hr night	0.13	0.26
Offices, schools, educational institutions and places of worship (day or night)	0.4	0.8
Workshops (day or night)	0.8	1.6

Notes:

1. Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate tasks require more stringent criteria than the human comfort criteria specify above.

To assess the potential for vibration impact on human comfort, an initial screening test will be done based on peak velocity units, as this metric is also used for the cosmetic damage vibration assessment. This screening test is a conservative approach since it is based on the continuous vibration velocity criteria (i.e. vibration that continues uninterrupted for a defined assessment period) whilst construction works are mostly intermittent. The screening test (Table 17) will be based on maximum peak values for surface construction works, which are intermittent in nature. This approach has been adopted so that the screening test is not unduly stringent.

If the predicted vibration exceeds the initial screening test, the total estimated Vibration Dose Value (i.e. eVDV) will be determined based on the level and duration of the vibration

Table 17: Construction vibration disturbance – initial screening test.

Place and Time	Preferred peak velocity, mm/s (>8Hz)	Maximum peak velocity, mm/s (>8Hz)
Critical areas (day or night)	0.14	0.28
Residential buildings 16 hr day	0.28	0.56
Residential buildings 8 hr night	0.20	0.40

Place and Time	Preferred peak velocity, mm/s (>8Hz)	Maximum peak velocity, mm/s (>8Hz)
Offices, schools, educational institutions and places of worship (day or night)	0.56	1.10
Workshops (day or night)	1.10	2.20

8.3.3 Structural damage to buildings

Potential structural damage of buildings caused by vibration is typically managed by ensuring vibration induced into the structure does not exceed certain limits and standards, such as British Standard 7385 Part 2 (1993) as required by Project Planning Approval Condition E28. BS7385 suggests levels at which 'cosmetic', 'minor' and 'major' categories of damage might occur.

The cosmetic damage levels set by BS 7385 are considered 'safe limits' up to which no damage due to vibration effects has been observed for certain particular building types. Damage comprises minor non-structural effects such as hairline cracks on drywall surfaces, hairline cracks in mortar joints and cement render, enlargement of existing cracks and separation of partitions or intermediate walls from load bearing walls. 'Minor' damage is considered possible at vibration magnitudes which are twice those given and 'major' damage to a building structure may occur at levels greater than four times those values.

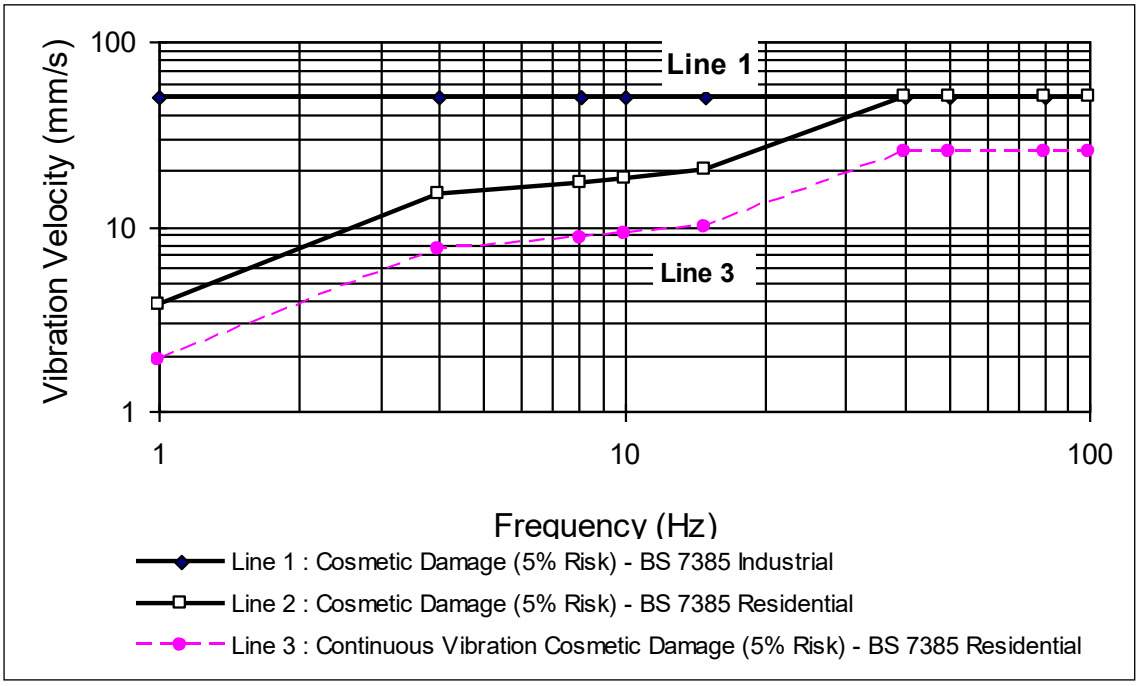
Table 18 sets out the recommended limits from BS7385 for transient vibration to ensure minimal risk of cosmetic damage to residential, commercial and industrial buildings. This is shown graphically in Figure 2.

Table 18: Transient vibration guide values - minimal risk of cosmetic damage (BS 7385) - peak component particle velocity

Line	Type of structure	Frequency range 4 to 15 Hz	Frequency range 15 to 40 Hz	Frequency range 40 Hz and above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s	50 mm/s	50 mm/s
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4Hz, increasing to 20 mm/s at 15Hz	20 mm/s at 15Hz, increasing to 50 mm/s at 40Hz	50 mm/s

BS7385 states that the guide values in Table 18 relate predominantly to transient vibration which does not give rise to resonant responses in structures, and to low-rise buildings. Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in Table 18 may need to be reduced by up to 50%, as shown by Line 3 of Figure 2 for residential buildings.

Figure 2: Transient peak component particle velocity vibration guide values for cosmetic damage



8.3.4 General vibration screening criterion

The British Standard states that the guide values in Table 17 relate predominantly to transient vibration which does not give rise to resonant responses in structures and low-rise buildings. Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in Table 17 may need to be reduced by up to 50%. This is especially applicable at the lower frequencies where lower guide values apply.

On this basis, a conservative vibration screening criteria per receiver type is given below:

- Reinforced or framed structures (Line 1): **25.0 mm/s**
- Unreinforced or light framed structures (Line 2): **7.5 mm/s**

At locations where the predicted and/or measured vibration levels are greater than shown above (peak component particle velocity), a more detailed analysis of the building structure, vibration source, dominant frequencies and dynamic characteristics of the structure would be required to determine the applicable vibration level. The analysis would take into consideration the transient vibration guide values for minimal risk of cosmetic damage set out in Figure 2.

8.3.5 Heritage structures/buildings

The British Standard BS7385 states that *"A building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive."*

Unless otherwise advised, a conservative vibration damage screening level (peak component particle velocity) for heritage buildings/structures can be set to 2.5mm/s (the more stringent criterion in the German Standard DIN 4150-2016 Structural Vibration Part 3: Effects of Vibration on Structures). This screening level will allow potentially impacted heritage structures to be identified. If a heritage structure is predicted to be exposed to vibration levels above the conservative vibration screening level of 2.5mm/s, further investigation would be undertaken to determine whether the structure is structurally unsound. Where a heritage building is deemed to be sensitive to vibration impacts, the more stringent DIN 4150-2016 Group 3 guideline values can be applied. Otherwise, structural damage vibration limits based on BS 7385 (Section 8.3.4) can be applied.

8.3.6 Utilities and other vibration sensitive structures

Any structures and utilities located near the proposal may be particularly sensitive to vibration. A vibration goal which differs from the cosmetic damage goals presented in Section 8.3.3 may need to be adopted. Examples of such structures and utilities include:

- Gas pipelines
- Fibre optic cables

The British Standard BS 7385-2:1993 'Evaluation and measurement for vibration in buildings - Part 2: Guide to damage levels from ground-borne vibration' notes that structures below ground are known to sustain higher levels of vibration and are very resistant to damage unless in very poor condition (British Standard BS 7385-2:1993, p5). Further guidance is taken from the German Standard DIN 4150: Part 3 - 1999.02 'Structural vibration in buildings - Effects on Structures'. Section 5.3 of DIN 4150: Part 3 sets out guideline values for vibration velocity to be used when evaluating the effects of vibration on buried pipework.

Table 19 presents the initial reference guideline for utilities and other buried pipework to evaluate the effects of short-term vibration impact. Specific vibration goals should be determined on a case-by-case basis as part of the CNVIS for each work site.

Table 19: DIN 4150-3 Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on buried pipework

Line	Pipe Material	Guideline values for vibration velocity measured on the pipe
1	Steel (including welded pipes)	100 mm/s
2	Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange)	80 mm/s
3	Masonry, plastic	50 mm/s

Line	Pipe Material	Guideline values for vibration velocity measured on the pipe
Note	1. Rock breaking/hammering and sheet piling activities are considered to have the potential to cause dynamic loading in some structures and it may therefore be appropriate to reduce the transient values by 50%.	

9 Construction noise assessment

9.1 Noise assessment methodology

An assessment on the potential level of construction noise impact has been carried out to determine whether mitigation would be required, and to determine appropriate management controls, based on the staging and activities described in Section 7.1.

Modelling and assessment of airborne noise impacts from activities associated with the construction works were determined by modelling the noise sources, receiver locations, topographical features, and possible noise mitigation measures using a 'CadnaA' computer noise model developed for this proposal. The model calculates the contribution of each noise source at identified sensitive receiver locations and allows for the prediction of the total noise from a site for the various stages of the construction works.

The noise prediction models take into account:

- Location of noise sources and sensitive receiver locations
- Height of sources and receivers
- Sound Power Levels (L_w) of plant and equipment likely to be used during the various construction activities (see Section 9.2)
- Separation distances between sources and receivers
- Ground type between sources and receivers
- Attenuation from barriers (natural and purpose built).

9.2 Construction activities and sound power levels

The type and number of plant and equipment associated with the proposed works that have been used for this assessment are based upon experience with similar noise assessments, the Transport for NSW (TfNSW) 'Construction Noise Strategy', and the CNVG. The assessment provides a typical representation of the potential construction noise levels and would be updated and refined by the construction contractor prior to construction commencing.

Table 20 presents a list of the construction activities and respective sound power levels of plant and equipment. The plant and equipment likely to be used by the contractor to carry out the necessary construction work for this proposal have also been listed. To identify the potential level of impact associated with the construction works, the assessment assumes all equipment would be operating concurrently.

Table 20: Equipment sound power levels ("SWL") used in the modelling of construction noise

Activity	Assessment ID	Description of activity	Plant/ equipment	Sound power levels, dB(A)		Assumed No. units
				L_{Aeq}	$L_{A1(1min)}$	
Medlow Bath to Blackheath						
Site preparation	V09 SP	Utility investigations, removal of redundant utilities and relocation of existing ones	Excavator (tracked) 35t	107	115	1
			Truck (articulated dump)	106	117	4 per hour
			Franna crane 20t	98	102	1
			Pneumatic hammer	115	120	1
			Concrete saw	115	118	1
			Vacuum truck	107	117	1
			Backhoe	100	104	1
			Power generator	100	106	1
			Assumed activity noise level	**116**	**120**	
Site establishment	V10 SE	General land clearing, tree and stump removal, topsoil stripping, loading	Bulldozer D9	114	118	1
			Excavator (tracked) 35t	107	115	1
			Chainsaw	119	124	2
			Tub grinder/ mulcher	119	124	1
			Truck (articulated dump) 30t	106	117	4 per hour
			Assumed activity noise level	**122**	**124**	
Bulk earthworks	V11 BE	Formation of road alignment excavation of soil and rock, hammering/rock breaking, drilling, loading, haulage, compaction of fill areas, grading	Bulldozer D9	114	118	1
			Scraper 651	108	110	1
			Excavator (tracked) 35t	107	115	1
			As above + hydraulic hammer	122	126	1
			Grader	113	121	1
			Truck (articulated dump) 30t	106	117	4 per hour
			Truck (medium rigid + trailer)	106	117	4 per hour
			Compactor	106	116	1
			Roller (large pad foot)	109	112	1
			Water cart	107	111	1
			Assumed activity noise level	**123**	**126**	
Drainage infrastructure	V12 DI	Excavation of trenches and pits, delivery and placement of precast pipes and pits, filling and compacting	Backhoe	100	104	1
			Franna crane 20t	98	102	1
			Excavator (tracked) 35t	107	115	1
			Truck (concrete agitator)	108	117	4 per hour
			Roller (large pad foot)	109	112	1
			Truck (medium rigid)	103	117	4 per hour
			Assumed activity noise level	**112**	**117**	
Paving/ asphalting (inc. concrete sawing)	V13 PA	Delivery of raw materials, placement of surface material, saw cutting	Pavement laying machine	103	112	1
			Truck (medium rigid)	103	117	4 per hour
			Asphalt truck & sprayer	108	116	1
			Truck (concrete agitator)	108	117	1
			Smooth drum roller	112	120	1
			Concrete saw	115	119	1
			Assumed activity noise level	**118**	**120**	

Activity	Assessment ID	Description of activity	Plant/ equipment	Sound power levels, dB(A)		Assumed No. units
				L_{Aeq}	$L_{A1(1min)}$	
Finishing works	V14 FW	Signposting and line marking	Truck (medium rigid)	106	117	4 per hour
			Scissor lift	98	101	1
			Franna crane 20t	98	102	1
			Line marking truck	108	112	1
			Assumed activity noise level	**109**	**117**	

9.3 Predicted construction noise levels

Noise levels at any receiver location resulting from construction works would depend on the location of the receiver with respect to the area of construction, shielding from intervening topography and structures, and the type and duration of construction being undertaken. Furthermore, noise levels at receivers would vary significantly over the total construction program due to the transient nature and large range of plant and equipment that could be used.

Table 21 to Table 27 present the $L_{Aeq,15min}$ and L_{Amax} (sleep disturbance) construction impacts levels likely to be experienced at receivers in each NCA. The summary presented represents the construction activity at the worst-case location to each affected receiver. A full list of predicted construction noise levels at all receivers for each work scenario of the revised design assessment (V09 to V14) is presented in APPENDIX G. Construction noise contours are presented in APPENDIX H.

The results shown below for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 21: Summary of construction noise results – Day standard hours ($L_{Aeq,15min}$)

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01	0 to 10									16	33	32	4	17	4	
	>10									8	7	6	2	2	1	
	75dBA or greater									3	11	3	1	3		
NCA02	0 to 10									11	34	34	9	16	4	
	>10									7	9	9	6	6	5	
	75dBA or greater									1	6	6		3		
NCA03	0 to 10	30	76	76	16	41	9			7	12	13	3	9	1	
	>10	4	14	19		8					3	3		1		
	75dBA or greater		2	3												
NCA04	0 to 10	2			7	3	4									
	>10	1	7	7		4										
	75dBA or greater	4														
NCA05	0 to 10	5	13	15	2	9	6		11							1
	>10		2	2			1		3							
	75dBA or greater															
NCA06	0 to 10	8	15	19	8	10	4									
	>10	2	8	8		4										
	75dBA or greater															
NCA07	0 to 10		8	16												10
	>10															

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
	75dBA or greater															

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 22: Summary of construction noise results - Day OOHW 1 ($L_{Aeq,15min}$)

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01	0 to 5									23	49	36	11	19	6	
	5 to 15									16	33	32	4	17	4	
	15 to 25									10	7	6	3	4	1	
	>25									1	11	3		1		
NCA02	0 to 5									27			7	24	8	
	5 to 15									11	34	34	9	16	4	
	15 to 25									7	9	9	6	6	5	
	>25									1	6	6		3		
NCA03	0 to 5	47	78	95	24	49	16			7	26	40	4	6	2	1
	5 to 15	30	76	76	16	41	9			7	12	13	3	9	1	
	15 to 25	4	16	22		8					3	3		1		
	>25															
NCA04	0 to 5						3									
	5 to 15	2			7	3	4									
	15 to 25	1	7	7		4										
	>25	4														

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA05	0 to 5	10	18	18	5	8	4	1	7							
	5 to 15	5	13	15	2	9			11							1
	15 to 25		2	2					3							
	>25															
NCA06	0 to 5	12	20	20	4	13	4	9								
	5 to 15	8	15	19	8	10	4	6								
	15 to 25	2	8	8		4		1								
	>25															
NCA07	0 to 5	2	93	125		16										47
	5 to 15		8	16												10
	15 to 25															
	>25															

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 23: Summary of construction noise results - Shoulder 1 extended hours OOHW 1 ($L_{Aeq,15min}$)

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01	0 to 5									61	63	69	28	76	19	
	5 to 15									53	97	112	26	54	17	
	15 to 25									13	34	29	3	15	4	
	>25									11	16	7	3	3	1	
NCA02	0 to 5		2	7									15		27	
	5 to 15									34	15	9	25	31	11	

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
	15 to 25									9	25	29	4	10	7	
	>25									6	9	11	5	8	1	
NCA03	0 to 5	94	66	66	48	91	47			40	99	100	6	68	7	5
	5 to 15	77	146	146	55	100	30			13	63	76	11	16	7	1
	15 to 25	22	55	60	9	24	4			3	11	11	1	4		
	>25		9	12		3					1	1				
NCA04	0 to 5															
	5 to 15	1			4		5									
	15 to 25	1	4	3	3	7	2									
	>25	5	3	4												
NCA05	0 to 5	18	9	5	8	19	9	10	14							3
	5 to 15	12	26	30	9	16	5	15	17							1
	15 to 25	3	9	9		4		4	3							
	>25								1							
NCA06	0 to 5	20	77	122	16	22	12									
	5 to 15	19	33	38	13	26	8									
	15 to 25	8	13	13	4	9	2									
	>25		4	6												
NCA07	0 to 5	8	125	142		27										72
	5 to 15		16	27												17
	15 to 25															
	>25															

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 24: Summary of construction noise results - Evening OOHW 1 ($L_{Aeq,15min}$)

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01	0 to 5									63	6	4	76	46	41	19
	5 to 15									97	117	142	54	132	37	
	15 to 25									34	68	55	15	32	8	
	>25									16	32	22	3	9	3	
NCA02	0 to 5	7	16	4		45										
	5 to 15		33	45						9			30		34	
	15 to 25									29	30	27	11	34	9	
	>25									11	19	22	8	15	6	
NCA03	0 to 5	65	4	1	90	41	95		7	100	83	72	81	87	40	24
	5 to 15	147	145	119	107	156	76			76	176	176	20	115	13	5
	15 to 25	60	107	130	30	76	22			11	20	34	7	12	3	1
	>25	12	34	40	4	16				1	7	7		3		
NCA04	0 to 5											1				
	5 to 15						2		1							
	15 to 25	1			5	3	5									
	>25	6	7	7	2	4										
NCA05	0 to 5	9			19	2	11	11	5							9
	5 to 15	25	24	19	16	28	13	18	21							3
	15 to 25	10	16	20	4	12	2	11	12							1
	>25		4	5		2		1	4							
NCA06	0 to 5	22	147	172	16	30	13		14							
	5 to 15	26	39	50	14	31	10									
	15 to 25	9	14	15	8	10	4									
	>25		8	8		2										
NCA07	0 to 5	93	403	481	16	142			28							263

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
	5 to 15	8	141	169		27										86
	15 to 25															3
	>25															

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 25: Summary of construction noise results - Night OOHW 2 ($L_{Aeq,15min}$)

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01	0 to 5									35	1	1	92	12	76	31
	5 to 15									120	84	93	76	150	54	9
	15 to 25									42	93	97	23	47	15	
	>25									23	45	32	5	13	3	
NCA02	0 to 5	33	4			49										
	5 to 15		45	49						3			27		32	
	15 to 25									34	27	24	14	34	10	
	>25									12	22	25	8	15	7	
NCA03	0 to 5	25			66	6	90		25	73	45	20	99	82	81	26
	5 to 15	165	80	72	146	157	107			139	170	182	63	168	20	17
	15 to 25	77	146	146	55	100	30			13	63	76	11	16	7	1
	>25	22	64	72	9	27	4			3	12	12	1	4		
NCA04	0 to 5								4		7	7				
	5 to 15								1							
	15 to 25	1			4		5									

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
	>25	6	7	7	3	7	2									
NCA05	0 to 5	2			17		18	6	1							11
	5 to 15	28	18	11	21	29	15	21	20							4
	15 to 25	12	21	26	5	13	2	10	17							1
	>25	2	5	7		2		4	4							
NCA06	0 to 5	175	60	40	77	133	23	3	114							3
	5 to 15	69	239	255	33	144	28		28							5
	15 to 25	19	33	38	13	26	8									
	>25	8	17	19	4	9	2									
NCA07	0 to 5	93	403	481	16	142			28							263
	5 to 15	8	141	169		27										86
	15 to 25															3
	>25															

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 26: Summary of construction noise results - Shoulder 2 extended hours OOHW 2 ($L_{Aeq,15min}$)

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01	0 to 5									53	3	3	96	37	52	20
	5 to 15									113	106	131	55	135	40	2
	15 to 25									33	77	64	17	37	9	
	>25									18	37	25	5	11	3	
NCA02	0 to 5		49	47		2									9	

NCA	dB(A) above NML	Number of exceedances														
		Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
		V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
	5 to 15			2						27			34	15	29	
	15 to 25									14	34	32	9	25	5	
	>25									8	15	17	6	9	6	
NCA03	0 to 5	71	14	6	98	66	60			99	71	82	57	100	13	12
	5 to 15	144	164	157	87	146	69			46	156	168	15	76	11	5
	15 to 25	41	87	100	23	60	12			9	15	16	3	11	3	1
	>25	8	25	27	2	12				1	3	4		1		
NCA04	0 to 5										1	5				
	5 to 15								1							
	15 to 25	1			4	2	7									
	>25	6	7	7	3	5										
NCA05	0 to 5	9			19	2	11	11	5							9
	5 to 15	25	24	19	16	28	13	18	21							3
	15 to 25	10	16	20	4	12	2	11	12							1
	>25		4	5		2		1	4							
NCA06	0 to 5	77	133	116	22	147	20		27							6
	5 to 15	33	144	170	26	39	15		3							
	15 to 25	13	26	28	9	14	8									
	>25	4	9	10		8										
NCA07	0 to 5	27	175	255		64										146
	5 to 15		40	66		2										29
	15 to 25															
	>25															

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

Table 27: Summary of construction noise results – Sleep disturbance (L_{Amax})

NCA	Number of exceedances														
	Katoomba to Medlow Bath								Medlow Bath to Blackheath						Ancillary facilities
	V01 SP	V02 SE	V03 BE	V04 DI	V05 PA	V06 FW	V07 BWF	V08 BWD	V09 SP	V10 SE	V12 BE	V12 DA	V13 PA	V14 FW	V15
NCA01									58	100	89	28	41	28	19
NCA02									40	49	49	22	40	22	
NCA03	92	141	193	64	92	64			15	27	56	12	15	12	30
NCA04	7	7	7	7	7	7									
NCA05	12	17	25	5	9	5	10	14							9
NCA06	23	38	47	17	23	17									6
NCA07															175

Notes:

* The results for Katoomba to Medlow Bath (V01 to V08) and the ancillary facilities (V15) have not been recalculated and remain the same as presented the REF proposal assessment.

9.4 Discussion of results

9.4.1 Guidance on construction noise predictions

9.4.1.1 Construction works along the road corridor

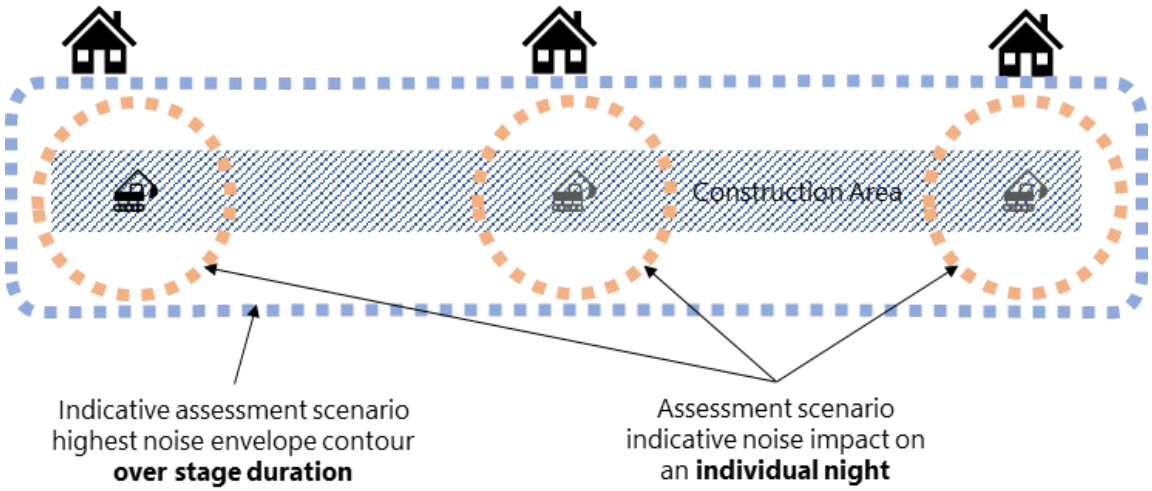
The CNVG recommends the assessment of a 'reasonable worst case' construction scenario. However, the reality of construction noise impacts is that they would vary greatly depending on the location of the construction works, the distance between the noise sources and the nearby receivers, the noise intensity of the works, the time of day these specific activities take place and the changing noise character with all these variables.

The noise impacts presented in the tables above in Section 9.3 provide summary of the highest noise levels that could potentially occur for a given construction activity. The noise impacts for each activity also assume a typical worst-case scenario with the loudest construction equipment in operation. In reality, the noise levels would vary, depending on which equipment is operating.

The predicted noise levels would only occur when works are at the closest point to each receiver. Due to the size and extent of the construction works, the noise impacts would be lower than predicted as the construction activities progress along the road corridor, as indicated in Figure 3 below.

The detailed noise results presented in APPENDIX G are the highest noise levels that could reasonably be expected to occur for each receiver for a given construction activity. Construction noise contours are presented in APPENDIX H.

Figure 3: Worst case construction noise level



9.4.2 Standard construction hours

The outcomes from the REF proposal assessment on the main alignment of the Great Western Highway remain similar to the revised alignment, which are as follows:

The summary of noise level predictions for standard construction hours shows that where construction is occurring near receivers, there are exceedances of the daytime NMLs. Overall impacts would be greatest in Medlow Bath given the close proximity of residences within the town centre to the works.

During the early site establishment phases of work, impacts would be highest when using noise plant and equipment, such as chain saws and mulchers. Utility investigations may cause high impacts should concrete saws or rock breakers be required.

During the bulk earthworks phase, impacts would be greatest when high noise generating plant such as rock breakers are in use. As previously discussed, the impacts presented are a worst case as the construction works move along the road corridor.

During the road construction works (including drainage infrastructure, paving / asphalting and finishing works), noise impacts would be greatest when large equipment such as rollers, pavers, asphalt trucks and concrete trucks are in use. Concrete saws may also be required which would cause higher impacts when in use.

For the construction noise and vibration assessment, the major difference between the REF proposal assessment and the revised design assessment is the inclusion of the new active transport trail that now connects to Valley View Road in Blackheath, and additional utilities works near the rear boundaries of residences on Evans Lookout Road between Valley View Road and Great Western Highway. The additional utilities works may not be required, however have been conservatively assessed. Any changes to construction methodologies and mitigation measures would be reassessed during detailed design.

Up to 11 residences in NCA01 are predicted to be highly noise affected during the site preparation and establishment stages of work. This is due to the works associated with the trenching for utilities along the southern boundaries of residences on Evans Lookout Road. In addition, up to three residences are predicted to be highly noise affected for road works on the new active transport trail where it connects to Valley View Road. This would only be for a small duration of the overall time where the works are near to the residences.

Consistent with the REF proposal assessment, up to six receivers are predicted to be highly noise affected at the northern end of Medlow Bath from the Medlow Bath to Blackheath works during the site establishment, bulk earthworks, and road paving stages of works.

Given that exceedances of the NMLs are predicted, measures for managing the noise impacts are provided in Section 9.6. APPENDIX G presents the predicted noise levels for the revised design assessment works (V09 to V14) at every receiver in NCAs impacted by the works (NCA01 to NCA04), listed by address and NCA, in every time period. APPENDIX I presents the additional mitigation measures to be applied to the receivers.

9.4.3 Out of hours work

The summary of noise level predictions for standard hours construction shows that where construction is occurring nearby to receivers, there are exceedances of the OOHW 1 and OOHW 2 NMLs. Given the low background noise levels throughout the study area, exceedances are predicted for residential receivers in all NCAs.

Based on the close proximity of residence in NCA01 to the new active transport trail and utility works, the impacts in NCA01 are now predicted to be greater than in the REF proposal assessment. Should any works occur in these areas outside of standard hours, there would be high noise impacts to the nearby residences on Evans Lookout Road and other surrounding roads. However, it is not expected that these works on the new active transport trail or the utility works near Evans Lookout Road would be required outside standard hours.

This assessment provides a worst case of all construction activities occurring simultaneously in each assessment period. This would not occur in practice, and justification would be required for any OOHW. Justification may include areas where the proposal ties into the existing Great Western Highway. Road occupancy licenses (ROLs) may be required where it is not possible to work in the road corridor during the day.

At certain areas along the road corridor between the towns of Katoomba, Medlow Bath and Blackheath, noise levels at nearby receivers would be significantly lower than the worst-case noise levels presented in this report. There may be opportunity to work outside standard construction hours and comply with the relevant noise goals where works are occurring between the towns with no residences nearby. A detailed assessment during the construction phase would be required to demonstrate this.

Given that exceedances of the NMLs are predicted, measures for managing the noise impacts are provided in Section 9.6. APPENDIX G presents the predicted noise levels for the revised design assessment works (V09 to V14) at every receiver in NCAs impacted by the works (NCA01 to NCA04), listed by address and NCA, in every time period. APPENDIX I presents the additional mitigation measures to be applied to the receivers.

9.5 Construction traffic noise impacts

Noise from construction traffic on public roads is assessed in accordance with Section 9 of the CNVG, which documents TfNSW's approach to implementing the RNP. The CNVG states that where construction traffic would not increase existing traffic noise levels by more than 2 dB(A), then no further assessment is required. Where noise levels increase by more than 2dBA (2.1dBA) further assessment is required using TfNSW's Noise Criteria Guideline.

The revised main alignment would have no impact on the original assessment of construction related road traffic noise. For works occurring on the new active transport trail up to Valley View Road, it is understood that access from Evans Lookout Road would not be required and all heavy vehicles would access the works from the south via the Medlow Bath to Blackheath section of the proposal. Based on

this, there would be no change to the construction traffic noise assessment from the REF proposal assessment.

9.6 Construction noise mitigation measures

9.6.1 General engineering noise controls

Implementation of noise control measures, such as those suggested in Australian Standard 2436-2010 'Guide to Noise Control on Construction, Demolition and Maintenance Sites', are expected to reduce predicted construction noise levels.

Reference to Australian Standard 2436-2010, Appendix C, Table C1 suggests possible remedies and alternatives to reduce noise emission levels from typical construction equipment. Table C2 in Appendix C presents typical examples of noise reductions achievable after treatment of various noise sources. Table C3 in Appendix C presents the relative effectiveness of various forms of noise control treatment.

Table 28 below presents noise control methods, practical examples and expected noise reductions according to AS2436 and according to Renzo Tonin & Associates' opinion based on experience with past projects. The Renzo Tonin & Associates' listed noise reductions are conservatively low and should be referred to in preference to those of AS2436.

Table 28: Relative effectiveness of various forms of noise control

Noise control method	Practical examples	Typical noise reduction possible in practice, dB(A)		Maximum noise reduction possible in practice, dB(A)	
		AS 2436	Renzo Tonin & Assoc.	AS 2436	Renzo Tonin & Assoc.
Distance	Doubling of distance between source and receiver	6	6	6	6
Screening	Acoustic barriers such as temporary or permanent noise barriers where barrier breaks line-of-sight between the source and receiver	5 to 10	5 to 10	15	15
Acoustic Enclosures	Engine casing lagged with acoustic insulation and plywood	15 to 25	10 to 20	50	30
Engine Silencing	Residential class mufflers	5 to 10	5 to 10	20	20
Substitution by alternative process	Use electric motors in preference to diesel or petrol	-	15 to 25	-	40

9.6.2 Standard noise management measures

The following recommendations provide feasible and reasonable noise control solutions to reduce noise impacts to sensitive receivers. A strong justification must be provided for not implementing the proposed measures if they are later determined on-site not to be feasible or reasonable.

- Use less noisy plant and equipment, where feasible and reasonable.
- Plant and equipment must be properly maintained.
- Provide special attention to the use and maintenance of 'noise control' or 'silencing' kits fitted to machines to ensure they perform as intended.
- Restrict works to standard construction hours as far as practicable, considering safety and traffic management requirements.
- Where feasible and reasonable, strategically position plant on site to reduce the emission of noise to the surrounding neighbourhood and to site personnel.
- Avoid any unnecessary noise when carrying out manual operations and when operating plant.
- Any equipment not in use for extended periods during construction work must be switched off.
- Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/avoided where possible.
- The offset distance between noisy plant and adjacent sensitive receivers is to be maximised where practicable.
- Plant used intermittently to be throttled down or shut down when not in use where practicable.
- Noise-emitting plant to be directed away from sensitive receivers where possible.

9.6.3 Additional noise mitigation measures

Residual noise impacts are expected from the proposal even after it has applied the above standard noise mitigation measures. The CNVG requires the proposal to also apply the additional noise mitigation measures specified in Appendix C of the CNVG where feasible and reasonable to do so. Table 29 summarises these additional mitigation measures and the triggers for their application. Additional mitigation measures for all impacted receivers from the revised design assessment works are provided in the table in APPENDIX I.

Table 29: Additional mitigation measures and their triggers

Predicted airborne $L_{Aeq(15min)}$ noise level at receiver			**Additional mitigation measure**	
Perception	**dB(A) above RBL**	**dB(A) above NML**	**Type[1]**	**Mitigation levels[2]**
All hours				
75 dB(A) or greater	-	-	N, V, PC, RO	HA
Standard Hours: Mon-Fri (7am – 6pm), Sat (8am-1pm), Sun/Pub Hol (Nil)				
Noticeable	5 to 10	0	-	NML
Clearly Audible	10 to 20	< 10	-	NML
Moderately Intrusive	20 to 30	10 to 20	N, V	NML + 10
Highly Intrusive	> 30	> 20	N, V	NML + 20

Predicted airborne $L_{Aeq(15min)}$ noise level at receiver			Additional mitigation measure	
Perception	**dB(A) above RBL**	**dB(A) above NML**	**Type[1]**	**Mitigation levels[2]**
Out of Hours Works Period 1: Mon-Fri (6pm-10pm), Sat (7am-8am & 1pm-10pm), Sun/Pub Hol (8am-6pm)				
Noticeable	5 to 10	< 5	-	NML
Clearly Audible	10 to 20	5 to 15	N, R1, DR	NML + 5
Moderately Intrusive	20 to 30	15 to 25	V, N, R1, DR	NML + 15
Highly Intrusive	> 30	> 25	V, IB, N, R1, DR, PC, SN	NML + 25
Out of Hours Works Period 2: Mon-Fri (10pm-7am), Sat (10pm-8am), Sun/Pub Hol (6pm-7am)				
Noticeable	5 to 10	< 5	N	NML
Clearly Audible	10 to 20	5 to 15	V, N, R2, DR	NML + 5
Moderately Intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR	NML + 15
Highly Intrusive	> 30	> 25	AA, V, IB, N, PC, SN, R2, DR	NML + 25

Notes

1.

AA =Alternative Accommodation R1=Respite Period 1

V=Verification SN = Specific notifications

R2=Respite Period 2 N = Notification

PC=Phone call DR = Duration Respite

IB = Individual briefings Perception = relates to level above RBL

2.

NML = Noise Management Level HA = Highly Affected (>75 dB(A) – applies to residences only)

9.6.4 Verification monitoring

The attended measurements will need to be carried out by an appropriately trained person in the measurement and assessment of construction noise and vibration, who is familiar with the requirements of the relevant standards and procedures.

