# Appendix K

## Revised Noise and Vibration Impact Assessment – Pipeline Development

REGIS RESOURCES LTD

# Revised Noise and Vibration Impact Assessment

McPhillamys Gold Project
Pipeline Development
Lithgow to Blayney, NSW.

Prepared for: EMM Consulting Pty Limited
August 2020
MAC180742RP2V2

Muller Acoustic Consulting

# *Document Information*

McPhillamys Gold Project – Pipeline Development, Lithgow to Blayney, NSW

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# EXECUTIVE SUMMARY

LFB Resources NL, a 100% owned subsidiary of Regis Resources Limited (Regis), is seeking development consent for the construction and operation of the McPhillamys Gold Project (the Project), a greenfield open-cut gold mine and associated water supply pipeline in the Central West region of New South Wales (NSW).

The project for which development consent is sought comprises two key components; the mine site where the ore will be extracted, processed and gold produced for distribution to the market (the Mine Development), and an associated water pipeline which will enable the supply of water from near Lithgow to the mine site (the Pipeline Development) approximately 8 km north-east of Blayney, within the Blayney and Cabonne local government areas.

An Environmental Impact Statement (EIS) was prepared to assess the potential environmental, economic and social impacts of the project by EMM Consulting Pty Limited (EMM). Muller Acoustic Consulting Pty Ltd (MAC) prepared and submitted a Noise and Vibration Impact Assessment (NVIA) as a part of the EIS for the Project. The development application and accompanying EIS was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the project.

In response to issues raised in the submissions received, and further detailed Project design, Regis has made several amendments to the project. Accordingly, an Amendment Report has been prepared by EMM to outline the changes to the project that have been made since the public exhibition of the EIS and to assess the potential impacts of the Amended Project, compared to those presented in the EIS.

This Amended Noise and Vibration Impact Assessment (ANVIA) for the Pipeline Development forms part of the Amendment Report and presents an assessment of the potential noise and vibration impacts of the Amended Pipeline Development, including consideration comments/feedback received during the public exhibition phase of the EIS and the outcomes of further consultation with key agencies including the NSW Environment Protection Authority (EPA).

Two options for the pipeline alignment are being considered pending finalisation of land access agreements in the Bathampton and McPhillamys noise catchment areas. The Northern Alignment follows the path of the Mid Western Highway and is in proximity to numerous receivers whereas the Southern Alignment encounters very few receivers within 1,000m.

Consistent with the EIS NVIA, construction noise levels from transient activities (clearing and grading, trenching and backfill) along the pipeline corridor have the potential to exceed the NMLs at most noise sensitive receivers within 400m of the alignment. It is understood that the exceedances from transient activities are likely to occur for two to three shifts during the daytime, resulting in temporary noise impacts.

Similarly, construction noise levels from static construction activities, such as underboring, have the potential to exceed the NMLs at most noise sensitive receivers within 400m of the work site. Such exceedances are anticipated to occur for a few shifts during peak construction activities. Other more noise intensive activities such as rock breaking are likely to affect a greater area, although would still be of a temporary or short term duration.

Notwithstanding, construction noise levels are predicted to satisfy the highly affected $LA_{eq(15min)}$ noise management level of 75dBA at all receivers for all pipeline transient construction activities.

Noise mitigation and management measures will be required to minimise noise impacts on receivers during construction. It is recommended that during construction, noise control and management measures provided in this report are adopted to minimise impacts to surrounding receivers, specifically during noise intensive works when they occur near receivers. Noise monitoring may be used to verify predictions in this assessment and used to inform the potential impacts from construction activities. A Construction Noise Management Plan should be developed to identify noise sensitive receivers and work areas, identifying where additional noise mitigation and management measures are required.

There are no noise sensitive receivers within 1,000m of any fixed operational equipment – ie four pump stations and a pressure reducing station. Consistent with the EIS NVIA, noise levels from the operational pump stations and pressure reducing station are predicted to satisfy the most conservative night time criteria of 35dB $LA_{eq(15min)}$ at all identified noise sensitive receivers.

Based on the Amended Noise and Vibration Impact Assessment results, once noise controls are implemented to the Project, it is considered that there are no noise related issues which would prevent approval of the proposed project.

# 1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) prepared and submitted a Noise and Vibration Impact Assessment (NVIA) as a part of the McPhillamys Gold Project Environmental Impact Statement (EIS 2019) for the construction and operation of the proposed McPhillamys Pipeline Development (the 'Pipeline Development'). The EIS was completed by EMM Consulting Pty Limited (EMM) on behalf of LFB Resources NL, a 100% owned subsidiary of Regis Resources Ltd (herein referred to as Regis).

The Pipeline Development is a component of the McPhillamys Gold Project (the Project), which consists of a 90km water supply pipeline to transfer raw water from Lithgow to the proposed McPhillamys open cut gold mine (the Mine Development), approximately 8km north-east of Blayney in Central West New South Wales (NSW), near Blayney.

The NVIA prepared for the EIS assessed the potential noise and vibration impacts associated with the Pipeline Development component of the McPhillamys Gold Project and was presented in Appendix AA of the EIS (Report MAC180742RP1V1 dated August 2019), herein referred to as the 'EIS NVIA'.

The development application and accompanying EIS for the McPhillamys Gold Project was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the Project.

In response to issues raised in the submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of amendments to the Project. Accordingly, an Amendment Report has been prepared by EMM to outline the changes to the Project that have been made since the public exhibition of the EIS and to assess the potential impacts of the Amended Project, compared to those that were presented in the EIS. This Amended Noise and Vibration Impact Assessment (ANVIA) forms part of the McPhillamys Gold Project, Amendment Report (EMM Consulting Pty Limited 2020), and presents an assessment of the potential noise and vibration impacts of the Amended Pipeline Development.

The potential noise and vibration impacts associated with the Mine Development component of the Amended Project are addressed in a separate report also prepared by MAC (MAC 2020).

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

## 1.1 Amended Noise and Vibration Impact Assessment

This Amended Noise and Vibration Impact Assessment ('ANVIA') prepared for the Pipeline Development is an addendum to the EIS NVIA with the following objectives:

- Address comments and submissions made by regulatory and planning authorities through the EIS exhibition process.
- Clarify methodologies and assessment outcomes contained in the EIS NVIA; and
- Revise the impact assessment to include the amended project design.

Significant aspects revised or clarified in the ANVIA include:

- Review of receivers potentially affected by the pipeline construction and operation;
- The inclusion of two potential pipeline alignments; and
- Relocation of pumping station facility (PS3) to Pipers Flat Road.

# 2 Project Description

## 2.1 Overview

Consistent with the EIS, Regis proposes to construct a pipeline along an approximate 90km alignment to transfer water from three sources: Angus Place Colliery, Centennial Coal's Springvale Coal Services Site (SCSS) and Mount Piper Power Station (MPPS) to the Mine Development Project Area near Blayney. The pipeline corridor compared to the EIS alignment is illustrated at a regional scale in **Figure 1.**

The pipeline corridor will accommodate all components of the Pipeline Development including pumping station facilities and associated pipeline infrastructure. The corridor is approximately 20m wide, with a construction disturbance footprint of around 8 to 10 m, excluding the four pumping stations facilities. At these facilities, the corridor width extends to an area of up to 75m by 75m to accommodate the construction and operation of these facilities. The key components of the pipeline development include:

- a pipeline approximately 90km in length, starting at Angus Place and finishing in the Mine Development area;
- four pumping station facilities, including water storage tanks;
- pressure reducing system/s; and
- a control system.

The pipeline will be designed to accommodate a nominal flow of approximately 13 megalitres per day (ML/day) up to a maximum of 15.6ML/day. The mode of operation of the system will provide continuous pumping 24 hours per day.

As noted in **Section 1**, some amendments to the Project are a result of further planning and design, and submissions received during the EIS public exhibition. Amendments to the Pipeline Development are as follows:

- Pipeline route – the route has been amended in a section of the corridor west of Bathurst, primarily in consideration of land access and potential impacts to biodiversity. Two options for the amended pipeline route have been included and assessed in the ANVIA; the northern option and the southern option. **Figure 1** shows the pipeline alignment changes approximately 3 km west of pumping station facility No. 4. The new alignment continues for approximately 3 km, where it then splits into two options before re-joining the original route. The northern option is approximately 11 km long from where the two options split and the southern option is approximately 6 km long, before re-joining the original alignment. The amended section of the

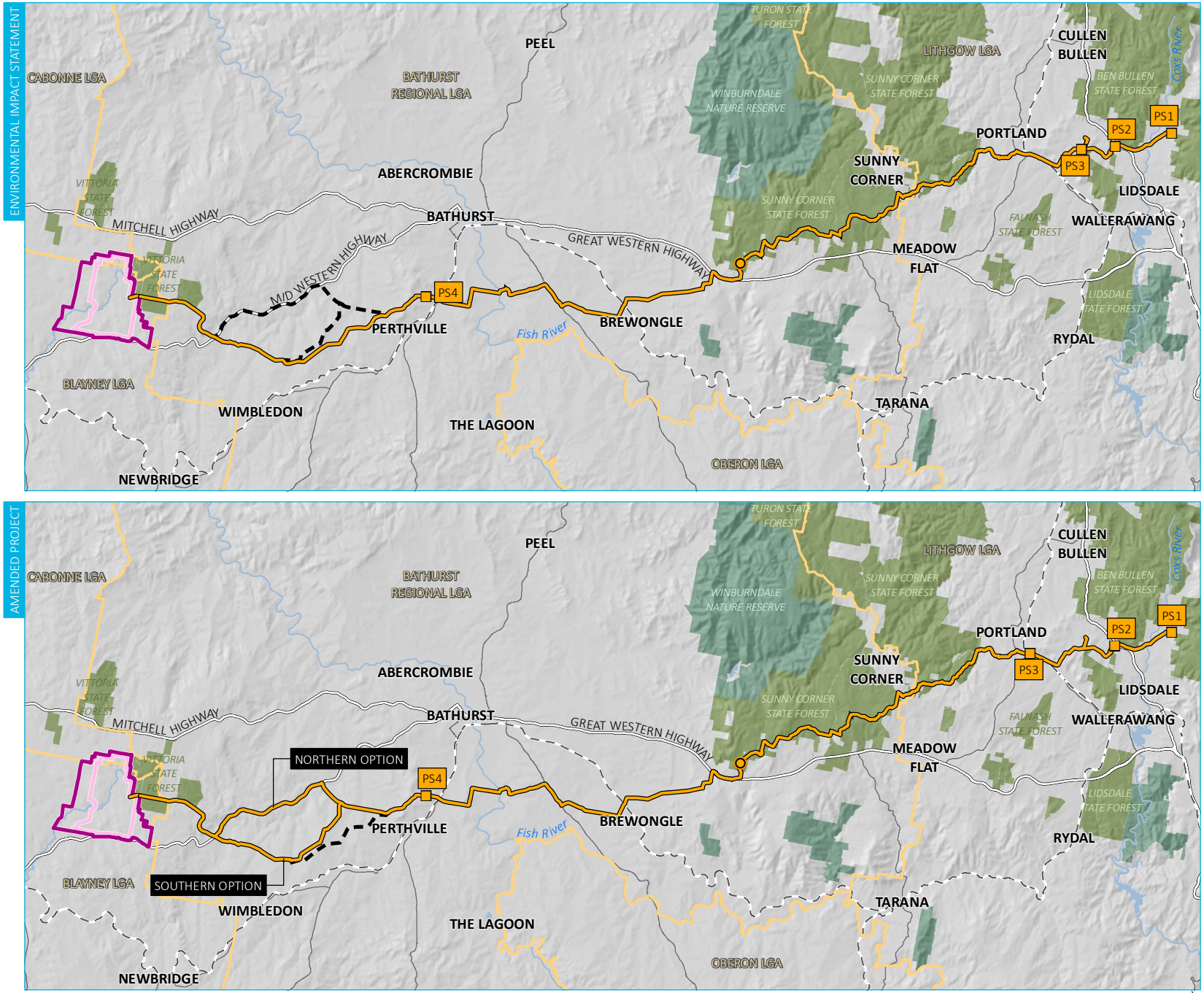
pipeline route is approximately 14 km long if the northern option is adopted, and approximately 9 km if the southern option is adopted.

- Pipeline corridor/disturbance footprint – Pipeline corridor has been differentiated from the disturbance footprint with small changes to the pipeline corridor disturbance footprint made in consideration of biodiversity impacts. While the alignment of pipeline sections outside the realigned options hasn't changed, there have been minor variations in the width of the corridor to provide flexibility in the detailed design and subsequent construction phases of the project.

- Pumping station facilities – pumping station facility No.3 has been relocated from the vicinity of Energy Australia's MPPS, to approximately 4.3 km to the west and adjacent to Pipers Flat Road.

## 2.2 Construction Duration and Hours

Standard construction hours will be from 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm on Saturdays, although some out of hours works (ie trenched road crossings) may be required at the request of Transport for NSW (TfNSW, previously Roads and Maritime Services), the NSW Police or property owners to minimise specific impacts. Neighbouring land owners will be advised of any variations to the nominated construction hours. Any requirement for extended working hours would be assessed in accordance with the Interim Construction Noise Guideline (DECC, 2009). Construction is estimated to take approximately 12 months.




KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pressure reducing system
- Pumping station facility
- Pipeline corridor
- Comparative pipeline alignment

Existing environment
- Rail line
- Primary road
- Arterial road
- River
- Waterbody
- NPWS reserve
- State forest
- Local government area

Amended pipeline development conceptual layout compared to EIS

McPhillamys Gold Project
Amendment report
Figure 1

Source: EMM (2020); Regis Resources (2020); DPE (2018); DFSI (2017); GA (2011)

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# 3 Assessment Requirements, Noise Policy and Guidelines

This ANVIA has been prepared in consideration of the following relevant policies and standards, providing a framework for monitoring, communication, management, reporting and auditing.

- Environment Protection Authority (EPA) 2017, NSW Noise Policy for Industry (NPI);
- Department of Environment and Climate Change (DECC) 2009, Interim Construction Noise Guideline (ICNG);
- Transport for NSW 2018, Construction Noise and Vibration Strategy; and
- Department of Environment and Conservation (DEC) 2006, Assessing Vibration: A Technical Guideline.

This ANVIA has also considered and applied the following additional policy, guidelines and standards where relevant:

- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures;
- Australian Standard AS 2187.2-2006 (AS2187.2) – Explosives—Storage and Use Part 2: Use of Explosives;
- Australian Standard AS 2436-2010 (R2016) Guide to Noise Control on Construction, Maintenance and Demolition Sites;
- ISO 9613-1 Acoustics - Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere;
- ISO 9613-2 Acoustics - Attenuation of sound during propagation outdoors. Part 2: General method of calculation;
- Australia and New Zealand Environment Conservation Council (ANZECC) Guideline – Technical Basis for Guidelines To Minimise Annoyance Due To Blasting Overpressure And Ground Vibration (ANZECC Guideline), September 1990;

- German Institute for Standardisation – DIN 4150 (2015) Part 3 (DIN4150-3) –Vibration in Buildings – Part 3: Effects of Vibration on Structures; and
- British Standards Institution BS 7385: Part 2-1993 (BS7385.2:1993) - Evaluation and Measurement for Vibration in Buildings — Part 2 – Guide to Damage Levels from Ground-borne Vibration, 1993.

## 3.1 EIS Assessment Requirements

The Environmental Impact Statement (EIS) for the Pipeline Development was prepared to address Secretary's Environmental Assessment Requirements (SEARs) from DPIE (ref: SSD18_9505) for the McPhillamys Gold Project.

The SEARs applicable to the NVIA for the construction and operation of the pipeline development are:

- an assessment of the likely operational noise impacts of the development (including construction noise) in accordance with the Noise Policy for Industry NSW[1];
- if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities in accordance with the Interim Construction Noise Guideline;
- an assessment of the likely road noise impacts of the development in accordance with the NSW Road Noise Policy; and
- an assessment of the likely blasting impacts of the development on people, animals, buildings and infrastructure, and significant natural features, having regard to the relevant ANZECC guidelines.

## 3.2 NSW EPA Comments

The NSW EPA provided a submission on the project following the public exhibition of the EIS, which included comments relating to the noise and vibration assessment of the pipeline development. The comments received from the EPA are summarised below, including a reference to the respective sections where the comments are addressed in this ANVIA:

[1] Construction noise is not in the scope of the NPI and is addressed in the Interim Construction Noise Guideline (ICNG).

1 The proponent reviews and confirms the accuracy of receivers included in the assessment. Refer **Section 4.**

2 The proponent justifies that monitoring location NM5 is representative of the nearest residential receivers or amend the report using representative background noise measurements. Refer **Section 5.**

3 The proponent amends Figure 4 in the report to show the monitoring locations. Refer **Section 5.1.1.**

4 The proponent reviews the definitions of all catchments and RBLs assigned to all receivers and revise them based on appropriate acoustic considerations. Refer **Section 5.**

5 The proponent provides a list of definitions for acronyms and abbreviations used in Appendix F. Refer **Appendix F** and **Table 22**.

6 The proponent amends the assessment to include construction compounds and stockpiling activities. Refer to Project Submissions Report (EMM 2020) and **Section 7.1**.

7 The proponent includes Figure 6 as referred to in Chapter 7.2. Refer **Section 5.**

8 The proponent clarifies if they are committed to providing the recommended mitigation measures to the 30 residential receivers identified as eligible for mitigation.

9 The proponent produces a construction noise and vibration management plan (CNVMP) prior to works commencing, and that construction activities be limited to the following standard construction hours, unless approved otherwise.

- Monday to Friday 7am to 6pm
- Saturday 8am to 1pm
- No work Sunday and Public Holidays

10 Operational noise assessment - operational noise mitigation measures as recommended in the report should be included in the design and operation of the pumping stations. Refer **Section 7.4.1**.

11 The proponent includes operational noise mitigation measures in the design and operation of pumping stations. Refer **Section 7.4.1**.

## 3.3 Construction Noise Guideline

The ICNG sets out procedures to identify and address the impacts of construction noise on residences and other sensitive land uses. This section provides a summary of noise objectives that are applicable to the assessment. The ICNG provides two methodologies for the assessment of construction noise emissions:

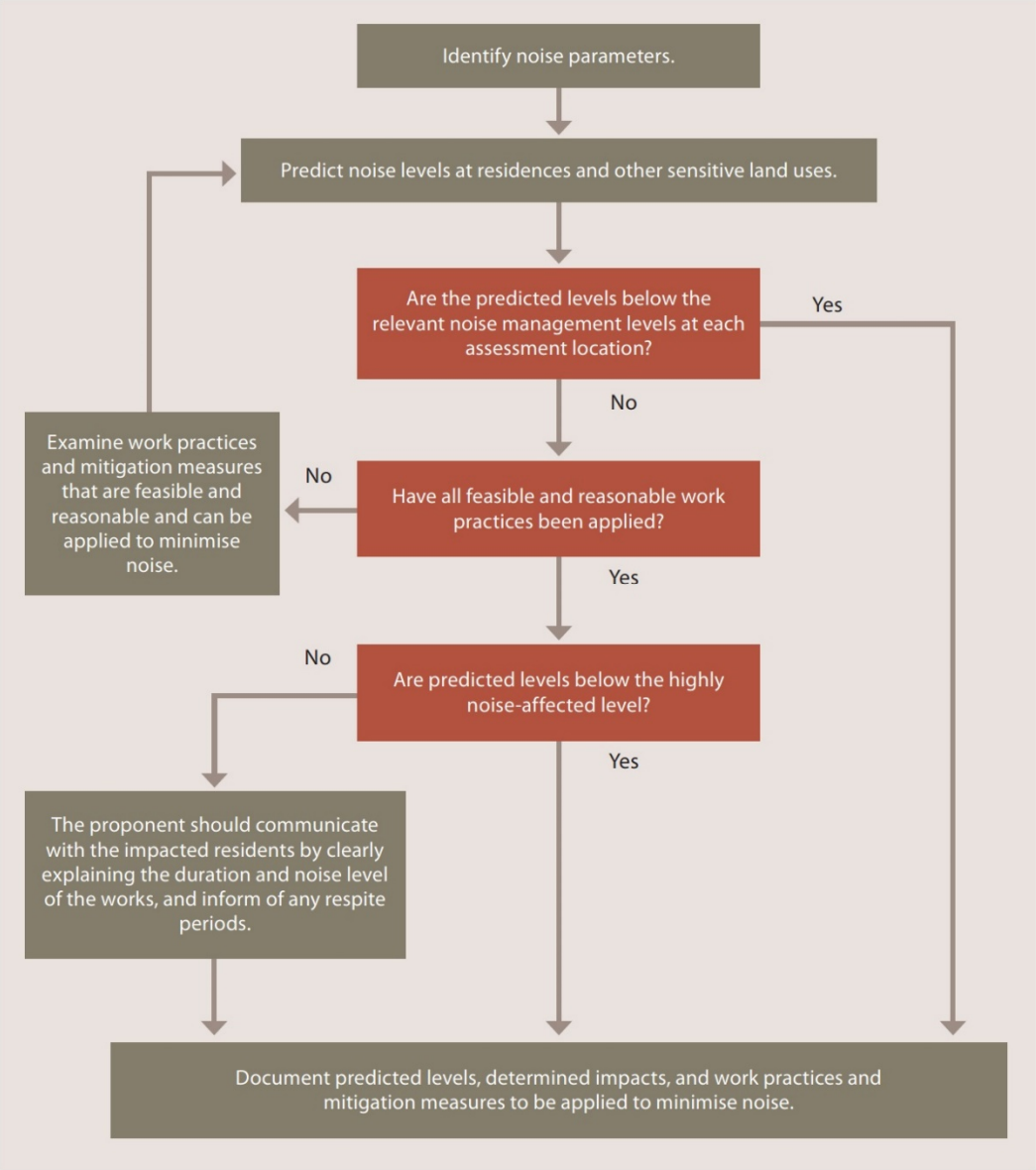
- Quantitative, which is suited to major construction projects with typical durations of more than three weeks; and
- Qualitative, which is suited to short term infrastructure maintenance (< three weeks).

The methodology for a quantitative assessment requires a more complex approach, involving noise predictions from construction activities to the nearest relevant assessment locations.

The qualitative assessment methodology is a more simplified approach that relies on noise management strategies. This study has adopted a quantitative assessment approach. Steps of the quantitative approach are summarised in **Figure 2.**

The quantitative approach includes identification of potentially affected receivers, description of activities involved in the proposal, derivation of the construction noise management levels, quantification of potential noise impact at receivers and, provides management and mitigation recommendations.

Figure 2 Quantitative Assessment Processes for Assessing and Managing Construction Noise




Source: Department of Environment and Climate Change, 2009.

### 3.3.1 Construction Noise Management Levels

Section 4 of the ICNG (DECC, 2009) details the quantitative assessment method involving predicting noise levels and comparing them with the Noise Management Level (NML) and are important indicators of the potential level of construction noise impact. **Table 1** provides the ICNG recommended $LA_{eq(15min)}$ NMLs and how they are to be applied.

**Table 1 Noise Management Levels – Residential Receivers**

| Time of Day | Management Level $LA_{eq(15min)}$[1] | 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 LAeq,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 work to be carried out, the expected noise levels and duration, as well as contact details. |
| | Highly noise affected 75dBA | 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 work near schools, or mid-morning or mid-afternoon for work near residences; and 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 work 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 5dBA above the noise affected level, the proponent should negotiate with the community. For guidance on negotiating agreements see section 7.2.2. |

Note 1: The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the construction noise management levels for noise assessment purposes and is the median of the ABL's.

**Table 2** provides the ICNG recommended $LA_{eq(15min)}$ NMLs for non-residential receivers and their application.

**Table 2 Noise Management Levels – Other Receivers**

| Receiver Type | Management Level $LA_{eq(15min)}$ | Application, Assessment Period |
|---|---|---|
| Passive Recreation Areas | 60dBA External | Characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation. |
| Active Recreation Areas | 65dBA External | Characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion. |
| Places of Worship | 55dBA External<br>45dBA Internal | Criteria applicable when facility is in use.<br>A conservative 10dB loss has been incorporated to allow for internal to external noise level. |
| Commercial and Industrial Premises | 75dBA External | In the case of other noise-sensitive businesses such as are theatres and child care centres, suitable noise levels should be determined on a project-by-project basis. The recommended 'maximum' internal noise levels in AS 2107 Acoustics – Recommended design sound levels and reverberation times for building interiors may assist in determining relevant noise levels (Standards Australia 2000). |
| Offices and retail outlets | 70dBA External | |

### 3.3.2 Construction Sleep Disturbance

Section 4.3 of the ICNG states that a sleep disturbance assessment is required where construction activities are planned to occur for more than two consecutive nights.

**Table 3** summaries the recommended standard and out of hours periods for construction activities where the noise from construction is audible at residential premises.

| Table 3 Recommended Hours for Construction | |
|---|---|
| Period | Construction Hours |
| Standard construction hours | Monday to Friday - 7am to 6pm<br>Saturdays - 8am to 1pm<br>Sundays or Public Holidays - No construction |
| Out of Hours Period 1 | Monday to Friday - 6pm to 10pm<br>Saturdays - 7am to 8am and 1pm to 10pm<br>Sundays or Public Holidays - 8am to 6pm |
| Out of Hours Period 2 | Monday to Friday - 10pm to 7am<br>Saturdays - 10pm to 8am<br>Sundays or Public Holidays - 6pm to 7am |

These recommended hours do not apply in the event of direction from police, or other relevant authorities, for safety reasons or where required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

## 3.4 Construction Vibration

Department of Environment and Conservation (DEC) 2006, Assessing Vibration: A Technical Guideline (the 'Guideline') provides guidance on determining effects of vibration on buildings occupants. The guideline does not address vibration induced damage to structures, blast induced vibration effects or structure borne noise effects.

A qualitative assessment of potential vibration impacts has been completed. Due to the nature of the works proposed and distances to potential vibration sensitive receivers, vibration impacts from the Pipeline Development would be negligible.