The attended measurements shall include evaluation of both construction noise and background noise levels compared with the predicted and estimated levels used in the assessment. The results of the attended noise measurements shall be used to update the Construction Noise and Vibration Management Plan and other relevant environmental management documents.

The following noise monitoring will be undertaken:

- At the start of works to determine if the sound power levels of all plant and equipment on site are consistent with the assumed levels presented in the CNVMP.
- Monitoring will be undertaken periodically adjacent to construction works to verify the noise model predictions to ensure effectiveness of mitigation measures.
- Monitoring in response to complaints

10 Construction vibration assessment

10.1 Vibration sources

Potential vibration generated to receivers is dependent on separation distances, the intervening soil and rock strata, dominant frequencies of vibration, and the receiver structure.

The recommended minimum working distances for vibration intensive plant are presented in Table 30 and Table 31. These distances are conservatively based on excavation of hard rock. Site specific minimum working distances for vibration intensive plant items must be measured on site where plant and equipment are likely to operate close to or within the minimum working distances for cosmetic damage, as detailed in Table 30.

Unlike noise, vibration cannot be readily predicted. There are many variables from site to site, such as soil type and conditions, sub surface rock, building types and foundations, and actual plant on site.

The data relied upon in this assessment (tabulated below) is taken from a database of vibration levels measured at various sites or obtained from other sources (such as BS5228-2:2009). They are not specific to this proposal as final vibration levels are dependent on many factors including the actual plant used, its operation and the intervening geology between the activity and the receiver.

Table 30: Minimum working distances (m) for cosmetic damage (continuous vibration)

Plant item	Minimum working distance (m)		
	Reinforced or framed structures (e.g. commercial buildings)[1]	Unreinforced or light framed structures (e.g. residential buildings)[1]	Sensitive structures (e.g. heritage structures)[2]
Concrete saw	5	5	5
Rock Saw attachment on a medium sized excavator	5	5	10
Jackhammer	5	5	5
Place compactor/Wacker packer	5	5	5
Small percussive drill	5	5	5
Truck-mounted drill rig / bored piling	5	5	10
Light hydraulic hammer (up to 5t)	5	5	10
10-15t Excavator with hydraulic hammer attachment	5	5	10
35t Excavator with hydraulic hammer attachment	5	10	10
Smooth drum roller (13t) - High vibration	5	5	15
Smooth drum roller (13t) - Low vibration	5	5	10
Padfoot roller (11t) - High vibration	5	10	20
Padfoot roller (11t) - Low vibration	5	10	20
Terrain leveller	5	5	5

Plant item	Minimum working distance (m)		
	Reinforced or framed structures (e.g. commercial buildings)[1]	Unreinforced or light framed structures (e.g. residential buildings)[1]	Sensitive structures (e.g. heritage structures)[2]

Notes 1) Initial screening test criteria reduced by 50% due to potential dynamic magnification in accordance with BS7385.
2) A site inspection should determine whether a heritage structure is structurally unsound.
3) Minimum working distances are in 5m increments only to account for the intrinsic uncertainty of this screening method.

Table 31: Minimum working distances (m) for human annoyance (continuous vibration)

Plant item	Minimum working distances (m)				
	Critical areas 0.28 mm/s	Residences		Offices 1.1 mm/s	Workshops 2.2 mm/s
		Day 0.56mm/s	Night 0.40 mm/s		
Concrete saw	15	10	10	5	5
Rock Saw attachment on a medium sized excavator	45	25	35	15	10
Jackhammer	25	15	20	10	5
Place compactor/Wacker packer	20	10	15	5	5
Small percussive drill	20	10	15	5	5
Truck-mounted drill rig / bored piling	30	20	20	10	10
Light hydraulic hammer (up to 5t)	25	20	20	15	10
10-15t Excavator with hydraulic hammer attachment	30	20	25	15	10
35t Excavator with hydraulic hammer attachment	40	25	30	20	15
Smooth drum roller (13t) - High vibration	105	55	75	30	15
Smooth drum roller (13t) - Low vibration	75	40	55	20	10
Padfoot roller (11 t) - High vibration	120	70	90	40	25
Padfoot roller (11 t) - Low vibration	110	60	80	35	20
Terrain leveller	30	15	20	5	5

10.2 Vibration assessment

10.2.1 Cosmetic damage

10.2.1.1 Reinforced and unreinforced structures

Consistent with the REF proposal assessment, there are no reinforced or unreinforced structures within the minimum working distance identified Table 30 above. It is noted however that works at the northern end of the new active transport trail where it joins Valley View Road is approximately 15 metres from the nearest garage structure for the residence at 31 Evans Lookout Road.

10.2.1.2 Heritage structures

No heritage structures were identified within the minimum working areas for near the revised Medlow Bath to Blackheath section of works. The results are unchanged from the REF proposal assessment.

10.2.2 Human annoyance

Table 32below provides a summary of the number of residences within the minimum working distances for cosmetic damage within in NCA. The main change from the REF proposal assessment is in NCA01 for works occurring at the northern end of the new active transport trail.

The structures are shown on the figures in APPENDIX J. As exceedances of the human annoyance criteria are predicted, vibration mitigation measures are discussed in Section 10.3 and Section 10.3.2.

Table 32: Summary of residences within the minimum working distance for human annoyance

NCA	Residences			
	Day		Night	
	REF	Addendum	REF	Addendum
NCA01	0	13	1	23
NCA02	8	8	8	8
NCA03	18	17	28	25
NCA04	4	4	7	7
NCA05	0	0	1	1
NCA06	6	6	7	7
NCA07	0	0	0	0

Notes:

* The results for receivers in NCA01 to NCA03 affected by the revised design have been recalculated. The results for the Katoomba to Medlow Bath Section of works remain the same as presented the REF assessment.

10.3 Vibration mitigation measures

10.3.1 Standard mitigation measures

In accordance with the vibration requirements for the proposal, the following vibration mitigation measures to reduce vibration impacts to sensitive receivers would be implemented where feasible:

- Use of lower vibration-generating plant and equipment, such as smaller capacity hydraulic hammers or concrete crushers/pulverisers in place of hammers
- Suitably programming the hours of operation of major vibration generating plant and equipment
- Minimising consecutive works in the same locality
- Using dampened hammers

- Carry out attended vibration monitoring where vibration-intensive works are to be undertaken within the safe working distances
- Completing building condition surveys before and after vibration intensive works to identify existing damage and any damage due to the works.

The following vibration management measures are to be considered in accordance with the CNVG to minimise vibration impact from construction activities to the nearest affected receivers and to meet the relevant human comfort vibration and structural damage limits identified in Section 8.3.

Table 33: Site vibration control measures

Control type	Control measure	Typical use
Construction planning	Community consultation	Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night-time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required. • Website (If required) Contact telephone number for community • Email distribution list (if required) • Community drop-in session (if required by approval conditions).
	Site inductions	All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include: • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures • site opening/closing times (including deliveries) • environmental incident procedures
	Equipment selection/ construction method	Use less vibration emitting construction methods where feasible & reasonable, for example vibratory rollers can, where practicable, be operated with the vibratory mode switched off to reduce vibration impact.
	Plan work activities to minimise vibration.	Plan traffic flow, parking & loading/unloading areas to maximise distances between truck routes and sensitive receivers.

10.3.2 Additional vibration mitigation measures

After applying all feasible and reasonable mitigation measures identified in Section 10.3, if vibration monitoring at representative locations still exceeds relevant vibration objectives for human annoyance, the appropriate additional vibration mitigations measures in accordance with Appendix C of the CNVG as presented in Table 34 should be provided.

Table 34: Additional vibration mitigation measure

Predicted vibration level at receiver	Additional mitigation measures	
	type[1]:	apply to[2]:
Standard Hours: Mon - Fri (7am – 6pm), Sat (8am – 1pm), Sun/Pub Hol (Nil)		
Predicted Vibration Exceeds Maximum Levels	V, N, RP	All
OOHW Period 1: Mon – Fri (6pm – 10pm), Sat (7am – 8am & 1pm – 10pm), Sun/Pub Hol (8am – 6pm)		
Predicted Vibration Exceeds Maximum Levels	V, IB, N, RO, PC, RP, SN	All
OOHW Period 2: Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)		
Predicted Vibration Exceeds Maximum Levels	AA, V, IB, N, PC, RP, SN	All

Notes

1.

AA =Alternative Accommodation
V=Validation of predicted noise levels
IB = Individual briefings
N = Notification drops
RO = Project specific respite offer
PC = Phone calls
N = Notification
SN = Specific notifications

2.

All affected receivers

11 Conclusion

This report has been prepared as an addendum to Appendix H (Noise and Vibration Technical Paper) of the Great Western Highway East – Katoomba to Blackheath Review of Environmental Factors (the REF proposal assessment). This addendum report has been prepared to address the proposed modifications in the design for the Medlow Bath to Blackheath section of works (the revised design). The key findings of the assessment are detailed in the following sections.

11.1 Operational traffic noise assessment

The assessment of road traffic noise was conducted in accordance with Roads and Maritime Noise Criteria Guideline (NCG) and Noise Mitigation Guideline (NMG). The assessment of 'Build' and 'No build' in the opening year (2026) and Design year (2036) found that:

- 29 residences are predicted to exceed the NCG noise goals and qualify for the consideration of additional noise mitigation. This compares to 31 residences identified for the REF proposal assessment.
- The two receivers no longer requiring additional noise mitigation are located on Coachhouse Lane [redacted] in Medlow Bath. The minor changes in design alignment near these residences have marginally lowered the overall predicted noise levels by up to 1dB. As a result, the two residences are now no longer predicted to be 'acute' (i.e. ≥65dB(A) $L_{Aeq,15hr}$ or ≥60dB(A) $L_{Aeq,9hr}$). The reduction in noise level is likely due to minor changes in the design alignment which has shifted the lanes on the overpass approximately 0.5 to 1 metre to the west, reducing line of site sight to road traffic on the approach to the rail overpass.

Where the modifications to the design have occurred from Medlow Bath to Blackheath, low noise pavement was found to be not reasonable in both the REF proposal assessment and the revised design assessment. However, low noise pavement has been implemented in sections of the Katoomba to Medlow Bath design, as detailed in the REF proposal assessment.

Noise barriers were considered for the REF proposal assessment and were found to be not reasonable, as the construction of noise walls would be incompatible with the urban design objectives of the 'Great Western Highway, Katoomba to Mount Victoria Urban Design Framework' (GWHUDF). This outcome is consistent with other recent projects on Great Western Highway throughout the Blue Mountains. Based on the outcomes of the REF proposal assessment, noise barriers were not considered for the revised design assessment.

After the implementation of low noise pavement, it was found that:

- 23 residential receivers were identified for additional noise mitigation remain above the relevant NCG noise criteria and qualify for the consideration of at-property treatment. This compares to 25 residential receivers identified for the REF proposal assessment.

- Whilst the two residences on Coachhouse Lane are no longer identified for consideration of at-property treatment based on the revised design, given the marginal change in predicted noise levels, it would still be reasonable for these two residences to be provided at-property treatment.

11.2 Construction noise and vibration assessment

An assessment of construction noise impact from the proposal has been undertaken. Noise emission from the construction of the proposal has been predicted and assessed against the relevant noise criteria set by the Roads and Maritimes' 'Construction Noise and Vibration Guideline' (CNVG). The assessment of both the Katoomba the Medlow Bath and Medlow Bath to Blackheath stages were considered. The key findings are:

- During standard hours construction, exceedances of the NMLs are predicted throughout the study area. Residences generally are not predicted to be highly noise affected, however, where works occur at the northern end of the Katoomba to Medlow Bath stage, and the southern end of the Medlow Bath the Blackheath stage of works, a total of 20 residences are predicted to be highly noise affected, which is an additional 11 residences compared to the REF proposal assessment. The additional residences are located in NCA01 near the new active transport trail. This impact would not be for the full duration of the construction works and would only occur where the construction is nearby to the residences.
- For works outside standard hours, exceedances are predicted throughout the Project study area. Impacts would be greatest during the night-time period for works occurring in Medlow Bath and at the northern end of the new active transport trail where it connects to Valley View Road. All works outside standard construction hours would require justification, with noise and vibration mitigation measures provided in accordance with the CNVG.

Residences within all NCAs that are located alongside the proposal alignment would be more noise affected by the construction works. However, as the construction works move along the main alignment, receivers would only be maximally affected while the works are occurring directly outside the residence. Recommendations for construction noise mitigation measures have been provided.

Potential vibration impacts to residential and other sensitive receivers has been completed and assessed against the relevant guidelines for structural damage from vibration and for human disturbance. Two heritage listed culverts have been identified within the minimum working distances for cosmetic damage in the REF proposal assessment. This outcome is unchanged for the revised design assessment.

Recommendations have been provided to manage and/or minimise noise and vibration where they occur. Mitigation and management measures including community notification should be implemented wherever feasible and reasonable.

References

1. NSW Department of Environment and Climate Change 2011 Road Noise Policy (RNP)
2. NSW Roads and Maritime Services April 2015 Noise Criteria Guideline (NCG)
3. NSW Roads and Maritime Services April 2015 Noise Mitigation Guideline (NMG)
4. NSW Roads & Traffic Authority 2001 Environmental Noise Management Manual (ENMM)
5. NSW Environment Protection Authority 2017 Noise Policy for Industry (NPfI)
6. NSW Roads and Maritimes Services 2017 At-Receiver Noise Treatment Guideline
7. NSW Department of Environment and Climate Change 2009 Interim Construction Noise Guideline (ICNG)
8. NSW Roads and Maritime Services April 2016 Construction Noise and Vibration Guideline (CNVG)
9. NSW Department of Environment and Conservation Assessing Vibration – A Technical Guideline (AVATG)
10. British Standard BS 6472-2008, 'Evaluation of human exposure to vibration in buildings (1-80Hz)
11. German Standard DIN 4150-3: 1999-02 - 'Structural vibration - Effects of vibration on structures'
12. Australian Standard 2834-1995 Computer Accommodation, Chapter 2.9 Vibration, p16
13. Gordon CG Generic Vibration Criteria for Vibration Sensitive Equipment *Proceedings of International Society for Optical Engineering (SPIE)*, Vol. 1619, San Jose, CA, November 4-6, 1991, pp. 71-85
14. Great Western Highway East – Katoomba to Blackheath, Review of Environmental Factors, April 2022

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 common sounds in our daytime environment:

threshold of hearing	0 dB	The faintest sound we can hear
	10 dB	Human breathing
almost silent	20 dB	
	30 dB	Quiet bedroom or in a quiet national park location
generally quiet	40 dB	Library
	50 dB	Typical office space or ambience in the city at night
moderately loud	60 dB	CBD mall at lunch time
	70 dB	The sound of a car passing on the street
loud	80 dB	Loud music played at home
	90 dB	The sound of a truck passing on the street
very loud	100 dB	Indoor rock band concert
	110 dB	Operating a chainsaw or jackhammer
extremely loud	120 dB	Jet plane take-off at 100m away
threshold of pain	130 dB	
	140 dB	Military jet take-off at 25m away

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 Project roads

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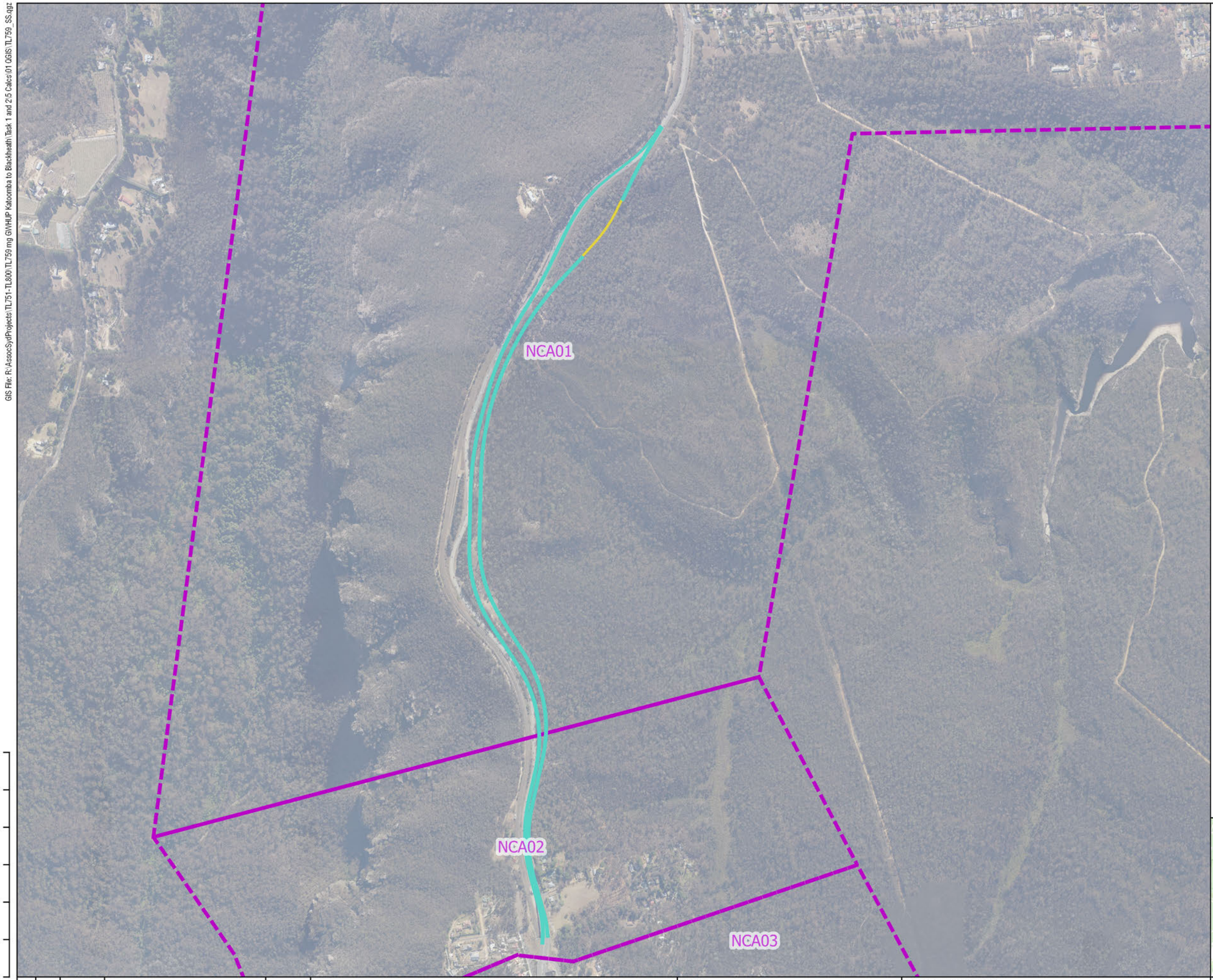

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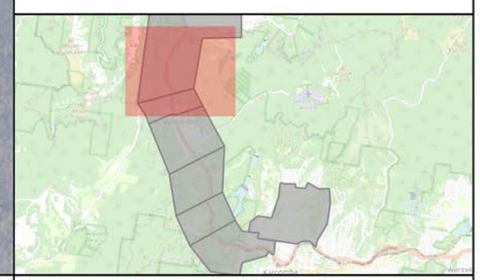
LEGEND

Project NCAs

Project Roads

New Roads

Redeveloped Roads



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r1	SS	25/10/21	Update figures	RPH
r0	SS	05/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56

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FULL SIZE A3

NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath

Project Roads

Plot Date: 11/08/22 - 12:30 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

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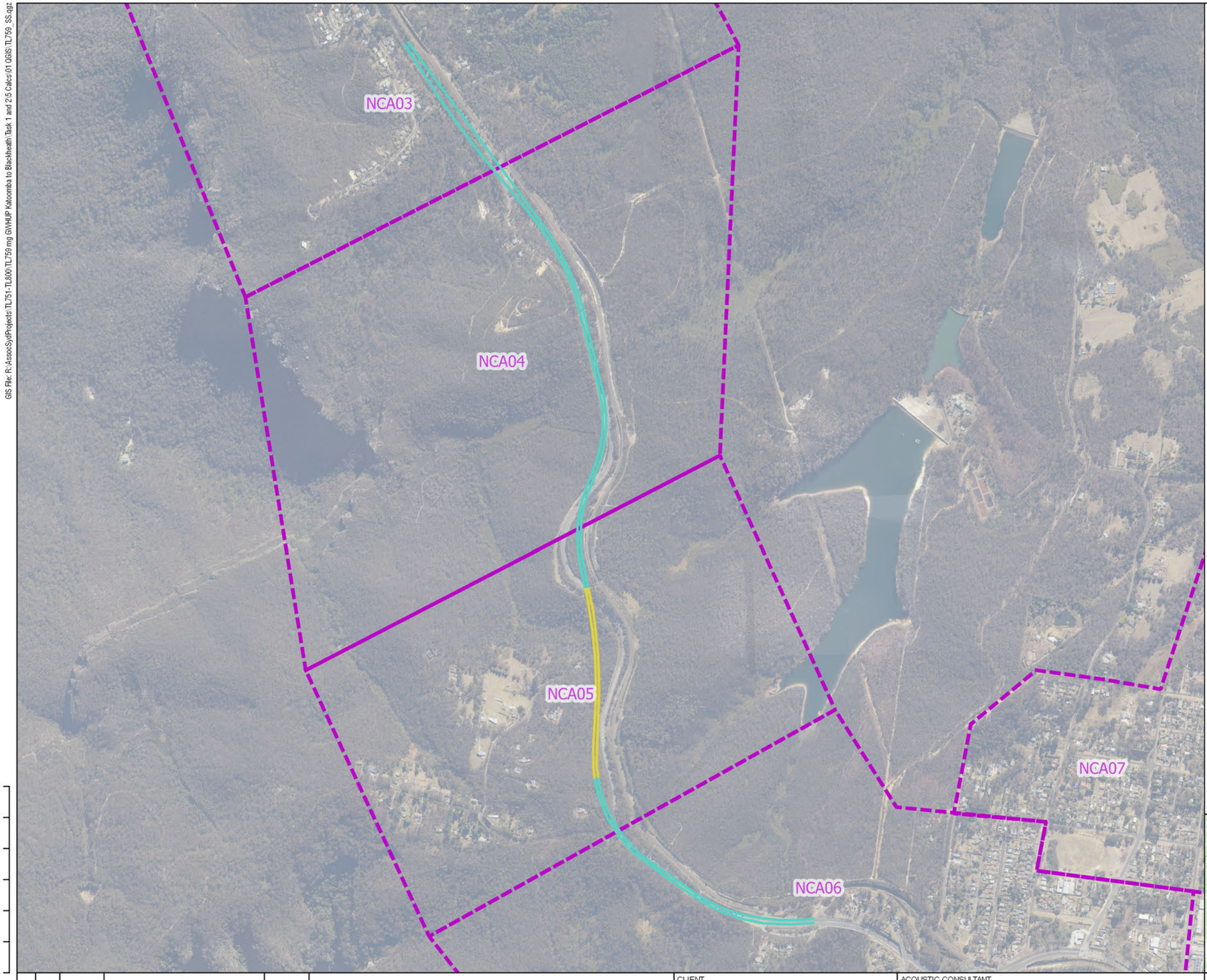

LEGEND

Project NCAs

Project Roads

New Roads

Redeveloped Roads

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r1	SS	25/10/21	Update figures	RPH
r0	SS	05/10/21	Prepare figures	RPH

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Great Western Highway Upgrade Program - Katoomba to Blackheath

Project Roads

APPENDIX C Predicted road traffic noise levels (without mitigation)