The Construction Noise Strategy (Transport for NSW, 2018) sets out safe working distances to achieve the human response criteria for vibration. The key vibration generating source proposed to be used is a vibratory roller used for compaction of cover material. For a large vibratory roller, the Construction Noise Strategy sets a safe working distance of 25m to achieve the residential human response criteria for continuous vibration. Therefore, as the majority of receivers to the Pipeline Development are greater than 25m, human exposure to vibration is anticipated to be minimal. For receivers within 25m (R121, R226) vibration alternative methods and/or vibration monitoring would be required. Furthermore, where the human response criteria are satisfied, the structural or cosmetic criteria for sensitive receivers will be achieved. In general, vibration impacts are not considered to be a significant issue and have not been considered further in this assessment.

## 3.5 Noise Policy for Industry

The EPA released the Noise Policy for Industry (NPI) in October 2017 which provides a process for establishing noise criteria for consents and licenses enabling the EPA to regulate noise emissions from scheduled premises under the *Protection of the Environment Operations Act 1997*.

The objectives of the NPI are to:

- provide noise criteria that is used to assess the change in both short term and long term noise levels;
- provide a clear and consistent framework for assessing environmental noise impacts from industrial premises and industrial development proposals;
- promote the use of best-practice noise mitigation measures that are feasible and reasonable where potential impacts have been identified; and
- support a process to guide the determination of achievable noise limits for planning approvals and/or licences, considering the matters that must be considered under the relevant legislation (such as the economic and social benefits and impacts of industrial development).

The policy sets out a process for industrial noise management involving the following key steps:

1. Determine the Project Noise Trigger Levels (PNTLs) (ie criteria) for a development. These are the levels (criteria), above which noise management measures are required to be considered. They are derived by considering two factors: shorter-term intrusiveness due to changes in the noise environment; and maintaining the noise amenity of an area.
2. Predict or measure the noise levels produced by the development with regard to the presence of annoying noise characteristics and meteorological effects such as temperature inversions and wind.
3. Compare the predicted or measured noise level with the PNTL, assessing impacts and the need for noise mitigation and management measures.
4. Consider residual noise impacts - that is, where noise levels exceed the PNTLs after the application of feasible and reasonable noise mitigation measures. This may involve balancing economic, social and environmental costs and benefits from the proposed development against the noise impacts, including consultation with the affected community where impacts are expected to be significant.
5. Set statutory compliance levels that reflect the best achievable and agreed noise limits for the development.

6. Monitor and report environmental noise levels from the development.

### 3.5.1 Project Noise Trigger Levels (PNTL)

The policy sets out the procedure to determine the PNTLs relevant to an industrial development. The PNTL is the lower (ie, the more stringent) of the **Project Intrusiveness Noise Level** (PINL) and **Project Amenity Noise Level** (PANL) determined in accordance with Section 2.3 and Section 2.4 of the NPI.

### 3.5.2 Rating Background Level (RBL)

The Rating Background Level (RBL) is a determined parameter from noise monitoring and is used for assessment purposes. As per the NPI, the RBL is an overall single figure background level representing each assessment period (day, evening and night) over the noise monitoring period.

The measured RBLs relevant to the project are contained in **Section 5.**

### 3.5.3 Project Intrusiveness Noise Level (PINL)

The PINL ($LA_{eq(15min)}$) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels need to be measured.

### 3.5.4 Project Amenity Noise Level (PANL)

The PANL is relevant to a specific land use or locality. To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended amenity noise levels specified in Table 2.2 (of the NPI). The NPI defines two categories of amenity noise levels:

- **Amenity Noise Levels (ANL)** – are determined considering all current and future industrial noise within a receiver area; and
- **Project Amenity Noise Level (PANL)** – is the recommended level for a receiver area, specifically focusing the project being assessed.

Additionally, Section 2.4 of the NPI states: "*to ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows*":

**PANL** for new industrial developments = recommended **ANL** minus 5dBA.

The recommended amenity noise levels as per Table 2.2 of the NPI reproduced in **Table 4**.

**Table 4 Amenity Criteria**

| Receiver Type | Noise Amenity Area | Time of day | Recommended amenity noise level dB LAeq(period) |
|---|---|---|---|
| Residential | Rural | Day | 50 |
| | | Evening | 45 |
| | | Night | 40 |
| | Suburban | Day | 55 |
| | | Evening | 45 |
| | | Night | 40 |
| | Urban | Day | 60 |
| | | Evening | 50 |
| | | Night | 45 |
| Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks. | See column 4 | See column 4 | 5dB above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day |
| School Classroom | All | Noisiest 1-hour period when in use | 35 (internal) 45 (external) |
| Hospital ward | | | |
| - internal | All | Noisiest 1-hour | 35 |
| - external | All | Noisiest 1-hour | 50 |
| Place of worship - internal | All | When in use | 40 |
| Passive Recreation | All | When in use | 50 |
| Active Recreation | All | When in use | 55 |
| Commercial premises | All | When in use | 65 |
| Industrial | All | When in use | 70 |

Notes: The recommended amenity noise levels refer only to noise from industrial noise sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated.

Types of receivers are defined as rural residential; suburban residential; urban residential; industrial interface; commercial; industrial – see Table 2.3 and Section 2.7 of the NPI.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

### 3.5.5 Maximum Noise Assessment

The potential for sleep disturbance from maximum noise level events during the night-time period needs to be considered. The NPI considers sleep disturbance to be both awakenings and disturbance to sleep stages.

Where night-time noise levels from a development/premises at a residential location exceed the following trigger levels, a detailed maximum noise level event assessment should be undertaken:

- $L_{Aeq(15min)}$ 40dB or the prevailing RBL plus 5dBA, whichever is the greater, and/or
- $L_{Amax}$ 52dB or the prevailing RBL plus 15dBA, whichever is the greater,

A detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Other factors that may be important in assessing the impacts on sleep disturbance include:

- how often the events would occur;
- the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the development;
- whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods); and
- current understanding of effects of maximum noise level events at night.

### 3.5.6 Determining the Significance of Residual Noise Impacts

Residual noise impacts are identified after all source and pathway feasible and reasonable noise mitigation measures have been considered. A residual noise impact may exist where the best-achievable noise level from a development, when assessed at a sensitive receiver location, is above the PNTLs.

Section 4 of the NPI outlines the process for determining the significance of residual noise impacts to ensure that effective and appropriate mitigation measures are implemented.

For new developments, where all feasible and reasonable noise mitigation measures have been applied, the significance of residual noise levels (that is, noise levels above the project noise trigger level) are assessed, in accordance with the matrix outlined in Table 4.1 of the NPI, reproduced in **Table 5**.

| Table 5 Significance of Residual Noise Impacts | | |
|---|---|---|
| If the predicted noise level minus the project noise trigger level is: | And the total cumulative industrial noise level is: | Then the significance of residual noise level is: |
| ≤ 2 dB(A) | Not applicable | Negligible |
| ≥ 3 but ≤ 5 dB(A) | < recommended amenity noise level or<br>> recommended amenity noise level, but the increase in total cumulative industrial noise level resulting from the development is less than or equal to 1dB | Marginal |
| ≥ 3 but ≤ 5 dB(A) | > recommended amenity noise level<br>and the increase in total cumulative industrial noise level resulting from the development is more than 1 dB | Moderate |
| > 5 dB(A) | ≤ recommended amenity noise level | Moderate |
| > 5 dB(A) | > recommended amenity noise level | Significant |

## 3.6 Road Noise Policy

The road traffic noise criteria are provided in the Department of Environment, Climate Change and Water NSW (DECCW), Road Noise Policy (RNP), 2011. The policy sets out noise criteria applicable to different road classifications for the purpose of quantifying traffic noise impacts.

Road noise criteria relevant to this assessment are presented in detail in **Section 6.4** and the construction road traffic assessment is presented in **Section 8.7**.

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# 4 Receiver Review

From review of aerial photos and other project information, 329 receivers that may be affected by noise from pipeline construction activities have been identified. **Table 6** presents a summary of the project areas/noise catchments and receivers in each area and are reproduced visually in **Figure 3**. A detailed receiver list and descriptions is presented in **Appendix B**.

The EIS NVIA identified 297 receivers; however, as a result of further ground truthing of receivers, and the revised pipeline alignments (including the northern and southern option), the receiver list for the pipeline has been updated. This includes the addition of more receivers, primarily associated with the northern alignment option which traverses more densely populated areas and was not considered in the EIS NVIA.

**Table 6 Noise Sensitive Receivers**

| Catchment | Receiver ID |
|---|---|
| Angus Place | R001 - R029, C01, I01, I02, PR01 |
| Portland | AR01, AR02, C02, PR02, R030 - R121 |
| Sunny Corner | R122 - R135 |
| Yetholme | C03, R136 - R176 |
| Brewongle | R177 - R192 |
| Bike Park | R193 - R253 |
| Perthville | AR03, AR04, C04, C05, I03, I04, PR03, R254 - R275, W01 |
| Bathampton | C06 - C09, R276 - R294 |
| McPhillamys | PR04, R295 - R307 |

Note: Prefixes for receiver types – AR – Active Recreation; PR – Passive Recreation; C – Commercial; I – Industrial; R – Residential; W – Place of Worship.

### 4.1.1 Heritage Items

The pipeline corridor does not extend over any historic heritage listed item; however, it will traverse land adjacent to four heritage items:

- Portland General Cemetery situated on Sunny Corner Road, listed on the listed on the *Lithgow Local Environmental Plan 2014* (item number A107) as being of local significance.
- Leeholme Homestead and outbuildings situated at 3664 O'Connell Road and 47 Tarana Road, listed on the listed on the *Bathurst Regional Local Environmental Plan 2014* (item number I97) as being of local significance;
- Bathampton Homestead, stables and brick barn (Item I6) situated at 2021 Mid-Western Highway approximately 250m from the northern pipeline alignment,and
- Binalong (former university building) situated at 1216 Mid-Western Highway approximately 100m from the pipeline alignment.

All other heritage structures are located more than 300m away from the pipeline corridor.

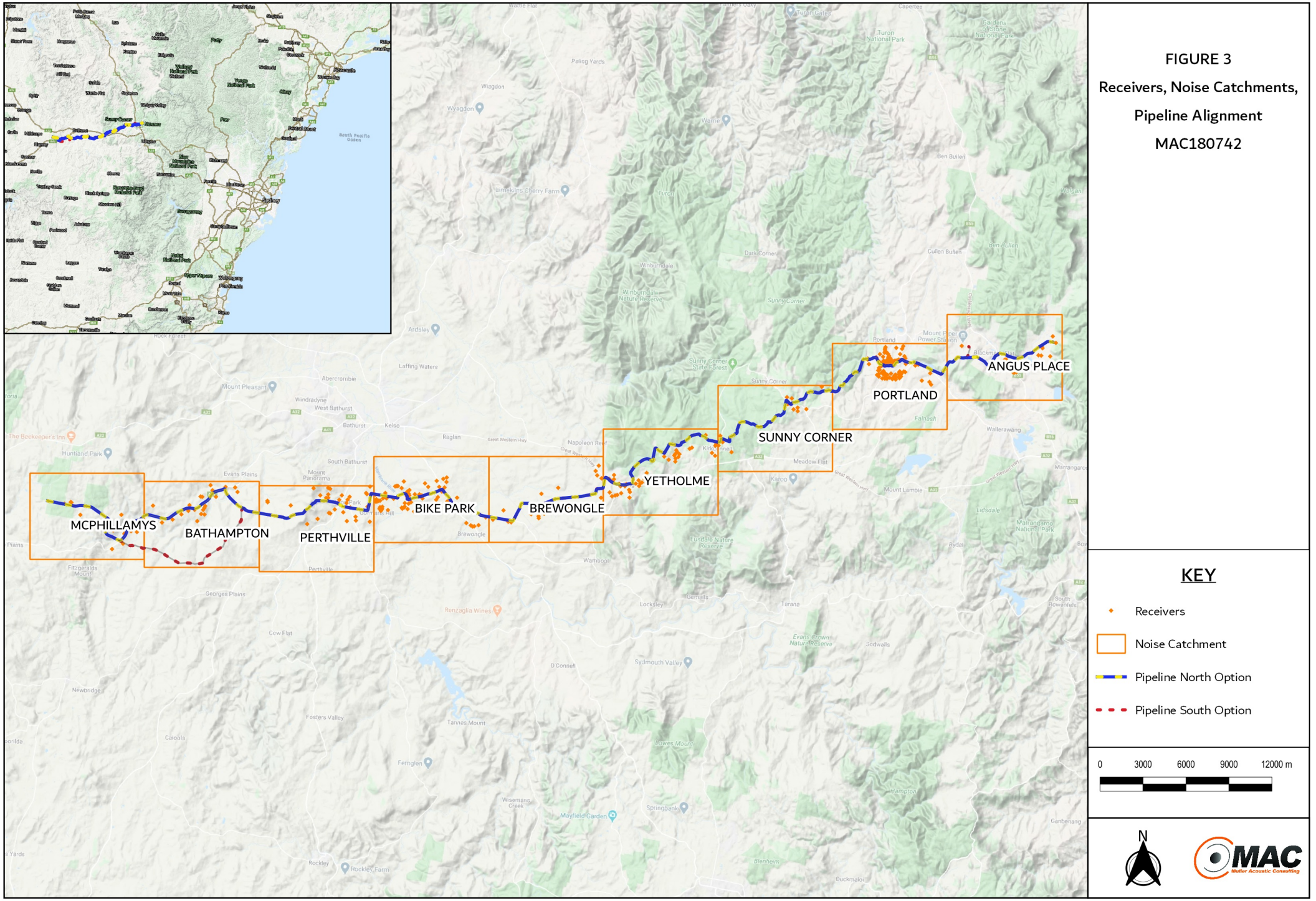


FIGURE 3

Receivers, Noise Catchments, Pipeline Alignment

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# 5 Existing Environment

## 5.1.1 Noise Monitoring Methodology

To quantify the existing background noise environment of the area, a review of historical unattended monitoring data was conducted by MAC for the pipeline corridor. The review of previous monitoring data showed that RBLs were generally less than 35dB $L_{A90(daytime)}$ and 30dB $L_{A90(evening)}$ and 30dB $L_{A90(night)}$ in several catchments. Therefore, unattended noise monitoring was conducted in the three catchments where there was no historical data available.

Unattended noise surveys were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise". The measurements were carried out using Svantek 977 noise analysers from Friday 19 October 2018 to Tuesday 30 October 2018 at Portland Cemetery (NM8); Noon Street (NM0); and Yetholme Drive (NM5) and are presented in **Table 7** and presented graphically in **Figure 4.**

Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates. Data affected by adverse meteorological conditions have been excluded from the results in accordance with methodologies provided in Fact Sheet A4 of the NPI.

Since the submission of the EIS NVIA, no additional noise monitoring has been conducted. For receivers potentially affected by the northern option not considered in the EIS NVIA, default NPI RBLs have been adopted.

**Table 7 Noise Monitoring Locations**

| Measurement ID | Catchment | Unattended Noise Monitoring Location | Co-ordinates MGA55 | |
|---|---|---|---|---|
| NM0 | Yetholme | Great Western Highway, Walang | 757867m E | 6295181m S |
| NM5[1] | Angus Place | Noon Street, Blackmans Flat | 784880m E | 6304074m S |
| NM8 | Portland | Sunny Corner Road, Portland | 776676m E | 6303446m S |
| N/A | Remaining Catchments | Minimum NPI RBL | N/A | N/A |

Note 1: corrected coordinates for NM5.

### 5.1.2 Noise Monitoring Results

From onsite observations, the noise environment at most residential receivers is best described as 'rural' in accordance with the NPI. A rural area, as described in the NPI, is one that has an acoustical environment that is dominated by natural sounds, having little or no road traffic noise and generally characterised by low background noise levels, except for the receivers in proximity (<50m) to the Great Western Highway in the Yetholme noise catchment. The results of the unattended noise measurements for the background monitoring locations, including derived RBLs are summarised in **Table 8**. Minimum NPI RBLs have been applied to the remaining receivers where there is no monitoring data available. It is noted for assessment purposes, the resulting data from each unattended monitoring location has been allocated to the respective noise catchments for this assessment. Noise monitoring charts are presented graphically in **Appendix C.**

**Table 8 Unattended Noise Monitoring Results**

| Unattended Noise Monitoring Location | Period | Measured Background Level RBL dB $LA_{90}$ | Measured Ambient Noise Level dB $LA_{eq(period)}$ |
|---|---|---|---|
| NM0 (Yetholme) Great Western Highway | Day | 47 | 67 |
| | Evening | 37 | 65 |
| | Night | 23 | 63 |
| NM5 (Angus Place) Noon Street | Day | 37 | 63 |
| | Evening | 34 | 59 |
| | Night | 27 | 57 |
| NM8 (Portland) Sunny Corner Road | Day | 30 | 46 |
| | Evening | 31 | 45 |
| | Night | 26 | 42 |
| Remaining Catchments (Minimum NPI RBL) | Day | 35 | N/A |
| | Evening | 30 | N/A |
| | Night | 30 | N/A |

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

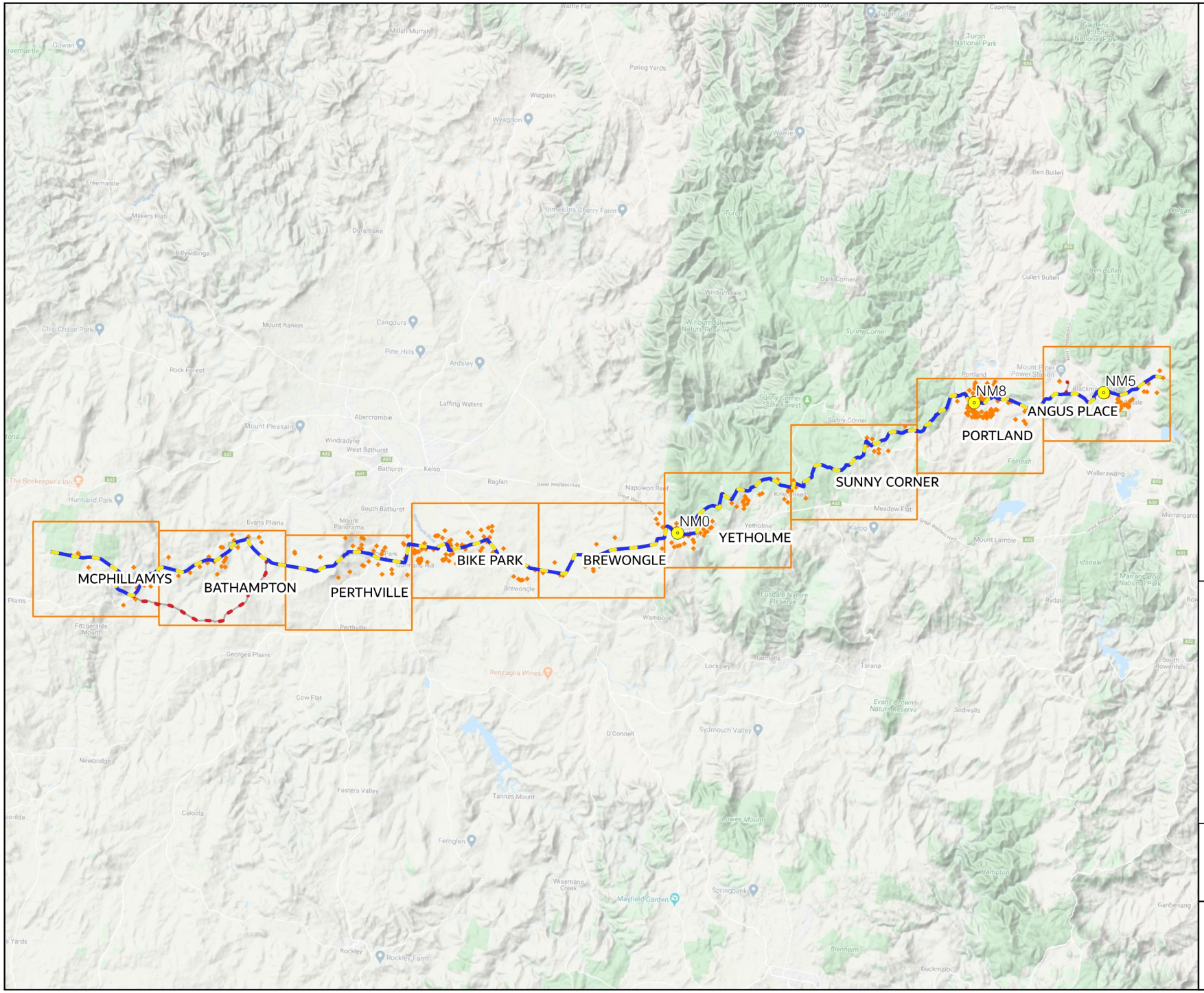


FIGURE 4

Background Noise Monitoring Locations

MAC180742

## KEY

- Receivers
- Noise Monitoring Location
- Noise Catchment
- Pipeline
- Pipeline South Option

0 3000 6000 9000 12000 m

N

MAC
Muller Acoustic Consulting

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# 6 Noise Assessment Criteria

## 6.1 Construction Noise Management Levels

Although the majority of construction activities are planned for Standard Construction Hours, the relevant Noise Management Levels (NMLs) for Standard Construction Hours and Out Of Hours periods are presented in **Table 9**.

**Table 9 Construction Noise Management Levels**

| Catchment | Reference RBL | Assessment Period[1] | RBL, dBA[2] | NML dB $LA_{eq(15min)}$ |
|---|---|---|---|---|
| NM5 (Angus Place) | NM5 (Angus Place) Noon Street | Day (Standard Hours) | 37 | 47 (RBL+10dBA) |
| | | OOH Period 1 | 34 | 39 (RBL+5dBA) |
| | | OOH Period 2 | 30 (27) | 35 (RBL+5dBA) |
| NM8 (Portland) | NM8 (Portland) Sunny Corner Road | Day (Standard Hours) | 35 (30) | 45 (RBL+10dBA) |
| | | OOH Period 1 | 31 | 36 (RBL+5dBA) |
| | | OOH Period 2 | 30 (26) | 35 (RBL+5dBA) |
| NM0 (Yetholme) Adjacent to Highway (R155-157, R159, R163-164, R166-167, R172, R174, R176) | NM0 (Yetholme) Great Western Highway | Day (Standard Hours) | 47 | 57 (RBL+10dBA) |
| | | OOH Period 1 | 37 | 42 (RBL+5dBA) |
| | | OOH Period 2 | 30 (23) | 35 (RBL+5dBA) |
| NM0 (Yetholme) Distant from Highway | Minimum NPI RBLs | Day (Standard Hours) | 35 | 45 (RBL+10dBA) |
| | | OOH Period 1 | 30 | 35 (RBL+5dBA) |
| | | OOH Period 2 | 30 | 35 (RBL+5dBA) |
| Sunny Corner Brewongle Bike Park Perthville Bathampton McPhillamys | Minimum NPI RBLs | Day (Standard Hours) | 35 | 45 (RBL+10dBA) |
| | | OOH Period 1 | 30 | 35 (RBL+5dBA) |
| | | OOH Period 2 | 30 | 35 (RBL+5dBA) |
| Active Recreation Area | N/A | When in use | N/A | 65 (external) |
| Passive Recreation Area | N/A | When in use | N/A | 60 (external) |
| Commercial and Industrial Premises | N/A | When in use | N/A | 75 (external) |
| Offices & Retail | N/A | When in use | N/A | 70 (external) |
| Place of Worship | N/A | When in use | N/A | 55 (external) 45 (internal) |
| Kirkconnell Correction Centre[3] | N/A | Day (Standard Hours) | N/A | 50 |
| | | OOH Period 1 | | 45 |
| | | OOH Period 2 | | 40 |

Note 1: Recommended Hours for Construction are shown in Table 3.

Note 2: NPI minimum RBL adopted for the assessment, measured level shown in brackets.

Note 3: The applicable Amenity Noise Level (NPI Table 2.2) for the receiver area has been applied as it is a mixed use receiver.

## 6.2 Construction Vibration Criteria

### 6.2.1 Cosmetic Damage Criteria

The DIN 4150-3 safe limit values (maximum levels measured in any direction at the foundation, or maximum levels measured in (x) or (y) horizontal directions, in the plane of the uppermost floor) are summarised in **Table 10**.