Great Western Highway Upgrade Program - Katoomba to Blackheath

Operational traffic noise assessment

Without mitigation

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	1463	[redacted]	Residential	0	N	51	46	51	46	52	47	52	47	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1469		Residential	0	W	67	62	67	62	67	63	68	62	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1476		Residential	0	N	52	47	52	47	52	47	52	47	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1477		Residential	0	W	53	48	53	48	54	49	54	49	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1478		Residential	0	W	56	51	56	51	57	52	57	52	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1482		Residential	0	W	60	55	60	55	60	55	60	55	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1483		Residential	0	W	60	55	60	55	61	56	61	56	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1486		Residential	0	W	54	49	54	49	54	50	54	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1487		Residential	0	W	53	48	53	48	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1491		Residential	0	W	67	62	67	62	68	63	68	63	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1497		Residential	0	W	69	64	69	64	70	65	70	65	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1498		Residential	0	W	70	65	70	65	71	66	71	66	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1499		Residential	0	W	54	49	54	49	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1502		Residential	0	N	52	47	52	47	53	48	53	48	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1504		Residential	0	W	72	67	72	67	73	68	73	68	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1507		Residential	0	N	53	48	53	48	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1508		Residential	0	S	56	51	56	51	57	52	56	51	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1509		Residential	0	W	70	65	70	65	70	65	70	65	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1514		Residential	0	N	56	51	56	51	56	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1518		Residential	0	N	54	49	54	49	55	50	55	50	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1521		Residential	0	W	71	65	71	65	71	66	71	66	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1522		Residential	0	W	59	54	59	54	60	55	60	55	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1523		Residential	0	N	57	52	57	52	57	52	57	52	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1526		Residential	0	S	53	48	53	48	54	49	54	49	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1528		Residential	0	W	54	49	54	49	55	50	55	50	0	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1529		Residential	0	S	60	55	59	54	60	55	60	55	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1531		Residential	0	W	70	65	70	65	70	65	70	65	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1532		Residential	0	N	59	54	59	54	60	55	60	55	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1535		Residential	0	W	62	57	62	57	63	58	63	58	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1539		Residential	0	W	69	64	69	64	69	64	69	64	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1541		Residential	0	W	56	50	55	50	56	51	56	51	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1543		Residential	0	N	53	48	53	48	53	48	53	48	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1545		Residential	0	S	59	54	59	54	60	55	60	55	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1546		Residential	0	N	52	47	52	47	52	48	53	47	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1549		Residential	0	S	53	48	53	48	54	49	54	49	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1569		Residential	0	N	55	50	55	50	56	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1575		Residential	0	W	51	46	51	46	52	47	52	47	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1576		Residential	0	N	58	52	58	52	58	53	58	53	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1577		Residential	0	W	70	65	70	65	70	65	70	65	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1579		Residential	0	W	59	54	59	54	59	54	59	54	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1586		Residential	0	W	55	50	55	50	55	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1588		Residential	0	W	69	64	69	64	69	64	70	64	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1590		Residential	0	W	70	65	70	65	71	66	71	66	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1592		Residential	0	N	54	49	54	49	54	50	55	50	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1603		Residential	0	S	57	52	57	52	57	52	57	52	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1608		Residential	0	W	56	51	56	51	57	52	57	52	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1614		Residential	0	W	65	60	65	60	65	60	65	60	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1618		Residential	0	W	53	48	53	48	54	49	54	49	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1629		Residential	0	N	56	51	56	51	57	52	57	52	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1641		Residential	0	N	46	41	46	41	47	42	47	42	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1647		Residential	0	S	57	52	56	51	57	52	57	52	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1652		Residential	0	W	43	38	43	38	44	39	44	39	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1653		Residential	0	W	46	40	45	40	46	41	46	41	-0.1	0	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1653		Residential	1	W	47	42	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1655		Residential	0	S	48	43	48	43	49	44	49	44	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1657		Residential	0	N	47	41	46	41	47	42	47	42	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1659		Residential	0	S	41	36	41	36	42	37	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1663		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1675		Residential	0	W	52	47	51	46	52	47	52	47	-0.8	-0.8	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1676		Residential	0	W	50	45	50	45	51	46	51	46	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1700		Residential	0	S	50	45	49	44	51	46	50	45	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1701		Residential	0	W	42	37	42	37	43	38	43	38	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1710		Residential	0	S	42	37	42	37	43	38	43	38	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1710		Residential	1	W	48	43	48	43	49	44	49	43	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1713		Residential	0	S	49	44	49	44	50	45	50	45	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1715		Residential	0	S	47	42	46	41	48	43	47	42	-1.1	-0.9	-1	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1743		Residential	0	W	48	42	48	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	1745	[redacted]	Residential	0	W	48	43	48	43	49	44	49	44	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1747		Residential	0	S	48	43	48	43	49	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1749		Residential	0	W	62	57	62	57	63	58	63	58	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1758		Residential	0	S	59	54	59	54	59	54	59	54	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1779		Residential	0	N	48	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1783		Residential	0	S	49	44	48	43	50	45	49	44	-1.4	-1.2	-1.3	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1809		Residential	0	W	42	37	42	37	43	38	43	38	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1822		Residential	0	W	44	39	44	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1833		Residential	0	W	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1849		Residential	0	N	40	35	40	35	41	36	41	36	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1856		Residential	0	N	45	40	45	40	46	41	46	41	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1857		Residential	0	SW	43	38	43	38	44	39	44	39	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1857		Residential	1	SW	45	40	45	40	46	41	46	41	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1865		Residential	0	S	51	46	50	45	52	47	51	46	-0.9	-0.9	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1871		Residential	0	W	47	42	46	41	48	43	47	42	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1872		Residential	0	S	51	46	50	45	52	47	51	46	-0.9	-0.9	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1874		Residential	0	W	44	38	43	38	44	39	44	39	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1883		Residential	0	S	41	36	41	36	42	37	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1900		Residential	0	W	48	43	47	42	49	44	48	43	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1905		Residential	0	N	45	40	45	40	46	41	46	41	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1915		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1916		Residential	0	N	46	41	46	41	46	41	46	41	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1920		Residential	0	N	47	42	47	41	47	42	47	42	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1927		Residential	0	S	46	41	44	39	46	41	45	40	-1.4	-1.2	-1.3	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1929		Residential	0	S	49	44	47	42	49	44	48	43	-1.2	-1.1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1935		Residential	0	W	46	41	46	41	47	42	47	42	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1938		Residential	0	N	45	39	45	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1939		Residential	0	N	47	42	47	42	48	43	48	43	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1944		Residential	0	S	52	47	51	46	53	48	52	47	-0.8	-0.8	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1951		Residential	0	W	50	45	50	45	50	45	50	45	0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1960		Residential	0	W	49	44	49	44	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1963		Residential	0	W	46	41	46	41	47	42	47	42	-0.3	-0.3	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1965		Residential	0	N	43	38	43	38	43	39	44	38	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1966		Residential	0	N	50	45	50	45	51	46	51	46	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1969		Residential	0	W	50	45	50	45	50	45	50	45	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1972		Residential	0	N	44	39	44	39	45	40	45	40	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1983		Residential	0	N	48	43	48	43	48	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1988		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1995		Residential	0	W	46	41	46	41	46	41	46	41	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1996		Residential	0	W	50	45	49	44	51	46	50	45	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2004		Residential	0	W	51	46	51	46	52	47	52	47	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2007		Residential	0	W	49	44	49	44	50	45	50	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2009		Residential	0	W	42	37	42	37	42	37	42	37	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2010		Residential	0	S	50	45	49	44	51	46	50	45	-1	-0.9	-0.9	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2027		Residential	0	S	45	40	44	39	45	40	45	40	-0.9	-0.8	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2027		Residential	1	W	48	42	47	42	48	43	48	43	-0.7	-0.5	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2044		Residential	0	N	46	41	46	41	47	42	47	42	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2048		Residential	0	S	51	46	50	45	51	46	50	45	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2055		Residential	0	W	47	42	46	41	48	43	47	42	-0.8	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2066		Residential	0	S	57	51	56	51	57	52	57	52	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2075		Residential	0	S	50	45	49	44	51	46	50	45	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2084		Residential	0	W	47	42	47	42	48	43	48	43	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2095		Residential	0	W	45	39	45	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2130		Residential	0	S	42	36	41	36	42	37	42	37	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2131		Residential	0	N	49	44	48	43	49	44	49	44	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2151		Residential	0	W	50	45	49	44	51	46	50	45	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2174		Residential	0	S	41	36	41	35	41	36	41	36	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2180		Residential	0	S	42	37	42	37	43	38	42	37	-0.5	-0.3	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2184		Residential	0	W	48	43	48	43	48	43	48	43	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2190		Residential	0	W	44	39	44	39	44	39	44	39	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2200		Residential	0	N	47	42	47	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2207		Residential	0	W	53	48	53	48	54	49	53	48	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2212		Residential	0	W	50	45	50	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2213		Residential	0	S	57	52	57	52	58	53	58	53	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2220		Residential	0	S	44	38	43	38	44	39	44	39	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2231		Residential	0	N	45	40	45	40	46	41	46	41	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2234		Residential	0	N	50	45	50	45	51	46	51	46	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2272		Residential	0	W	50	45	50	45	51	46	51	46	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2276		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2285		Residential	0	N	46	41	46	41	46	41	46	41	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2288		Residential	0	W	45	40	45	40	45	40	45	40	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2293		Residential	0	W	47	42	47	42	48	43	48	43	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2303		Residential	0	W	49	44	49	44	50	45	50	45	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2321		Residential	0	S	50	45	49	44	51	46	50	45	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	2322	[redacted]	Residential	0	N	49	44	49	44	49	45	50	44	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2323		Residential	0	W	49	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2326		Residential	0	N	49	44	49	44	49	45	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2331		Residential	0	W	42	37	42	37	43	38	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2342		Residential	0	W	48	43	47	41	48	43	47	42	-1.1	-1.1	-1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2349		Residential	0	N	48	43	48	43	48	43	48	43	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2350		Residential	0	W	51	46	50	45	52	47	51	46	-0.9	-0.8	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2356		Residential	0	S	48	43	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2361		Residential	0	N	49	44	49	44	50	45	50	45	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2363		Residential	0	W	50	45	49	44	50	45	49	44	-0.9	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2366		Residential	0	N	48	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2381		Residential	0	SW	40	35	40	35	41	36	41	36	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2381		Residential	1	SW	44	39	44	39	45	40	45	40	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2387		Residential	0	W	46	41	45	40	46	41	46	41	-0.5	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2392		Residential	0	W	43	38	43	38	44	39	44	39	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2397		Residential	0	S	55	50	54	49	55	50	55	50	-0.5	-0.6	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2406		Residential	0	N	50	45	50	45	50	46	51	46	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2410		Residential	0	SW	46	41	46	41	47	42	46	41	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2416		Residential	0	SW	44	39	44	39	45	40	45	40	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2418		Residential	0	W	50	45	50	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2423		Residential	0	N	45	40	45	40	46	41	46	41	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2424		Residential	0	S	46	41	45	40	47	42	46	41	-0.7	-0.5	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2434		Residential	0	N	47	42	47	42	48	43	48	43	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2443		Residential	0	N	48	42	48	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2459		Residential	0	N	45	40	45	40	46	41	46	41	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2484		Residential	0	S	41	36	41	35	41	36	41	36	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2512		Residential	0	N	40	35	40	35	41	36	41	36	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2518		Residential	0	N	46	41	46	41	47	42	47	42	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2519		Residential	0	W	49	44	49	44	49	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2520		Residential	0	W	50	45	50	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2539		Residential	0	W	47	42	46	41	47	42	47	42	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2556		Residential	0	W	49	44	48	43	49	44	49	44	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2557		Residential	0	S	41	36	41	36	42	37	42	37	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2562		Residential	0	SW	55	50	55	50	56	51	55	50	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2571		Residential	0	W	42	37	42	37	43	38	43	38	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2577		Residential	0	N	44	38	43	38	44	39	44	39	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2588		Residential	0	S	51	46	50	45	52	47	51	46	-1.2	-1.2	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2595		Residential	0	W	47	42	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2598		Residential	0	N	43	38	43	38	44	39	44	39	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2616		Residential	0	W	47	42	46	41	48	43	47	42	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2625		Residential	0	N	40	35	40	35	41	36	41	36	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2629		Residential	0	W	47	42	47	42	48	43	48	43	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2644		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2651		Residential	0	W	48	42	47	42	48	43	48	43	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2658		Residential	0	N	43	38	43	38	44	39	44	39	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2663		Residential	0	N	48	43	48	43	48	43	48	43	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2671		Residential	0	W	56	51	56	51	57	52	57	52	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2672		Residential	0	N	47	42	47	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2673		Residential	0	N	47	42	47	42	47	42	47	42	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2673		Residential	1	W	52	47	51	46	53	48	52	47	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2680		Residential	0	S	49	43	47	42	49	44	48	43	-1.3	-1.2	-1.3	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2682		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2687		Residential	0	N	48	43	48	43	49	44	49	44	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2691		Residential	0	S	52	47	52	46	53	48	52	47	-0.6	-0.7	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2696		Residential	0	S	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2697		Residential	0	N	45	39	45	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2706		Residential	0	S	47	42	46	41	47	42	46	41	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2707		Residential	0	W	44	39	44	39	44	39	44	39	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2707		Residential	1	W	47	42	46	41	47	42	47	42	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2719		Residential	0	N	49	44	49	44	50	45	50	45	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2740		Residential	0	W	43	38	43	38	43	38	43	38	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2767		Residential	0	N	48	43	47	42	48	43	48	43	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2786		Residential	0	W	44	39	44	39	45	40	45	39	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2787		Residential	0	W	53	48	52	47	53	49	53	48	-0.7	-0.7	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2791		Residential	0	W	46	41	46	41	46	41	46	41	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2794		Residential	0	W	46	41	46	41	47	42	47	42	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2801		Residential	0	W	43	38	43	38	44	39	44	39	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2804		Residential	0	S	48	43	47	42	49	44	48	43	-1.5	-1.3	-1.4	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2804		Residential	1	S	50	44	48	43	50	45	49	44	-1.2	-1.1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2814		Residential	0	W	48	43	47	42	49	44	48	43	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2816		Residential	0	W	43	38	43	38	43	38	43	38	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2818		Residential	0	S	45	40	45	40	46	41	46	41	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2818		Residential	1	W	50	44	49	44	50	45	50	45	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2824		Residential	0	N	46	41	46	41	47	42	47	42	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	2839	[redacted]	Residential	0	W	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2840		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2842		Residential	0	W	47	41	46	41	47	42	47	42	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2844		Residential	0	N	47	42	47	42	47	42	47	42	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2847		Residential	0	N	44	39	44	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2852		Residential	0	N	45	40	45	40	46	41	46	41	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2862		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2872		Residential	0	N	50	45	50	45	50	45	50	45	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2901		Residential	0	W	50	44	50	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2905		Residential	0	W	54	49	54	49	55	50	55	49	-0.5	-0.5	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2924		Residential	0	S	47	41	46	41	47	42	46	41	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2925		Residential	0	S	51	46	50	45	52	47	51	46	-0.9	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2926		Residential	0	N	49	44	49	44	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2951		Residential	0	SE	59	54	57	53	60	55	58	53	-1.9	-1.7	-1.9	-1.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2969		Residential	0	S	62	57	61	56	63	58	61	56	-1.5	-1.3	-1.4	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	3000		Residential	0	W	51	46	51	46	52	47	52	47	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	3006		Residential	0	SE	60	55	59	54	61	56	60	55	-1.3	-1.2	-1.2	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1642		Residential	0	E	59	54	58	53	59	54	59	54	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1719		Residential	0	N	58	53	58	53	59	54	58	53	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1735		Residential	0	E	56	51	56	51	56	52	57	52	0.2	0.2	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1788		Residential	0	N	47	42	47	42	48	43	48	42	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1797		Residential	0	SW	50	44	49	44	50	45	50	45	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1829		Residential	0	SW	52	47	52	47	53	48	53	48	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1858		Residential	0	W	50	45	50	45	51	46	51	45	-0.1	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1882		Residential	0	SW	55	50	54	49	55	50	55	50	-0.4	-0.3	-0.1	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1909		Residential	0	NW	52	46	51	46	52	47	52	47	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1967		Residential	0	W	51	47	51	46	52	47	52	47	-0.2	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1971		Residential	0	E	62	57	62	57	63	58	63	58	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1987		Residential	0	W	65	60	64	59	65	61	64	59	-0.9	-0.9	-0.8	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1993		Residential	0	E	56	50	55	50	56	51	56	51	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2025		Residential	0	E	53	48	53	48	53	48	54	48	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2040		Residential	0	W	51	46	51	46	51	47	51	46	-0.1	-0.1	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2065		Residential	0	E	59	54	59	54	60	55	60	55	0	0	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2081		Residential	0	N	47	42	47	42	48	43	48	43	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2156		Residential	0	W	62	58	62	57	63	58	63	58	-0.6	-0.6	-0.5	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2191		Residential	0	E	60	55	60	55	61	56	61	56	0.1	0	0.2	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2208		Residential	0	W	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2222		Residential	0	W	53	48	53	48	54	49	54	48	-0.3	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2241		Residential	0	E	52	47	52	47	53	48	53	48	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2278		Residential	0	E	59	54	59	54	60	55	60	55	-0.1	-0.1	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2280		Residential	0	E	54	49	54	49	55	50	55	49	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2299		Residential	0	E	57	52	57	52	57	53	58	53	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2325		Residential	0	NE	53	48	53	48	54	49	54	49	0	-0.1	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2344		Residential	0	N	48	44	48	43	49	44	49	44	-0.2	-0.3	-0.1	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2374		Residential	0	N	53	48	52	47	53	48	53	48	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2432		Residential	0	E	57	52	57	52	57	53	58	52	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2433		Residential	0	N	48	43	48	43	49	44	49	43	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2454		Residential	0	W	51	46	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2476		Residential	0	E	54	49	54	49	55	50	55	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2496		Residential	0	W	66	61	65	60	67	62	66	61	-1.1	-1	-0.9	-1	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA02	2599		Residential	0	N	53	48	52	48	54	49	53	48	-0.5	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2618		Residential	0	N	48	43	48	43	49	44	49	43	-0.2	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2623		Residential	0	E	68	63	67	63	69	64	68	63	-0.5	-0.3	-0.3	-0.4	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA02	2631		Residential	0	W	51	46	50	45	51	47	51	46	-0.3	-0.4	-0.2	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2692		Residential	0	W	52	47	52	47	52	48	52	47	-0.3	-0.3	-0.1	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2708		Residential	0	E	57	52	57	52	58	53	58	53	0.1	0.1	0.3	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2716		Residential	0	W	64	60	63	58	65	60	64	59	-1	-1.1	-0.8	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2809		Residential	0	W	57	52	56	52	57	53	57	52	-0.3	-0.2	-0.1	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2832		Residential	0	E	62	57	62	57	62	58	63	58	0	0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2850		Residential	0	W	50	45	50	45	50	45	50	45	-0.1	-0.1	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2881		Residential	0	NW	53	48	53	48	54	49	53	48	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2909		Residential	0	W	53	48	52	47	53	48	53	48	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2921		Residential	0	W	47	42	47	42	48	43	48	43	0.2	0.2	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2922		Residential	0	W	48	43	48	43	49	43	49	43	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2923		Residential	0	N	47	42	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2946		Residential	0	E	67	62	66	61	68	63	67	62	-0.9	-0.8	-0.8	-0.9	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA03	1640		Residential	0	SE	56	51	57	52	57	52	58	53	1.2	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1648		Residential	0	NE	56	51	56	50	56	51	56	51	-0.2	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1650		Residential	0	S	53	48	53	48	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1656		Residential	0	SW	64	58	63	58	64	59	64	59	-0.5	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1662		Residential	0	SE	51	46	52	47	52	47	53	48	1	1.2	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1664		Residential	0	S	52	47	53	48	52	47	54	49	1.1	1.2	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1665		Residential	0	W	54	49	54	49	55	50	55	50	-0.4	-0.4	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1666		Residential	0	SW	53	48	53	48	53	48	53	48	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night						
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night	≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
NCA03	1670	[redacted]	Residential	0	W	54	49	54	49	55	50	55	50	0.1	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1674		Residential	0	NE	64	59	64	59	65	60	65	60	0.1	0.1	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1683		Residential	0	W	63	58	62	57	63	58	62	57	-1	-0.8	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1684		Residential	0	SW	63	58	62	57	64	59	62	57	-1.3	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1686		Residential	0	W	48	43	49	43	49	44	49	44	0.1	0.2	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1690		Residential	0	W	63	58	63	58	64	59	64	59	-0.5	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1694		Residential	0	NW	52	47	52	47	53	48	52	47	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1703		Residential	0	SW	53	48	53	48	53	49	53	48	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1706		Residential	0	E	54	49	55	51	54	50	56	51	1.5	1.6	1.7	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1714		Residential	0	N	49	44	48	43	49	44	49	44	-0.4	-0.4	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1717		Residential	0	SW	64	59	63	58	64	59	63	58	-0.9	-0.7	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1720		Residential	0	NW	51	46	51	46	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1727		Residential	0	SW	56	51	56	51	57	52	57	51	-0.5	-0.5	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1728		Residential	0	NW	57	52	56	51	57	52	57	52	-0.2	-0.3	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1731		Residential	0	W	56	51	56	51	56	51	56	51	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1733		Residential	0	W	63	58	63	58	64	59	64	58	-0.5	-0.4	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1739		Residential	0	NE	65	60	67	62	66	61	68	63	1.7	1.7	1.8	1.6	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA03	1742		Residential	0	N	52	47	52	47	53	48	53	48	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1754		Residential	0	SW	53	48	53	48	54	49	54	49	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1760		Residential	0	SE	59	54	60	55	59	54	61	56	1.5	1.6	1.6	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1760		Residential	1	SE	59	54	60	55	59	55	61	56	1.4	1.6	1.6	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1761		Residential	0	W	54	48	53	48	54	49	54	49	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1765		Residential	0	NE	50	45	51	46	51	46	51	46	0.2	0.2	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1773		Residential	0	SW	63	58	62	57	64	59	62	57	-1.4	-1.3	-1.4	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1780		Residential	0	W	53	47	52	47	53	48	53	48	-0.3	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1781		Residential	0	W	54	49	54	49	55	50	55	50	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1794		Residential	0	SW	52	47	52	47	53	48	53	48	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1805		Residential	0	W	54	49	54	49	55	50	55	50	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1806		Residential	0	NE	51	46	51	46	51	46	51	46	-0.1	-0.1	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1811		Residential	0	NE	59	54	59	54	59	54	60	55	0.9	0.9	1	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1811		Residential	1	NE	62	57	63	58	63	58	64	59	0.7	0.6	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1820		Residential	0	SW	56	51	54	49	56	52	55	49	-2	-2.1	-1.9	-2.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1826		Residential	0	W	54	49	54	49	55	50	55	50	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1828		Residential	0	SW	53	47	52	47	53	48	53	48	-0.2	-0.2	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1831		Residential	0	SW	56	51	56	51	56	51	56	51	-0.1	0	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1832		Residential	0	S	57	52	56	51	58	53	57	52	-0.8	-0.8	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1832		Residential	1	S	58	53	57	52	58	54	58	53	-0.8	-0.8	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1834		Residential	0	NW	54	49	53	48	54	49	54	49	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1837		Residential	0	W	54	49	54	49	55	50	55	50	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1855		Residential	0	SE	52	47	54	49	53	48	55	50	1.5	1.6	1.7	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1855		Residential	1	SE	56	51	57	52	56	51	58	53	1.5	1.7	1.6	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1860		Residential	0	NE	61	56	63	57	62	57	63	58	1.1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1861		Residential	0	E	62	58	63	58	63	58	63	58	0.2	0.2	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1864		Residential	0	W	55	50	55	50	56	51	56	50	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1879		Residential	0	NE	61	56	63	58	61	57	64	59	2	2.2	2.2	2.1	60	55	NO	NO	NO	NO	YES	Trigger 1.
NCA03	1885		Residential	0	SW	54	49	54	49	54	50	54	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1886		Residential	0	NW	53	48	53	48	54	49	53	48	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1887		Residential	0	NE	64	59	65	60	65	60	65	61	0.8	0.8	0.8	0.7	60	55	YES	YES	NO	NO	YES	Trigger 2.
NCA03	1889		Residential	0	S	57	52	56	51	58	53	57	52	-0.6	-0.6	-0.5	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1893		Residential	0	NE	53	48	54	49	54	49	55	50	1.2	1.3	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1897		Residential	0	W	52	47	52	47	53	48	53	48	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1906		Residential	0	SE	54	49	54	49	55	50	54	49	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1907		Residential	0	SW	55	50	55	50	55	50	56	50	0.1	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1917		Residential	0	SW	56	51	56	51	56	51	57	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1918		Residential	0	SE	59	54	61	56	60	55	62	57	1.6	1.8	1.7	1.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1923		Residential	0	NW	51	46	51	46	52	47	52	47	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1931		Residential	0	W	54	49	54	49	54	49	54	49	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1937		Residential	0	SW	57	52	57	52	57	52	57	52	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1941		Residential	0	W	52	47	52	47	53	48	53	48	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1942		Residential	0	SW	53	48	53	48	54	49	54	49	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1945		Residential	0	SW	58	53	58	53	59	54	59	54	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1946		Residential	0	W	56	51	56	51	56	51	56	51	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1950		Residential	0	W	62	57	62	57	62	57	62	57	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1962		Residential	0	N	52	47	52	47	52	48	53	48	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1970		Residential	0	E	63	59	64	59	64	60	64	60	0.3	0.3	0.2	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1976		Residential	0	E	48	43	49	43	48	43	49	44	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1999		Residential	0	SW	57	52	57	52	58	53	57	52	-0.3	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2016		Residential	0	SW	56	51	56	51	57	52	57	52	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2028		Residential	0	NE	67	62	67	62	68	63	68	63	0.2	0.3	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2029		Residential	0	SW	53	48	53	48	54	49	54	49	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2032		Residential	0	W	51	46	51	46	51	47	51	46	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2036		Residential	0	W	51	46	51	46	51	46	52	46	0.2	0.3	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2037		Residential	0	SW	57	52	56	50	58	53	56	51	-1.6	-1.7	-1.6	-1.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2038		Residential	0	SW	53	48	53	48	54	49	54	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	2056	[redacted]	Residential	0	NE	69	64	68	63	69	64	69	64	-0.5	-0.3	-0.5	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2058		Residential	0	W	57	52	57	52	58	53	57	52	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2072		Residential	0	E	52	47	52	47	53	48	53	48	0	0	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2072		Residential	1	E	54	49	54	49	55	50	55	50	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2074		Residential	0	SW	55	50	54	49	55	50	55	50	-0.4	-0.4	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2077		Residential	0	SE	50	45	50	45	50	45	51	46	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2083		Residential	0	W	52	47	51	46	52	47	52	47	-0.4	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2088		Residential	0	W	55	50	55	50	56	51	55	50	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2100		Residential	0	SE	59	54	61	56	60	55	61	56	1.5	1.6	1.6	1.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2101		Residential	0	SW	63	58	62	57	64	58	62	57	-1.3	-1.1	-1.2	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2102		Residential	0	SW	63	58	62	57	63	58	62	57	-1.3	-1.2	-1.3	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2104		Residential	0	SW	54	49	54	49	55	50	55	49	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2109		Residential	0	NW	54	49	54	49	55	50	55	50	-0.1	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2110		Residential	0	N	57	52	57	52	58	53	58	53	-0.6	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2111		Residential	0	SW	60	55	57	52	61	56	58	53	-2.8	-3	-2.7	-3.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2112		Residential	0	SW	53	48	53	48	53	48	54	48	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2114		Residential	0	SE	50	45	51	46	51	46	52	47	0.8	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2118		Residential	0	W	51	46	51	46	51	46	51	46	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2127		Residential	0	W	58	53	57	53	58	53	58	53	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2129		Residential	0	W	54	49	54	49	54	49	54	49	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2136		Residential	0	W	62	57	61	56	62	58	62	57	-0.9	-0.9	-0.8	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2145		Residential	0	NE	56	51	57	52	57	52	58	53	0.5	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2148		Residential	0	NW	53	48	52	47	53	48	53	48	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2152		Residential	0	E	61	56	61	56	61	57	61	57	0	0.1	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2153		Residential	0	SW	60	55	57	52	61	56	58	53	-2.9	-3.1	-2.9	-3.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2155		Residential	0	SW	63	58	62	57	64	59	63	58	-0.9	-0.8	-0.9	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2157		Residential	0	SE	52	47	53	48	52	47	53	48	1	1.2	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2163		Residential	0	SW	57	52	56	51	57	52	57	52	-0.5	-0.5	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2165		Residential	0	W	53	48	52	47	53	48	53	48	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2179		Residential	0	SW	57	52	57	51	57	52	57	52	-0.1	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2186		Residential	0	NE	67	62	66	61	68	63	67	62	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2188		Residential	0	SW	63	58	63	58	64	59	64	59	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2189		Residential	0	W	54	49	54	49	55	50	55	50	0	0.1	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2194		Residential	0	NW	51	46	51	46	52	47	51	46	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2197		Residential	0	SE	52	47	53	48	52	47	53	48	1	1.2	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2198		Residential	0	W	60	56	57	52	61	56	58	53	-3.1	-3.4	-3.1	-3.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2204		Residential	0	NE	65	60	65	60	66	61	66	61	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2205		Residential	0	E	58	53	58	53	58	53	58	53	0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2206		Residential	0	NE	56	50	56	51	56	51	57	52	0.5	0.6	0.6	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2240		Residential	0	SW	53	48	53	48	53	48	53	48	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2252		Residential	0	NE	50	45	51	46	51	46	52	47	1	1.1	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2253		Residential	0	W	57	52	57	52	57	52	57	52	-0.2	-0.1	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2255		Residential	0	W	54	49	54	49	55	50	55	50	0.1	0.1	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2264		Residential	0	NE	55	50	55	50	55	50	56	50	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2273		Residential	0	E	55	50	55	50	55	50	56	50	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2277		Residential	0	SW	56	51	55	50	57	52	56	51	-0.6	-0.6	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2286		Residential	0	NE	62	57	63	58	63	58	64	59	1.3	1.2	1.4	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2286		Residential	1	NE	65	60	66	61	65	60	66	61	0.8	0.9	0.9	0.8	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA03	2287		Residential	0	N	52	47	52	47	52	48	53	48	-0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2290		Residential	0	W	51	46	51	46	52	47	52	46	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2291		Residential	0	W	54	48	54	49	54	49	54	49	0.1	0.1	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2292		Residential	0	SW	63	58	62	57	64	59	63	58	-1.3	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2292		Residential	1	SW	65	59	64	59	65	60	64	59	-1	-0.9	-1	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2297		Residential	0	W	54	49	54	49	55	50	54	49	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2301		Residential	0	SW	63	58	62	57	64	59	63	58	-1.1	-0.9	-1.1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2313		Residential	0	W	59	54	57	52	59	54	58	52	-1.7	-1.9	-1.6	-2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2315		Residential	0	W	51	46	51	46	52	47	52	47	0.1	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2328		Residential	0	NE	55	50	55	50	55	50	56	51	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2333		Residential	0	W	62	57	62	57	63	58	63	58	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2334		Residential	0	SE	58	53	59	54	58	54	60	55	1.4	1.6	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2347		Residential	0	SE	50	45	51	46	51	46	52	46	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2354		Residential	0	SW	49	44	50	45	50	45	50	45	0.3	0.3	0.4	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2369		Residential	0	W	54	49	54	49	55	50	55	50	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2370		Residential	0	SW	55	50	55	50	55	50	56	50	0.1	0.2	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2386		Residential	0	SW	53	48	53	48	54	49	54	49	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2393		Residential	0	SW	55	50	55	50	55	50	55	50	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2395		Residential	0	W	63	58	63	58	64	59	63	58	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2398		Residential	0	NW	52	47	52	47	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2400		Residential	0	W	56	50	55	50	56	51	56	51	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2401		Residential	0	NE	55	50	55	50	56	50	56	50	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2403		Residential	0	NE	51	46	52	47	52	47	53	48	0.9	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2403		Residential	1	NE	54	49	54	49	54	49	55	50	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2408		Residential	0	SE	52	47	53	48	52	47	54	49	1.1	1.2	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2411		Residential	0	SE	55	50	56	51	56	51	57	52	1.3	1.4	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	2421	[redacted]	Residential	0	SW	52	47	52	47	53	48	53	48	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2427		Residential	0	SW	56	51	54	49	57	52	55	50	-1.9	-2.1	-1.9	-2.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2431		Residential	0	W	55	49	55	49	55	50	55	50	0	0	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2442		Residential	0	NE	57	52	57	52	58	53	58	53	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2448		Residential	0	W	52	47	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2458		Residential	0	W	63	58	62	57	63	58	63	58	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2462		Residential	0	NE	53	48	53	48	54	48	54	49	0.1	0.1	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2466		Residential	0	NE	58	53	58	53	58	53	59	54	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2471		Residential	0	S	56	51	55	50	56	51	56	51	-0.5	-0.5	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2475		Residential	0	W	54	49	54	49	55	50	55	50	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2478		Residential	0	W	53	48	54	48	54	49	54	49	0.1	0.2	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2479		Residential	0	N	52	47	52	47	53	48	53	48	-0.1	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2483		Residential	0	SE	53	48	55	50	54	49	56	51	2	2.1	2	1.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2485		Residential	0	W	55	49	55	49	55	50	55	50	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2486		Residential	0	W	49	44	49	44	50	45	50	45	0.1	0	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2487		Residential	0	SE	46	41	47	42	47	42	47	42	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2489		Residential	0	SW	55	50	55	50	55	50	56	50	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2498		Residential	0	NE	49	44	50	45	49	44	50	45	0.7	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2500		Residential	0	W	53	48	53	48	53	48	54	48	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2501		Residential	0	W	63	58	63	58	64	59	64	59	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2509		Residential	0	SW	51	46	50	45	51	46	51	46	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2510		Residential	0	N	57	52	56	51	58	53	57	52	-0.6	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2515		Residential	0	NE	55	50	56	51	56	51	57	52	0.9	1.1	1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2530		Residential	0	S	54	48	54	49	54	49	54	49	0.1	0.2	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2531		Residential	0	W	55	50	55	50	55	50	55	50	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2534		Residential	0	W	53	48	53	48	54	49	53	48	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2536		Residential	0	NE	53	48	53	48	54	49	54	49	0.1	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2546		Residential	0	W	54	49	54	49	55	50	55	50	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2548		Residential	0	NW	51	46	50	45	51	46	51	46	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2550		Residential	0	SE	55	50	54	49	56	51	55	50	-0.7	-0.6	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2552		Residential	0	NE	53	48	53	48	54	49	54	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2555		Residential	0	SW	62	57	61	56	63	57	62	57	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2559		Residential	0	W	52	47	52	47	53	48	53	48	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2560		Residential	0	NE	61	56	60	55	62	56	61	56	-0.6	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2564		Residential	0	W	56	50	56	50	56	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2568		Residential	0	SW	54	49	54	49	54	49	54	49	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2574		Residential	0	W	57	52	57	52	57	52	57	52	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2575		Residential	0	NE	51	46	51	46	51	46	52	46	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2576		Residential	0	SW	56	51	56	51	56	51	56	51	-0.1	-0.1	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2579		Residential	0	W	53	48	53	48	53	49	53	48	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2593		Residential	0	W	53	48	53	48	54	49	54	49	-0.3	-0.3	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2601		Residential	0	SE	54	49	55	50	55	50	56	51	1.2	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2613		Residential	0	W	54	49	54	49	54	49	54	49	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2619		Residential	0	SW	53	48	53	48	54	49	53	48	-0.2	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2632		Residential	0	W	57	52	57	51	57	52	57	52	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2634		Residential	0	E	54	49	54	49	54	49	55	50	0.4	0.5	0.5	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2637		Residential	0	S	58	53	57	52	58	54	57	52	-1	-1	-1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2638		Residential	0	NE	66	61	66	61	67	62	66	61	-0.4	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2641		Residential	0	W	52	47	52	47	53	48	53	48	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2642		Residential	0	SE	57	52	56	51	57	52	57	52	-0.7	-0.7	-0.6	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2643		Residential	0	NE	51	46	51	46	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2650		Residential	0	SW	53	48	53	48	53	48	53	48	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2655		Residential	0	SW	54	49	54	49	55	50	55	50	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2664		Residential	0	W	57	52	56	51	57	52	56	51	-0.8	-0.8	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2665		Residential	0	W	53	48	53	48	54	49	54	49	-0.2	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2667		Residential	0	W	54	48	54	49	54	49	54	49	0.1	0.2	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2668		Residential	0	NW	48	43	48	43	49	44	49	43	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2670		Residential	0	W	58	53	56	50	58	53	56	51	-2.1	-2.3	-2	-2.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2675		Residential	0	W	59	54	59	54	60	55	60	55	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2679		Residential	0	W	53	48	53	48	53	48	53	48	0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2681		Residential	0	NE	62	57	63	58	63	58	64	59	1.1	1.1	1.2	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2681		Residential	1	NE	65	60	65	60	65	60	66	61	0.8	0.7	0.8	0.6	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA03	2683		Residential	0	N	55	50	55	50	56	51	56	51	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2685		Residential	0	SW	63	58	62	57	64	59	63	58	-0.6	-0.5	-0.6	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2689		Residential	0	SW	51	46	51	46	52	47	52	47	-0.2	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2695		Residential	0	N	52	46	51	46	52	47	52	47	-0.2	-0.1	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2698		Residential	0	SW	55	50	55	50	56	51	56	51	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2702		Residential	0	SW	53	48	53	48	54	49	54	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2715		Residential	0	W	54	49	54	49	54	49	54	49	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2725		Residential	0	S	54	49	54	49	55	50	55	50	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2726		Residential	0	SW	63	58	63	58	64	59	64	59	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2732		Residential	0	W	54	49	55	49	55	50	55	50	0.3	0.2	0.4	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2734		Residential	0	SW	49	44	49	44	50	45	50	45	0.1	0	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2736		Residential	0	SW	63	57	62	57	63	58	63	58	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	2737	[redacted]	Residential	0	S	55	50	55	50	55	50	55	50	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2738		Residential	0	W	51	46	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2741		Residential	0	W	53	48	53	48	54	49	54	49	0.1	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2750		Residential	0	SE	51	46	52	47	51	46	52	47	1.1	1.2	1.3	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2750		Residential	1	NE	55	50	56	51	56	51	57	52	1.4	1.5	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2752		Residential	0	N	56	51	55	50	57	52	56	51	-0.6	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2757		Residential	0	SE	56	51	57	52	56	51	58	53	1.3	1.4	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2758		Residential	0	NE	54	49	55	50	55	50	55	50	0.5	0.7	0.6	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2765		Residential	0	NE	52	47	52	47	53	47	53	48	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2771		Residential	0	SW	54	49	54	49	54	49	54	49	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2772		Residential	0	W	53	48	53	48	53	48	53	48	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2773		Residential	0	NE	55	50	55	50	56	51	56	51	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2775		Residential	0	SW	54	49	54	49	55	50	55	50	-0.2	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2776		Residential	0	SW	52	47	52	47	52	47	53	47	0.2	0.2	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2778		Residential	0	W	54	49	53	48	54	49	54	49	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2779		Residential	0	NW	53	48	53	48	53	48	53	48	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2781		Residential	0	W	51	46	51	46	52	47	52	47	0.2	0.3	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2788		Residential	0	NW	52	46	51	46	52	47	52	47	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2790		Residential	0	NE	67	62	67	62	68	63	67	62	-0.7	-0.6	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2793		Residential	0	SE	52	47	54	49	53	48	54	49	1.4	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2799		Residential	0	W	54	49	54	49	55	50	55	50	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2802		Residential	0	SW	55	50	55	50	55	50	55	50	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2808		Residential	0	N	54	49	55	50	55	50	56	50	0.4	0.4	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2808		Residential	1	E	57	52	57	52	57	52	58	53	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2811		Residential	0	SE	50	45	50	45	50	45	51	45	0.3	0.2	0.3	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2813		Residential	0	SE	60	55	61	57	60	55	62	57	1.7	1.8	1.8	1.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2813		Residential	0	NE	58	53	60	55	58	54	61	56	2.3	2.5	2.5	2.3	60	55	NO	NO	NO	NO	YES	Trigger 1.
NCA03	2815		Residential	0	NE	50	45	51	45	51	46	51	46	0.2	0.2	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2815		Residential	1	NE	52	47	52	47	53	48	53	48	0.2	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2830		Residential	0	W	51	46	51	46	52	47	52	47	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2833		Residential	0	W	56	51	56	51	57	52	57	52	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2835		Residential	0	SW	62	56	61	56	62	57	62	57	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2843		Residential	0	W	54	49	54	49	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2848		Residential	0	SW	51	46	51	46	52	47	52	47	0.2	0.3	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2855		Residential	0	SW	56	51	56	51	57	52	57	52	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2856		Residential	0	SW	57	52	56	51	58	53	56	51	-1.6	-1.7	-1.5	-1.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2860		Residential	0	NE	47	42	48	43	48	43	49	43	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2860		Residential	1	NE	51	46	51	46	51	46	52	47	0.8	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2861		Residential	0	W	54	49	54	49	55	50	55	50	0	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2868		Residential	0	SE	60	55	62	57	61	56	63	58	1.9	2	2	1.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2890		Residential	0	SE	55	49	56	51	55	50	56	51	1.2	1.4	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2896		Residential	0	W	54	49	54	49	55	50	55	50	0	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2899		Residential	0	S	58	53	57	51	58	53	57	52	-1.1	-1.2	-1.1	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2902		Residential	0	W	61	57	59	54	62	57	59	54	-2.7	-2.9	-2.6	-3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2904		Residential	0	W	56	51	56	51	57	51	57	52	-0.1	0	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2907		Residential	0	W	51	46	51	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2908		Residential	0	NE	52	47	52	47	53	48	53	48	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2910		Residential	0	E	46	41	46	41	46	41	47	42	0.4	0.5	0.6	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2916		Residential	0	SW	59	54	57	52	60	55	57	52	-2.4	-2.6	-2.3	-2.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2917		Residential	0	W	59	54	57	51	60	55	57	52	-2.7	-3	-2.7	-3.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2918		Residential	0	S	62	57	61	56	63	58	61	56	-1.3	-1.4	-1.2	-1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2919		Residential	0	SW	58	53	57	52	58	54	57	52	-1.1	-1.1	-1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2920		Residential	0	SW	55	50	55	50	56	51	56	51	-0.1	0	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2927		Residential	0	NE	55	50	55	50	56	51	56	51	0.1	0.1	0.2	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2928		Residential	0	E	61	56	62	57	61	57	63	58	1.3	1.4	1.5	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2929		Residential	0	NE	64	59	65	60	64	59	65	60	0.9	0.9	1	0.8	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA03	2930		Residential	0	W	53	47	52	47	53	48	53	48	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2943		Residential	0	W	52	47	52	47	53	48	53	48	-0.1	0	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2957		Residential	0	E	67	62	67	62	67	63	68	63	0.3	0.4	0.4	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2962		Residential	0	SW	52	47	52	47	53	48	53	48	0	0.1	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2964		Residential	0	W	51	45	51	46	51	46	51	46	0.2	0.3	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2965		Residential	0	NE	64	59	66	61	65	60	67	62	1.5	1.6	1.6	1.5	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA03	2967		Residential	0	E	51	46	52	47	52	47	52	47	0.7	0.8	0.7	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2983		Residential	0	W	52	47	52	47	52	48	53	48	0.1	0.2	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2990		Residential	0	E	54	49	54	49	54	49	55	50	0.1	0.1	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2990		Residential	1	E	58	53	58	53	59	54	59	54	0.2	0.2	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2990		Residential	2	E	60	55	60	55	60	55	61	55	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2996		Residential	0	SW	53	48	53	48	53	48	53	48	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2997		Residential	0	SW	58	53	57	52	59	54	58	53	-1	-1.1	-1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2999		Residential	0	W	50	45	51	46	51	46	51	46	0.4	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3005		Residential	0	S	49	44	50	45	50	45	51	45	0.7	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3014		Residential	0	SW	56	51	56	51	57	52	57	52	-0.3	-0.4	-0.2	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3567		Residential	0	E	57	52	57	52	58	53	58	53	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3569		Residential	0	SE	58	52	57	52	58	53	57	52	-0.8	-0.7	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year									
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			Day	Night		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night	≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
NCA03	3570	[redacted]	Residential	0	SW	56	51	56	51	57	52	57	51	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3571		Residential	0	SW	56	50	55	50	56	51	56	51	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3571		Residential	1	SW	59	54	59	54	60	54	59	54	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	1943		Residential	0	E	66	61	66	61	67	62	66	61	-0.6	-0.4	-0.5	-0.5	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA04	2183		Residential	0	E	65	60	65	60	66	61	66	61	-0.2	0	0	-0.1	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA04	2183		Residential	1	E	66	61	66	61	67	62	66	61	-0.6	-0.3	-0.4	-0.4	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA04	2236		Residential	0	E	65	60	65	60	66	61	66	61	-0.3	0	-0.1	-0.1	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA04	2281		Residential	0	E	63	58	64	59	64	59	64	59	0.7	0.9	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	2357		Residential	0	NE	60	55	62	57	61	56	62	57	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	2911		Residential	0	E	62	57	62	57	63	58	62	57	-0.5	-0.5	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	2915		Residential	0	N	59	54	60	56	59	54	61	56	1.8	2.1	1.9	2	60	55	NO	NO	NO	NO	YES	Trigger 1.
NCA05	2939		Residential	0	E	64	59	57	53	64	59	58	53	-6.5	-5.8	-6.4	-5.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	1767		Residential	0	N	45	40	45	40	46	41	46	41	-0.4	-0.4	-0.2	-0.4	58	53	NO	NO	NO	NO	NO	No treatment
NCA05	1784		Residential	0	NE	46	41	49	44	47	42	49	44	2.4	2.6	2.5	2.5	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	1948		Residential	0	N	47	42	47	42	47	42	47	42	0.1	0.1	0.1	0	57	52	NO	NO	NO	NO	NO	No treatment
NCA05	2035		Residential	0	NE	45	40	48	43	46	41	49	44	2.8	3	2.9	2.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2052		Residential	0	N	45	40	47	42	46	41	48	43	1.9	2	2	1.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2078		Residential	0	N	47	42	47	42	47	43	48	43	0.4	0.4	0.5	0.3	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2097		Residential	0	N	44	39	47	42	45	40	48	43	3.1	3.2	3.1	3.1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2144		Residential	0	N	44	39	44	39	45	40	45	39	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2166		Residential	0	E	40	34	40	35	40	35	41	36	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2238		Residential	0	N	45	40	47	42	45	40	47	42	2.1	2.1	2.2	2.1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2268		Residential	0	N	45	39	46	41	45	40	47	42	1.9	1.9	2.1	1.8	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2394		Residential	0	NE	44	39	47	42	44	39	48	43	3.1	3.3	3.2	3.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2503		Residential	0	N	40	35	41	36	41	36	41	36	0.7	0.7	0.8	0.6	59	54	NO	NO	NO	NO	NO	No treatment
NCA05	2554		Residential	0	N	45	40	45	40	45	41	45	40	-0.4	-0.3	-0.2	-0.4	59	54	NO	NO	NO	NO	NO	No treatment
NCA05	2578		Residential	0	N	46	41	48	43	47	42	49	44	2.4	2.6	2.5	2.4	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2640		Residential	0	N	44	39	46	41	44	39	46	41	1.8	1.8	1.9	1.7	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2714		Residential	0	N	46	41	47	42	46	41	48	43	1.7	1.9	1.7	1.7	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2769		Residential	0	N	43	38	43	38	43	38	44	39	0.2	0.2	0.4	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2889		Residential	0	NE	41	36	42	37	42	37	43	38	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2942		Residential	0	E	40	35	41	35	40	35	41	36	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2942		Residential	1	E	41	36	42	37	42	37	43	37	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2945		Residential	0	E	54	49	56	51	55	50	57	52	1.9	2.3	2	2.2	55	50	NO	NO	NO	NO	YES	Trigger 1.
NCA05	2949		Residential	0	N	50	45	52	47	51	46	53	48	1.8	2.1	1.8	2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2960		Residential	0	N	43	38	45	40	44	39	45	40	1.6	1.6	1.7	1.5	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2961		Residential	0	NE	51	45	52	47	51	46	53	48	1.6	1.8	1.7	1.8	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2966		Residential	0	E	55	50	54	50	55	51	55	50	-0.5	-0.2	-0.5	-0.3	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2968		Residential	0	E	54	49	56	51	54	50	57	52	2.4	2.6	2.4	2.5	55	50	NO	NO	NO	NO	YES	Trigger 1.
NCA05	2968		Residential	1	E	56	51	59	54	56	52	59	55	2.8	3.2	2.9	3	55	50	NO	YES	NO	NO	YES	Trigger 1. Trigger 2.
NCA05	2970		Residential	0	SE	61	55	59	55	61	56	60	55	-1.5	-0.7	-1.3	-0.8	55	50	YES	YES	NO	NO	YES	Trigger 2.
NCA05	2970		Residential	1	SE	61	56	60	56	62	57	61	56	-1.1	-0.4	-1	-0.5	55	50	YES	YES	NO	NO	YES	Trigger 2.
NCA05	2972		Residential	0	N	54	49	55	51	54	49	56	51	1.8	2.1	1.9	2	55	50	NO	NO	NO	NO	YES	Trigger 1.
NCA05	2974		Residential	0	N	41	36	42	37	42	37	43	38	1.1	1.1	1.2	1	57	52	NO	NO	NO	NO	NO	No treatment
NCA05	2975		Residential	0	N	54	49	53	49	54	50	54	49	-0.3	0	-0.2	-0.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2979		Residential	0	NE	59	54	59	54	60	55	60	55	-0.1	0.4	-0.1	0.3	55	50	YES	YES	NO	NO	YES	Trigger 2.
NCA05	2980		Residential	0	NE	54	49	56	51	55	50	57	52	2	2.2	2	2.1	55	50	NO	NO	NO	NO	YES	Trigger 1.
NCA05	2982		Residential	0	NE	54	49	53	49	55	50	54	49	-0.8	-0.5	-0.7	-0.6	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2987		Residential	0	E	49	44	50	45	49	45	51	46	1.3	1.4	1.4	1.4	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2988		Residential	0	E	59	53	60	55	59	54	61	56	1.4	2	1.6	1.9	55	50	YES	YES	NO	NO	YES	Trigger 2.
NCA05	2989		Residential	0	E	54	49	54	50	55	50	55	50	-0.2	0.2	0	0.1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2992		Residential	0	NE	52	47	55	51	53	48	56	51	3	3.2	3	3.2	55	50	NO	NO	NO	NO	YES	Trigger 1.
NCA05	2995		Residential	0	E	55	50	54	49	56	51	55	50	-1.2	-0.8	-1.1	-1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3003		Residential	0	N	51	46	54	49	51	46	55	50	3.4	3.6	3.5	3.5	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3007		Residential	0	N	46	40	48	43	46	41	48	44	2.2	2.5	2.3	2.4	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3008		Residential	0	E	54	49	54	50	54	49	55	50	0.6	0.9	0.6	0.8	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3009		Residential	0	E	53	48	54	49	54	49	54	50	0.7	1	0.8	0.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3013		Residential	0	NE	55	50	54	49	55	50	54	50	-1	-0.7	-0.9	-0.8	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2989		Residential	0	N	54	49	53	48	54	50	54	49	-0.8	-0.4	-0.7	-0.6	55	50	NO	NO	NO	NO	NO	No treatment
NCA06	1637		Residential	0	N	45	40	46	41	46	41	47	41	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1644		Residential	0	S	40	35	41	36	41	36	42	37	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1661		Residential	0	W	44	39	45	40	45	40	46	40	0.8	0.9	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1671		Residential	0	NW	53	48	54	48	54	48	55	49	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1672		Residential	0	SE	59	53	59	54	59	54	60	55	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1677		Residential	0	SW	50	45	51	46	51	45	52	46	1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1680		Residential	0	SE	41	35	42	36	41	36	42	37	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1682		Residential	0	W	53	48	54	48	54	48	55	49	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1692		Residential	0	W	44	39	45	40	45	40	46	40	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1695		Residential	0	E	52	46	52	47	52	47	53	48	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1708		Residential	0	S	53	47	54	48	53	48	54	49	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1711		Residential	0	S	55	49	56	50	55	50	56	51	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1723		Residential	0	N	56	51	57	52	57	51	58	52	0.8	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1729		Residential	0	N	64	58	65	59	64	59	65	60	1.1	1.1	1.2	1.1	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA06	1740		Residential	0	W	51	46	52	46	52	46	53	47	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	1744	[redacted]	Residential	0	W	56	50	56	51	56	51	57	52	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1757		Residential	0	W	51	46	53	47	52	47	53	48	1.4	1.5	1.5	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1759		Residential	0	S	49	43	50	44	49	44	50	45	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1762		Residential	0	W	47	42	48	43	48	42	49	43	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1763		Residential	0	NW	47	42	48	42	48	42	49	43	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1766		Residential	0	N	43	37	44	39	43	38	45	39	1.1	1.2	1.3	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1768		Residential	0	N	57	51	55	50	57	52	56	51	-1.4	-1.1	-1.4	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1770		Residential	0	W	50	45	52	46	51	46	53	47	1.4	1.5	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1771		Residential	0	W	48	43	50	45	49	44	51	45	1.5	1.7	1.6	1.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1790		Residential	0	N	41	36	42	37	42	37	43	38	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1808		Residential	0	N	45	40	46	41	46	40	47	41	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1815		Residential	0	SW	57	51	58	53	57	52	59	53	1.4	1.4	1.5	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1816		Residential	0	SE	58	53	59	54	59	54	60	55	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1824		Residential	0	SW	43	38	44	38	44	38	45	39	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1836		Residential	0	N	66	61	68	62	67	62	69	63	1.4	1.6	1.6	1.4	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA06	1839		Residential	0	N	42	37	43	38	43	37	44	38	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1840		Residential	0	S	51	46	52	47	52	47	53	48	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1844		Residential	0	S	53	47	53	48	53	48	54	49	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1848		Residential	0	SW	53	47	53	48	53	48	54	48	0.4	0.6	0.5	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1852		Residential	0	S	63	58	64	59	64	59	65	59	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1862		Residential	0	N	41	35	42	36	41	36	43	37	1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1867		Residential	0	W	51	46	52	47	52	47	53	48	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1868		Residential	0	W	52	47	53	48	53	48	54	48	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1868		Residential	1	W	55	49	56	50	55	50	56	51	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1880		Residential	0	N	62	57	63	57	63	57	63	58	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1888		Residential	0	N	45	39	45	40	45	40	46	40	0.6	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1898		Residential	0	S	48	43	49	44	49	43	50	44	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1901		Residential	0	W	47	41	48	43	48	42	49	43	1.2	1.4	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1914		Residential	0	W	52	47	53	48	53	48	54	48	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1925		Residential	0	S	36	30	37	31	36	31	37	32	1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1926		Residential	0	N	47	41	46	41	47	42	47	42	-0.1	0.1	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1932		Residential	0	W	44	38	44	39	44	39	45	40	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1936		Residential	0	NE	46	41	46	41	47	41	46	41	-0.2	0	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1947		Residential	0	W	53	48	54	49	54	49	55	49	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1957		Residential	0	E	53	47	54	48	53	48	54	49	1	1.1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1968		Residential	0	W	56	50	56	51	56	51	57	52	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1975		Residential	0	W	57	52	58	52	58	52	58	53	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1979		Residential	0	N	42	36	42	37	42	37	43	38	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1980		Residential	0	S	57	51	57	52	57	52	58	53	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1981		Residential	0	S	57	52	58	52	58	53	59	53	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1984		Residential	0	N	44	39	45	40	45	39	46	41	1.2	1.3	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1986		Residential	0	N	47	41	48	42	48	42	48	43	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1994		Residential	0	N	45	39	45	40	45	40	46	41	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2008		Residential	0	N	67	61	68	62	67	62	69	63	1.3	1.4	1.4	1.4	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA06	2023		Residential	0	S	43	37	44	38	43	38	44	39	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2033		Residential	0	N	43	38	44	38	44	38	45	39	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2045		Residential	0	W	49	43	50	44	49	44	50	45	0.9	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2059		Residential	0	N	57	51	57	51	57	52	57	52	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2061		Residential	0	S	52	46	53	47	52	47	53	48	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2063		Residential	0	N	57	52	58	53	58	53	59	54	1	1.1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2069		Residential	0	NE	46	41	46	41	47	41	46	41	-0.3	-0.1	-0.3	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2076		Residential	0	W	47	42	49	43	48	42	49	44	1.3	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2085		Residential	0	N	46	40	47	41	46	41	47	42	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2087		Residential	0	W	45	39	46	41	45	40	47	41	1.3	1.4	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2089		Residential	0	W	52	47	53	48	53	47	54	48	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2099		Residential	0	E	53	48	54	48	54	48	54	49	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2106		Residential	0	S	54	48	55	49	54	49	55	50	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2115		Residential	0	W	43	37	44	38	43	38	44	39	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2123		Residential	0	SW	41	35	42	36	42	36	43	37	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2125		Residential	0	E	54	48	55	49	54	49	55	50	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2128		Residential	0	N	41	35	42	36	41	36	42	37	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2133		Residential	0	E	52	47	53	48	53	48	54	48	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2141		Residential	0	S	54	48	55	49	54	49	55	50	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2146		Residential	0	E	53	48	54	48	54	48	55	49	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2150		Residential	0	N	47	41	48	43	47	42	49	43	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2159		Residential	0	N	49	44	50	45	50	44	51	45	1.1	1.2	1.3	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2161		Residential	0	SE	62	57	64	58	63	58	64	59	1.3	1.3	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2162		Residential	0	S	57	51	57	52	57	52	58	53	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2164		Residential	0	S	58	52	59	54	58	53	60	54	1.4	1.5	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2169		Residential	0	NE	46	41	47	41	47	41	48	42	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2171		Residential	0	N	42	36	42	37	42	37	43	38	0.9	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2173		Residential	0	SW	44	39	45	40	45	40	46	40	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2181		Residential	0	N	57	52	58	53	58	53	59	54	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2181		Residential	1	N	58	53	59	54	59	54	60	55	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night						
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night	≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
NCA06	2182	[redacted]	Residential	0	S	63	58	65	59	64	58	65	60	1.3	1.3	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2185		Residential	0	N	48	43	50	44	49	43	50	45	1.2	1.4	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2209		Residential	0	NE	45	39	45	40	45	40	46	41	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2211		Residential	0	S	60	55	61	55	61	55	61	56	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2215		Residential	0	W	44	39	45	40	45	39	46	41	1.1	1.2	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2218		Residential	0	W	40	35	41	36	41	35	42	36	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2219		Residential	0	W	62	56	63	57	63	57	63	58	0.6	0.7	0.7	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2224		Residential	0	E	50	45	51	46	51	45	52	47	1.1	1.1	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2226		Residential	0	N	46	41	47	42	47	42	48	42	0.4	0.6	0.5	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2228		Residential	0	SW	54	49	55	50	55	50	56	51	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2230		Residential	0	NW	47	41	48	42	48	42	49	43	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2233		Residential	0	S	51	45	51	46	51	46	52	47	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2244		Residential	0	W	52	47	53	48	53	48	54	48	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2245		Residential	0	W	50	45	52	46	51	45	52	47	1.4	1.5	1.5	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2246		Residential	0	N	51	45	51	46	51	46	52	46	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2250		Residential	0	W	52	47	53	48	53	47	54	48	1.1	1.2	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2250		Residential	1	N	54	48	55	49	54	49	55	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2256		Residential	0	SE	60	54	61	56	61	55	62	56	1.3	1.4	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2262		Residential	0	S	56	50	57	51	56	51	57	52	1	1.1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2266		Residential	0	N	45	40	46	41	46	41	47	42	1.1	1.2	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2271		Residential	0	S	58	52	59	54	58	53	60	54	1.3	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2275		Residential	0	E	51	46	52	46	52	46	53	47	0.8	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2279		Residential	0	W	42	37	43	38	43	37	44	38	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2294		Residential	0	N	65	60	66	61	66	60	67	61	1.2	1.3	1.3	1.2	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA06	2296		Residential	0	NW	46	41	47	41	47	41	48	42	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2300		Residential	0	N	43	38	44	39	44	38	45	39	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2307		Residential	0	N	40	34	41	36	41	35	42	36	1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2310		Residential	0	W	36	30	37	31	36	31	38	32	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2311		Residential	0	S	52	47	53	48	53	47	54	48	0.9	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2324		Residential	0	S	52	46	53	47	52	47	53	48	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2332		Residential	0	N	43	38	44	39	44	38	45	39	1.1	1.1	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2340		Residential	0	W	54	49	55	49	55	49	56	50	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2351		Residential	0	W	37	31	38	32	37	32	38	33	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2352		Residential	0	S	59	54	60	55	60	55	61	55	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2358		Residential	0	N	41	36	42	37	42	37	43	38	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2359		Residential	0	W	55	49	56	50	55	50	56	51	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2372		Residential	0	E	45	40	46	41	46	41	47	42	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2377		Residential	0	SW	58	53	60	54	59	54	60	55	1.3	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2379		Residential	0	N	52	46	53	47	52	47	54	48	1.3	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2384		Residential	0	W	43	37	44	38	43	38	45	39	1.2	1.3	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2385		Residential	0	W	38	32	39	33	39	33	39	34	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2388		Residential	0	W	49	44	50	45	50	44	51	45	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2391		Residential	0	N	63	57	64	59	63	58	65	59	1.4	1.5	1.6	1.5	60	55	YES	NO	NO	NO	YES	Trigger 2.
NCA06	2405		Residential	0	S	50	44	50	45	50	45	51	46	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2409		Residential	0	W	50	44	50	45	50	45	51	46	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2412		Residential	0	NE	43	38	44	39	44	38	45	40	1	1.1	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2419		Residential	0	N	46	41	47	41	47	41	47	42	0.7	0.9	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2426		Residential	0	S	38	32	39	33	38	33	39	34	1.2	1.2	1.3	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2437		Residential	0	E	42	37	43	38	43	37	44	39	1.3	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2439		Residential	0	S	55	50	56	51	56	51	57	51	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2445		Residential	0	N	46	40	46	41	46	41	47	42	0.5	0.6	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2447		Residential	0	N	46	41	47	41	47	42	47	42	0.5	0.5	0.5	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2449		Residential	0	N	43	38	44	39	44	38	45	39	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2456		Residential	0	S	57	51	57	52	57	52	58	53	0.7	0.8	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2467		Residential	0	W	54	49	55	50	55	49	56	50	1	1.1	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2472		Residential	0	S	42	36	43	38	42	37	44	38	1.2	1.2	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2473		Residential	0	W	55	50	56	50	56	50	56	51	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2480		Residential	0	N	47	41	47	41	47	42	47	42	0.2	0.3	0.2	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2482		Residential	0	W	54	48	55	49	54	49	55	50	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2488		Residential	0	E	41	35	42	36	41	36	43	37	1.1	1.2	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2493		Residential	0	S	53	48	54	49	54	49	55	49	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2494		Residential	0	E	40	35	42	36	41	36	42	37	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2499		Residential	0	S	60	55	61	56	61	56	62	56	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2506		Residential	0	SW	38	33	39	34	39	33	40	34	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2514		Residential	0	S	54	49	55	50	55	50	56	50	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2516		Residential	0	NE	42	37	43	38	43	37	44	38	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2517		Residential	0	W	50	45	52	46	51	45	52	47	1.4	1.5	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2525		Residential	0	S	59	53	60	55	60	54	61	55	1.3	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2532		Residential	0	NW	46	40	47	41	47	41	48	42	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2538		Residential	0	E	57	51	58	52	57	52	58	53	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2538		Residential	1	E	57	52	58	53	58	53	59	54	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2544		Residential	0	NE	48	42	49	43	48	43	49	44	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2551		Residential	0	NW	43	38	44	39	44	39	45	39	0.9	0.9	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2567		Residential	0	W	48	43	49	44	49	43	50	44	1.1	1.3	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	2569	[redacted]	Residential	0	S	65	60	67	61	66	61	67	62	1.3	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2570		Residential	0	W	50	44	51	46	50	45	52	46	1.4	1.5	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2580		Residential	0	N	41	35	42	36	42	36	43	37	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2582		Residential	0	N	35	30	36	30	35	30	36	31	1.2	0.3	1.2	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2584		Residential	0	W	51	45	51	46	51	46	52	47	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2589		Residential	0	N	43	37	44	38	43	38	44	39	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2592		Residential	0	S	65	59	66	61	65	60	67	61	1.1	1.2	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2596		Residential	0	N	46	41	47	42	47	42	48	42	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2602		Residential	0	S	53	48	54	49	54	48	55	49	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2604		Residential	0	W	59	53	59	54	59	54	60	55	0.5	0.6	0.6	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2606		Residential	0	W	51	45	52	47	51	46	53	47	1.4	1.5	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2608		Residential	0	S	50	44	50	45	50	45	51	46	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2614		Residential	0	N	45	40	46	41	46	41	47	41	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2615		Residential	0	S	55	50	56	51	56	51	57	51	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2621		Residential	0	N	42	36	43	37	42	37	44	38	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2622		Residential	0	N	64	58	65	60	65	59	66	60	1.1	1.2	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2627		Residential	0	N	45	40	46	41	46	40	47	41	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2639		Residential	0	E	41	35	42	36	41	36	42	37	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2653		Residential	0	N	41	36	42	37	42	37	43	37	0.8	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2654		Residential	0	W	36	30	37	31	36	31	37	32	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2657		Residential	0	N	51	46	53	47	52	47	53	48	1.4	1.5	1.5	1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2660		Residential	0	W	52	47	53	47	53	47	53	48	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2661		Residential	0	S	52	46	53	47	52	47	53	48	1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2677		Residential	0	N	46	41	46	40	47	41	46	41	-0.4	-0.2	-0.3	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2684		Residential	0	W	59	54	60	55	60	54	61	55	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2686		Residential	0	W	45	39	46	41	45	40	47	41	1.3	1.4	1.4	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2690		Residential	0	N	46	41	48	42	47	41	48	43	1.2	1.3	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2704		Residential	0	SW	43	37	44	38	44	38	45	39	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2710		Residential	0	W	41	36	42	36	42	36	42	37	0.5	0.6	0.6	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2718		Residential	0	NE	46	41	47	42	47	42	48	42	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2728		Residential	0	N	51	45	52	47	52	46	53	47	1.1	1.1	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2730		Residential	0	SE	60	55	61	56	61	56	62	56	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2733		Residential	0	W	48	43	50	44	49	43	50	45	1.4	1.6	1.5	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2743		Residential	0	NW	45	40	46	41	46	40	47	41	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2747		Residential	0	S	52	47	53	48	53	47	54	48	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2761		Residential	0	N	45	39	46	41	46	40	47	41	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2762		Residential	0	W	56	51	57	51	57	51	58	52	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2766		Residential	0	W	47	41	48	42	47	42	49	43	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2768		Residential	0	SW	42	37	43	38	43	37	44	38	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2789		Residential	0	S	51	46	52	47	52	47	53	48	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2792		Residential	0	S	56	51	57	52	57	52	58	52	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2797		Residential	0	NE	46	40	47	41	46	41	47	42	1.1	1.2	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2798		Residential	0	N	47	41	47	41	47	42	47	42	0.2	0.4	0.3	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2803		Residential	0	N	55	49	56	51	56	50	57	51	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2805		Residential	0	NW	45	40	46	41	46	41	47	41	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2834		Residential	0	S	53	47	54	48	54	48	55	49	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2836		Residential	0	S	55	49	56	50	55	50	56	51	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2838		Residential	0	N	63	57	63	58	63	58	64	59	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2841		Residential	0	S	42	37	43	38	43	38	44	38	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2866		Residential	0	W	53	47	53	48	53	48	54	48	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2870		Residential	0	SW	41	35	42	36	42	36	42	37	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2871		Residential	0	W	62	57	63	58	63	58	64	58	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2875		Residential	0	NW	42	37	43	38	43	38	44	38	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2877		Residential	0	N	44	38	44	39	44	39	45	39	0.4	0.5	0.5	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2878		Residential	0	W	36	30	37	31	36	31	37	32	1.2	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2882		Residential	0	NW	57	51	58	52	57	52	58	53	0.8	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2882		Residential	1	NW	58	52	59	54	59	53	60	54	0.9	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2885		Residential	0	S	50	45	51	46	51	45	52	46	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2898		Residential	0	S	35	30	36	31	36	30	37	31	1	0.5	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2912		Residential	0	N	66	60	67	62	66	61	68	62	1.4	1.5	1.5	1.4	60	55	YES	YES	YES	YES	YES	Trigger 2. Trigger 3.
NCA06	2914		Residential	0	S	66	60	67	62	67	61	68	63	1.3	1.4	1.4	1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2938		Residential	0	W	56	51	57	52	57	52	58	52	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2955		Residential	0	W	45	39	46	41	46	40	47	41	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2956		Residential	0	W	44	38	45	39	44	39	45	40	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3019		Residential	0	NW	68	63	69	64	69	63	70	64	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3022		Residential	0	N	64	59	65	59	65	59	65	60	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3026		Residential	0	E	50	44	51	45	51	45	51	46	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3029		Residential	0	N	57	52	58	53	58	52	59	53	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3034		Residential	0	W	51	46	52	47	52	46	53	47	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3045		Residential	0	E	51	45	52	46	52	46	52	47	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3049		Residential	0	S	56	51	57	51	57	51	57	52	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3051		Residential	0	NW	65	59	66	61	65	60	67	61	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3068		Residential	0	E	55	49	55	50	55	50	56	51	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3070		Residential	0	W	57	51	58	52	57	52	58	53	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	3071	[redacted]	Residential	0	NE	51	45	52	46	51	46	52	47	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3077		Residential	0	S	53	47	54	48	53	48	54	49	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3082		Residential	0	N	68	63	69	64	69	64	70	64	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3085		Residential	0	S	49	44	50	45	50	44	51	45	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3087		Residential	0	W	53	47	54	48	53	48	54	49	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3089		Residential	0	W	56	50	56	51	56	51	57	52	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3091		Residential	0	W	54	49	55	49	55	49	56	50	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3097		Residential	0	N	66	61	67	62	67	61	68	62	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3099		Residential	0	S	51	45	52	46	51	46	52	47	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3105		Residential	0	W	54	49	55	50	55	49	56	50	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3106		Residential	0	W	53	47	54	48	53	48	54	49	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3107		Residential	0	S	66	61	67	62	67	61	68	62	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3108		Residential	0	NW	60	55	61	56	61	56	62	57	1.2	1.3	1.3	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3117		Residential	0	E	57	51	57	52	57	52	58	53	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3127		Residential	0	S	66	61	67	62	67	62	68	63	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3132		Residential	0	S	51	46	52	47	52	47	53	47	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3137		Residential	0	S	58	52	58	53	58	53	59	54	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3141		Residential	0	W	54	49	55	50	55	49	56	50	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3146		Residential	0	N	64	59	65	59	65	59	65	60	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3147		Residential	0	S	59	53	60	54	59	54	60	55	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3148		Residential	0	W	56	50	57	51	56	51	57	52	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3150		Residential	0	N	65	59	65	60	65	60	66	60	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3158		Residential	0	N	48	43	49	43	49	43	50	44	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3162		Residential	0	N	64	59	65	60	65	59	66	60	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3167		Residential	0	S	68	62	69	63	68	63	69	64	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3168		Residential	0	E	59	53	59	54	59	54	60	54	0.7	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3170		Residential	0	NW	48	43	49	43	49	43	50	44	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3172		Residential	0	S	65	59	66	60	65	60	66	61	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3176		Residential	0	N	52	46	52	47	52	47	53	48	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3177		Residential	0	E	52	46	52	47	52	47	53	47	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3180		Residential	0	W	50	45	51	46	51	45	52	46	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3181		Residential	0	S	50	44	51	45	50	45	51	46	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3184		Residential	0	N	48	43	49	44	49	43	50	44	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3190		Residential	0	W	45	39	45	40	45	40	46	41	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3191		Residential	0	S	51	46	52	46	52	46	53	47	0.8	0.9	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3195		Residential	0	N	60	55	61	55	61	55	62	56	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3197		Residential	0	NE	52	46	53	47	52	47	53	48	0.8	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3198		Residential	0	W	51	45	52	46	52	46	53	47	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3205		Residential	0	W	48	43	49	44	49	43	50	44	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3207		Residential	0	S	50	44	50	45	50	45	51	46	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3209		Residential	0	E	59	53	59	54	59	54	60	54	0.6	0.6	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3214		Residential	0	S	64	59	65	60	65	59	66	60	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3216		Residential	0	W	55	50	56	51	56	50	57	51	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3221		Residential	0	W	46	41	47	42	47	42	48	42	0.6	0.8	0.7	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3222		Residential	0	S	53	47	54	48	53	48	54	49	0.9	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3231		Residential	0	W	49	44	50	45	50	45	51	45	0.9	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3235		Residential	0	E	52	47	53	48	53	48	54	48	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3237		Residential	0	W	50	45	51	46	51	46	52	46	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3239		Residential	0	E	61	55	61	56	61	56	62	56	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3245		Residential	0	E	56	51	57	52	57	52	58	52	0.6	0.6	0.6	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3264		Residential	0	W	50	44	51	45	50	45	51	46	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3265		Residential	0	N	54	48	54	49	54	49	55	50	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3267		Residential	0	N	59	54	60	54	60	54	61	55	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3269		Residential	0	N	64	59	65	60	65	60	66	60	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3270		Residential	0	S	53	47	54	48	53	48	54	49	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3272		Residential	0	S	65	59	66	60	66	60	67	61	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3275		Residential	0	S	55	49	56	50	56	50	57	51	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3281		Residential	0	S	47	42	48	42	48	42	49	43	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3287		Residential	0	E	50	44	50	45	50	45	51	45	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3291		Residential	0	NW	68	63	69	64	69	64	70	64	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3293		Residential	0	NW	66	61	67	62	67	61	68	63	1.2	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3296		Residential	0	W	50	45	51	46	51	45	52	46	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3298		Residential	0	N	49	43	50	44	50	44	51	45	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3301		Residential	0	W	52	46	53	47	53	47	54	48	0.9	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3304		Residential	0	S	50	44	50	45	50	45	51	46	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3311		Residential	0	NW	68	62	69	63	68	63	69	64	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3315		Residential	0	E	52	46	53	47	52	47	53	48	0.7	0.7	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3319		Residential	0	W	60	55	61	56	61	55	62	56	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3325		Residential	0	S	49	43	50	44	50	44	51	45	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3335		Residential	0	NE	53	47	53	48	53	48	54	49	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3340		Residential	0	S	52	46	52	47	52	47	53	47	0.6	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3342		Residential	0	NW	45	39	45	40	45	40	46	41	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3346		Residential	0	W	57	51	58	52	58	52	59	53	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3348		Residential	0	W	56	50	56	51	56	51	57	52	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider additional noise mitigation?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	3355	[redacted]	Residential	0	S	49	43	50	44	50	44	51	45	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3357		Residential	0	E	62	57	63	57	63	58	64	58	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3365		Residential	0	N	54	49	55	50	55	50	56	50	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3366		Residential	0	W	50	45	51	46	51	45	52	46	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3372		Residential	0	N	65	59	65	60	65	60	66	61	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3378		Residential	0	NE	52	46	53	47	52	47	53	48	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3383		Residential	0	E	62	57	63	58	63	58	64	58	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3386		Residential	0	S	52	47	53	48	53	48	54	48	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3397		Residential	0	N	49	44	50	45	50	44	51	45	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3402		Residential	0	E	48	42	49	43	48	43	49	44	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3407		Residential	0	N	64	58	65	59	64	59	65	60	0.8	0.9	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3408		Residential	0	S	52	47	53	48	53	47	54	48	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3409		Residential	0	W	54	48	54	49	54	49	55	50	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3411		Residential	0	E	64	59	65	59	65	59	65	60	0.6	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3424		Residential	0	N	51	46	52	47	52	46	53	47	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3428		Residential	0	W	55	50	56	50	56	50	57	51	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3431		Residential	0	E	60	55	61	55	61	55	61	56	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3437		Residential	0	N	66	60	66	61	66	61	67	62	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3441		Residential	0	W	52	47	53	48	53	48	54	48	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3444		Residential	0	W	53	48	54	49	54	49	55	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3446		Residential	0	N	59	53	60	54	60	54	61	55	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3448		Residential	0	NW	47	41	48	42	48	42	48	43	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3452		Residential	0	W	53	48	54	49	54	48	55	49	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3456		Residential	0	E	55	49	55	50	55	50	56	50	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3457		Residential	0	N	64	58	64	59	64	59	65	60	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3458		Residential	0	NW	58	53	59	54	59	53	60	54	1	1.1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3461		Residential	0	N	60	55	61	56	61	56	62	56	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3466		Residential	0	E	55	49	55	50	55	50	56	50	0.6	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3470		Residential	0	S	54	48	54	49	54	49	55	50	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3472		Residential	0	W	53	47	54	48	53	48	54	49	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3481		Residential	0	N	66	61	67	62	67	62	68	62	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3490		Residential	0	S	49	43	50	44	49	44	50	45	0.8	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3491		Residential	0	NE	44	39	45	40	45	40	46	41	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3492		Residential	0	S	50	44	51	45	51	45	51	46	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3493		Residential	0	SW	43	38	44	39	44	39	45	39	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3496		Residential	0	W	59	54	60	55	60	54	61	55	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3497		Residential	0	N	51	45	52	46	51	46	52	47	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3508		Residential	0	S	48	43	49	43	49	43	50	44	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3514		Residential	0	N	69	63	70	64	69	64	70	65	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3518		Residential	0	W	56	51	57	52	57	51	58	52	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3521		Residential	0	S	48	42	49	43	49	43	50	44	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3526		Residential	0	S	54	48	54	49	54	49	55	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3529		Residential	0	W	52	46	53	47	52	47	53	48	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3530		Residential	0	NW	66	60	67	61	66	61	67	62	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3535		Residential	0	N	67	61	67	62	67	62	68	63	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3546		Residential	0	S	50	44	51	45	50	45	51	46	0.8	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3549		Residential	0	W	55	50	56	50	56	50	57	51	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3557		Residential	0	W	53	48	54	49	54	48	55	49	1	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3558		Residential	0	S	62	57	63	58	63	57	64	58	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3559		Residential	0	NE	55	49	56	50	55	50	56	51	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3560		Residential	0	NW	54	48	54	49	54	49	55	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3562		Residential	0	S	56	50	57	51	57	51	57	52	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3563		Residential	0	W	52	47	53	47	53	47	54	48	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3564		Residential	0	W	58	52	59	53	59	53	59	54	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3568		Residential	0	SW	65	59	66	61	66	60	67	61	1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment

APPENDIX D Properties to be considered for additional noise mitigation

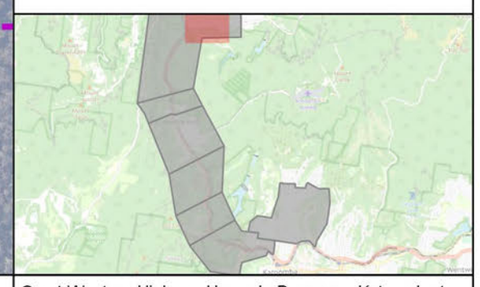
Plot Date: 09/08/22 - 15:04 Layout: TL759 Treatment Template (figure:[%^"fig^"%] page:[%^"page^"%])

GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

LEGEND

Project Design

Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
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..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

CLIENT

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ACOUSTIC CONSULTANT

RENZO TONIN & ASSOCIATES

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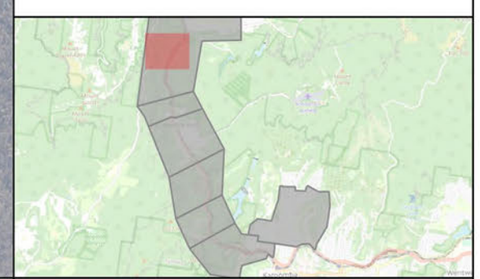
Receivers identified for Additional Noise Mitigation

Plot Date: 09/08/22 - 15:05 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

LEGEND

- Project Design
- Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
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..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

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Plot Date: 09/08/22 - 15:05 Layout: TL759 Treatment Template (figure:[%"fig"%] page:[%"page"%])

GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA02

NCA03

LEGEND

- Project Design
- Project NCAs
- Receivers identified for Additional Noise Mitigation

0 100 200 300 400 500 600 m

0 50 100 150 200 250 300 m

1:4,000

REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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Receivers identified for Additional Noise Mitigation

Plot Date: 09/08/22 - 15:06 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz

NCA03

NCA04

LEGEND

Project NCAs

Receivers identified for Additional Noise Mitigation

0 50 100 150 200 250 300 m

1:4,000

N

REV	BY	DATE	DESCRIPTION	APPROVER
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..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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Receivers identified for Additional Noise Mitigation

Plot Date: 09/08/22 - 15:07 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA04

NCA05

NCA06

3013 2995 2939 2987 2982 2989 2970 2966 2979 2961 2975 3008 3009 2968 2988 2992 2949 2972 2945 2578 1784 2035 2394 3003 2097 2980 2268 2640 2960 3007 2974 2052 2238 2714 2078 2503 1948 1767 2554 2144 2769 2889 2166 2942

LEGEND

Project NCAs

Receivers identified for Additional Noise Mitigation

0 100 200 300 400 500 600 m

0 50 100 150 200 250 300 m

1:4,000

N

REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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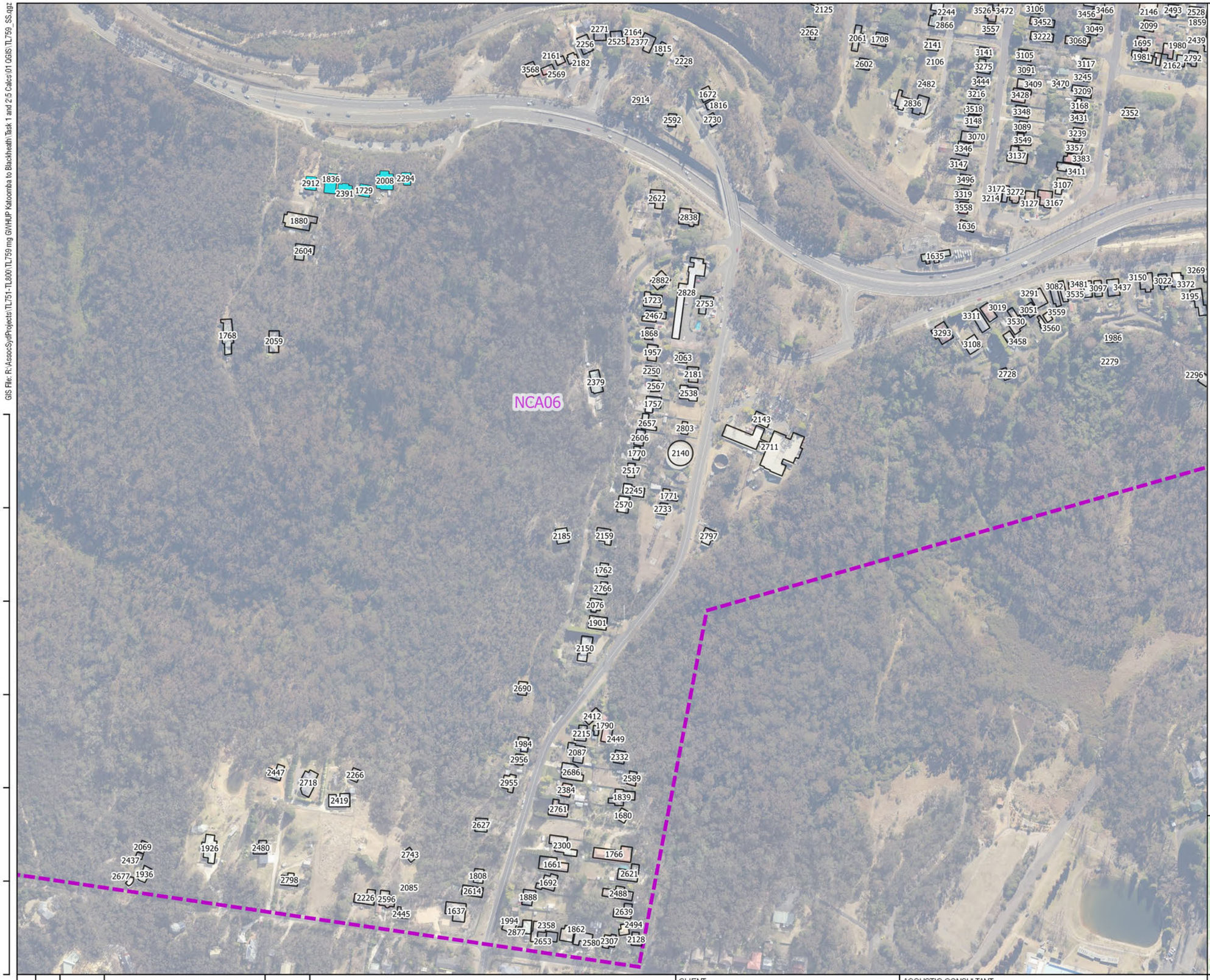
Great Western Highway Upgrade Program - Katoomba to Blackheath