**Table 10 Structural Damage Safe Limit Values (DIN 4150-3)**

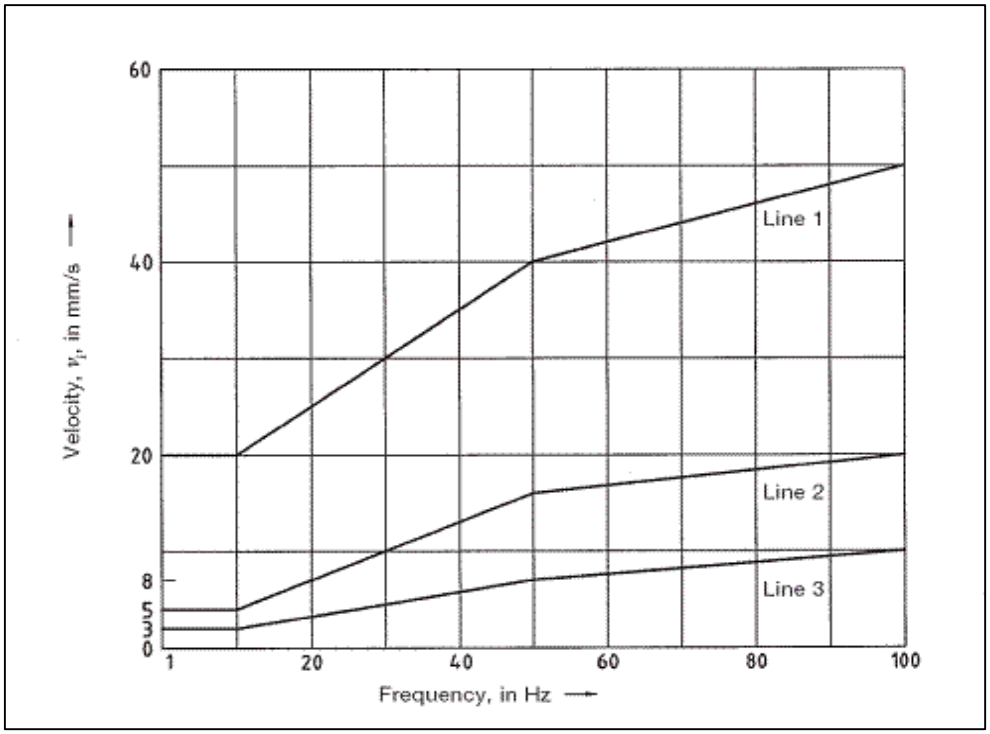
| | | Vibration Velocity in mm/s<br>Vibration at foundation at a Frequency of: | | | |
|---|---|---|---|---|---|
| Line | Type of Structure | Less than 10Hz | 10Hz to 50Hz | 50Hz to 100Hz1 | Plane of Floor of Uppermost Storey at all Frequencies |
| 1 | Buildings used for commercial purposes, industrial buildings, and buildings of similar design | 20 | 20 to 40 | 40 to 50 | 40 |
| 2 | Dwellings and buildings of similar design and/or occupancy | 5 | 5 to 15 | 15 to 20 | 15 |
| 3 | Sensitive Buildings: Structures that because of their particular sensitivity to vibration do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order) | 3 | 3 to 8 | 8 to 10 | 8 |
| At frequencies above 100Hz, the values given in this column may be used as a minimum. | | | | | |

*Guidance Note*

These levels are safe limits, for which damage due to vibration is unlikely to occur. Damage is defined in DIN 4150 to include minor non-structural effects such as superficial cracking in cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls. Should such damage be observed without vibration levels exceeding the safe limits then it is likely to be attributable to other causes. DIN 4150 also states that when vibration levels higher than the safe limits are present, it does not necessarily follow that damage will occur.

As indicated by the criteria from DIN 4150, high frequency vibration has less potential to cause damage than that from lower frequencies - this is visually presented in **Figure 5** below where the vibration level increases with the frequency.

Figure 5 DIN-4150-3 Structural Damage Safe Limits for a variety of building types




## 6.3 Blasting Criteria

The Pipeline Development would be expected to operate within the overpressure and ground vibration limits stipulated in ANZECC guidelines which are reproduced in **Table 11**.

**Table 11 Blasting Emissions Criteria**

| Receiver | Airblast Overpressure (dBZ Peak) | Ground Vibration (mm/s) | Allowable Exceedance |
|---|---|---|---|
| Any Residences on privately owned land | 120 | 10 | 0% |
| | 15 | 5 | 5% of the total number of blast over a period of 12 months |

## 6.4 Road Traffic Noise Criteria

**Table 12** presents the road traffic noise assessment criteria reproduced from the RNP relevant for this road category.

**Table 12 Road Traffic Noise Assessment Criteria**

| Road category | Type of project/development | Assessment Criteria - dBA | |
|---|---|---|---|
| | | Day (7am to 10pm) | Night (10pm to 7am) |
| Freeways/arterial/ sub-arterial Roads | Existing residences affected by additional traffic on freeways/arterial/sub-arterial roads generated by land use developments | 60dB LAeq(15hr) | 55dB LAeq(9hr) |
| Local roads | Existing residences affected by additional traffic on local roads generated by land use developments | 55dB LAeq(1hr) | 50dB LAeq(1hr) |
| School Classrooms | Proposed road projects and traffic generating developments | 40dB LAeq(1hr) (internal) | N/A |
| Open Space (active use) | | 60dB LAeq(1hr) | N/A |
| Open Space (passive use) | | 55dB LAeq(1hr) | N/A |

Additionally, the RNP states where existing road traffic noise criteria are already exceeded, any additional increase in total traffic noise level should be limited to 2dBA, which is generally accepted as the threshold of perceptibility to a change in noise level.

## 6.5 Operational Project Noise Trigger Levels (Criteria)

The Project Noise Trigger Levels (criteria) for the Pipeline Development are presented in **Table 13** and as there is the potential for the pumps and the pressure reducing system to operate at night, the PNTLs have been determined based on the default night RBL +5dBA which is the worst case scenario.

**Table 13 Project Noise Trigger Level**

| Receiver | Period[1] | Default RBL dB $LA_{90}$ | PNTL dB $LA_{eq(15min)}$ |
|---|---|---|---|
| All Residential | Night | 30 | 35 |
| Active Recreation | When in use | N/A | 58[2] |
| Passive Recreation | When in use | N/A | 53[2] |
| Commercial | When in use | N/A | 68[2] |
| Industrial | When in use | N/A | 73[2] |
| Place of Worship | When in use | N/A | 40 |
| Kirkconnell Correction Centre[3] | Night | N/A | 40 |

Note: As per Section 2.1 of the NPI, Intrusiveness Noise Levels only apply to residences.

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Includes a +3dBA adjustment to the amenity period level to convert to a 15-minute assessment period as per Section 2.2 of the NPI.

Note 3: The applicable Amenity Noise Level (NPI Table 2.2) for the receiver area has been applied as it is a mixed use receiver.

## 6.6 Maximum Noise Assessment Trigger Levels

The maximum noise trigger levels shown in **Table 14** are based on night time RBLs and trigger values as per Section 2.5 of the NPI. The trigger levels will be applied to transient noise events that have the potential to cause sleep disturbance.

**Table 14 Maximum Noise Assessment Trigger Levels**

| Residential Receivers | | | |
|---|---|---|---|
| LAeq(15min) | | LAmax | |
| 40dB LAeq(15min) or RBL + 5dB | | 52dB LAmax or RBL + 15dB | |
| Trigger | 40 | Trigger | 52 |
| RBL 30 +5dB | 35 | RBL 30+15dB | 45 |
| **Highest** | **40** | **Highest** | **52** |

Note 1: As per Section 2.5 of the NPI, the highest of each metric are adopted as the trigger levels.

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# 7 Noise Assessment Methodology

A computer model was developed to quantify project noise emissions to neighbouring receivers for typical construction activities and operations. DGMR (iNoise, Version 2020.0) noise modelling software was used to quantify noise emissions from typical construction activities and operations. iNoise is a new intuitive and quality assured software for industrial noise calculations in the environment. 3D noise modelling is considered industry best practice for assessing noise emissions from projects.

The model incorporated a three-dimensional digital terrain map giving all relevant topographic information used in the modelling process. Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

The model calculation method used to predict noise levels was in accordance with ISO 9613-1 '*Acoustics - Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere*' and ISO 9613-*2 'Acoustics - Attenuation of sound during propagation outdoors. Part 2: General method of calculation*'. The ISO 9613 standard from 1996 is the most used noise prediction method worldwide. Many countries refer to ISO 9613 in their noise legislation. However, the ISO 9613 standard does not contain guidelines for quality assured software implementation, which leads to differences between applications in calculated results. In 2015 this changed with the release of ISO/TR 17534-3. This quality standard gives clear recommendations for interpreting the ISO 9613 method. iNoise fully supports these recommendations. The models and results for the 19 test cases are included in the software.

## 7.1 Construction Assessment Methodology

To prepare the pipeline construction corridor, the area will be cleared of trees and vegetation. Topsoil and other obstacles such as rocks will be removed with a grader or excavator. The trench will then be excavated using a tracked excavator, backhoe, tracked chain trencher or other similar mechanical equipment. Where rock is encountered, hydraulic breaking and/or blasting may be required. It is anticipated that most of the pipeline will be constructed using open trenching techniques. However, some crossings or works in sensitive areas may be undertaken using alternative methods such as underboring for some road, river and rail crossings. The pipeline will consist of several water crossings, road crossings, rail crossings and gas pipeline crossings.

Pipe sections will be stockpiled approximately 5 to 10km apart adjacent to an existing road or access which will be suitable for a semi-trailer or truck. Where possible the pipes will be transported to the cleared construction corridor and will be strung out along the edge of the proposed pipeline alignment. Pipeline construction will be a progressive operation with several work fronts being constructed at any one time. The trenching rate will be variable depending upon ground conditions and machinery used. In rocky conditions, for example on forestry tracks through Sunny Corner State Forest, the trenching rate will be around 40m-80m per day, compared to open farmland where the rate may be 600m-650m per day. Once the pipe has been laid and joined, backfill will be placed around the pipe with an excavator (or similar plant) and compacted, typically with a hand-held vibrating plate compactor.

Tipping trucks (for spoil and backfill movement) and flatbed trucks (for movement of pipes and other equipment) will shuttle between the stockpiles and pipeline construction sites. Bulk supplies of material will be delivered to the stockpile sites via semi-trailer. Site rehabilitation will be undertaken progressively following construction. Typical rehabilitation activities will include spreading topsoil and revegetation in accordance with the restoration plan and easement requirements.

### 7.1.1 Construction Assessment Scenarios

Two assessment methods were chosen to quantify noise emissions from construction activities as some occur along the entire alignment (transient) and potentially affect all receivers, while other activities are static and only occur in specific areas and have the potential to impact a select few receivers. For static activities, offset calculations have been completed to provide indication of where these activities achieve the relevant NMLs.

In consideration of the construction activities and methods, the following transient noise scenarios were modelled:

- Transient Scenarios
  - Clearing and grading;
  - Pipeline construction (trenching); and
  - Backfilling and restoration.
- Static Scenarios
  - Vegetation clearing;
  - Rock breaking;

- Underboring (river crossings, road/rail crossing or gas pipeline crossings);
- Civil, mechanical and electrical installations; and
- Excavation and establishment (for fixed infrastructure such as pumping station facilities and pressure reducing system).

- Blasting to break up rock formations where required.

Noise emission data and assumptions used in this assessment are summarised in **Table 15**.

**Table 15 Construction Equipment Sound Power Levels, Lw dBA re $10^{-12}$ W**

| Noise Source/Item | Utilisation % | Quantity | Lw/Item | Total Lw |
|---|---|---|---|---|
| **Pipeline Construction (open trenching entire alignment)** | | | | |
| 20t Excavator | 100 | 1 | 102 | 102 |
| Track trencher | 100 | 1 | 102 | 102 |
| Shaft drive petrol pump | 100 | 1 | 91 | 91 |
| Concrete mixer | 100 | 1 | 103 | 103 |
| Concrete vibrator | 100 | 1 | 108 | 108 |
| Diesel generator | 100 | 1 | 93 | 93 |
| Power tools | 100 | 1 | 102 | 102 |
| Heavy Vehicles | 100 | 2 | 108 | 111 |
| **Total – Trenching** | | | | **114** |
| **Clearing and Grading** | | | | |
| 30t Excavator/Piling Rig | 100 | 1 | 104 | 104 |
| Loader | 100 | 1 | 101 | 101 |
| Grader | 100 | 1 | 108 | 108 |
| Shaft drive petrol pump | 100 | 1 | 91 | 91 |
| Power tools | 100 | 2 | 102 | 105 |
| Heavy Vehicles | 100 | 2 | 108 | 111 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total – Clearing and Grading** | | | | **114** |
| **Backfilling & Restoration** | | | | |
| 20t Excavator | 100 | 1 | 102 | 102 |
| Vibrating plate compactor | 100 | 2 | 102 | 105 |
| Shaft drive petrol pump | 100 | 1 | 91 | 91 |
| Power tools | 100 | 1 | 102 | 102 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total – Backfilling & Restoration** | | | | **108** |

| Table 15 Construction Equipment Sound Power Levels, Lw dBA re $10^{-12}$ W | | | | |
|---|---|---|---|---|
| Noise Source/Item | Utilisation % | Quantity | Lw/Item | Total Lw |
| **Under boring (river crossings, road/rail crossing or gas pipeline crossings)** | | | | |
| 30t Excavator/Backhoe | 100 | 1 | 104 | 104 |
| Diesel pump | 100 | 1 | 88 | 88 |
| Shaft drive petrol pump | 100 | 1 | 91 | 91 |
| Petrol generator | 100 | 1 | 93 | 93 |
| Horizontal drill rig | 100 | 1 | 114 | 114 |
| Drilling mud plant | 100 | 1 | 114 | 114 |
| Hydraulic power pack | 100 | 1 | 102 | 102 |
| Water tank | 100 | 1 | 116 | 116 |
| Heavy Vehicles | 100 | 2 | 108 | 111 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total – Under boring** | | | | **120** |
| **Vegetation Clearing (only areas where vegetation removal is required)** | | | | |
| Mulcher | 100 | 1 | 102 | 102 |
| Cherry picker/EWP | 100 | 1 | 102 | 102 |
| 30t Excavator/Backhoe | 100 | 1 | 104 | 104 |
| Chainsaw | 100 | 1 | 107 | 107 |
| Heavy Vehicles | 100 | 2 | 108 | 111 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total – Vegetation Clearing** | | | | **113** |
| **Excavation and Establishment** | | | | |
| 20t Excavator | 100 | 1 | 102 | 102 |
| 15t Mobile crane | 100 | 1 | 106 | 106 |
| Diesel generator | 100 | 2 | 93 | 96 |
| Shaft drive petrol pump | 100 | 1 | 91 | 91 |
| Power tools | 100 | 1 | 102 | 102 |
| Concrete mixer | 100 | 1 | 103 | 103 |
| Concrete agitator | 100 | 1 | 103 | 103 |
| Concrete vibrator | 100 | 1 | 108 | 108 |
| Heavy Vehicles | 100 | 2 | 108 | 111 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total - Excavation and Establishment** | | | | **114** |

| Table 15 Construction Equipment Sound Power Levels, Lw dBA re $10^{-12}$ W | | | | |
|---|---|---|---|---|
| Noise Source/Item | Utilisation % | Quantity | Lw/Item | Total Lw |
| **Rock Breaking** | | | | |
| 30t Excavator with impact hammer | 100 | 1 | 120 | 120 |
| Jack hammer | 100 | 1 | 102 | 102 |
| Loader | 100 | 1 | 101 | 101 |
| Heavy Vehicles | 100 | 2 | 108 | 111 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total – Rock Breaking** | | | | **120** |
| **Civil mechanical and electrical installation** | | | | |
| 15t Mobile crane | 100 | 1 | 106 | 106 |
| Diesel generator | 100 | 2 | 93 | 96 |
| Shaft drive petrol pump | 100 | 1 | 91 | 91 |
| Welding equipment | 100 | 1 | 102 | 102 |
| Air compressor | 100 | 1 | 102 | 102 |
| Power tools | 100 | 1 | 102 | 102 |
| Light Vehicles | 100 | 2 | 76 | 79 |
| **Total - Excavation and Establishment** | | | | **110** |

## 7.2 Blasting Assessment Methodology

A calculation of air-blast overpressure and ground-borne vibration levels has been conducted in accordance with methods in AS2187.2.

### 7.2.1 Air-Blast Overpressure

Calculation of overpressures have been completed using the following AS2187.2 equation:

Where:

$$\mathrm{P} = K_a \left( \frac{R}{(Q^{1/3})} \right)^a$$

P = Pressure, in kilopascals;

Q = Effective explosives charge mass, in kilograms (MIC);

R = Distance from charge, in metres;

Ka = Site constant, a conservative value of 25 was adopted; and

a = Site exponent, a value of -1.45 was adopted.

The conversion of 'P' to unweighted decibels (dBZ) is completed using the following formula:

$$\mathrm{SPL} = 10\, x \log \left( \frac{P}{P_0} \right)^2$$

### 7.2.2 Ground-Borne Vibration

Preliminary estimations of vibration from blasting have been completed using the following AS2187.2 equation:

$$\mathrm{V} = K_g \left( \frac{R}{(Q^{1/2})} \right)^{-B}$$

Where:

V = ground vibration as vector peak particle velocity, in mm/s;

R = distance between charge and point of measurement, in m;

Q = maximum instantaneous charge (effective charge mass per delay), in kg;

Kg = a constant related to site and rock properties for estimation purposes, a value of 1140 was adopted; and

B = a constant related to site and rock properties for estimation purposes, a value of 1.6 was adopted.

## 7.3 Road Traffic Noise

The United States (US) Environmental Protection Agency's road traffic calculation method was used to predict the $LA_{eq}$ noise levels from construction vehicles travelling past receivers along public roads. This method is an internationally accepted theoretical traffic noise prediction model and is ideal for calculating road traffic noise where relatively small traffic flows are encountered.

## 7.4 Operational Assessment Methodology

Key operational activities of the Pipeline Development include:

- Operation and maintenance of the pumping station facilities;
- Maintenance of the pipeline, the pressure reducing system and valves; and
- Other infrequent maintenance of the pipeline (e.g. pigging to remove scaling or repairing of leaks).

A pressure reducing system will comprise of pressure reduction valves (PRV), a water storage tank, vents and electrical controls as required in accordance with the detailed design. It will be installed at Sunny Corner (CH38.5) to protect the pipeline from excessive pressure. The pressure reducing system is typically enclosed in a concrete building with noise mitigation measures depending on the distance to nearest sensitive noise receiver. An additional pressure reducing system may be required along the pipeline corridor depending on refinements made to the design and choice of materials, which will be determined during detailed design.

Four pumping station facilities (refer **Figure 1**) will be required to ensure efficient transfer of water through the pipeline and will be located at:

- Pumping Station 1 (Angus Place Coal Mine);
- Pumping Station 2 (Springvale Coal Services);
- Pumping Station 3 (Pipers Flat Road); and
- Pumping Station 4 (Bathurst Bike Park).

Each pumping station facility will occupy an area of approximately 5,600$m^2$ (75m x 75m) for pumping stations 1, 2 and 3 and 1,700$m^2$ (35m x 50m) for pumping station 4. They will be fenced for public safety. Within each pumping station facility there will be the following:

- a 750kL water storage tank, pipework and valving;
- monitoring and control equipment, including flow meters, tank level detection and automated valves;
- a pump and motor building, typically comprising electric motor and pump sets;
- a pad mounted power transformer, incoming high voltage supply and switch room; and
- an access road and small parking area.

### 7.4.1 Operation Assessment Scenarios

For this assessment, operational noise predictions were modelled for a typical worst-case operational scenario for each of the four pumping station facilities and assumes two of the four pumps are operational continuously for a 15-minute assessment period at each location. Currently there are several types of pumps proposed to be used at each site, hence the worst-case sound power level of the proposed pumps was adopted for this assessment, as shown in **Table 16**. It is noted that the pumps are proposed to be enclosed within a building and a moderate attenuation level of 15dBA has been adopted. Therefore, predictions should be considered a worst case.

**Table 16 Operational Equipment Sound Power Levels dBA re $10^{-12}$ W**

| Noise Source/Item | Quantity | Lw/Item | Total Lw |
|---|---|---|---|
| Pump Station Motor (per site) | 2 | 82 | 85 |

# 8 Construction Noise & Vibration Assessment

## 8.1 Construction Noise Results

Noise levels were predicted to each assessed receptor assuming receiver heights of 1.5m above ground level for typical construction activities.

Two assessment methods were chosen to quantify noise emissions from each construction activity as some are along the entire alignment (transient) and potentially affect all receivers, while other activities are static areas and only have the potential to impact a select few receivers.

## 8.2 Pipeline Construction Results – Transient Activities

### 8.2.1 Alignment Options

Two options for the pipeline alignment are being considered pending finalisation of land access agreements in the Bathampton and McPhillamys catchment areas:

- the Northern Alignment follows the path of the Mid Western Highway which is relatively flat with good access but traverses numerous receivers; and
- the Southern Alignment which is through rural land, encountering more difficult terrain but with very few receivers within 1,000m. Receivers R295 - R303 are the only receivers (within 1000m) potentially affected by both pipeline options as shown in **Figure 6**.

Predicted noise levels from the transient construction activities for both alignments are presented in **Table 17**. Results shown in **bold** text indicate the highest potential noise level from the construction of the two options. Noise levels from the construction of the North Alignment are generally higher than noise levels from the construction of the South Alignment. This is primarily due to the North Alignment being closer to the receivers R295-R299, R301 and R302, whereas R300 is the only receiver in proximity to the South Alignment and R303 is equidistant from both alignments.

| Table 17 Predicted Construction Noise Levels – North & South Alignments | | | | | | |
|---|---|---|---|---|---|---|
| | Noise Level North Alignment dB $LA_{eq(15min)}$ | | | Noise Level South Alignment dB $LA_{eq(15min)}$ | | |
| Receiver | Clearing & Grading | Trenching | Backfill & Restoration | Clearing & Grading | Trenching | Backfill & Restoration |
| R295 | **44** | **44** | **39** | 41 | 39 | 35 |
| R296 | **49** | **49** | **43** | 43 | 43 | 37 |
| R297 | **48** | **48** | **43** | 43 | 43 | 38 |
| R298 | **65** | **66** | **60** | 51 | 51 | 51 |
| R299 | **62** | **63** | **57** | 50 | 50 | 44 |
| R300 | 51 | 51 | 45 | **58** | **59** | **53** |
| R301 | **34** | **33** | **29** | 32 | 33 | 27 |
| R302 | **49** | **49** | **43** | 48 | 47 | 43 |
| R303 | 41 | 41 | 36 | 41 | 41 | 36 |

In summary, when considering all receivers in the proximity of the two alignment options, the South Alignment results in lower noise emissions due to the distance from most receivers. One receiver (R300), is expected to experience higher noise levels from construction activities associated with the South Alignment.

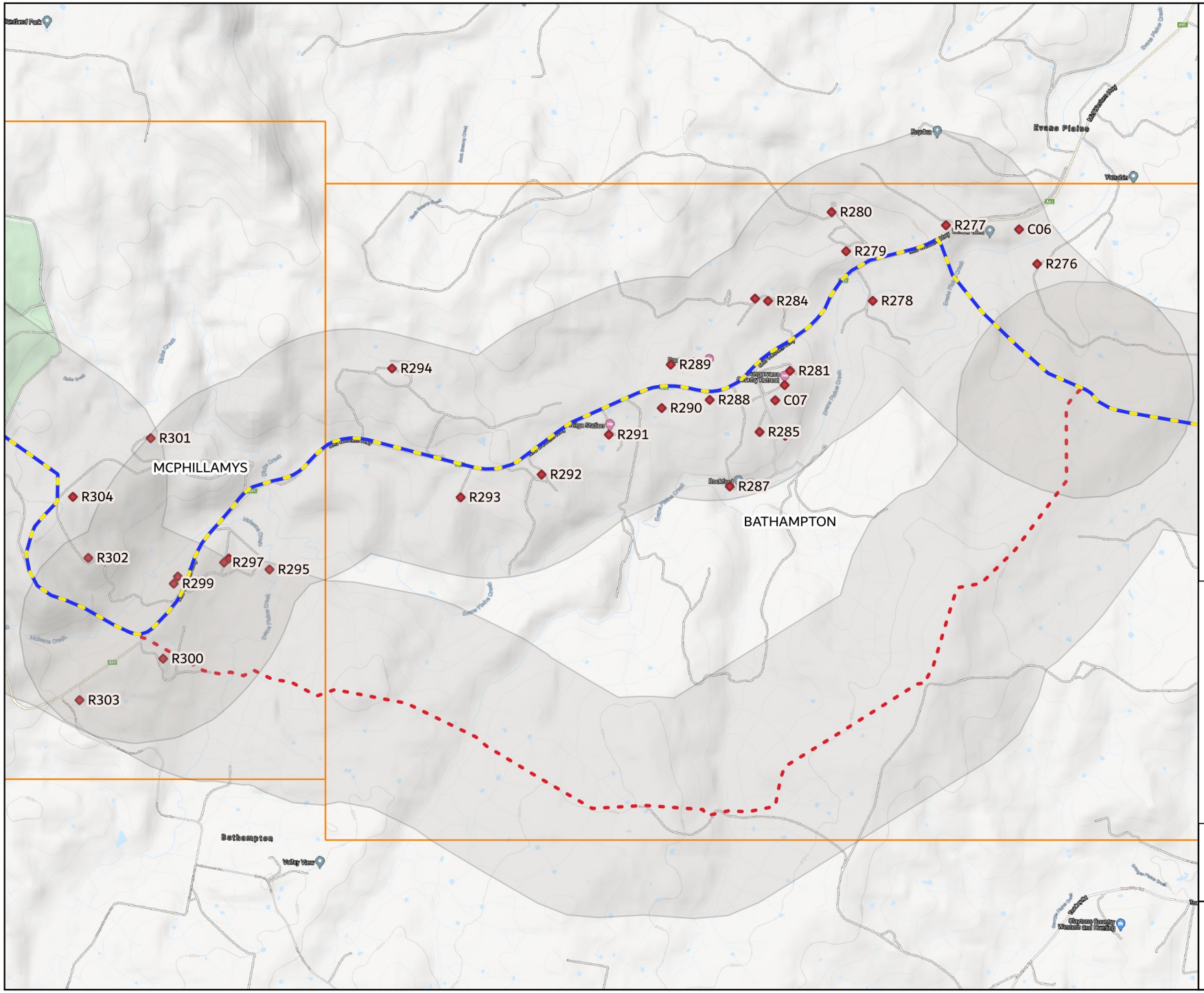



FIGURE 6

Northern & Southern

Pipeline Options

MAC180742

## KEY

- Receivers
- 1000m Offset
- Noise Catchment
- Pipeline North Option
- Pipeline South Option

0 500 1000 1500 m

N

MAC
Muller Acoustic Consulting

### 8.2.2 Northern Alignment Option

Noise emissions from transient Pipeline Construction activities are presented for residential receivers in each noise catchment area and their offset from the northern pipeline alignment. Potential maximum noise emissions (ie when the project is at its closest point to a receiver) for Standard Construction Hours and OOH periods without additional noise mitigation or management measures at assessed receiver locations are presented in:

- **Table 18** for Clearing and Grading activities;
- **Table 19** for Trenching; and
- **Table 20** for Backfill and Restoration.