Receivers identified for Additional Noise Mitigation

Plot Date: 09/08/22 - 15:08 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

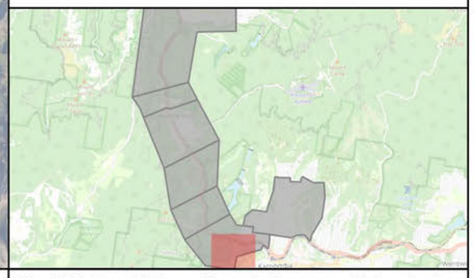
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz



LEGEND

Project NCAs

Receivers identified for Additional Noise Mitigation



REV	BY	DATE	DESCRIPTION	APPROVER
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r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

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Receivers identified for Additional Noise Mitigation

Plot Date: 09/08/22 - 15:09 Layout: TL759 Treatment Template (figure:[%^*figt*%] page:[%^*page*%])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA06

LEGEND

Project NCAs

0 50 100 150 200 250 300 m

1:4,000

N

REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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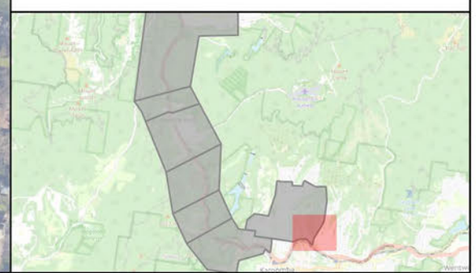
Receivers identified for Additional Noise Mitigation

Plot Date: 09/08/22 - 15:10 Layout: TL759 Treatment Template (figure:[% "fig" %] | page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GGIS\TL759_SS.qgz

600 m
500
400
300
200
100
0

LEGEND

Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

0 50 100 150 200 250 300 m

1:4,000

N

FULL SIZE A3

A3 Original

Co-ordinate System: MGA Zone 56

NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath

Receivers identified for Additional Noise Mitigation

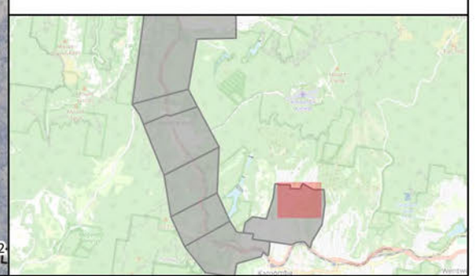
Plot Date: 09/08/22 - 15:11 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GGIS\TL759_SS.qgz

NCA07

LEGEND

Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
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r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath

Receivers identified for Additional Noise Mitigation

APPENDIX E Predicted road traffic noise levels (with low noise pavement)

Great Western Highway Upgrade Program - Katoomba to Blackheath

Operational traffic noise assessment

With mitigation (low noise pavement)