Detailed results for the transient construction activities along the pipeline alignment for all receiver types are presented in:

- **Appendix D** for Clearing and Grading activities;
- **Appendix E** for Trenching;
- **Appendix F** for Backfill and Restoration; and
- **Appendix G** detailed tabulated results for the all transient construction activities including alternative mitigation measures using the TfNSW Construction Noise Strategy, discussed further in **Section 8.4.1**.

| Table 18 Predicted Construction Noise Levels – Clearing & Grading (Residential Receivers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Offset from | Noise Level[2] | NML dB $LA_{eq(15min)}$ | | | Level above NML | | |
| Catchment | Pipeline[1] | dB $LA_{eq(15min)}$ | Std | Period 1 | Period 2 | Std | Period 1 | Period 2 |
| Angus Place | 100-200m | 62 | 47 | 39 | 35 | 15 | 23 | 27 |
| | 200-400m | 55 | 47 | 39 | 35 | 8 | 16 | 20 |
| | 400-800m | 49 | 47 | 39 | 35 | 2 | 10 | 14 |
| | >800m | 37 | 47 | 39 | 35 | -10 | -2 | 2 |
| Bathampton | 50-100m | 64 | 45 | 35 | 35 | 19 | 29 | 29 |
| | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 |
| | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 |
| Bathurst Bike Park | <50m | 74 | 45 | 35 | 35 | 29 | 39 | 39 |
| | 50-100m | 67 | 45 | 35 | 35 | 22 | 32 | 32 |
| | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 |
| | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 |
| | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 |
| | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 |
| Brewongle | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 |
| | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 |
| | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 |
| | >800m | 37 | 45 | 35 | 35 | -9 | 2 | 2 |
| McPhillamys | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 |
| | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 |
| | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 |
| | 400-800m | 49 | 45 | 35 | 35 | 4 | 14 | 14 |
| | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 |
| Perthville | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 |
| | 50-100m | 64 | 45 | 35 | 35 | 19 | 29 | 29 |
| | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 |
| Portland | <50m | 73 | 45 | 35 | 35 | 28 | 38 | 38 |
| | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 |
| | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 |
| | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 |
| | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 |
| | >800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 |

| Table 18 Predicted Construction Noise Levels – Clearing & Grading (Residential Receivers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Offset from | Noise Level[2] | NML dB $LA_{eq(15min)}$ | | | Level above NML | | |
| Catchment | Pipeline[1] | dB $LA_{eq(15min)}$ | Std | Period 1 | Period 2 | Std | Period 1 | Period 2 |
| Sunny Corner | 50-100m | 68 | 45 | 35 | 35 | 23 | 33 | 33 |
| | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 |
| | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| Yetholme | <50m | 71 | 45/57[3] | 35/42[3] | 35 | 26/14 | 36/29 | 36 |
| | 50-100m | 64 | 45/57[3] | 35/42[3] | 35 | 19/7 | 29/22 | 29 |
| | 100-200m | 61 | 45/57[3] | 35/42[3] | 35 | 16/4 | 26/19 | 26 |
| | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 |

Note 1: Results are shown for offsets containing receivers.

Note 2: Maximum predicted noise level in noise catchment/offset.

Note 3: Different NMLs for receivers adjacent to highway (57/42/35) and those distant from highway (45/35/35).

| Table 19 Predicted Construction Noise Levels – Trenching (Residential Receivers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Offset from | Noise Level[2] | NML dB $LA_{eq(15min)}$ | | | Level above NML | | |
| Catchment | Pipeline[1] | dB $LA_{eq(15min)}$ | Std | Period 1 | Period 2 | Std | Period 1 | Period 2 |
| Angus Place | 100-200m | 63 | 47 | 39 | 35 | 16 | 24 | 28 |
| | 200-400m | 56 | 47 | 39 | 35 | 9 | 17 | 21 |
| | 400-800m | 49 | 47 | 39 | 35 | 2 | 10 | 14 |
| | >800m | 36 | 47 | 39 | 35 | -11 | -3 | 1 |
| Bathampton | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 |
| | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 |
| | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | >800m | 28 | 45 | 35 | 35 | -17 | -7 | -7 |
| Bathurst Bike Park | <50m | 75 | 45 | 35 | 35 | 30 | 40 | 40 |
| | 50-100m | 68 | 45 | 35 | 35 | 23 | 33 | 33 |
| | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 |
| | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 |
| | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 |
| | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 |
| Brewongle | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 |
| | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 |
| | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 |
| | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 |
| McPhillamys | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 |
| | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 |
| | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 |
| | 400-800m | 49 | 45 | 35 | 35 | 4 | 14 | 14 |
| | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 |
| Perthville | <50m | 72 | 45 | 35 | 35 | 27 | 37 | 37 |
| | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 |
| | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 |
| Portland | <50m | 74 | 45 | 35 | 35 | 29 | 39 | 39 |
| | 50-100m | 67 | 45 | 35 | 35 | 22 | 32 | 32 |
| | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 |
| | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | >800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 |

| Table 19 Predicted Construction Noise Levels – Trenching (Residential Receivers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Offset from | Noise Level[2] | NML dB $LA_{eq(15min)}$ | | | Level above NML | | |
| Catchment | Pipeline[1] | dB $LA_{eq(15min)}$ | Std | Period 1 | Period 2 | Std | Period 1 | Period 2 |
| Sunny Corner | 50-100m | 69 | 45 | 35 | 35 | 24 | 34 | 34 |
| | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 |
| | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 |
| | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| Yetholme | <50m | 72 | 45/57[3] | 35/42[3] | 35 | 27/15 | 37/30 | 37 |
| | 50-100m | 65 | 45/57[3] | 35/42[3] | 35 | 20/8 | 30/23 | 30 |
| | 100-200m | 62 | 45/57[3] | 35/42[3] | 35 | 17/5 | 27/20 | 27 |
| | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 |
| | 400-800m | 49 | 45 | 35 | 35 | 4 | 14 | 14 |
| | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 |

Note 1: Results are shown for offsets containing receivers.

Note 2: Maximum predicted noise level in noise catchment/offset.

Note 3: Different NMLs for receivers adjacent to highway (57/42/35) and those distant from highway (45/35/35).

| Table 20 Predicted Construction Noise Levels – Backfill & Restoration (Residential Receivers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Offset from | Noise Level[2] | NML dB $LA_{eq(15min)}$ | | | Level above NML | | |
| Catchment | Pipeline[1] | dB $LA_{eq(15min)}$ | Std | Period 1 | Period 2 | Std | Period 1 | Period 2 |
| Angus Place | 100-200m | 57 | 47 | 39 | 35 | 10 | 18 | 22 |
| | 200-400m | 50 | 47 | 39 | 35 | 3 | 11 | 15 |
| | 400-800m | 43 | 47 | 39 | 35 | -4 | 4 | 8 |
| | >800m | 31 | 47 | 39 | 35 | -16 | -8 | -4 |
| Bathampton | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 |
| | 100-200m | 52 | 45 | 35 | 35 | 7 | 17 | 17 |
| | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 |
| | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 |
| | >800m | 25 | 45 | 35 | 35 | -20 | -10 | -10 |
| Bathurst Bike Park | <50m | 69 | 45 | 35 | 35 | 24 | 34 | 34 |
| | 50-100m | 62 | 45 | 35 | 35 | 17 | 27 | 27 |
| | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 |
| | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 |
| | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 |
| | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 |
| Brewongle | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 |
| | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 |
| | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 |
| | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 |
| McPhillamys | 50-100m | 60 | 45 | 35 | 35 | 15 | 25 | 25 |
| | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 |
| | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 |
| | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 |
| | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 |
| Perthville | <50m | 66 | 45 | 35 | 35 | 21 | 31 | 31 |
| | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 |
| | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 |
| | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 |
| Portland | <50m | 68 | 45 | 35 | 35 | 23 | 33 | 33 |
| | 50-100m | 61 | 45 | 35 | 35 | 16 | 26 | 26 |
| | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 |
| | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 |
| | >800m | 33 | 45 | 35 | 35 | -13 | -3 | -3 |

| Table 20 Predicted Construction Noise Levels – Backfill & Restoration (Residential Receivers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Offset from | Noise Level[2] | NML dB $LA_{eq(15min)}$ | | | Level above NML | | |
| Catchment | Pipeline[1] | dB $LA_{eq(15min)}$ | Std | Period 1 | Period 2 | Std | Period 1 | Period 2 |
| Sunny Corner | 50-100m | 63 | 45 | 35 | 35 | 18 | 28 | 28 |
| | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 |
| | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 |
| | 400-800m | 43 | 45 | 35 | 35 | -3 | 8 | 8 |
| Yetholme | <50m | 66 | 45/57[3] | 35/42[3] | 35 | 21/9 | 31/24 | 31 |
| | 50-100m | 59 | 45/57[3] | 35/42[3] | 35 | 14/2 | 14/17 | 24 |
| | 100-200m | 56 | 45/57[3] | 35/42[3] | 35 | 21/-1 | 31/14 | 21 |
| | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 |
| | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 |
| | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 |

Note 1: Results are shown for offsets containing receivers.

Note 2: Maximum predicted noise level in noise catchment/offset.

Note 3: Different NMLs for receivers adjacent to highway (57/42/35) and those distant from highway (45/35/35).

Note: Bold font identifies exceedance of the NML at receivers.

Note: Bold italics indicates exceedance of the highly affected Noise Management Level (NML).

A review of the results show that construction noise levels for transient activities have the potential to be above the relevant NMLs at most residential receivers in proximity to the work, although for the most part are expected to be only for a short duration (ie either one to two shifts or up to a few days). Notwithstanding, construction noise mitigation measures as outlined in **Section 10** should be considered.

Furthermore, the highly affected $LA_{eq(15min)}$ noise management level of 75dBA is expected to be satisfied at all receivers during all pipeline transient construction activities (clearing and grading, trenching and backfill), however noise levels at some receivers (R108, R121, R613, R167, R172, R223, R226, R260) exceed 70dBA, approaching the highly noise affected threshold. In comparison to the EIS NVIA, the highly affected $LA_{eq(15min)}$ noise management level of 75dBA was satisfied at all receivers except one (identified as R48) which was originally identified as a residential receiver that was later verified as an outbuilding.

## 8.3 Pipeline Construction Results – Static Activities

Predicted noise emissions from static construction activities for Standard Construction Hours and OOH periods, without additional noise mitigation or management measures, have been calculated at several offset distances to determine the buffer distance required to meet the relevant NMLs for each catchment (refer **Figure 7, Figure 8** and **Figure 9**). Predicted noise levels have allowed for propagation due to spherical spreading and attenuation, associated with air absorption and ground absorption.

Results identify that it may not be possible to conduct rock breaking in some areas of the alignment based on the buffer distances required and achieve relevant NMLs. Therefore, where possible or feasible alternative methods should be considered, such as non-explosive rock breaking techniques, including Cardox, Nonex and/or Penetrating Cone Fracture (PCF) (Caldwell, 2005).

Figure 7 Offset Distances for Static Construction Activities – Minimum NML

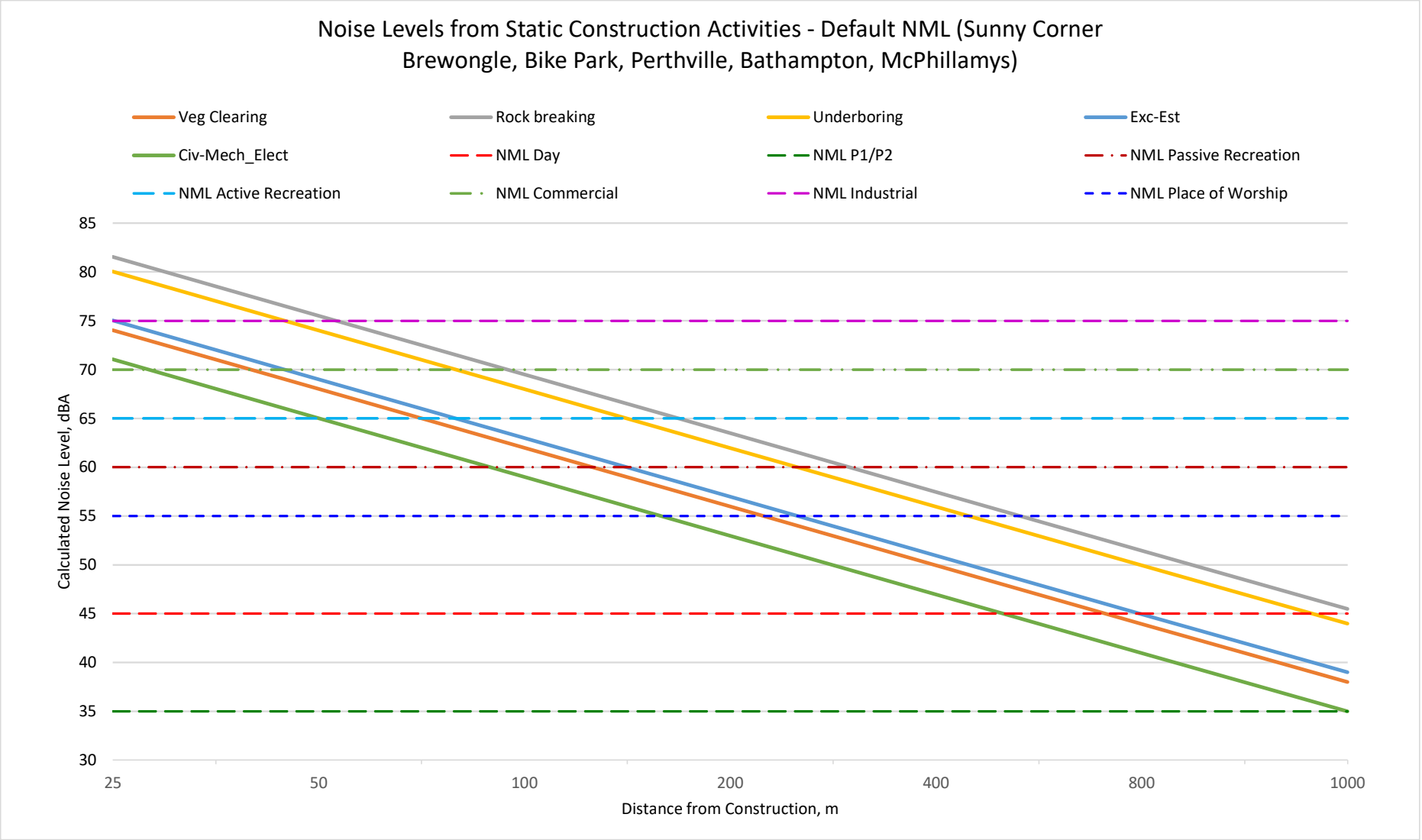


Figure 8 Offset Distances for Static Construction Activities – Yetholme Catchment