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	1463	[redacted]	Residential	0	N	51	46	51	46	52	47	52	47	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1469		Residential	0	W	67	62	67	62	67	63	68	62	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1476		Residential	0	N	52	47	52	47	52	47	52	47	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1477		Residential	0	W	53	48	53	48	54	49	54	49	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1478		Residential	0	W	56	51	56	51	57	52	57	52	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1482		Residential	0	W	60	55	60	55	60	55	60	55	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1483		Residential	0	W	60	55	60	55	61	56	61	56	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1486		Residential	0	W	54	49	54	49	54	50	54	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1487		Residential	0	W	53	48	53	48	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1491		Residential	0	W	67	62	67	62	68	63	68	63	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1497		Residential	0	W	69	64	69	64	70	65	70	65	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1498		Residential	0	W	70	65	70	65	71	66	71	66	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1499		Residential	0	W	54	49	54	49	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1502		Residential	0	N	52	47	52	47	53	48	53	48	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1504		Residential	0	W	72	67	72	67	73	68	73	68	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1507		Residential	0	N	53	48	53	48	54	49	54	49	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1508		Residential	0	S	56	51	56	51	57	52	56	51	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1509		Residential	0	W	70	65	70	65	70	65	70	65	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1514		Residential	0	N	56	51	56	51	56	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1518		Residential	0	N	54	49	54	49	55	50	55	50	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1521		Residential	0	W	71	65	71	65	71	66	71	66	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1522		Residential	0	W	59	54	59	54	60	55	60	55	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1523		Residential	0	N	57	52	57	52	57	52	57	52	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1526		Residential	0	S	53	48	53	48	54	49	54	49	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1528		Residential	0	W	54	49	54	49	55	50	55	50	0	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1529		Residential	0	S	60	55	59	54	60	55	60	55	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1531		Residential	0	W	70	65	70	65	70	65	70	65	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1532		Residential	0	N	59	54	59	54	60	55	60	55	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1535		Residential	0	W	62	57	62	57	63	58	63	58	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1539		Residential	0	W	69	64	69	64	69	64	69	64	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1541		Residential	0	W	56	50	55	50	56	51	56	51	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1543		Residential	0	N	53	48	53	48	53	48	53	48	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1545		Residential	0	S	59	54	59	54	60	55	60	55	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1546		Residential	0	N	52	47	52	47	52	48	53	47	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1549		Residential	0	S	53	48	53	48	54	49	54	49	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1569		Residential	0	N	55	50	55	50	56	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1575		Residential	0	W	51	46	51	46	52	47	52	47	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1576		Residential	0	N	58	52	58	52	58	53	58	53	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1577		Residential	0	W	70	65	70	65	70	65	70	65	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1579		Residential	0	W	59	54	59	54	59	54	59	54	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1586		Residential	0	W	55	50	55	50	55	51	56	51	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1588		Residential	0	W	69	64	69	64	69	64	70	64	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1590		Residential	0	W	70	65	70	65	71	66	71	66	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1592		Residential	0	N	54	49	54	49	54	50	55	50	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1603		Residential	0	S	57	52	57	52	57	52	57	52	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1608		Residential	0	W	56	51	56	51	57	52	57	52	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1614		Residential	0	W	65	60	65	60	65	60	65	60	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1618		Residential	0	W	53	48	53	48	54	49	54	49	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1629		Residential	0	N	56	51	56	51	57	52	57	52	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1641		Residential	0	N	46	41	46	41	47	42	47	42	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1647		Residential	0	S	57	52	56	51	57	52	57	52	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1652		Residential	0	W	43	38	43	38	44	39	44	39	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1653		Residential	0	W	46	40	45	40	46	41	46	41	-0.1	0	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1653		Residential	1	W	47	42	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1655		Residential	0	S	48	43	48	43	49	44	49	44	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1657		Residential	0	N	47	41	46	41	47	42	47	42	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1659		Residential	0	S	41	36	41	36	42	37	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1663		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1675		Residential	0	W	52	47	51	46	52	47	52	47	-0.8	-0.8	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1676		Residential	0	W	50	45	50	45	51	46	51	46	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1700		Residential	0	S	50	45	49	44	51	46	50	45	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1701		Residential	0	W	42	37	42	37	43	38	43	38	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1710		Residential	0	S	42	37	42	37	43	38	43	38	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1710		Residential	1	W	48	43	48	43	49	44	49	43	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1713		Residential	0	S	49	44	49	44	50	45	50	45	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1715		Residential	0	S	47	42	46	41	48	43	47	42	-1.1	-0.9	-1	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1743		Residential	0	W	48	42	48	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	1745	[redacted]	Residential	0	W	48	43	48	43	49	44	49	44	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1747		Residential	0	S	48	43	48	43	49	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1749		Residential	0	W	62	57	62	57	63	58	63	58	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1758		Residential	0	S	59	54	59	54	59	54	59	54	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1779		Residential	0	N	48	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1783		Residential	0	S	49	44	48	43	50	45	49	44	-1.4	-1.2	-1.3	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1809		Residential	0	W	42	37	42	37	43	38	43	38	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1822		Residential	0	W	44	39	44	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1833		Residential	0	W	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1849		Residential	0	N	40	35	40	35	41	36	41	36	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1856		Residential	0	N	45	40	45	40	46	41	46	41	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1857		Residential	0	SW	43	38	43	38	44	39	44	39	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1857		Residential	1	SW	45	40	45	40	46	41	46	41	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1865		Residential	0	S	51	46	50	45	52	47	51	46	-0.9	-0.9	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1871		Residential	0	W	47	42	46	41	48	43	47	42	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1872		Residential	0	S	51	46	50	45	52	47	51	46	-0.9	-0.9	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1874		Residential	0	W	44	38	43	38	44	39	44	39	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1883		Residential	0	S	41	36	41	36	42	37	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1900		Residential	0	W	48	43	47	42	49	44	48	43	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1905		Residential	0	N	45	40	45	40	46	41	46	41	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1915		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1916		Residential	0	N	46	41	46	41	46	41	46	41	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1920		Residential	0	N	47	42	47	41	47	42	47	42	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1927		Residential	0	S	46	41	44	39	46	41	45	40	-1.4	-1.2	-1.3	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1929		Residential	0	S	49	44	47	42	49	44	48	43	-1.2	-1.1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1935		Residential	0	W	46	41	46	41	47	42	47	42	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1938		Residential	0	N	45	39	45	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1939		Residential	0	N	47	42	47	42	48	43	48	43	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1944		Residential	0	S	52	47	51	46	53	48	52	47	-0.8	-0.8	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1951		Residential	0	W	50	45	50	45	50	45	50	45	0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1960		Residential	0	W	49	44	49	44	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1963		Residential	0	W	46	41	46	41	47	42	47	42	-0.3	-0.3	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1965		Residential	0	N	43	38	43	38	43	39	44	38	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1966		Residential	0	N	50	45	50	45	51	46	51	46	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1969		Residential	0	W	50	45	50	45	50	45	50	45	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1972		Residential	0	N	44	39	44	39	45	40	45	40	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1983		Residential	0	N	48	43	48	43	48	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1988		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1995		Residential	0	W	46	41	46	41	46	41	46	41	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	1996		Residential	0	W	50	45	49	44	51	46	50	45	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2004		Residential	0	W	51	46	51	46	52	47	52	47	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2007		Residential	0	W	49	44	49	44	50	45	50	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2009		Residential	0	W	42	37	42	37	42	37	42	37	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2010		Residential	0	S	50	45	49	44	51	46	50	45	-1	-0.9	-0.9	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2027		Residential	0	S	45	40	44	39	45	40	45	40	-0.9	-0.8	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2027		Residential	1	W	48	42	47	42	48	43	48	43	-0.7	-0.5	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2044		Residential	0	N	46	41	46	41	47	42	47	42	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2048		Residential	0	S	51	46	50	45	51	46	50	45	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2055		Residential	0	W	47	42	46	41	48	43	47	42	-0.8	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2066		Residential	0	S	57	51	56	51	57	52	57	52	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2075		Residential	0	S	50	45	49	44	51	46	50	45	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2084		Residential	0	W	47	42	47	42	48	43	48	43	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2095		Residential	0	W	45	39	45	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2130		Residential	0	S	42	36	41	36	42	37	42	37	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2131		Residential	0	N	49	44	48	43	49	44	49	44	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2151		Residential	0	W	50	45	49	44	51	46	50	45	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2174		Residential	0	S	41	36	41	35	41	36	41	36	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2180		Residential	0	S	42	37	42	37	43	38	42	37	-0.5	-0.3	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2184		Residential	0	W	48	43	48	43	48	43	48	43	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2190		Residential	0	W	44	39	44	39	44	39	44	39	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2200		Residential	0	N	47	42	47	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2207		Residential	0	W	53	48	53	48	54	49	53	48	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2212		Residential	0	W	50	45	50	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2213		Residential	0	S	57	52	57	52	58	53	58	53	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2220		Residential	0	S	44	38	43	38	44	39	44	39	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2231		Residential	0	N	45	40	45	40	46	41	46	41	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2234		Residential	0	N	50	45	50	45	51	46	51	46	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2272		Residential	0	W	50	45	50	45	51	46	51	46	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2276		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2285		Residential	0	N	46	41	46	41	46	41	46	41	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2288		Residential	0	W	45	40	45	40	45	40	45	40	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2293		Residential	0	W	47	42	47	42	48	43	48	43	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2303		Residential	0	W	49	44	49	44	50	45	50	45	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2321		Residential	0	S	50	45	49	44	51	46	50	45	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	2322	[redacted]	Residential	0	N	49	44	49	44	49	45	50	44	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2323		Residential	0	W	49	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2326		Residential	0	N	49	44	49	44	49	45	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2331		Residential	0	W	42	37	42	37	43	38	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2342		Residential	0	W	48	43	47	41	48	43	47	42	-1.1	-1.1	-1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2349		Residential	0	N	48	43	48	43	48	43	48	43	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2350		Residential	0	W	51	46	50	45	52	47	51	46	-0.9	-0.8	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2356		Residential	0	S	48	43	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2361		Residential	0	N	49	44	49	44	50	45	50	45	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2363		Residential	0	W	50	45	49	44	50	45	49	44	-0.9	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2366		Residential	0	N	48	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2381		Residential	0	SW	40	35	40	35	41	36	41	36	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2381		Residential	1	SW	44	39	44	39	45	40	45	40	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2387		Residential	0	W	46	41	45	40	46	41	46	41	-0.5	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2392		Residential	0	W	43	38	43	38	44	39	44	39	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2397		Residential	0	S	55	50	54	49	55	50	55	50	-0.5	-0.6	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2406		Residential	0	N	50	45	50	45	50	46	51	46	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2410		Residential	0	SW	46	41	46	41	47	42	46	41	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2416		Residential	0	SW	44	39	44	39	45	40	45	40	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2418		Residential	0	W	50	45	50	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2423		Residential	0	N	45	40	45	40	46	41	46	41	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2424		Residential	0	S	46	41	45	40	47	42	46	41	-0.7	-0.5	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2434		Residential	0	N	47	42	47	42	48	43	48	43	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2443		Residential	0	N	48	42	48	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2459		Residential	0	N	45	40	45	40	46	41	46	41	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2484		Residential	0	S	41	36	41	35	41	36	41	36	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2512		Residential	0	N	40	35	40	35	41	36	41	36	-0.1	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2518		Residential	0	N	46	41	46	41	47	42	47	42	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2519		Residential	0	W	49	44	49	44	49	44	49	44	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2520		Residential	0	W	50	45	50	45	51	46	51	46	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2539		Residential	0	W	47	42	46	41	47	42	47	42	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2556		Residential	0	W	49	44	48	43	49	44	49	44	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2557		Residential	0	S	41	36	41	36	42	37	42	37	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2562		Residential	0	SW	55	50	55	49	56	51	55	50	-0.5	-0.5	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2571		Residential	0	W	42	37	42	37	43	38	43	38	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2577		Residential	0	N	44	38	43	38	44	39	44	39	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2588		Residential	0	S	51	46	50	45	52	47	51	46	-1.2	-1.2	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2595		Residential	0	W	47	42	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2598		Residential	0	N	43	38	43	38	44	39	44	39	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2616		Residential	0	W	47	42	46	41	48	43	47	42	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2625		Residential	0	N	40	35	40	35	41	36	41	36	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2629		Residential	0	W	47	42	47	42	48	43	48	43	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2644		Residential	0	N	48	43	48	43	49	44	49	44	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2651		Residential	0	W	48	42	47	42	48	43	48	43	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2658		Residential	0	N	43	38	43	38	44	39	44	39	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2663		Residential	0	N	48	43	48	43	48	43	48	43	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2671		Residential	0	W	56	51	56	51	57	52	57	52	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2672		Residential	0	N	47	42	47	42	48	43	48	43	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2673		Residential	0	N	47	42	47	42	47	42	47	42	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2673		Residential	1	W	52	47	51	46	53	48	52	47	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2680		Residential	0	S	49	43	47	42	49	44	48	43	-1.3	-1.2	-1.3	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2682		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2687		Residential	0	N	48	43	48	43	49	44	49	44	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2691		Residential	0	S	52	47	51	46	53	48	52	47	-0.7	-0.7	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2696		Residential	0	S	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2697		Residential	0	N	45	39	45	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2706		Residential	0	S	47	42	46	41	47	42	46	41	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2707		Residential	0	W	44	39	44	39	44	39	44	39	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2707		Residential	1	W	47	42	46	41	47	42	47	42	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2719		Residential	0	N	49	44	49	44	50	45	50	45	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2740		Residential	0	W	43	38	43	38	43	38	43	38	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2767		Residential	0	N	48	43	47	42	48	43	48	43	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2786		Residential	0	W	44	39	44	39	45	40	45	39	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2787		Residential	0	W	53	48	52	47	53	49	53	48	-0.7	-0.7	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2791		Residential	0	W	46	41	46	41	46	41	46	41	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2794		Residential	0	W	46	41	46	41	47	42	47	42	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2801		Residential	0	W	43	38	43	38	44	39	44	39	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2804		Residential	0	S	48	43	47	42	49	44	48	43	-1.5	-1.3	-1.4	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2804		Residential	1	S	50	44	48	43	50	45	49	44	-1.2	-1.1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2814		Residential	0	W	48	43	47	42	49	44	48	43	-1.1	-1	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2816		Residential	0	W	43	38	43	38	43	38	43	38	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2818		Residential	0	S	45	40	45	40	46	41	46	41	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2818		Residential	1	W	50	44	49	44	50	45	50	45	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2824		Residential	0	N	46	41	46	41	47	42	47	42	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA01	2839	[redacted]	Residential	0	W	48	43	48	43	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2840		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2842		Residential	0	W	47	41	46	41	47	42	47	42	-0.1	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2844		Residential	0	N	47	42	47	42	47	42	47	42	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2847		Residential	0	N	44	39	44	39	45	40	45	40	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2852		Residential	0	N	45	40	45	40	46	41	46	41	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2862		Residential	0	W	49	44	49	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2872		Residential	0	N	50	45	50	45	50	45	50	45	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2901		Residential	0	W	50	44	50	44	50	45	50	45	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2905		Residential	0	W	54	49	54	49	55	50	55	49	-0.5	-0.5	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2924		Residential	0	S	47	41	46	41	47	42	46	41	-1	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2925		Residential	0	S	51	46	50	45	52	47	51	46	-0.9	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2926		Residential	0	N	49	44	49	44	49	44	49	44	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2951		Residential	0	SE	59	54	57	53	60	55	58	53	-1.9	-1.7	-1.9	-1.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	2969		Residential	0	S	62	57	61	56	63	58	61	56	-1.5	-1.3	-1.4	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	3000		Residential	0	W	51	46	51	46	52	47	52	47	0	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA01	3006		Residential	0	SE	60	55	59	54	61	56	60	55	-1.3	-1.2	-1.2	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1642		Residential	0	E	59	54	58	53	59	54	59	54	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1719		Residential	0	N	58	53	58	53	59	54	58	53	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1735		Residential	0	E	56	51	56	51	56	52	57	52	0.1	0.1	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1788		Residential	0	N	47	42	47	42	48	43	48	42	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1797		Residential	0	SW	50	44	49	44	50	45	50	45	-0.2	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1829		Residential	0	SW	52	47	52	47	53	48	53	47	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1858		Residential	0	W	50	45	50	45	51	46	50	45	-0.2	-0.3	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1882		Residential	0	SW	55	50	54	49	55	50	55	50	-0.4	-0.4	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1909		Residential	0	NW	52	46	51	46	52	47	52	47	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1967		Residential	0	W	51	47	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1971		Residential	0	E	62	57	62	57	63	58	63	58	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1987		Residential	0	W	65	60	64	59	65	61	64	59	-0.9	-0.9	-0.8	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	1993		Residential	0	E	56	50	55	50	56	51	56	51	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2025		Residential	0	E	53	48	53	48	53	48	53	48	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2040		Residential	0	W	51	46	51	46	51	47	51	46	-0.2	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2065		Residential	0	E	59	54	59	54	60	55	60	55	0	0	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2081		Residential	0	N	47	42	47	42	48	43	48	43	-0.2	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2156		Residential	0	W	62	58	62	57	63	58	63	58	-0.6	-0.6	-0.5	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2191		Residential	0	E	60	55	60	55	61	56	61	56	0.1	0	0.2	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2208		Residential	0	W	48	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2222		Residential	0	W	53	48	53	48	54	49	53	48	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2241		Residential	0	E	52	47	52	47	53	48	53	48	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2278		Residential	0	E	59	54	59	54	60	55	60	55	-0.1	-0.1	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2280		Residential	0	E	54	49	54	49	55	50	54	49	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2299		Residential	0	E	57	52	57	52	57	53	58	52	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2325		Residential	0	NE	53	48	53	48	54	49	54	49	-0.1	-0.2	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2344		Residential	0	N	48	44	48	43	49	44	49	44	-0.2	-0.3	-0.1	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2374		Residential	0	N	53	48	52	47	53	48	53	48	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2432		Residential	0	E	57	52	57	52	57	53	58	52	0	-0.1	0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2433		Residential	0	N	48	43	48	43	49	44	49	43	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2454		Residential	0	W	51	46	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2476		Residential	0	E	54	49	54	49	55	50	55	49	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2496		Residential	0	W	66	61	65	60	67	62	66	61	-1	-0.9	-0.8	-1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA02	2599		Residential	0	N	53	48	52	48	54	49	53	48	-0.5	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2618		Residential	0	N	48	43	48	43	49	44	49	43	-0.2	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2623		Residential	0	E	68	63	67	63	69	64	68	63	-0.5	-0.3	-0.4	-0.4	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA02	2631		Residential	0	W	51	46	50	45	51	47	51	46	-0.4	-0.4	-0.2	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2692		Residential	0	W	52	47	52	47	52	48	52	47	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2708		Residential	0	E	57	52	57	52	58	53	58	53	0	0	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2716		Residential	0	W	64	60	63	59	65	60	64	59	-1	-1	-0.8	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2809		Residential	0	W	57	52	56	52	57	53	57	52	-0.3	-0.2	-0.1	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2832		Residential	0	E	62	57	62	57	62	58	63	58	0	0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2850		Residential	0	W	50	45	50	45	50	45	50	45	-0.1	-0.2	0	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2881		Residential	0	NW	53	48	53	48	54	49	53	48	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2909		Residential	0	W	53	48	52	47	53	48	53	48	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2921		Residential	0	W	47	42	47	42	48	43	48	43	0.1	0	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2922		Residential	0	W	48	43	48	43	49	43	49	43	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2923		Residential	0	N	47	42	47	42	48	43	48	43	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA02	2946		Residential	0	E	67	62	66	61	68	63	67	62	-0.9	-0.8	-0.8	-0.9	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	1640		Residential	0	SE	56	51	55	51	57	52	56	51	-0.8	-0.5	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1648		Residential	0	NE	56	51	55	50	56	51	56	51	-0.3	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1650		Residential	0	W	53	48	53	48	54	49	54	49	-0.2	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1656		Residential	0	SW	64	58	63	58	64	59	64	59	-0.6	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1662		Residential	0	SE	51	46	50	45	52	47	51	46	-0.9	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1664		Residential	0	S	52	47	51	46	52	47	52	47	-0.8	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1665		Residential	0	W	54	49	54	49	55	50	54	50	-0.4	-0.4	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1666		Residential	0	SW	53	48	53	47	53	48	53	48	-0.2	-0.3	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night						
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night	≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
NCA03	1670	[redacted]	Residential	0	W	54	49	54	49	55	50	54	49	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1674		Residential	0	NE	64	59	64	59	65	60	65	60	0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1683		Residential	0	W	63	58	62	57	63	58	62	57	-1.1	-1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1684		Residential	0	SW	63	58	62	57	64	59	62	57	-1.3	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1686		Residential	0	W	48	43	48	43	49	44	49	44	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1690		Residential	0	W	63	58	63	58	64	59	64	59	-0.5	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1694		Residential	0	NW	52	47	52	47	53	48	52	47	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1703		Residential	0	SW	53	48	53	48	53	49	53	48	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1706		Residential	0	E	54	49	53	49	54	50	54	49	-0.5	-0.4	-0.3	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1714		Residential	0	N	49	44	48	43	49	44	49	44	-0.4	-0.4	-0.2	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1717		Residential	0	SW	64	59	62	57	64	59	63	58	-1.2	-1.1	-1.2	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1720		Residential	0	NW	51	46	51	45	51	46	51	46	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1727		Residential	0	SW	56	51	56	51	57	52	56	51	-0.6	-0.6	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1728		Residential	0	NW	57	52	56	51	57	52	57	52	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1731		Residential	0	W	56	51	55	50	56	51	56	51	-0.7	-0.7	-0.5	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1733		Residential	0	W	63	58	63	58	64	59	64	58	-0.5	-0.4	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1739		Residential	0	NE	65	60	66	61	66	61	67	62	0.8	0.7	0.8	0.6	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	1742		Residential	0	N	52	47	52	47	53	48	53	48	-0.1	0	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1754		Residential	0	SW	53	48	53	48	54	49	54	49	-0.2	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1760		Residential	0	SE	59	54	58	53	59	54	59	54	-0.5	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1760		Residential	1	SE	59	54	58	53	59	55	59	54	-0.6	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1761		Residential	0	W	54	48	52	47	54	49	52	47	-2	-1.9	-1.9	-2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1765		Residential	0	NE	50	45	50	45	51	46	51	46	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1773		Residential	0	SW	63	58	62	57	64	59	62	57	-1.4	-1.4	-1.4	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1780		Residential	0	W	53	47	52	47	53	48	53	48	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1781		Residential	0	W	54	49	54	49	55	50	55	49	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1794		Residential	0	SW	52	47	51	46	53	48	52	47	-0.9	-0.9	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1805		Residential	0	W	54	49	54	49	55	50	54	49	-0.5	-0.5	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1806		Residential	0	NE	51	46	51	46	51	46	51	46	-0.2	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1811		Residential	0	NE	59	54	58	52	59	54	58	53	-1	-1.1	-1	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1811		Residential	1	NE	62	57	61	56	63	58	62	57	-1.3	-1.3	-1.2	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1820		Residential	0	SW	56	51	52	47	56	52	53	48	-3.9	-4	-3.7	-4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1826		Residential	0	W	54	49	54	49	55	50	55	50	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1828		Residential	0	SW	53	47	52	47	53	48	53	48	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1831		Residential	0	SW	56	51	55	50	56	51	56	50	-0.8	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1832		Residential	0	S	57	52	55	50	58	53	55	50	-2.4	-2.4	-2.4	-2.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1832		Residential	1	S	58	53	56	51	58	54	56	51	-2.3	-2.3	-2.3	-2.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1834		Residential	0	NW	54	49	53	48	54	49	54	49	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1837		Residential	0	W	54	49	54	49	55	50	55	50	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1855		Residential	0	SE	52	47	52	47	53	48	53	48	-0.4	-0.3	-0.3	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1855		Residential	1	SE	56	51	55	50	56	51	56	51	-0.4	-0.2	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1860		Residential	0	NE	61	56	61	56	62	57	61	56	-0.8	-0.8	-0.8	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1861		Residential	0	E	62	58	63	58	63	58	63	58	0.2	0.2	0.2	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1864		Residential	0	W	55	50	55	50	56	51	55	50	-0.5	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1879		Residential	0	NE	61	56	61	56	61	57	62	57	0	0.3	0.2	0.1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	1885		Residential	0	SW	54	49	54	49	54	50	54	49	-0.3	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1886		Residential	0	NW	53	48	53	48	54	49	53	48	-0.4	-0.4	-0.3	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1887		Residential	0	NE	64	59	64	59	65	60	65	60	0.2	0.2	0.2	0.1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	1889		Residential	0	S	57	52	55	50	58	53	56	51	-1.6	-1.6	-1.6	-1.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1893		Residential	0	NE	53	48	53	48	54	49	53	48	-0.7	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1897		Residential	0	W	52	47	52	47	53	48	53	48	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1906		Residential	0	SE	54	49	54	48	55	50	54	49	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1907		Residential	0	SW	55	50	54	49	55	50	55	50	-0.5	-0.5	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1917		Residential	0	SW	56	51	55	50	56	51	56	51	-0.5	-0.6	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1918		Residential	0	SE	59	54	59	54	60	55	60	55	-0.4	-0.2	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1923		Residential	0	NW	51	46	51	46	52	47	52	47	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1931		Residential	0	W	54	49	53	48	54	49	54	49	-0.3	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1937		Residential	0	SW	57	52	56	51	57	52	56	51	-1	-1	-0.9	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1941		Residential	0	W	52	47	52	47	53	48	53	48	-0.1	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1942		Residential	0	SW	53	48	53	48	54	49	54	49	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1945		Residential	0	SW	58	53	58	53	59	54	58	53	-0.6	-0.5	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1946		Residential	0	W	56	51	55	50	56	51	56	51	-0.6	-0.5	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1950		Residential	0	W	62	57	62	57	62	57	62	57	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1962		Residential	0	N	52	47	52	47	52	48	53	48	0	0	0.2	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1970		Residential	0	E	63	59	64	59	64	60	64	60	0.3	0.3	0.2	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1976		Residential	0	E	48	43	47	42	48	43	48	43	-0.8	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	1999		Residential	0	SW	57	52	57	51	58	53	57	52	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2016		Residential	0	SW	56	51	55	50	57	52	56	51	-1.1	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2028		Residential	0	NE	67	62	67	62	68	63	68	63	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2029		Residential	0	SW	53	48	53	48	54	49	53	48	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2032		Residential	0	W	51	46	51	46	51	47	51	46	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2036		Residential	0	W	51	46	50	45	51	46	51	46	-0.5	-0.5	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2037		Residential	0	SW	57	52	54	49	58	53	54	49	-3.4	-3.5	-3.4	-3.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2038		Residential	0	SW	53	48	53	48	54	49	54	48	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	2056	[redacted]	Residential	0	NE	69	64	68	63	69	64	69	64	-0.7	-0.5	-0.7	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2058		Residential	0	W	57	52	55	50	58	53	56	51	-1.6	-1.6	-1.5	-1.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2072		Residential	0	E	52	47	52	47	53	48	53	48	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2072		Residential	1	E	54	49	54	49	55	50	55	50	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2074		Residential	0	SW	55	50	54	49	55	50	55	50	-0.4	-0.4	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2077		Residential	0	SE	50	45	49	44	50	45	49	44	-1	-0.9	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2083		Residential	0	W	52	47	51	46	52	47	52	47	-0.5	-0.4	-0.3	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2088		Residential	0	W	55	50	55	50	56	51	55	50	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2100		Residential	0	SE	59	54	59	54	60	55	59	54	-0.5	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2101		Residential	0	SW	63	58	62	57	64	58	62	57	-1.3	-1.2	-1.3	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2102		Residential	0	SW	63	58	61	56	63	58	62	57	-1.4	-1.3	-1.3	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2104		Residential	0	SW	54	49	54	49	55	50	54	49	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2109		Residential	0	NW	54	49	54	49	55	50	55	50	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2110		Residential	0	N	57	52	57	52	58	53	58	53	-0.6	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2111		Residential	0	SW	60	55	55	50	61	56	56	51	-4.7	-4.9	-4.6	-5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2112		Residential	0	SW	53	48	52	47	53	48	53	48	-0.7	-0.6	-0.5	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2114		Residential	0	SE	50	45	49	44	51	46	50	45	-1	-0.8	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2118		Residential	0	W	51	46	51	46	51	46	51	46	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2127		Residential	0	W	58	53	57	52	58	53	58	53	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2129		Residential	0	W	54	49	54	49	54	49	54	49	-0.3	-0.3	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2136		Residential	0	W	62	57	60	55	62	58	61	56	-1.8	-1.7	-1.7	-1.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2145		Residential	0	NE	56	51	56	51	57	52	57	52	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2148		Residential	0	NW	53	48	52	47	53	48	53	48	-0.3	-0.3	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2152		Residential	0	E	61	56	61	56	61	57	61	57	0	0.1	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2153		Residential	0	SW	60	55	56	50	61	56	56	51	-4.8	-5	-4.8	-5.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2155		Residential	0	SW	63	58	62	57	64	59	63	58	-0.9	-0.9	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2157		Residential	0	SE	52	47	51	46	52	47	52	47	-0.8	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2163		Residential	0	SW	57	52	55	50	57	52	55	50	-2	-1.9	-1.8	-2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2165		Residential	0	W	53	48	52	47	53	48	53	48	-0.5	-0.4	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2179		Residential	0	SW	57	52	56	50	57	52	56	51	-1.1	-1.2	-1.1	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2186		Residential	0	NE	67	62	66	61	68	63	67	62	-1.3	-1.2	-1.2	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2188		Residential	0	SW	63	58	63	58	64	59	64	59	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2189		Residential	0	W	54	49	54	49	55	50	55	50	-0.1	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2194		Residential	0	NW	51	46	51	46	52	47	51	46	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2197		Residential	0	SE	52	47	51	46	52	47	52	47	-0.8	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2198		Residential	0	W	60	56	55	50	61	56	56	51	-5	-5.3	-5	-5.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2204		Residential	0	NE	65	60	65	60	66	61	66	61	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2205		Residential	0	E	58	53	58	53	58	53	58	53	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2206		Residential	0	NE	56	50	55	50	56	51	55	50	-0.9	-0.8	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2240		Residential	0	SW	53	48	53	48	53	48	53	48	-0.2	-0.3	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2252		Residential	0	NE	50	45	50	45	51	46	50	45	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2253		Residential	0	W	57	52	56	51	57	52	56	51	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2255		Residential	0	W	54	49	54	48	55	50	54	49	-0.6	-0.6	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2264		Residential	0	NE	55	50	55	50	55	50	55	50	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2273		Residential	0	E	55	50	55	50	55	50	56	50	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2277		Residential	0	SW	56	51	54	49	57	52	54	49	-2.3	-2.3	-2.3	-2.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2286		Residential	0	NE	62	57	61	56	63	58	62	57	-0.5	-0.6	-0.5	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2286		Residential	1	NE	65	60	64	59	65	60	64	59	-1	-0.9	-0.9	-1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	2287		Residential	0	N	52	47	52	47	52	48	53	48	-0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2290		Residential	0	W	51	46	51	46	52	47	52	46	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2291		Residential	0	W	54	48	53	48	54	49	54	49	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2292		Residential	0	SW	63	58	62	57	64	59	63	58	-1.3	-1.1	-1.2	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2292		Residential	1	SW	65	59	64	59	65	60	64	59	-1	-0.9	-1	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2297		Residential	0	W	54	49	54	49	55	50	54	49	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2301		Residential	0	SW	63	58	62	57	64	59	63	58	-1.2	-1	-1.2	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2313		Residential	0	W	59	54	55	50	59	54	56	50	-3.6	-3.8	-3.5	-3.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2315		Residential	0	W	51	46	51	46	52	47	52	46	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2328		Residential	0	NE	55	50	55	50	55	50	55	50	0.1	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2333		Residential	0	W	62	57	62	57	63	58	63	58	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2334		Residential	0	SE	58	53	57	52	58	54	58	53	-0.6	-0.4	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2347		Residential	0	SE	50	45	49	44	51	46	50	45	-1.1	-1	-1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2354		Residential	0	SW	49	44	49	44	50	45	50	44	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2369		Residential	0	W	54	49	54	49	55	50	55	49	-0.3	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2370		Residential	0	SW	55	50	54	49	55	50	55	50	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2386		Residential	0	SW	53	48	53	48	54	49	54	48	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2393		Residential	0	SW	55	50	53	48	55	50	54	49	-1.4	-1.3	-1.3	-1.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2395		Residential	0	W	63	58	63	58	64	59	63	58	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2398		Residential	0	NW	52	47	52	47	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2400		Residential	0	W	56	50	55	50	56	51	56	51	-0.5	-0.4	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2401		Residential	0	NE	55	50	55	50	56	50	56	50	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2403		Residential	0	NE	51	46	51	46	52	47	51	46	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2403		Residential	1	NE	54	49	53	48	54	49	53	48	-1.1	-1	-0.9	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2408		Residential	0	SE	52	47	51	46	52	47	52	47	-0.8	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2411		Residential	0	SE	55	50	54	49	56	51	55	50	-0.7	-0.5	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	2421	[redacted]	Residential	0	SW	52	47	52	47	53	48	52	47	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2427		Residential	0	SW	56	51	53	47	57	52	53	48	-3.7	-3.9	-3.7	-4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2431		Residential	0	W	55	49	54	49	55	50	55	50	-0.4	-0.5	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2442		Residential	0	NE	57	52	57	52	58	53	58	53	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2448		Residential	0	W	52	47	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2458		Residential	0	W	63	58	62	57	63	58	63	58	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2462		Residential	0	NE	53	48	53	48	54	48	54	48	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2466		Residential	0	NE	58	53	57	52	58	53	58	53	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2471		Residential	0	W	55	50	53	48	56	51	54	49	-2	-2	-1.9	-2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2475		Residential	0	W	54	49	54	49	55	50	54	49	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2478		Residential	0	W	53	48	54	48	54	49	54	49	0.1	0.1	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2479		Residential	0	N	52	47	52	47	53	48	53	48	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2483		Residential	0	SE	53	48	53	49	54	49	54	49	0	0.2	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2485		Residential	0	W	55	49	54	49	55	50	55	50	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2486		Residential	0	W	49	44	49	44	50	45	50	45	0	-0.1	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2487		Residential	0	SE	46	41	45	40	47	42	46	41	-0.8	-0.7	-0.6	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2489		Residential	0	SW	55	50	55	49	55	50	55	50	-0.4	-0.4	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2498		Residential	0	NE	49	44	48	43	49	44	49	44	-0.8	-0.6	-0.6	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2500		Residential	0	W	53	48	53	48	53	48	53	48	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2501		Residential	0	W	63	58	63	58	64	59	64	59	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2509		Residential	0	SW	51	46	50	45	51	46	51	46	-0.3	-0.3	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2510		Residential	0	N	57	52	56	51	58	53	57	52	-0.6	-0.6	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2515		Residential	0	NE	55	50	54	49	56	51	55	50	-1	-0.8	-0.9	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2530		Residential	0	S	54	48	53	48	54	49	54	49	-0.1	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2531		Residential	0	W	55	50	54	49	55	50	55	50	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2534		Residential	0	W	53	48	53	48	54	49	53	48	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2536		Residential	0	NE	53	48	53	48	54	49	54	49	-0.2	-0.2	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2546		Residential	0	W	54	49	54	49	55	50	55	50	-0.2	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2548		Residential	0	NW	51	46	50	45	51	46	51	46	-0.4	-0.4	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2550		Residential	0	SE	55	50	52	47	56	51	53	48	-2.6	-2.6	-2.5	-2.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2552		Residential	0	NE	53	48	53	48	54	49	53	48	-0.3	-0.2	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2555		Residential	0	SW	62	57	61	56	63	57	62	57	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2559		Residential	0	N	53	48	52	47	53	48	53	48	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2560		Residential	0	NE	61	56	60	55	62	56	61	56	-0.7	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2564		Residential	0	W	56	50	55	50	56	51	56	51	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2568		Residential	0	SW	54	49	53	48	54	49	54	49	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2574		Residential	0	W	57	52	57	52	57	52	57	52	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2575		Residential	0	NE	51	46	51	46	51	46	51	46	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2576		Residential	0	SW	56	51	55	50	56	51	56	50	-0.9	-0.9	-0.7	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2579		Residential	0	W	53	48	53	48	53	49	53	48	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2593		Residential	0	W	53	48	53	48	54	49	54	49	-0.4	-0.4	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2601		Residential	0	SE	54	49	53	48	55	50	54	49	-0.7	-0.5	-0.5	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2613		Residential	0	W	54	49	53	48	54	49	54	49	-0.2	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2619		Residential	0	SW	53	48	53	48	54	49	53	48	-0.3	-0.3	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2632		Residential	0	W	57	52	56	51	57	52	57	52	-0.2	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2634		Residential	0	E	54	49	53	48	54	49	53	48	-1.1	-1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2637		Residential	0	S	58	53	55	50	58	54	56	51	-2.5	-2.5	-2.4	-2.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2638		Residential	0	NE	66	61	66	61	67	62	66	61	-0.4	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2641		Residential	0	W	52	47	52	47	53	48	53	48	0	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2642		Residential	0	SE	57	52	54	49	57	52	55	50	-2.4	-2.4	-2.3	-2.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2643		Residential	0	NE	51	46	51	46	51	46	51	46	-0.2	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2650		Residential	0	SW	53	48	53	48	53	48	53	48	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2655		Residential	0	SW	54	49	54	49	55	50	55	50	-0.3	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2664		Residential	0	W	57	52	54	49	57	52	55	50	-2.5	-2.5	-2.4	-2.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2665		Residential	0	W	53	48	53	48	54	49	54	49	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2667		Residential	0	W	54	48	53	48	54	49	54	49	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2668		Residential	0	NW	48	43	48	43	49	44	49	43	-0.3	-0.3	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2670		Residential	0	W	58	53	54	49	58	53	54	49	-3.9	-4.1	-3.8	-4.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2675		Residential	0	W	59	54	59	54	60	55	60	55	-0.2	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2679		Residential	0	W	53	48	53	47	53	48	53	48	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2681		Residential	0	NE	62	57	61	56	63	58	62	57	-0.8	-0.7	-0.7	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2681		Residential	1	NE	65	60	64	59	65	60	64	59	-1.1	-1.1	-1	-1.2	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	2683		Residential	0	N	55	50	55	50	56	51	56	51	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2685		Residential	0	SW	63	58	62	57	64	59	63	58	-0.6	-0.6	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2689		Residential	0	SW	51	46	51	46	52	47	52	47	-0.4	-0.4	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2695		Residential	0	N	52	46	51	46	52	47	52	47	-0.2	-0.1	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2698		Residential	0	SW	55	50	54	49	56	51	55	50	-0.9	-0.9	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2702		Residential	0	SW	53	48	53	48	54	49	54	49	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2715		Residential	0	W	54	49	53	48	54	49	54	49	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2725		Residential	0	S	54	49	53	48	55	50	53	48	-1.5	-1.4	-1.4	-1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2726		Residential	0	SW	63	58	63	58	64	59	64	59	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2732		Residential	0	N	54	49	54	49	55	50	55	50	0.1	0.1	0.2	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2734		Residential	0	SW	49	44	49	44	50	45	50	45	0	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2736		Residential	0	SW	63	57	62	57	63	58	63	58	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	2737	[redacted]	Residential	0	S	55	50	54	49	55	50	55	50	-0.2	-0.2	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2738		Residential	0	W	51	46	51	46	52	47	52	47	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2741		Residential	0	W	53	48	53	48	54	49	54	49	0	0	0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2750		Residential	0	SE	51	46	50	45	51	46	50	45	-0.8	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2750		Residential	1	NE	55	50	54	49	56	51	55	50	-0.6	-0.4	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2752		Residential	0	N	56	51	55	50	57	52	56	51	-0.6	-0.5	-0.5	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2757		Residential	0	SE	56	51	55	50	56	51	56	51	-0.7	-0.5	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2758		Residential	0	NE	54	49	53	48	55	50	54	49	-1.3	-1.1	-1.3	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2765		Residential	0	NE	52	47	52	47	53	47	53	47	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2771		Residential	0	SW	54	49	54	48	54	49	54	49	-0.3	-0.3	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2772		Residential	0	W	53	48	53	47	53	48	53	48	-0.2	-0.2	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2773		Residential	0	NE	55	50	55	50	56	51	56	51	0.1	0.1	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2775		Residential	0	SW	54	49	52	47	55	50	53	48	-2	-2	-1.9	-2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2776		Residential	0	SW	52	47	52	47	52	47	52	47	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2778		Residential	0	W	54	49	53	48	54	49	54	49	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2779		Residential	0	NW	53	48	52	48	53	48	53	48	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2781		Residential	0	W	51	46	51	45	52	47	51	46	-0.7	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2788		Residential	0	NW	52	46	51	46	52	47	52	47	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2790		Residential	0	NE	67	62	67	62	68	63	67	62	-0.7	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2793		Residential	0	SE	52	47	52	47	53	48	52	47	-0.6	-0.5	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2799		Residential	0	W	54	49	54	49	55	50	55	50	-0.3	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2802		Residential	0	SW	55	50	54	49	55	50	55	50	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2808		Residential	0	N	54	49	54	49	55	50	55	50	-0.1	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2808		Residential	1	E	57	52	56	51	57	52	56	51	-0.9	-0.8	-0.7	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2811		Residential	0	SE	50	45	50	44	50	45	50	45	0	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2813		Residential	0	SE	60	55	60	55	60	55	60	55	-0.2	-0.2	-0.2	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2815		Residential	0	NE	50	45	50	45	51	46	51	46	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2815		Residential	1	NE	52	47	52	47	53	48	53	48	0	0	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2830		Residential	0	W	51	46	51	46	52	47	52	47	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2833		Residential	0	W	56	51	56	51	57	52	57	52	-0.4	-0.3	-0.3	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2835		Residential	0	SW	62	56	61	56	62	57	62	57	-0.1	-0.1	0	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2843		Residential	0	W	54	49	53	48	54	49	54	49	-0.3	-0.3	-0.1	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2848		Residential	0	SW	51	46	51	45	52	47	51	46	-0.5	-0.4	-0.3	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2855		Residential	0	SW	56	51	56	51	57	52	57	52	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2856		Residential	0	SW	57	52	54	49	58	53	55	50	-3.4	-3.4	-3.2	-3.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2860		Residential	0	NE	47	42	47	42	48	43	48	42	-0.4	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2860		Residential	1	NE	51	46	50	45	51	46	51	46	-0.6	-0.6	-0.5	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2861		Residential	0	W	54	49	54	49	55	50	55	50	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2868		Residential	0	SE	60	55	60	55	61	56	61	56	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2890		Residential	0	SE	55	49	54	49	55	50	55	50	-0.7	-0.5	-0.6	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2896		Residential	0	W	54	49	54	49	55	50	54	49	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2899		Residential	0	S	58	53	55	50	58	53	55	50	-2.9	-2.9	-2.8	-3.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2902		Residential	0	W	61	57	57	52	62	57	57	52	-4.6	-4.8	-4.6	-4.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2904		Residential	0	W	56	51	56	51	57	51	57	51	-0.1	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2907		Residential	0	W	51	46	50	45	51	46	51	46	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2908		Residential	0	NE	52	47	52	47	53	48	52	47	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2910		Residential	0	E	46	41	45	40	46	41	46	41	-0.4	-0.4	-0.2	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2916		Residential	0	SW	59	54	55	50	60	55	55	50	-4.2	-4.5	-4.2	-4.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2917		Residential	0	W	59	54	55	50	60	55	55	50	-4.5	-4.8	-4.6	-4.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2918		Residential	0	W	62	57	59	54	62	58	60	55	-2.5	-2.6	-2.5	-2.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2919		Residential	0	SW	58	53	55	50	58	54	56	51	-2.7	-2.7	-2.6	-2.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2920		Residential	0	SW	55	50	55	50	56	51	55	50	-0.6	-0.5	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2927		Residential	0	NE	55	50	55	50	56	51	56	51	0.1	0.1	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2928		Residential	0	E	61	56	60	55	61	57	61	56	-0.6	-0.5	-0.4	-0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2929		Residential	0	NE	64	59	63	58	64	59	64	59	-0.8	-0.8	-0.7	-0.9	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	2930		Residential	0	W	53	47	52	47	53	48	53	48	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2943		Residential	0	W	52	47	50	45	53	48	51	46	-1.8	-1.7	-1.7	-1.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2957		Residential	0	E	67	62	67	62	67	63	68	63	0.3	0.4	0.4	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2962		Residential	0	SW	52	47	51	46	53	48	51	46	-1.5	-1.4	-1.3	-1.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2964		Residential	0	W	51	45	49	44	51	46	50	45	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2965		Residential	0	NE	64	59	64	59	65	60	65	60	-0.4	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA03	2967		Residential	0	E	51	46	50	45	52	47	51	46	-1	-0.9	-0.9	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2983		Residential	0	W	52	47	50	45	52	48	51	46	-1.5	-1.4	-1.5	-1.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2990		Residential	0	E	54	49	54	49	54	49	55	49	0.1	0.1	0.3	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2990		Residential	1	E	58	53	58	53	59	54	59	54	0.2	0.2	0.3	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2990		Residential	2	E	60	55	60	55	60	55	60	55	0	0	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2996		Residential	0	SW	53	48	51	46	53	48	52	47	-1.7	-1.6	-1.5	-1.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2997		Residential	0	SW	58	53	55	50	59	54	56	51	-3	-3.1	-2.9	-3.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	2999		Residential	0	W	50	45	49	44	51	46	50	45	-0.9	-0.8	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3005		Residential	0	W	49	44	48	43	50	45	49	44	-0.9	-0.8	-0.8	-0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3014		Residential	0	SW	56	51	54	49	57	52	55	50	-2.2	-2.3	-2.2	-2.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3567		Residential	0	E	57	52	57	52	58	53	58	53	-0.1	-0.1	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3569		Residential	0	SE	58	52	57	52	58	53	57	52	-0.9	-0.7	-0.8	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3570		Residential	0	SW	56	51	56	51	57	52	56	51	-0.3	-0.2	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA03	3571	[redacted]	Residential	0	SW	56	50	55	50	56	51	56	51	-0.3	-0.3	-0.2	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA03	3571		Residential	1	SW	59	54	59	54	60	54	59	54	-0.4	-0.3	-0.3	-0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	1943		Residential	0	E	66	61	64	59	67	62	64	59	-2.6	-2.4	-2.5	-2.5	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA04	2183		Residential	0	E	65	60	63	58	66	61	64	59	-2.2	-2	-2	-2.1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA04	2183		Residential	1	E	66	61	64	59	67	62	64	59	-2.6	-2.3	-2.4	-2.4	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA04	2236		Residential	0	E	65	60	63	58	66	61	64	59	-2.3	-2	-2.1	-2.1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA04	2281		Residential	0	E	63	58	62	57	64	59	62	57	-1.3	-1.1	-1.2	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	2357		Residential	0	NE	60	55	60	55	61	56	60	55	-0.8	-0.7	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	2911		Residential	0	E	62	57	61	56	63	58	62	57	-0.9	-0.9	-0.7	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA04	2915		Residential	0	N	59	54	58	54	59	54	59	54	-0.2	0.1	-0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2939		Residential	0	E	64	59	55	51	64	59	56	51	-8.5	-7.8	-8.4	-7.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	1767		Residential	0	N	45	40	44	39	46	41	44	39	-1.6	-1.6	-1.5	-1.7	58	53	NO	NO	NO	NO	NO	No treatment
NCA05	1784		Residential	0	NE	46	41	47	42	47	42	48	43	0.7	1	0.8	0.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	1948		Residential	0	N	47	42	45	40	47	42	46	41	-1.2	-1.2	-1.2	-1.3	57	52	NO	NO	NO	NO	NO	No treatment
NCA05	2035		Residential	0	NE	45	40	46	41	46	41	47	42	1.1	1.3	1.3	1.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2052		Residential	0	N	45	40	46	41	46	41	46	41	0.2	0.3	0.3	0.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2078		Residential	0	N	47	42	46	41	47	43	46	41	-1.1	-1.1	-1	-1.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2097		Residential	0	N	44	39	46	41	45	40	46	41	1.3	1.5	1.4	1.4	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2144		Residential	0	N	44	39	43	38	45	40	44	39	-1.3	-1.3	-1.2	-1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2166		Residential	0	E	40	34	40	35	40	35	40	35	0	0.2	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2238		Residential	0	N	45	40	45	40	45	40	46	41	0.5	0.5	0.5	0.4	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2268		Residential	0	N	45	39	45	40	45	40	45	40	0.2	0.3	0.4	0.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2394		Residential	0	NE	44	39	45	40	44	39	46	41	1.4	1.5	1.4	1.4	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2503		Residential	0	N	40	35	39	34	41	36	40	35	-0.6	-0.6	-0.6	-0.7	59	54	NO	NO	NO	NO	NO	No treatment
NCA05	2554		Residential	0	N	45	40	44	38	45	41	44	39	-1.4	-1.4	-1.2	-1.4	59	54	NO	NO	NO	NO	NO	No treatment
NCA05	2578		Residential	0	N	46	41	47	42	47	42	47	42	0.8	1	0.8	0.8	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2640		Residential	0	N	44	39	44	39	44	39	45	40	0.1	0.2	0.2	0.1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2714		Residential	0	N	46	41	46	41	46	41	46	41	0	0.2	0.1	0	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2769		Residential	0	N	43	38	42	37	43	38	43	38	-0.8	-0.8	-0.6	-0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2889		Residential	0	NE	41	36	41	36	42	37	42	37	-0.2	-0.2	-0.1	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2942		Residential	0	E	40	35	40	35	40	35	40	35	0	0.1	0.1	0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2942		Residential	1	E	41	36	41	36	42	37	42	37	0	0.1	0	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA05	2945		Residential	0	E	54	49	54	49	55	50	55	50	0.1	0.4	0.1	0.3	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2949		Residential	0	N	50	45	50	46	51	46	51	46	0	0.3	0.1	0.3	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2960		Residential	0	N	43	38	43	38	44	39	44	39	0	0	0.1	0	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2961		Residential	0	NE	51	45	50	45	51	46	51	46	-0.2	0	-0.1	0	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2966		Residential	0	E	55	50	53	48	55	51	53	48	-2.3	-2	-2.2	-2.1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2968		Residential	0	E	54	49	54	50	54	50	55	50	0.5	0.7	0.5	0.6	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2968		Residential	1	E	56	51	57	52	56	52	57	53	0.9	1.2	1	1	55	50	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA05	2970		Residential	0	SE	61	55	57	53	61	56	58	53	-3.4	-2.7	-3.3	-2.8	55	50	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA05	2970		Residential	1	SE	61	56	58	54	62	57	59	54	-3.1	-2.4	-3	-2.5	55	50	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA05	2972		Residential	0	N	54	49	54	49	54	49	54	50	0	0.3	0	0.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2974		Residential	0	N	41	36	41	36	42	37	41	36	-0.4	-0.4	-0.3	-0.4	57	52	NO	NO	NO	NO	NO	No treatment
NCA05	2975		Residential	0	N	54	49	52	47	54	50	52	48	-2	-1.7	-1.9	-1.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2979		Residential	0	NE	59	54	57	52	60	55	58	53	-2.1	-1.6	-2	-1.7	55	50	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA05	2980		Residential	0	NE	54	49	54	50	55	50	55	50	0.2	0.4	0.3	0.3	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2982		Residential	0	NE	54	49	52	47	55	50	53	48	-2.4	-2	-2.3	-2.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2987		Residential	0	E	49	44	49	44	49	45	49	44	-0.3	-0.1	-0.1	-0.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2988		Residential	0	E	59	53	58	53	59	54	59	54	-0.6	0	-0.4	-0.1	55	50	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA05	2989		Residential	0	E	54	49	52	48	55	50	53	48	-2.1	-1.8	-2	-1.9	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2992		Residential	0	NE	52	47	53	49	53	48	54	49	1.1	1.4	1.1	1.3	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2995		Residential	0	E	55	50	52	48	56	51	53	48	-2.8	-2.4	-2.7	-2.6	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3003		Residential	0	N	51	46	52	47	51	46	53	48	1.6	1.7	1.7	1.7	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3007		Residential	0	N	46	40	46	41	46	41	47	42	0.6	0.8	0.6	0.7	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3008		Residential	0	E	54	49	52	48	54	49	53	48	-1.2	-0.9	-1.2	-1	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3009		Residential	0	N	54	49	52	47	54	49	53	48	-1.8	-1.5	-1.7	-1.7	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	3013		Residential	0	NE	55	50	52	48	55	50	53	48	-2.4	-2.1	-2.3	-2.2	55	50	NO	NO	NO	NO	NO	No treatment
NCA05	2989		Residential	0	N	54	49	51	46	54	50	52	47	-2.8	-2.4	-2.7	-2.5	55	50	NO	NO	NO	NO	NO	No treatment
NCA06	1637		Residential	0	N	45	40	46	40	46	41	46	41	0.4	0.5	0.4	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1644		Residential	0	S	40	35	41	36	41	36	42	36	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1661		Residential	0	W	44	39	45	39	45	40	46	40	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1671		Residential	0	NW	53	48	54	48	54	48	54	49	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1672		Residential	0	SE	59	53	59	54	59	54	60	55	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1677		Residential	0	SW	50	45	51	46	51	45	52	46	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1680		Residential	0	SE	41	35	42	36	41	36	42	37	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1682		Residential	0	W	53	48	54	48	54	48	54	49	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1692		Residential	0	W	44	39	45	39	45	40	45	40	0.3	0.3	0.4	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1695		Residential	0	E	52	46	52	47	52	47	53	48	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1708		Residential	0	S	53	47	54	48	53	48	55	49	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1711		Residential	0	S	55	49	56	50	55	50	56	51	0.8	0.9	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1723		Residential	0	N	56	51	57	51	57	51	57	52	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1729		Residential	0	N	64	58	63	57	64	59	63	58	-0.8	-0.7	-0.7	-0.8	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA06	1740		Residential	0	W	51	46	52	46	52	46	53	47	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1744		Residential	0	W	56	50	56	51	56	51	57	52	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	1757	[redacted]	Residential	0	W	51	46	52	47	52	47	53	48	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1759		Residential	0	S	49	43	50	44	49	44	50	45	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1762		Residential	0	W	47	42	48	43	48	42	49	43	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1763		Residential	0	NW	47	42	48	42	48	42	48	43	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1766		Residential	0	N	43	37	44	38	43	38	44	39	0.8	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1768		Residential	0	N	57	51	53	48	57	52	54	49	-3.3	-3	-3.3	-3.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1770		Residential	0	W	50	45	52	46	51	46	52	47	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1771		Residential	0	W	48	43	49	44	49	44	50	45	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1790		Residential	0	N	41	36	42	37	42	37	43	37	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1808		Residential	0	N	45	40	46	40	46	40	46	41	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1815		Residential	0	SW	57	51	58	52	57	52	59	53	1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1816		Residential	0	SE	58	53	59	54	59	54	60	55	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1824		Residential	0	SW	43	38	44	38	44	38	44	39	0.6	0.7	0.7	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1836		Residential	0	N	66	61	66	61	67	62	67	61	-0.3	-0.1	-0.1	-0.3	60	55	YES	YES	YES	YES	YES	Remains over NCG criteria
NCA06	1839		Residential	0	N	42	37	43	37	43	37	43	38	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1840		Residential	0	S	51	46	52	47	52	47	53	47	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1844		Residential	0	S	53	47	53	48	53	48	54	49	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1848		Residential	0	SW	53	47	53	48	53	48	54	48	0.4	0.5	0.4	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1852		Residential	0	S	63	58	64	59	64	59	65	59	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1862		Residential	0	N	41	35	41	36	41	36	42	37	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1867		Residential	0	W	51	46	52	47	52	47	53	47	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1868		Residential	0	W	52	47	53	47	53	48	53	48	0.4	0.5	0.6	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1868		Residential	1	W	55	49	55	50	55	50	56	51	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1880		Residential	0	N	62	57	61	56	63	57	62	56	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1888		Residential	0	N	45	39	45	39	45	40	46	40	0.2	0.3	0.4	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1898		Residential	0	S	48	43	49	44	49	43	50	44	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1901		Residential	0	W	47	41	48	42	48	42	49	43	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1914		Residential	0	W	52	47	53	48	53	48	54	48	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1925		Residential	0	S	36	30	36	31	36	31	37	32	0.8	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1926		Residential	0	N	47	41	46	40	47	42	46	41	-0.8	-0.6	-0.7	-0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1932		Residential	0	W	44	38	44	39	44	39	45	39	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1936		Residential	0	NE	46	41	45	40	47	41	46	40	-1	-0.8	-0.9	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1947		Residential	0	W	53	48	54	49	54	49	55	49	0.6	0.6	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1957		Residential	0	E	53	47	54	48	53	48	54	49	0.9	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1968		Residential	0	W	56	50	56	51	56	51	57	51	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1975		Residential	0	W	57	52	58	52	58	52	58	53	0.7	0.7	0.7	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1979		Residential	0	N	42	36	42	37	42	37	43	37	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1980		Residential	0	S	57	51	57	52	57	52	58	53	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1981		Residential	0	S	57	52	58	52	58	53	59	53	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1984		Residential	0	N	44	39	45	40	45	39	46	40	1	1.1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1986		Residential	0	N	47	41	48	42	48	42	48	43	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	1994		Residential	0	N	45	39	45	39	45	40	46	40	0.3	0.4	0.4	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2008		Residential	0	N	67	61	66	61	67	62	67	61	-0.3	-0.1	-0.1	-0.2	60	55	YES	YES	YES	YES	YES	Remains over NCG criteria
NCA06	2023		Residential	0	S	43	37	44	38	43	38	44	39	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2033		Residential	0	N	43	38	44	38	44	38	44	39	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2045		Residential	0	W	49	43	49	44	49	44	50	45	0.8	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2059		Residential	0	N	57	51	55	50	57	52	56	51	-1.2	-1.1	-1.1	-1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2061		Residential	0	S	52	46	53	47	52	47	54	48	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2063		Residential	0	N	57	52	58	53	58	53	59	54	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2069		Residential	0	NE	46	41	45	40	47	41	46	40	-1.1	-0.9	-1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2076		Residential	0	W	47	42	48	43	48	42	49	43	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2085		Residential	0	N	46	40	46	41	46	41	47	41	0.3	0.3	0.4	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2087		Residential	0	W	45	39	46	40	45	40	47	41	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2089		Residential	0	W	52	47	53	48	53	47	54	48	0.8	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2099		Residential	0	E	53	48	54	48	54	48	54	49	0.6	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2106		Residential	0	S	54	48	55	49	54	49	55	50	0.9	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2115		Residential	0	W	43	37	43	38	43	38	44	39	0.7	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2123		Residential	0	SW	41	35	42	36	42	36	42	37	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2125		Residential	0	E	54	48	55	49	54	49	55	50	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2128		Residential	0	N	41	35	42	36	41	36	42	37	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2133		Residential	0	E	52	47	53	48	53	48	54	48	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2141		Residential	0	S	54	48	55	49	54	49	55	50	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2146		Residential	0	E	53	48	54	48	54	48	55	49	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2150		Residential	0	N	47	41	48	42	47	42	48	43	1	1.1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2159		Residential	0	N	49	44	50	45	50	44	51	45	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2161		Residential	0	SE	62	57	64	58	63	58	64	59	1.2	1.3	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2162		Residential	0	S	57	51	57	52	57	52	58	53	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2164		Residential	0	S	58	52	59	54	58	53	60	54	1.3	1.3	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2169		Residential	0	NE	46	41	47	41	47	41	47	42	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2171		Residential	0	N	42	36	42	37	42	37	43	37	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2173		Residential	0	SW	44	39	45	40	45	40	46	40	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2181		Residential	0	N	57	52	58	53	58	53	59	54	1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2181		Residential	1	N	58	53	59	54	59	54	60	54	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2182		Residential	0	S	63	58	65	59	64	58	65	60	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night						
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night	≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
NCA06	2185	[redacted]	Residential	0	N	48	43	49	44	49	43	50	45	1.1	1.3	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2209		Residential	0	NE	45	39	45	40	45	40	46	40	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2211		Residential	0	S	60	55	61	55	61	55	61	56	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2215		Residential	0	W	44	39	45	40	45	39	46	40	0.8	0.9	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2218		Residential	0	W	40	35	41	35	41	35	41	36	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2219		Residential	0	W	62	56	63	57	63	57	63	58	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2224		Residential	0	E	50	45	51	46	51	45	52	47	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2226		Residential	0	N	46	41	46	41	47	42	47	42	-0.2	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2228		Residential	0	SW	54	49	55	50	55	50	56	50	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2230		Residential	0	NW	47	41	48	42	48	42	48	43	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2233		Residential	0	S	51	45	51	46	51	46	52	47	0.8	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2244		Residential	0	W	52	47	53	48	53	48	54	48	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2245		Residential	0	W	50	45	51	46	51	45	52	47	1.1	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2246		Residential	0	N	51	45	51	46	51	46	52	46	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2250		Residential	0	W	52	47	53	47	53	47	53	48	0.7	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2250		Residential	1	N	54	48	55	49	54	49	55	50	0.7	0.7	0.7	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2256		Residential	0	SE	60	54	61	56	61	55	62	56	1.2	1.4	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2262		Residential	0	S	56	50	57	51	56	51	57	52	1	1.1	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2266		Residential	0	N	45	40	46	41	46	41	47	41	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2271		Residential	0	S	58	52	59	53	58	53	60	54	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2275		Residential	0	E	51	46	52	46	52	46	53	47	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2279		Residential	0	W	42	37	43	38	43	37	44	38	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2294		Residential	0	N	65	60	65	60	66	60	66	60	0	0	0	0	60	55	YES	YES	NO	NO	YES	Remains over NCG criteria
NCA06	2296		Residential	0	NW	46	41	47	41	47	41	47	42	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2300		Residential	0	N	43	38	44	38	44	38	45	39	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2307		Residential	0	N	40	34	41	35	41	35	41	36	0.6	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2310		Residential	0	W	36	30	37	31	36	31	37	32	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2311		Residential	0	S	52	47	53	48	53	47	54	48	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2324		Residential	0	S	52	46	53	47	52	47	53	48	1.1	1.2	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2332		Residential	0	N	43	38	44	38	44	38	45	39	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2340		Residential	0	W	54	49	55	49	55	49	55	50	0.5	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2351		Residential	0	W	37	31	37	32	37	32	38	33	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2352		Residential	0	S	59	54	60	55	60	55	61	55	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2358		Residential	0	N	41	36	42	37	42	37	43	37	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2359		Residential	0	W	55	49	55	50	55	50	56	51	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2372		Residential	0	E	45	40	46	41	46	41	47	41	0.9	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2377		Residential	0	SW	58	53	59	54	59	54	60	55	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2379		Residential	0	N	52	46	53	47	52	47	53	48	1.1	1.2	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2384		Residential	0	W	43	37	43	38	43	38	44	39	0.8	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2385		Residential	0	W	38	32	39	33	39	33	39	34	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2388		Residential	0	W	49	44	50	44	50	44	51	45	0.7	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2391		Residential	0	N	63	57	63	57	63	58	63	58	-0.2	-0.1	0	-0.1	60	55	NO	NO	NO	NO	YES	Remains over NCG criteria
NCA06	2405		Residential	0	S	50	44	50	45	50	45	51	46	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2409		Residential	0	W	50	44	50	45	50	45	51	46	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2412		Residential	0	NE	43	38	44	39	44	38	45	39	0.6	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2419		Residential	0	N	46	41	46	41	47	41	47	42	0.2	0.3	0.3	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2426		Residential	0	S	38	32	39	33	38	33	39	34	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2437		Residential	0	E	42	37	43	38	43	37	44	38	1.2	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2439		Residential	0	S	55	50	56	51	56	51	57	51	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2445		Residential	0	N	45	40	46	40	46	41	46	41	0.3	0.4	0.4	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2447		Residential	0	N	46	41	46	41	47	42	47	42	-0.1	-0.1	-0.1	-0.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2449		Residential	0	N	43	38	44	38	44	38	45	39	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2456		Residential	0	S	57	51	57	52	57	52	58	53	0.6	0.8	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2467		Residential	0	W	54	49	55	49	55	49	56	50	0.6	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2472		Residential	0	S	42	36	43	37	42	37	44	38	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2473		Residential	0	W	55	50	56	50	56	50	56	51	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2480		Residential	0	N	47	41	46	41	47	42	47	41	-0.5	-0.4	-0.4	-0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2482		Residential	0	W	54	48	55	49	54	49	55	50	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2488		Residential	0	E	41	35	42	36	41	36	42	37	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2493		Residential	0	S	53	48	54	49	54	49	55	49	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2494		Residential	0	E	40	35	41	36	41	36	42	37	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2499		Residential	0	S	60	55	61	56	61	56	62	56	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2506		Residential	0	SW	38	33	39	33	39	33	40	34	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2514		Residential	0	S	54	49	55	50	55	50	56	50	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2516		Residential	0	NE	42	37	43	38	43	37	44	38	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2517		Residential	0	W	50	45	51	46	51	45	52	46	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2525		Residential	0	S	59	53	60	55	60	54	61	55	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2532		Residential	0	NW	46	40	47	41	47	41	47	42	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2538		Residential	0	E	57	51	58	52	57	52	58	53	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2538		Residential	1	E	57	52	58	53	58	53	59	54	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2544		Residential	0	NE	48	42	49	43	48	43	49	44	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2551		Residential	0	NW	43	38	44	39	44	39	45	39	0.8	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2567		Residential	0	N	48	42	48	43	48	43	49	43	0.8	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2569		Residential	0	S	65	60	67	61	66	61	67	62	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night						
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night	≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
NCA06	2570	[redacted]	Residential	0	W	50	44	51	45	50	45	51	46	1.2	1.3	1.2	1.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2580		Residential	0	N	41	35	42	36	42	36	42	37	0.6	0.7	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2582		Residential	0	N	35	29	35	30	35	30	36	31	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2584		Residential	0	W	51	45	51	46	51	46	52	46	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2589		Residential	0	N	43	37	43	38	43	38	44	39	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2592		Residential	0	S	65	59	66	60	65	60	66	61	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2596		Residential	0	N	46	41	46	41	47	42	47	42	0	0.1	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2602		Residential	0	S	53	48	54	49	54	48	55	50	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2604		Residential	0	W	59	53	58	52	59	54	58	53	-1.2	-1.1	-1.1	-1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2606		Residential	0	W	51	45	52	46	51	46	53	47	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2608		Residential	0	S	50	44	50	45	50	45	51	45	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2614		Residential	0	N	45	40	46	40	46	41	46	41	0.4	0.5	0.5	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2615		Residential	0	S	55	50	56	51	56	51	57	51	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2621		Residential	0	N	42	36	43	37	42	37	43	38	1	1.1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2622		Residential	0	N	64	58	65	59	65	59	66	60	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2627		Residential	0	N	45	40	46	40	46	40	46	41	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2639		Residential	0	E	41	35	42	36	41	36	42	37	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2653		Residential	0	N	41	36	42	36	42	37	42	37	0.4	0.5	0.5	0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2654		Residential	0	W	36	30	37	31	36	31	37	32	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2657		Residential	0	N	51	46	52	47	52	47	53	48	1.1	1.2	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2660		Residential	0	W	52	47	53	47	53	47	53	48	0.6	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2661		Residential	0	S	52	46	53	47	52	47	53	48	1.1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2677		Residential	0	N	46	41	45	40	47	41	46	40	-1.1	-1	-1.1	-1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2684		Residential	0	W	59	54	60	55	60	54	61	55	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2686		Residential	0	W	45	39	46	40	45	40	46	41	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2690		Residential	0	N	46	41	47	42	47	41	48	43	1	1.2	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2704		Residential	0	SW	43	37	44	38	44	38	44	39	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2710		Residential	0	W	41	36	41	36	42	36	42	37	0.4	0.5	0.5	0.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2718		Residential	0	NE	46	41	46	41	47	42	47	42	0.1	0.2	0.1	0	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2728		Residential	0	N	51	45	52	47	52	46	53	47	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2730		Residential	0	SE	60	55	61	56	61	56	62	56	0.8	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2733		Residential	0	W	48	43	49	44	49	43	50	44	1	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2743		Residential	0	NW	45	40	46	40	46	40	46	41	0.6	0.7	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2747		Residential	0	S	52	47	53	48	53	47	54	48	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2761		Residential	0	N	45	39	46	40	46	40	47	41	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2762		Residential	0	W	56	51	57	51	57	51	57	52	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2766		Residential	0	W	47	41	48	42	47	42	48	43	0.9	1.1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2768		Residential	0	SW	42	37	43	37	43	37	44	38	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2789		Residential	0	S	51	46	52	47	52	47	53	47	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2792		Residential	0	S	56	51	57	52	57	52	58	52	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2797		Residential	0	NE	46	40	46	41	46	41	47	41	0.6	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2798		Residential	0	N	47	41	46	41	47	42	47	41	-0.5	-0.3	-0.4	-0.4	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2803		Residential	0	N	55	49	56	51	56	50	57	51	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2805		Residential	0	NW	45	40	46	41	46	41	47	41	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2834		Residential	0	S	53	47	54	49	54	48	55	49	1.1	1.2	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2836		Residential	0	S	55	49	56	50	55	50	56	51	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2838		Residential	0	N	63	57	63	58	63	58	64	59	0.8	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2841		Residential	0	S	42	37	43	38	43	38	44	38	0.6	0.5	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2866		Residential	0	W	53	47	53	48	53	48	54	48	0.8	0.9	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2870		Residential	0	SW	41	35	42	36	42	36	42	37	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2871		Residential	0	W	62	57	63	58	63	58	64	58	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2875		Residential	0	NW	42	37	43	38	43	38	44	38	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2877		Residential	0	N	44	38	43	38	44	39	44	39	-0.1	-0.1	0	-0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2878		Residential	0	W	36	30	37	31	36	31	37	32	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2882		Residential	0	NW	57	51	57	52	57	52	58	52	0.5	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2882		Residential	1	NW	58	52	59	53	59	53	59	54	0.6	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2885		Residential	0	S	50	45	51	46	51	45	52	46	0.7	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2898		Residential	0	S	35	30	36	30	36	30	37	31	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2912		Residential	0	N	66	60	66	60	66	61	66	61	-0.3	-0.3	-0.3	-0.3	60	55	YES	YES	YES	YES	YES	Remains over NCG criteria
NCA06	2914		Residential	0	S	66	60	67	62	67	61	68	62	1.3	1.4	1.3	1.3	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2938		Residential	0	W	56	51	57	52	57	52	58	52	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2955		Residential	0	W	45	39	46	40	46	40	46	41	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	2956		Residential	0	W	44	38	44	39	44	39	45	40	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3019		Residential	0	NW	68	63	69	64	69	63	70	64	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3022		Residential	0	N	64	59	65	59	65	59	65	60	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3026		Residential	0	E	50	44	51	45	51	45	51	46	0.6	0.7	0.6	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3029		Residential	0	N	57	52	58	53	58	52	59	53	0.9	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3034		Residential	0	W	51	46	52	46	52	46	53	47	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3045		Residential	0	E	51	45	52	46	52	46	52	47	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3049		Residential	0	S	56	51	57	51	57	51	57	51	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3051		Residential	0	NW	65	59	66	61	65	60	67	61	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3068		Residential	0	E	55	49	55	50	55	50	56	51	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3070		Residential	0	W	57	51	58	52	57	52	58	53	0.9	1	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3071		Residential	0	NE	51	45	52	46	51	46	52	47	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment

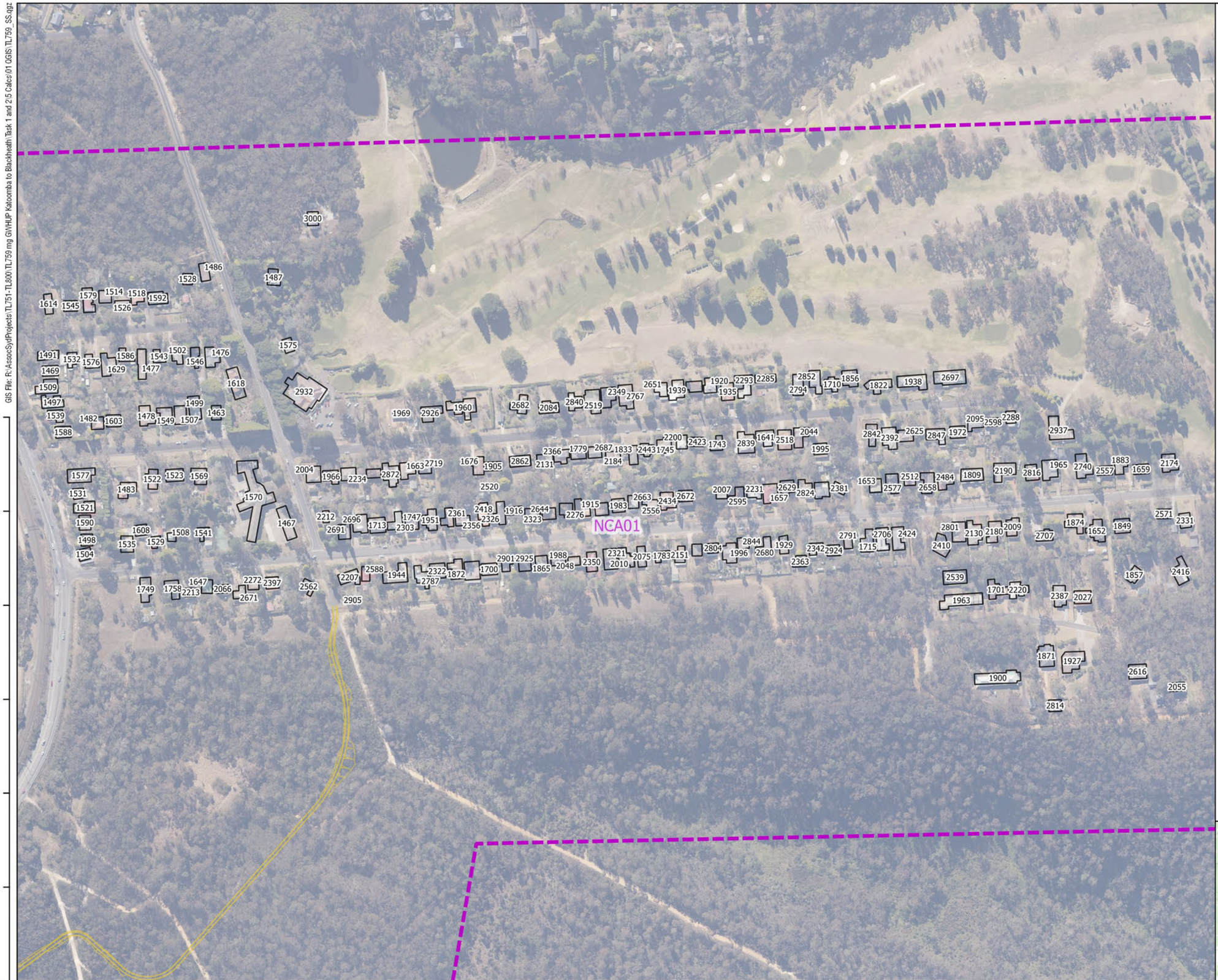
NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	3077	[redacted]	Residential	0	S	53	47	54	48	53	48	54	49	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3082		Residential	0	N	68	63	69	64	69	64	70	64	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3085		Residential	0	S	49	44	50	44	50	44	51	45	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3087		Residential	0	W	53	47	54	48	53	48	54	49	1	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3089		Residential	0	W	56	50	57	51	56	51	57	52	1.1	1.1	1.1	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3091		Residential	0	W	54	49	55	50	55	49	56	50	1.1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3097		Residential	0	N	66	61	67	62	67	61	68	62	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3099		Residential	0	S	51	45	52	46	51	46	52	47	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3105		Residential	0	W	54	49	55	50	55	49	56	50	1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3106		Residential	0	W	53	47	54	48	53	48	55	49	1	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3107		Residential	0	S	66	61	67	62	67	61	68	62	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3108		Residential	0	NW	60	55	61	56	61	56	62	57	1.2	1.3	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3117		Residential	0	E	57	51	57	52	57	52	58	53	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3127		Residential	0	S	66	61	68	62	67	62	68	63	1.1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3132		Residential	0	S	51	46	52	47	52	47	53	47	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3137		Residential	0	S	58	52	58	53	58	53	59	54	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3141		Residential	0	W	54	49	55	50	55	49	56	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3146		Residential	0	N	64	59	65	59	65	59	65	60	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3147		Residential	0	S	59	53	60	54	59	54	60	55	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3148		Residential	0	W	56	50	57	51	56	51	57	52	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3150		Residential	0	N	65	59	65	60	65	60	66	60	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3158		Residential	0	N	48	43	49	43	49	43	49	44	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3162		Residential	0	N	64	59	65	60	65	59	66	60	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3167		Residential	0	S	68	62	69	63	68	63	69	64	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3168		Residential	0	E	59	53	59	54	59	54	60	54	0.7	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3170		Residential	0	NW	48	43	49	43	49	43	50	44	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3172		Residential	0	S	65	59	66	60	65	60	66	61	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3176		Residential	0	N	52	46	52	47	52	47	53	47	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3177		Residential	0	E	52	46	52	47	52	47	53	47	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3180		Residential	0	W	50	45	51	45	51	45	52	46	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3181		Residential	0	S	50	44	51	45	50	45	51	46	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3184		Residential	0	N	48	43	49	43	49	43	50	44	0.8	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3190		Residential	0	W	45	39	45	40	45	40	46	40	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3191		Residential	0	S	51	46	52	46	52	46	53	47	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3195		Residential	0	N	60	55	61	55	61	55	62	56	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3197		Residential	0	NE	52	46	53	47	52	47	53	48	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3198		Residential	0	W	51	45	52	46	52	46	52	47	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3205		Residential	0	W	48	43	49	43	49	43	49	44	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3207		Residential	0	S	50	44	50	45	50	45	51	46	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3209		Residential	0	E	59	53	59	54	59	54	60	54	0.6	0.6	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3214		Residential	0	S	64	59	66	60	65	59	66	61	1.2	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3216		Residential	0	W	55	50	56	51	56	50	57	51	0.9	1	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3221		Residential	0	W	46	41	47	41	47	42	47	42	0.1	0.3	0.2	0.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3222		Residential	0	S	53	47	54	48	53	48	54	49	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3231		Residential	0	W	49	44	50	45	50	45	51	45	0.7	0.8	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3235		Residential	0	E	52	47	53	48	53	48	54	48	0.7	0.8	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3237		Residential	0	W	50	45	51	46	51	46	52	46	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3239		Residential	0	E	61	55	61	56	61	56	62	56	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3245		Residential	0	E	56	51	57	52	57	52	58	52	0.6	0.6	0.6	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3264		Residential	0	W	50	44	51	45	50	45	51	46	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3265		Residential	0	N	54	48	54	49	54	49	55	50	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3267		Residential	0	N	59	54	60	54	60	54	61	55	0.9	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3269		Residential	0	N	64	59	65	60	65	60	66	60	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3270		Residential	0	S	53	47	54	48	53	48	54	49	0.9	1	1.1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3272		Residential	0	S	65	59	66	61	66	60	67	61	1.2	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3275		Residential	0	S	55	49	56	50	56	50	57	51	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3281		Residential	0	S	47	42	48	42	48	42	49	43	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3287		Residential	0	E	50	44	50	45	50	45	51	45	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3291		Residential	0	NW	68	63	69	64	69	64	70	64	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3293		Residential	0	NW	66	61	67	62	67	61	68	63	1.2	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3296		Residential	0	W	50	45	51	45	51	45	52	46	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3298		Residential	0	N	49	43	50	44	50	44	51	45	0.8	0.9	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3301		Residential	0	W	52	46	53	47	53	47	54	48	0.9	1	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3304		Residential	0	S	50	44	50	45	50	45	51	45	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3311		Residential	0	NW	68	62	69	63	68	63	69	64	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3315		Residential	0	E	52	46	53	47	52	47	53	48	0.7	0.7	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3319		Residential	0	E	60	54	61	56	60	55	62	57	1.7	1.8	1.8	1.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3325		Residential	0	S	49	43	50	44	50	44	50	45	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3335		Residential	0	NE	53	47	53	48	53	48	54	49	0.9	0.9	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3340		Residential	0	S	52	46	52	47	52	47	53	47	0.6	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3342		Residential	0	NW	45	39	45	40	45	40	46	40	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3346		Residential	0	W	57	51	58	52	58	52	59	53	0.8	0.9	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3348		Residential	0	W	56	50	57	51	56	51	57	52	1.1	1.2	1.2	1.1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3355		Residential	0	S	49	43	50	44	50	44	50	45	0.9	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment

NCA	NCA ID	Receiver Address	Receiver Type	Facade		Opening Year				Design Year				Trigger 1 Increase (Build - No Build)				NCG noise criteria		Trigger 2 Do noise levels exceed the cumulative limit with project roads adding ≥2dB to the total noise levels?		Trigger 3 Is the contribution from the road project Acute?		Consider at-property treatment?	Report
						No Build		Build		No Build		Build		Opening Year		Design Year						Day	Night		
				Floor	Orientation	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night			≥ 65dB LAeq,15h	≥ 60dB LAeq,9h		
						dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Day	Night				
NCA06	3357	[redacted]	Residential	0	E	62	57	63	57	63	58	64	58	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3365		Residential	0	N	54	49	55	50	55	50	56	50	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3366		Residential	0	W	50	45	51	46	51	45	52	46	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3372		Residential	0	N	65	59	65	60	65	60	66	61	0.6	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3378		Residential	0	NE	52	46	52	47	52	47	53	48	0.8	0.9	0.9	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3383		Residential	0	E	62	57	63	58	63	58	64	58	0.6	0.6	0.6	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3386		Residential	0	S	52	47	53	47	53	48	54	48	0.6	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3397		Residential	0	N	49	44	50	45	50	44	51	45	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3402		Residential	0	E	48	42	49	43	48	43	49	44	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3407		Residential	0	N	64	58	64	59	64	59	65	60	0.7	0.9	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3408		Residential	0	S	52	47	53	48	53	47	54	48	0.8	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3409		Residential	0	W	54	48	54	49	54	49	55	50	0.7	0.8	0.8	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3411		Residential	0	E	64	59	65	59	65	59	65	60	0.6	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3424		Residential	0	N	51	46	52	46	52	46	53	47	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3428		Residential	0	W	55	50	56	51	56	50	57	51	1.1	1.1	1.2	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3431		Residential	0	E	60	55	61	55	61	55	61	56	0.6	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3437		Residential	0	N	66	60	66	61	66	61	67	62	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3441		Residential	0	W	52	47	53	48	53	48	54	48	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3444		Residential	0	W	53	48	54	49	54	49	55	49	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3446		Residential	0	N	59	53	60	54	60	54	61	55	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3448		Residential	0	NW	47	41	48	42	48	42	48	43	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3452		Residential	0	W	53	48	54	49	54	48	55	49	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3456		Residential	0	E	55	49	55	50	55	50	56	50	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3457		Residential	0	N	64	58	64	59	64	59	65	60	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3458		Residential	0	NW	58	53	59	54	59	53	60	54	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3461		Residential	0	N	60	55	61	56	61	56	62	56	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3466		Residential	0	E	55	49	55	50	55	50	56	50	0.6	0.6	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3470		Residential	0	S	54	48	54	49	54	49	55	50	0.8	0.9	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3472		Residential	0	W	53	47	54	48	53	48	54	49	0.8	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3481		Residential	0	N	66	61	67	62	67	62	68	62	0.7	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3490		Residential	0	S	49	43	50	44	49	44	50	45	0.7	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3491		Residential	0	NE	44	39	45	40	45	40	46	40	0.8	0.8	0.9	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3492		Residential	0	S	50	44	51	45	51	45	51	46	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3493		Residential	0	SW	43	38	44	39	44	39	45	39	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3496		Residential	0	W	59	54	60	55	60	54	61	55	1	1	1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3497		Residential	0	N	51	45	51	46	51	46	52	47	0.7	0.7	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3508		Residential	0	S	48	43	49	43	49	43	50	44	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3514		Residential	0	N	69	63	70	64	69	64	70	65	1	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3518		Residential	0	W	56	51	57	52	57	51	58	52	0.9	0.9	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3521		Residential	0	S	48	42	49	43	49	43	49	44	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3526		Residential	0	S	54	48	54	49	54	49	55	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3529		Residential	0	W	52	46	53	47	52	47	53	48	0.7	0.7	0.7	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3530		Residential	0	NW	66	60	67	61	66	61	67	62	1	1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3535		Residential	0	N	67	61	67	62	67	62	68	63	0.8	0.8	0.8	0.7	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3546		Residential	0	S	50	44	51	45	50	45	51	46	0.8	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3549		Residential	0	W	55	50	56	50	56	50	57	51	0.8	0.8	0.9	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3557		Residential	0	W	53	48	54	49	54	48	55	49	0.9	0.9	1	0.8	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3558		Residential	0	S	62	57	66	60	63	57	66	61	3.2	3.2	3.2	3.2	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3559		Residential	0	NE	55	49	56	50	55	50	56	51	1	1.1	1.1	1	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3560		Residential	0	NW	54	48	54	49	54	49	55	50	0.9	1	1	0.9	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3562		Residential	0	S	56	50	57	51	57	51	57	52	0.7	0.7	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3563		Residential	0	W	52	47	53	47	53	47	53	48	0.6	0.6	0.7	0.5	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3564		Residential	0	W	58	52	59	53	59	53	59	54	0.7	0.7	0.8	0.6	60	55	NO	NO	NO	NO	NO	No treatment
NCA06	3568		Residential	0	SE	64	59	66	60	65	60	66	61	1.2	1.3	1.3	1.2	60	55	NO	NO	NO	NO	NO	No treatment

APPENDIX F Properties to be considered for at-property treatment

Plot Date: 09/08/22 - 15:12 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

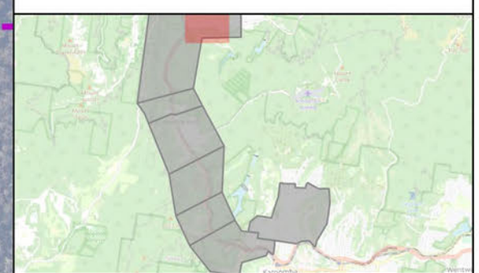
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GW\HUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz



LEGEND

Project Design

Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath

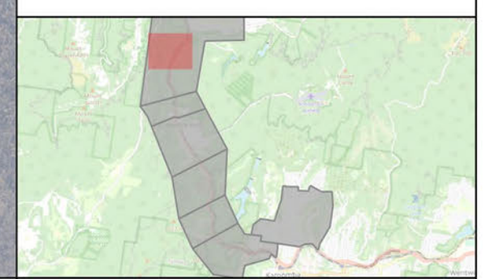
Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:13 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GIS\ TL759_SS.qgz

LEGEND

- Project Design
- Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
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..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

0 50 100 150 200 250 300 m

1:4,000

N

FULL SIZE A3

A3 Original

Co-ordinate System: MGA Zone 56

NOTE: Do not scale from this drawing.

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Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:14 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA02

NCA03

LEGEND

- Project Design
- Project NCAs
- Receivers identified for At-Property Treatment

0 100 200 300 400 500 600 m

0 50 100 150 200 250 300 m

1:4,000

REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:15 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz

NCA03

NCA04

LEGEND

Project NCAs

Receivers identified for At-Property Treatment

0 50 100 150 200 250 300 m

1:4,000

N

REV	BY	DATE	DESCRIPTION	APPROVER
..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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Receivers identified for At-Property Treatment

Sheet 13 of 18

Plot Date: 09/08/22 - 15:16 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA04

NCA05

NCA06

3013 2995 2939 2987 2982 2989 2970 2966 2979 2961 2975 3008 3009 2968 2988 2992 2972 2949 2945 2578 1784 2035 2394 3003 2097 2980 2268 2640 2960 3007 2974 2052 2238 2714 2078 2503 1948 1767 2554 2144 2769 2889 2166 2942

LEGEND

Project NCAs

Receivers identified for At-Property Treatment

600 m
500
400
300
200
100
0

REV	BY	DATE	DESCRIPTION	APPROVER
..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

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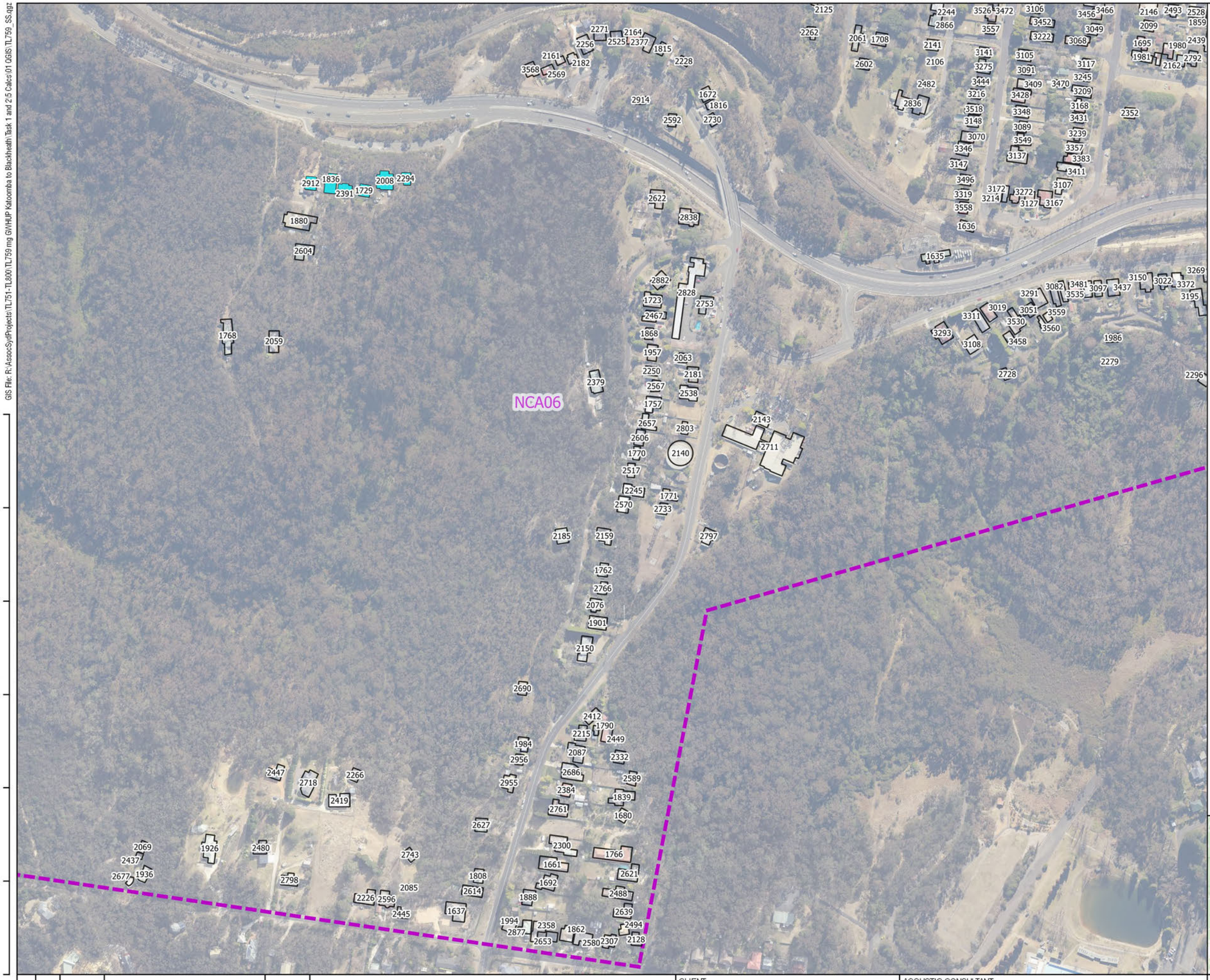
Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:17 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

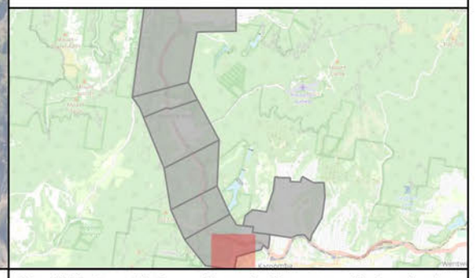
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz



LEGEND

Project NCAs

Receivers identified for At-Property Treatment



REV	BY	DATE	DESCRIPTION	APPROVER
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..	..	..	..	..
..	..	..	..	..
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

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Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:18 Layout: TL759 Treatment Template (figure:[%"fig"%] page:[%"page"%])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA06

LEGEND

Project NCAs

0 50 100 150 200 250 300 m

1:4,000

N

REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

FULL SIZE A3

NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath

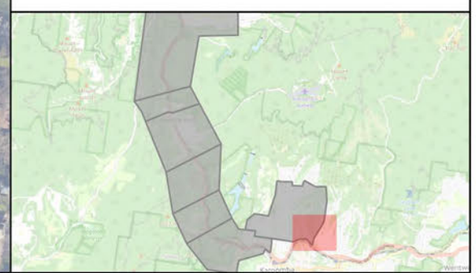
Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:19 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GGIS\TL759_SS.qgz

600 m
500
400
300
200
100
0

LEGEND

Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

0 50 100 150 200 250 300 m

1:4,000

N

FULL SIZE A3

A3 Original

Co-ordinate System: MGA Zone 56

NOTE: Do not scale from this drawing.

CLIENT

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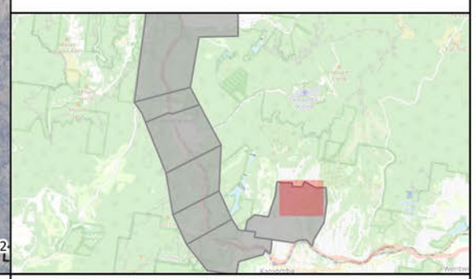
Great Western Highway Upgrade Program - Katoomba to Blackheath

Receivers identified for At-Property Treatment

Plot Date: 09/08/22 - 15:20 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])
GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GGIS\TL759_SS.qgz

LEGEND

Project NCAs



REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	01/10/21	Prepare figures	RPH

0 50 100 150 200 250 300 m

1:4,000

FULL SIZE A3

A3 Original

Co-ordinate System: MGA Zone 56

NOTE: Do not scale from this drawing.

CLIENT

NSW GOVERNMENT Transport for NSW

ACOUSTIC CONSULTANT

RENZO TONIN & ASSOCIATES

inspired to achieve

PH (02) 8218 0500 Fax (02) 8218 0501

Great Western Highway Upgrade Program - Katoomba to Blackheath

Receivers identified for At-Property Treatment

APPENDIX G Predicted construction noise levels

The impacts presented in the following tables are identified by colour coding of the text.

For **Standard Hours:**

- XX Complies with NML
- **XX** < 10dB(A) above NML - construction noise clearly audible
- **XX** > 10dB(A) above NML - construction noise clearly moderately intrusive
- **XX** > 75dB(A) - highly noise affected

For **OOHW:**

- XX Complies with NML
- **XX** < 5dB(A) above NML - construction noise noticeable
- **XX** 5 to 15dB(A) above NML - construction noise clearly audible
- **XX** > 15 to 25dB(A) above NML - construction noise moderately intrusive
- **XX** >25dB(A) above NML - construction noise highly intrusive

Predicted construction noise levels, LAeq,15min

Receiver		Coordinates		Predicted noise levels dB(A)																																									
				Day (Standard)							Day (OOHW)							Shoulder 1 (OOHW)							Evening (OOHW)							Night (OOHW)							Shoulder 2 (OOHW)						
NCA	Address	X	Y	NML	V09	V10	V11	V12	V13	V14	NML	V09	V10	V11	V12	V13	V14	NML	V09	V10	V11	V12	V13	V14	NML	V09	V10	V11	V12	V13	V14	NML	V09	V10	V11	V12	V13	V14	NML	V09	V10	V11	V12	V13	V14
NCA01	[redacted]			58	50	56	52	41	47	38	53	50	56	52	41	47	38	44	50	56	52	41	47	38	38	50	56	52	41	47	38	35	50	56	52	41	47	38	37	50	56	52	41	47	38
NCA01	[redacted]			58	49	55	53	42	48	39	53	49	55	53	42	48	39	44	49	55	53	42	48	39	38	49	55	53	42	48	39	35	49	55	53	42	48	39	37	49	55	53	42	48	39
NCA01	[redacted]			58	47	53	54	43	49	40	53	47	53	54	43	49	40	44	47	53	54	43	49	40	38	47	53	54	43	49	40	35	47	53	54	43	49	40	37	47	53	54	43	49	40
NCA01	[redacted]			58	49	55	51	40	46	37	53	49	55	51	40	46	37	44	49	55	51	40	46	37	38	49	55	51	40	46	37	35	49	55	51	40	46	37	37	49	55	51	40	46	37
NCA01	[redacted]			58	50	56	52	41	47	38	53	50	56	52	41	47	38	44	50	56	52	41	47	38	38	50	56	52	41	47	38	35	50	56	52	41	47	38	37	50	56	52	41	47	38
NCA01	[redacted]			58	52	58	50	39	45	36	53	52	58	50	39	45	36	44	52	58	50	39	45	36	38	52	58	50	39	45	36	35	52	58	50	39	45	36	37	52	58	50	39	45	36
NCA01	[redacted]			58	57	63	57	46	52	43	53	57	63	57	46	52	43	44	57	63	57	46	52	43	38	57	63	57	46	52	43	35	57	63	57	46	52	43	37	57	63	57	46	52	43
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NCA01	[redacted]			58	49	55	53	42	48	39	53	49	55	53	42	48	39	44	49	55	53	42	48	39	38	49	55	53	42	48	39	35	49	55	53	42	48	39	37	49	55	53	42	48	39
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NCA01	[redacted]			58	39	45	46	35	41	-	53	39	45	46	35	41	-	44	39	45	46	35	41	-	38	39	45	46	35	41	-	35	39	45	46	35	41	-	37	39	45	46	35	41	-
NCA01	[redacted]			58	55	61	61	50	56	47	53	55	61	61	50	56	47	44	55	61	61	50	56	47	38	55	61	61	50	56	47	35	55	61	61	50	56	47	37	55	61	61	50	56	47
NCA01	[redacted]			58	42	48	49	38	44	35	53	42	48	49	38	44	35	44	42	48	49	38	44	35	38	42	48	49	38	44	35	35	42	48	49	38	44	35	37	42	48	49	38	44	35
NCA01	[redacted]			58	58	64	65	54	60	51	53	58	64	65	54	60	51	44	58	64	65	54	60	51	38	58	64	65	54	60	51	35	58	64	65	54	60	51	37	58	64	65	54	60	51
NCA01	[redacted]			58	39	45	46	35	41	-	53	39	45	46	35	41	-	44	39	45	46	35	41	-	38	39	45	46	35	41	-	35	39	45	46	35	41	-	37	39	45	46	35	41	-
NCA01	[redacted]			58	39	45	46	35	41	-	53	39	45	46	35	41	-	44	39	45	46	35	41	-	38	39	45	46	35	41	-	35	39	45	46	35	41	-	37	39	45	46	35	41	-
NCA01	[redacted]			58	43	49	50	39	45	36	53	43	49	50	39	45	36	44	43	49	50	39	45	36	38	43	49	50	39	45	36	35	43	49	50	39	45	36	37	43	49	50	39	45	36
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NCA01	[redacted]			58	49	55	55	44	50	41	53	49	55	55	44	50	41	44	49	55	55	44	50	41	38	49	55	55	44	50	41	35	49	55	55	44	50	41	37	49	55	55	44	50	41
NCA01	[redacted]			58	44	50	51	40	46	37	53	44	50	51	40	46	37	44	44	50	51	40	46	37	38	44	50	51	40	46	37	35	44	50	51	40	46	37	37	44	50	51	40	46	37
NCA01	[redacted]			58	43	49	47	36	42	-	53	43	49	47	36	42	-	44	43	49	47	36	42	-	38	43	49	47	36	42	-	35	43	49	47	36	42	-	37	43	49	47	36	42	-
NCA01	[redacted]			58	42	48	49	38	44	35	53	42	48	49	38	44	35	44	42	48	49	38	44	35	38	42	48	49	38	44	35	35	42	48	49	38	44	35	37	42	48	49	38	44	35
NCA01	[redacted]			58	46	52	53	42	48	39	53	46	52	53	42	48	39	44	46	52	53	42	48	39	38	46	52	53	42	48	39	35	46	52	53	42	48	39	37	46	52	53	42	48	39
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NCA01	[redacted]			58	40	46	47	36	42	-	53	40	46	47	36	42	-	44	40	46	47	36	42	-	38	40	46	47	36	42	-	35	40	46	47	36	42	-	37	40	46	47	36	42	-
NCA01	[redacted]			58	43	49	49	38	44	35	53	43	49	49	38	44	35	44	43	49	49	38	44	35	38	43	49	49	38	44	35	35	43	49	49	38	44	35	37	43	49	49	38	44	35
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NCA01	[redacted]			58	52	58	59	48	54	45	53	52	58	59	48	54	45	44	52	58	59	48	54	45	38	52	58	59	48	54	45	35	52	58	59	48	54	45	37	52	58	59	48	54	45
NCA01	[redacted]			58	44	50	51	40	46	37	53	44	50	51	40	46	37	44	44	50	51	40	46	37	38	44	50	51	40	46	37	35	44	50	51	40	46	37	37	44	50	51	40	46	37
NCA01	[redacted]			58	42	48	49	38	44	35	53	42	48	49	38	44	35	44	42	48	49	38	44	35	38	42	48	49	38	44	35	35	42	48	49	38	44	35	37	42	48	49	38	44	35
NCA01	[redacted]			58	40	46	47	36	42	-	53	40	46	47	36	42	-	44	40	46	47	36	42	-	38	40	46	47	36	42	-	35	40	46	47	36	42	-	37	40	46	47	36	42	-
NCA01	[redacted]			58	57	63	64	53	59	50	53	57	63	64	53	59	50	44	57	63	64	53	59	50	38	57	63	64	53	59	50	35	57	63	64	53	59	50	37	57	63	64	53	59	50
NCA01	[redacted]			58	51	57	50	39	45	36	53	51	57	50	39	45	36	44	51	57	50	39	45	36	38	51	57	50	39	45	36	35	51	57	50	39	45	36	37	51	57	50	39	45	36
NCA01	[redacted]			58	38	44	45	34	40	-	53	38	44	45	34	40	-	44	38	44	45	34	40	-	38	38	44	45	34	40	-	35	38	44	45	34	40	-	37	38	44	45	34	40	-
NCA01	[redacted]			58	48	54	55	44	50	41	53	48	54	55	44	50	41	44	48	54	55	44	50	41	38	48	54	55	44	50	41	35	48	54	55	44	50	41	37	48	54	55	44	50	41
NCA01	[redacted]			58	50	56	57	46	52	43	53	50	56	57	46	52	43	44	50	56	57	46	52	43	38	50	56	57	46	52	43	35	50	56	57	46	52	43	37	50	56	57	46	52	43
NCA01	[redacted]			58	43	49	50	39	45	36	53	43	49	50	39	45	36	44	43	49	50	39	45	36	38	43	49	50	39	45	36	35	43	49	50	39	45	36	37	43	49	50	39	45	36

Predicted construction noise levels, LAeq,15min

| Receiver | | | Coordinates | | Predicted noise levels dB(A) | | |

Predicted construction noise levels, LAeq,15min

| Receiver | | Coordinates | | Predicted noise levels dB(A) | | |

Predicted construction noise levels, LAeq,15min

| Receiver | | Coordinates | | Predicted noise levels dB(A) | | |

Predicted construction noise levels, LAeq,15min

| Receiver | | Coordinates | | Predicted noise levels dB(A) | | |

Predicted construction noise levels, LAeq,15min

| Receiver | | Coordinates | | Predicted noise levels dB(A) | | |

APPENDIX H Construction noise contours

Plot Date: 09/08/22 - 11:07 Layout: TL759 Operational Traffic_2020.11.11_figs (r9) +
GIS File: R:\Assoc3\ydProjects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath\Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz

NCA01

NCA02

NCA03

NCA04

2,000 m

1,500

1,000

500

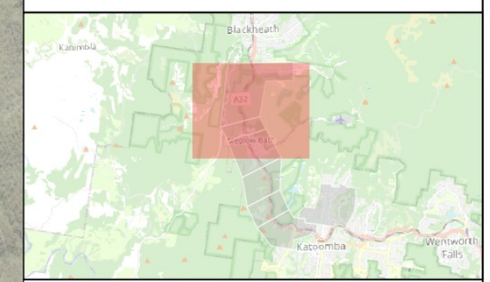
0

LEGEND

- Project NCAs
- Project Design
- Buildings

Construction Noise Contours

- Less than 35 dB
- 35 - 40 dB
- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- 80 - 85 dB
- More than 85 dB



REV	BY	DATE	DESCRIPTION	APPROVER
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r1	SS	26/10/21	Update Figures	RPH
r0	SS	26/10/21	Prepare figures	RPH

0 200 400 600 800 1,000 m

1:15,000

N

FULL SIZE A3

A3 Original

Co-ordinate System: MGA Zone 56

NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath - North Project Area

Construuction Noise Contours
Medlow Bath to Blackheath Site Preparation

Plot Date: 09/08/22 - 11:07 Layout: TL759 Operational Traffic_2020.11.11_figs (r9) +
GIS File: R:\Assoc3\ydProjects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath\Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz

NCA01

NCA02

NCA03

NCA04

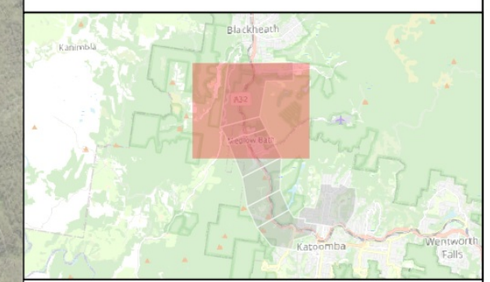
2,000 m
1,500
1,000
500
0

LEGEND

- Project NCAs
- Project Design
- Buildings

Construction Noise Contours

- Less than 35 dB
- 35 - 40 dB
- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- 80 - 85 dB
- More than 85 dB



REV	BY	DATE	DESCRIPTION	APPROVER
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r1	SS	26/10/21	Update Figures	RPH
r0	SS	26/10/21	Prepare figures	RPH

0 200 400 600 800 1,000 m
1:15,000
N

FULL SIZE A3

A3 Original

Co-ordinate System: MGA Zone 56

NOTE: Do not scale from this drawing.

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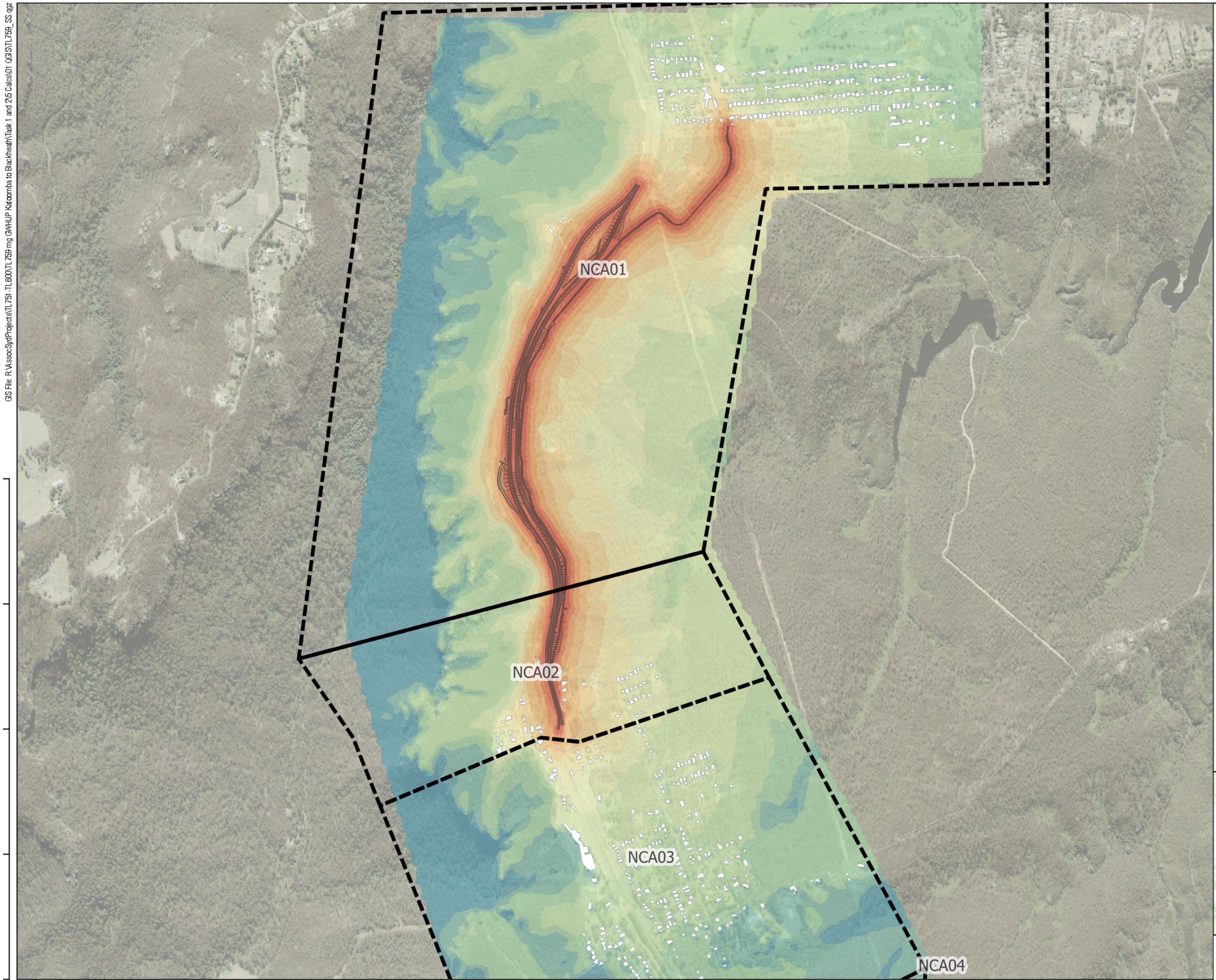
Great Western Highway Upgrade Program - Katoomba to Blackheath - North Project Area

Construuction Noise Contours
Medlow Bath to Blackheath Site Establishment

Plot Date: 09/08/22 - 11:07 Layout: TL759 Operational Traffic_2020.11.11_figs (r9) +
GIS File: R:\Assoc3\ydProjects\TL759-TL800\TL759 mg GWHUP Katoomba to Blackheath\Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz

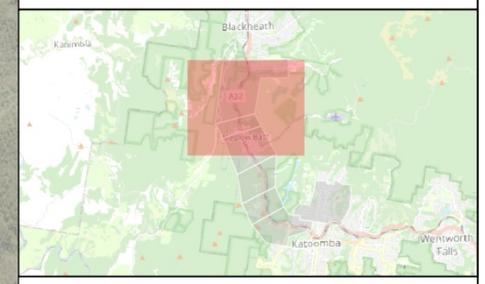


LEGEND

- Project NCAs
- Project Design
- Buildings

Construction Noise Contours

- Less than 35 dB
- 35 - 40 dB
- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- 80 - 85 dB
- More than 85 dB



REV	BY	DATE	DESCRIPTION	APPROVER
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r1	SS	26/10/21	Update Figures	RPH
r0	SS	26/10/21	Prepare figures	RPH

0 200 400 600 800 1,000 m
1:15,000
N

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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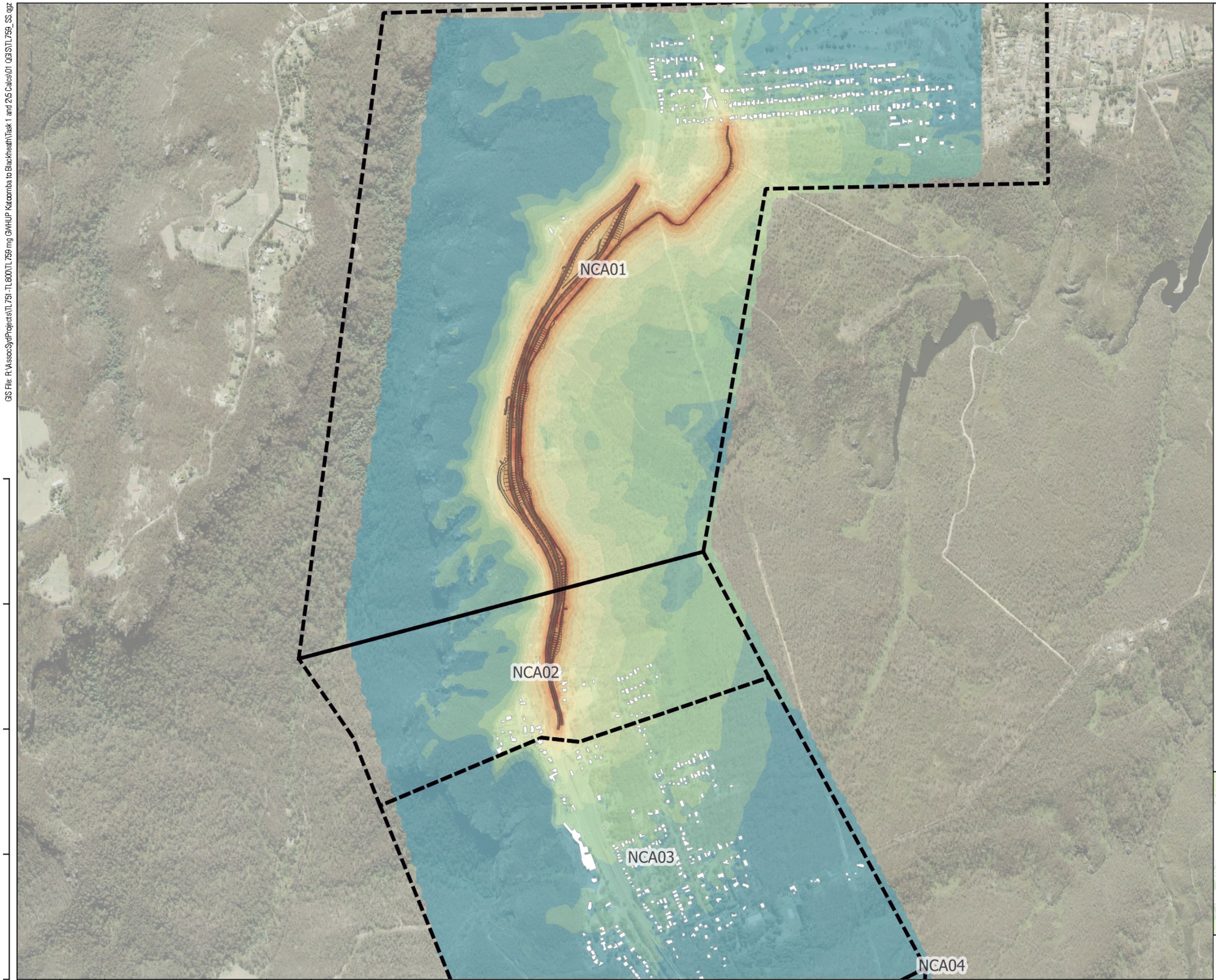
Great Western Highway Upgrade Program - Katoomba to Blackheath - North Project Area

Construuction Noise Contours
Medlow Bath to Blackheath Bulk Earthworks

Plot Date: 09/08/22 - 11:08 Layout: TL759 Operational Traffic_2020.11.11_figs (r5) +
GIS File: R:\Assoc3\sydProjects\TL759-TL800\TL759 mg GWHUP Katoomba to Blackheath\Task 1 and 2\5 Calcs\01 GIS\TL759_SS.qgz

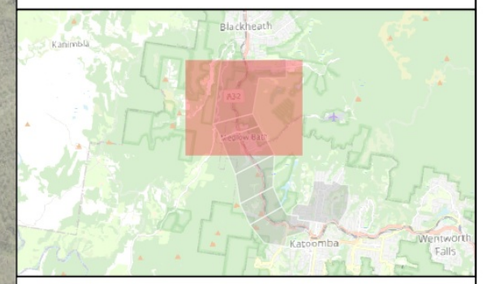


LEGEND

- Project NCAs
- Project Design
- Buildings

Construction Noise Contours

- Less than 35 dB
- 35 - 40 dB
- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- 80 - 85 dB
- More than 85 dB



Great Western Highway Upgrade Program - Katoomba to Blackheath - North Project Area

Construuction Noise Contours
Medlow Bath to Blackheath Drainage Infrastructure

REV	BY	DATE	DESCRIPTION	APPROVER
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r1	SS	26/10/21	Update Figures	RPH
r0	SS	26/10/21	Prepare figures	RPH

0 200 400 600 800 1,000 m
1:15,000
N

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

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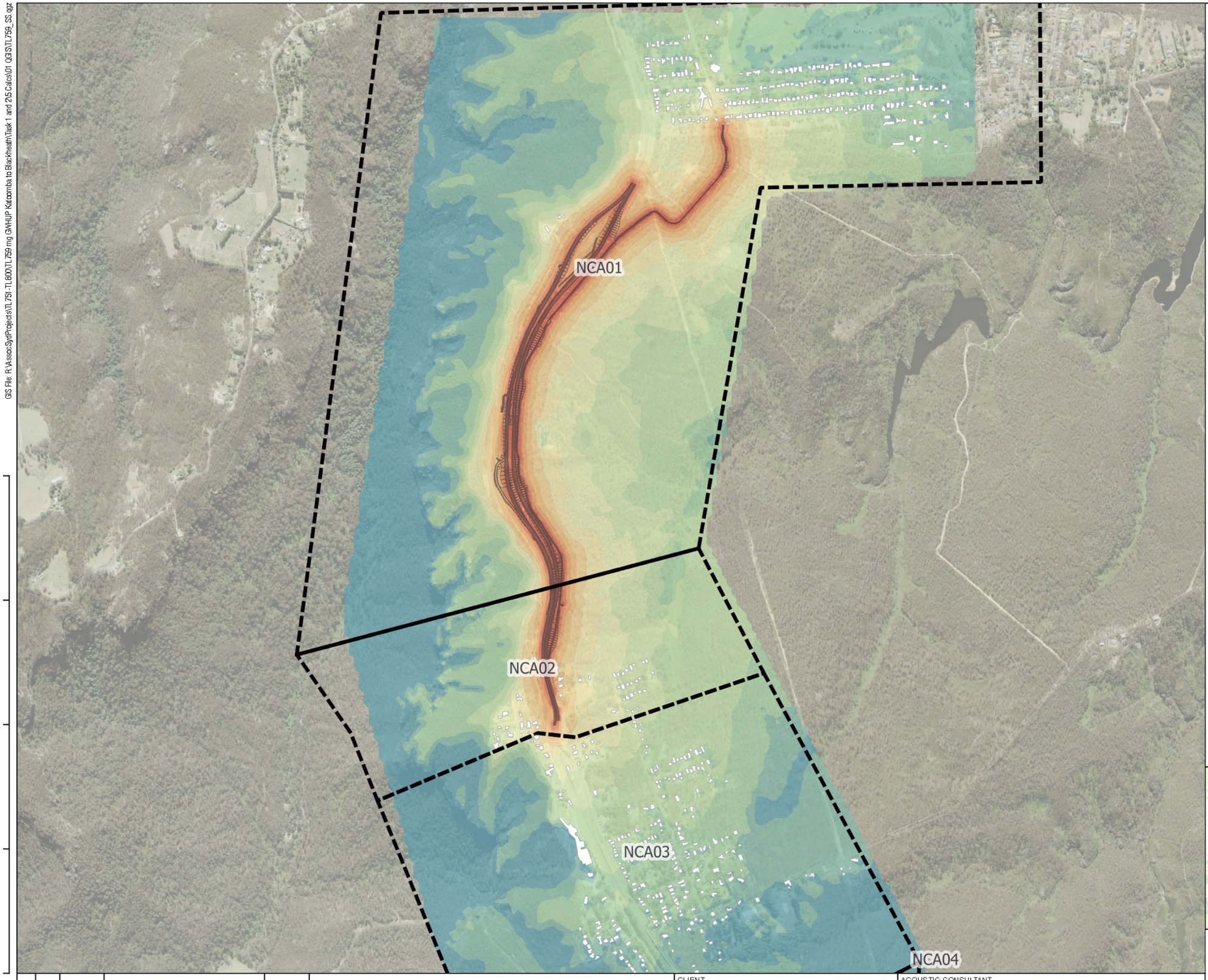
Plot Date: 09/08/22 - 11:08 Layout: TL759 Operational Traffic_2020.11.11_figs (r5) +
GIS File: R:\Assoc3\sydProjects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath\Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

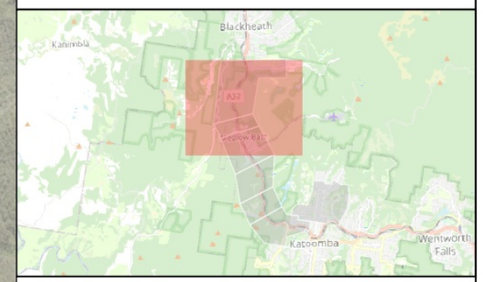


LEGEND

- Project NCAs
- Project Design
- Buildings

Construction Noise Contours

- Less than 35 dB
- 35 - 40 dB
- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- 80 - 85 dB
- More than 85 dB



REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Contours	RPH
r1	SS	26/10/21	Update Figures	RPH
r0	SS	26/10/21	Prepare figures	RPH

0 200 400 600 800 1,000 m
1:15,000
N

FULL SIZE A3

A3 Original | Co-ordinate System: MGA Zone 56 | NOTE: Do not scale from this drawing.

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Great Western Highway Upgrade Program - Katoomba to Blackheath - North Project Area

Construuction Noise Contours
Medlow Bath to Blackheath Paving/ asphalting (inc. concrete sawing)

Plot Date: 09/08/22 - 11:08 Layout: TL759 Operational Traffic_2020.11.11_figs (r9) +
GIS File: R:\Assoc3\sydProjects\TL759-TL800\TL759 mg GWHUP Katoomba to Blackheath\Task 1 and 2\5 Calcs\01 QGIS\TL759_SS.qgz

NCA01

NCA02

NCA03

NCA04

2,000 m

1,500

1,000

500

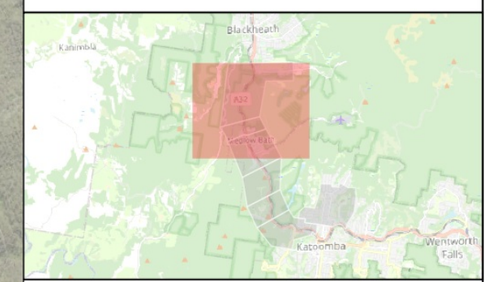
0

LEGEND

- Project NCAs
- Project Design
- Buildings

Construction Noise Contours

- Less than 35 dB
- 35 - 40 dB
- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- 80 - 85 dB
- More than 85 dB



Great Western Highway Upgrade Program - Katoomba to Blackheath - North Project Area

Construuction Noise Contours
Medlow Bath to Blackheath Finishing Works

REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	09/08/22	Update Contours	RPH
r1	SS	26/10/21	Update Figures	RPH
r0	SS	26/10/21	Prepare figures	RPH

0 200 400 600 800 1,000 m

1:15,000

N

A3 Original | Co-ordinate System: MGA Zone 56 | FULL SIZE A3 | NOTE: Do not scale from this drawing.

CLIENT

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APPENDIX I Additional construction noise mitigation measures

I.1 Letterbox drop notification

Letterbox drop notification will be carried out where:

- the NML is exceeded by more than 10dB(A) during the day period (7am to 6pm), or
- the NML is exceeded by more than 5dB(A) during the evening period (6pm to 10pm), or
- the NML is exceeded during the night period (10pm to 7am), or
- the receiver is affected by noise greater than 75dB(A).

I.2 Verification monitoring

Verification monitoring will be carried out where:

- the NML is exceeded by more than 10dB(A) during the day period (7am to 6pm), or
- the NML is exceeded by more than 15dB(A) during the evening period (6pm to 10pm), or
- the NML is exceeded by more than 5dB(A) during the night period (10pm to 7am), or
- the receiver is affected by noise greater than 75dB(A).

I.3 Specific notification

Sensitive receivers will be notified by specific notification where:

- the NML is exceeded by more than 25dB(A) during the evening period (6pm to 10pm), or
- the NML is exceeded by more than 15dB(A) during the night period (10pm to 7am), or
- the receiver is affected by noise greater than 75dB(A).

I.4 Respite offer

Respite offers should be made available to receivers where:

- the NML is exceeded by more than 5dB(A) during the evening period (6pm to 10pm), or
- the NML is exceeded by more than 5dB(A) during the night period (10pm to 7am), or
- the receiver is affected by noise greater than 75dB(A).

I.5 Duration respite offer

Duration respite offers should be made available to receivers where:

- the NML is exceeded by more than 5dB(A) during the evening period (6pm to 10pm), or
- the NML is exceeded by more than 5dB(A) during the night period (10pm to 7am), or

I.6 Alternative accommodation

Alternative accommodation should be offered to receivers where the NML is exceeded by more than 25dB(A) during the night period (10pm to 7am).

I.7 Summary of additional mitigation measures

AM1 = N **AM2** = N, V **HA** = N, V, SN, RO	**AM3** = N, R1, DR **AM4** = N, V, R1 or R2, DR	**AM5** = N, V, R1 or R2, DR, SN **AM6** = N, V, R1 or R2, DR, SN, AA
N = Notification (letterbox drop or equivalent) V = Verification of predicted noise level	SN = Specific Notification, Individual Briefings, or Phone Call R1 = Respite Period 1 R2 = Respite Period 2	DR = Duration Respite AA = Alternative Accommodation RO = Respite Offers

Table E.1 Additional noise mitigation and receiver notifications

| Receiver | | Coordinates | | Additional noise mitigation measures | | |

Table E.1 Additional noise mitigation and receiver notifications

| Receiver | | Coordinates | | Additional noise mitigation measures | | |

Table E.1 Additional noise mitigation and receiver notifications

| Receiver | | Coordinates | | Additional noise mitigation measures | | |

Table E.1 Additional noise mitigation and receiver notifications

Receiver		Coordinates		Additional noise mitigation measures																																			
				Day (Standard)						Day (OOHW)						Shoulder 1 (OOHW)						Evening (OOHW)						Night (OOHW)						Shoulder 2 (OOHW)					
NCA	Address	X	Y	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM7	AM7	AM7	AM6	AM7	AM6
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
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NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																												AM6	AM6									
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NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
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NCA03	[redacted]																												AM6	AM7		AM6				AM6			
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NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																												AM6	AM6									
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NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM7	AM6
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM7	AM7	AM7	AM6	AM7	AM6
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NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]									AM3	AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM4	AM3	AM4	AM5	AM5	AM4	AM4	AM3	AM8	AM9	AM9	AM8	AM9	AM8	AM8	AM8	AM9	AM7	AM8	AM7
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NCA03	[redacted]				AM1	AM1				AM3	AM4	AM4	AM3	AM3		AM4	AM4	AM4	AM3	AM4	AM3	AM4	AM5	AM5	AM4	AM5	AM4	AM9	AM9	AM9	AM8	AM9	AM8	AM8	AM9	AM9	AM8	AM8	AM8
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
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NCA03	[redacted]																											AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM7	AM7	AM7	AM6	AM7	AM6
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NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM6									
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NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]									AM3	AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM3	AM3	AM4	AM5	AM5	AM4	AM4	AM3	AM8	AM9	AM9	AM8	AM8	AM8	AM8	AM8	AM8	AM7	AM8	AM7
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM7	AM7	AM7	AM6	AM7	AM6

Table E.1 Additional noise mitigation and receiver notifications

Receiver		Coordinates		Additional noise mitigation measures																																			
				Day (Standard)						Day (OOHW)						Shoulder 1 (OOHW)						Evening (OOHW)						Night (OOHW)						Shoulder 2 (OOHW)					
NCA	Address	X	Y	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14
NCA03	[redacted]				AM1	AM1				AM3	AM4	AM4	AM3	AM3		AM4	AM4	AM4	AM3	AM4	AM3	AM4	AM5	AM5	AM4	AM5	AM4	AM9	AM9	AM9	AM8	AM9	AM8	AM8	AM9	AM9	AM8	AM8	AM8
NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
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NCA03	[redacted]																	AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																											AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																	AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																											AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																	AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																	AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM7	AM6
NCA03	[redacted]										AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM4	AM4	AM4	AM3	AM4	AM3	AM8	AM9	AM9	AM8	AM8	AM7	AM7	AM8	AM8	AM7	AM8	AM7
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																	AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM7		AM6				AM6			
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																							AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																												AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM6	AM7	AM7	AM6	AM7	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]										AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM4	AM4	AM4	AM3	AM4	AM3	AM8	AM9	AM9	AM8	AM8	AM7	AM7	AM8	AM8	AM7	AM8	AM7
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	
NCA03	[redacted]																AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM7	AM7	AM7	AM6	AM7	AM6
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM3		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																												AM6	AM6									
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																AM3	AM3				AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03	[redacted]																						AM3	AM3				AM6	AM7	AM7	AM6	AM7			AM7	AM7		AM6	

Table E.1 Additional noise mitigation and receiver notifications

Receiver		Coordinates		Additional noise mitigation measures																															
				Day (Standard)						Day (OOHW)						Shoulder 1 (OOHW)						Evening (OOHW)						Night (OOHW)						Shoulder 2 (OOHW)					
NCA	Address	X	Y	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14
NCA03	[redacted]																												AM6	AM6										
NCA03																								AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																							AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																		AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03																							AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																							AM3	AM3				AM6	AM7	AM7		AM6							
NCA03																	AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM7	AM7	AM7	AM6	AM7	AM6
NCA03																		AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03																								AM3				AM6	AM7	AM7		AM6							
NCA03																	AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM8	AM7	AM7	AM7	AM8	AM6	AM7	AM6
NCA03																							AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																	AM3	AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM8	AM7	AM7	AM7	AM8	AM6	AM7	AM6
NCA03																																							
NCA03											AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM3		AM4	AM4	AM4	AM3	AM4	AM3	AM8	AM9	AM9	AM8	AM8	AM7	AM8	AM8	AM8	AM7	AM8	AM7
NCA03																								AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																								AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03											AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM3		AM4	AM4	AM4	AM3	AM4	AM3	AM8	AM9	AM9	AM8	AM8	AM7	AM8	AM8	AM8	AM7	AM8	AM7
NCA03																								AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																		AM3				AM3	AM4	AM4	AM3	AM3		AM7	AM8	AM8	AM7	AM7	AM7	AM6	AM7	AM7		AM7	
NCA03																								AM3				AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03																							AM3	AM3				AM6	AM7	AM7		AM7			AM6	AM7		AM6	
NCA03																							AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																							AM3	AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																												AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																		AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03											AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM4	AM3	AM8	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM8	AM7
NCA03												AM3		AM3		AM3	AM3	AM4		AM3		AM3	AM3	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03																		AM3				AM3	AM3					AM6	AM7	AM7		AM7			AM7	AM7		AM6	
NCA03																								AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																								AM3				AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																												AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																		AM3				AM3	AM3	AM3		AM3		AM7	AM7	AM8	AM6	AM7	AM6	AM6	AM7	AM7		AM7	
NCA03											AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM4	AM3	AM8	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM8	AM7
NCA03																		AM3				AM3	AM4	AM4		AM3		AM7	AM8	AM8	AM7	AM7	AM6	AM7	AM7	AM7	AM6	AM7	
NCA03																								AM3				AM6	AM7	AM7		AM6			AM7	AM7		AM6	
NCA03																		AM3				AM3	AM3					AM6	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																								AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																												AM6	AM7	AM7		AM6			AM6	AM6			
NCA03																		AM3				AM3	AM3					AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6	
NCA03																													AM6	AM7		AM6			AM6	AM6			
NCA03																													AM6	AM7		AM6							
NCA03																													AM6	AM7		AM6							
NCA03																													AM6	AM6									
NCA03																													AM7	AM7		AM6			AM6	AM6			
NCA03																													AM6	AM7		AM6							
NCA03																													AM6	AM7		AM6							
NCA03																													AM6	AM6									

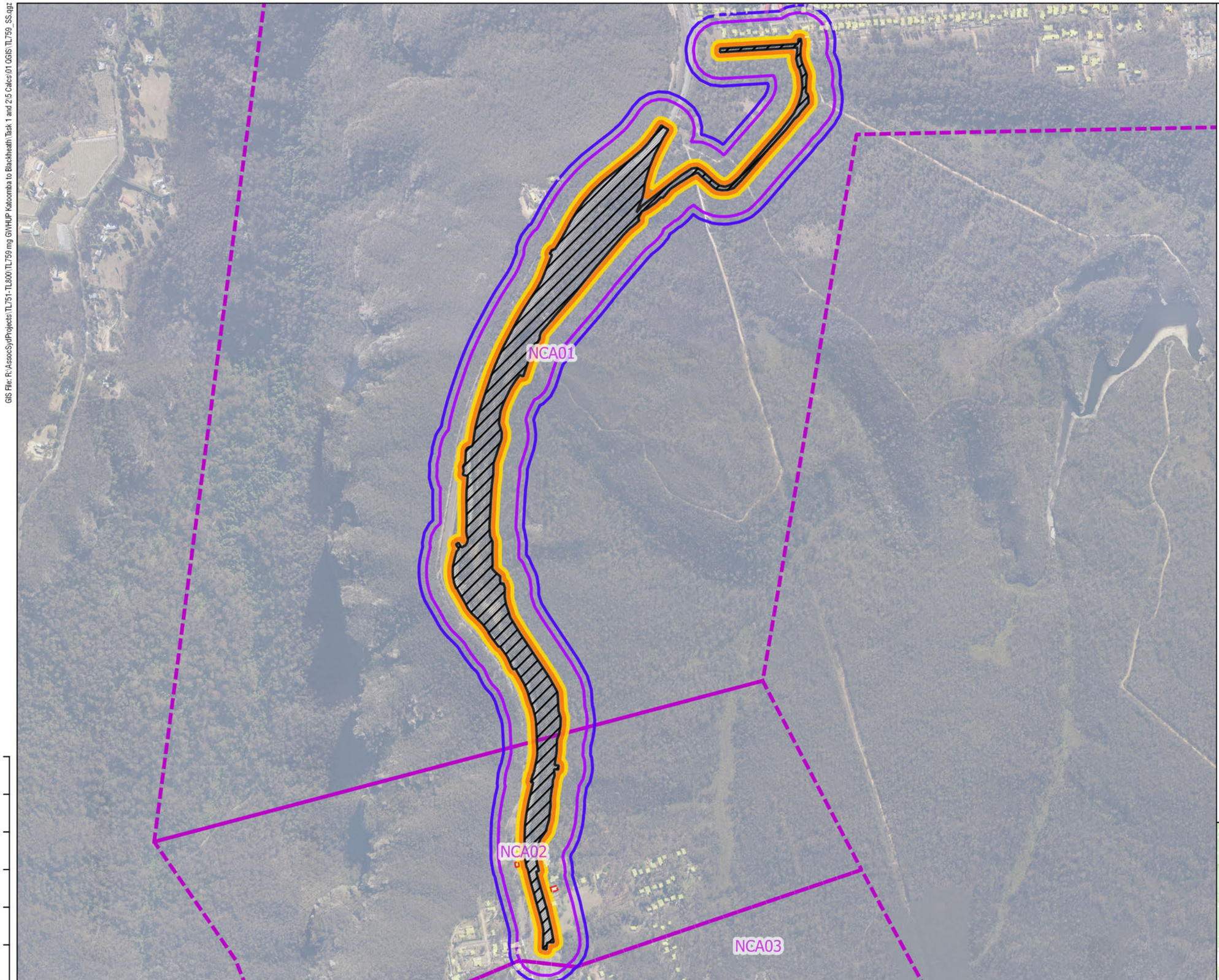
Table E.1 Additional noise mitigation and receiver notifications

Receiver		Coordinates		Additional noise mitigation measures																															
				Day (Standard)						Day (OOHW)						Shoulder 1 (OOHW)						Evening (OOHW)						Night (OOHW)						Shoulder 2 (OOHW)					
NCA	Address	X	Y	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14	V09	V10	V11	V12	V13	V14
NCA03	[redacted]										AM3	AM3				AM3	AM3	AM3		AM3		AM3	AM4	AM4	AM3	AM4	AM3	AM8	AM8	AM8	AM7	AM8	AM7	AM7	AM8	AM8	AM7	AM7	AM6
NCA03																							AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7	AM6	AM6	AM7	AM7		AM6		
NCA03																							AM3	AM3				AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6		
NCA03																							AM3	AM3		AM3		AM7	AM7	AM7	AM6	AM7		AM6	AM7	AM7		AM6		
NCA04																													AM6	AM6						AM6			
NCA04																													AM6	AM6						AM6			
NCA04																													AM6	AM6						AM6			
NCA04																													AM6	AM6									
NCA04																													AM6	AM6						AM6			
NCA04																													AM6	AM6									
NCA04																													AM6	AM6						AM6	AM6		
OSR					AM1	AM1					AM3	AM3		AM3			AM3	AM3		AM3			AM3	AM3		AM3		AM6	AM7	AM7	AM6	AM7		AM6	AM7	AM7	AM6	AM7	
OSR					AM1						AM3	AM3					AM3	AM3					AM3	AM3				AM6	AM7	AM7		AM6		AM6	AM7	AM7		AM6	

APPENDIX J Construction vibration contour maps

Plot Date: 11/08/22 - 12:22 Layout: TL759 Treatment Template (figure:[% "fig" %] page:[% "page" %])

GIS File: R:\AssocSyd\Projects\TL751-TL800\TL759 mg GWHUP Katoomba to Blackheath Task 1 and 2\5 Calcs\01 GIS\ TL759_SS.qgz



LEGEND

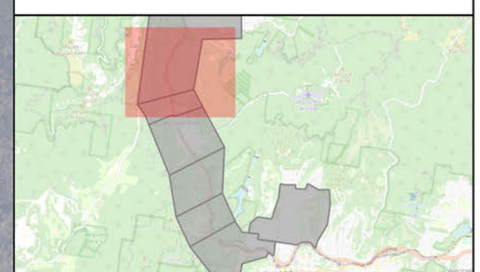
TL759_LU_(Master)

- Residential
- Commercial
- Hotel/Motel/Hostel
- Other
- Heritage

- Construction Area

MWD for Cosmetic Damage and Human Annoyance

- Reinforced Structures (7.5 mm/s ppv)
- Unreinforced/Heritage Structures (2.5 mm/s ppv)
- Day time Human Annoyance
- Night time Human Annoyance



REV	BY	DATE	DESCRIPTION	APPROVER
r2	SS	11/08/22	Update Treatment Buildings	RPH
r1	SS	25/10/21	Update figures	RPH
r0	SS	05/10/21	Prepare figures	RPH

A3 Original

Co-ordinate System: MGA Zone 56

0 100 200 300 400 500 600 m

1:10,000

FULL SIZE A3

NOTE: Do not scale from this drawing.

CLIENT

NSW GOVERNMENT Transport for NSW

ACOUSTIC CONSULTANT

RENZO TONIN & ASSOCIATES

inspired to achieve

Ph (02) 8218 0500 Fax (02) 8218 0501

Great Western Highway Upgrade Program - Katoomba to Blackheath

MWD for Cosmetic Damage and Human Annoyance