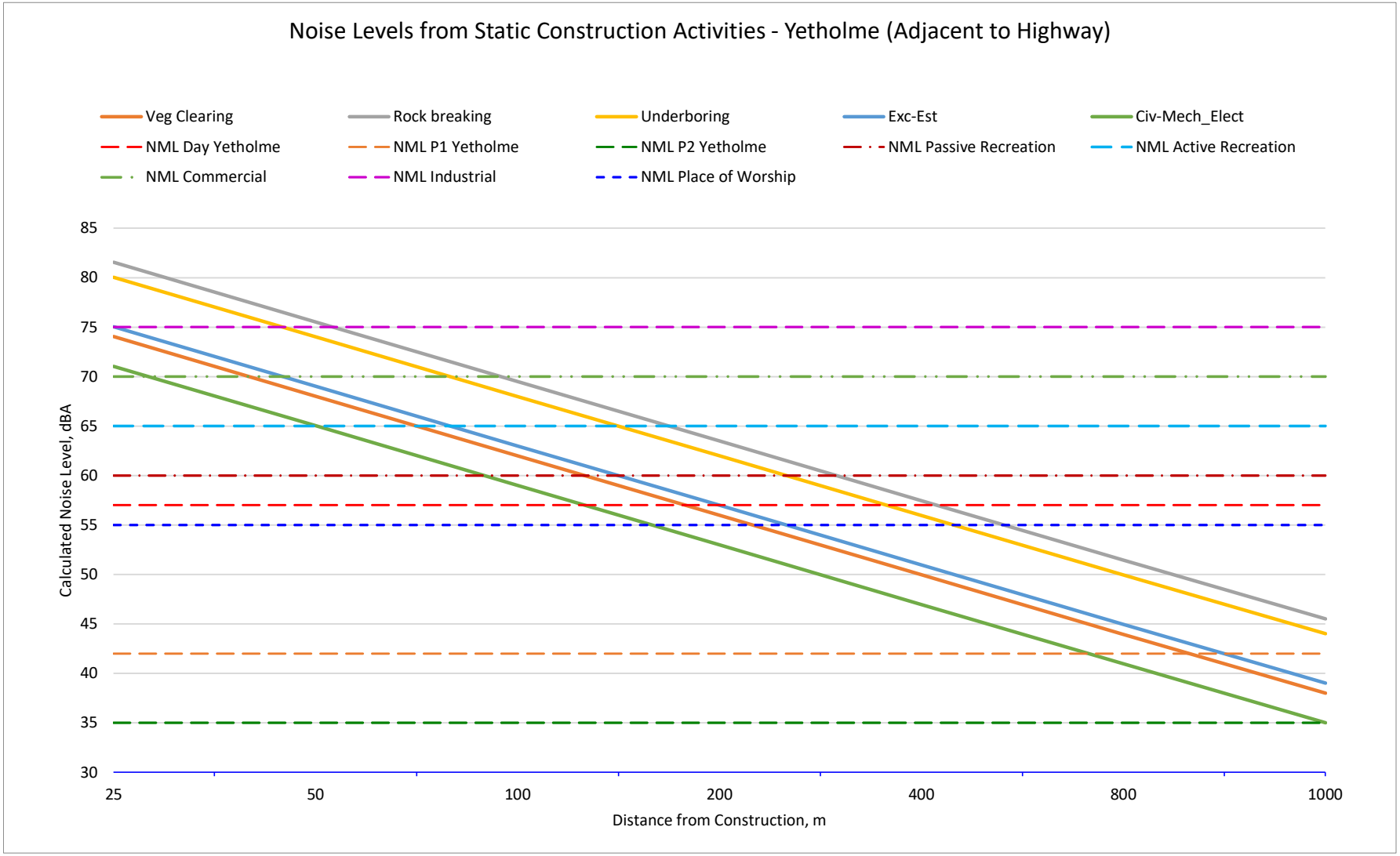
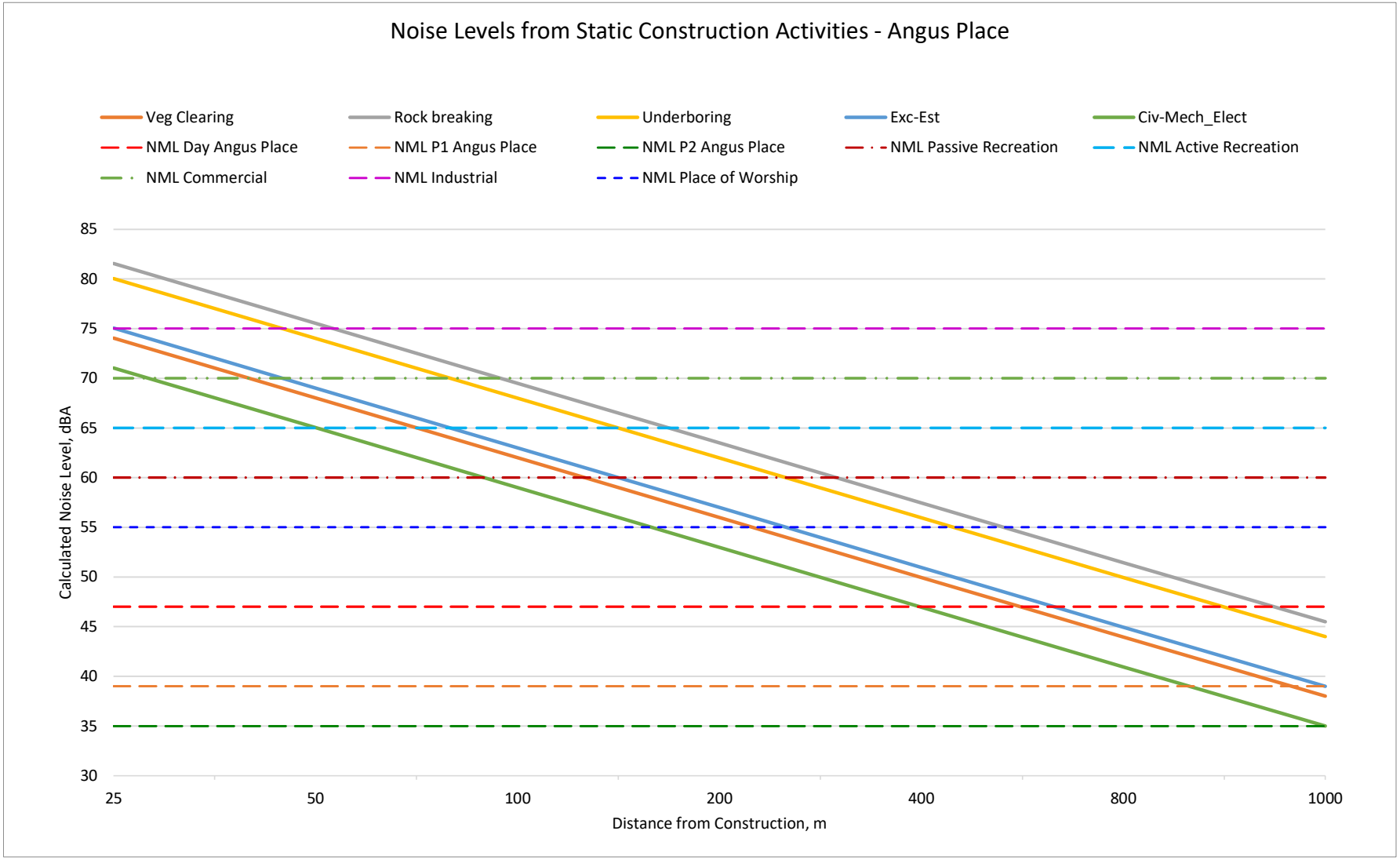


Figure 9 Offset Distances for Static Construction Activities – Angus Place Catchment



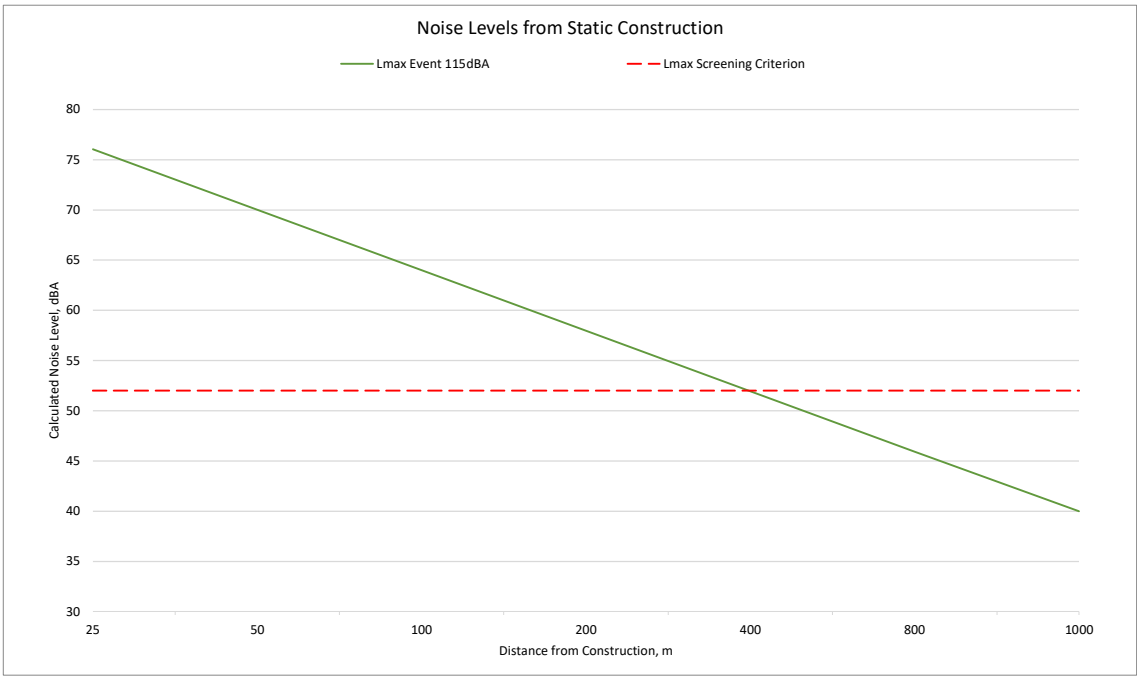
## 8.4 Maximum Noise Level Assessment - Construction

Although OOH works are not specifically planned, there is potential for construction activities during OOH Period 2 (night time) that has potential to generate noise emissions that may cause sleep disturbance at receivers directly adjacent to the construction work.

Therefore, for situations where works may occur during OOH Period 2, calculations have quantified the potential for maximum night time events at various offset distances from the pipeline. Calculations adopted a sound power level of 115dB $L_{Amax}$ to represent emissions from transient sources such as truck tail gate bangs and metallic impacts from equipment. Moderate levels of attenuation, associated with molecular absorption (-3dBA), directivity and ground absorption (-5dBA) were considered in the calculations. The results presented in **Figure 10** show that maximum emissions have the potential to be above the maximum noise assessment trigger levels at receivers within 400m of the works.

Furthermore, it is envisaged that the Pipeline Development would avoid night time works where possible and when required, proactively manage night time noise emissions and implement reasonable and feasible noise control strategies to minimise and where possible, eliminate the occurrence of sleep disturbance within the surrounding locality.

**Figure 10 Offset Distances for Static Construction Activities – Maximum Noise Level Events**



### 8.4.1 Noise Mitigation Measures for Construction

The ICNG provides general guidance on ways to reduce and/or manage noise emissions, whereas the TfNSW Construction Noise Strategy (CNS) outlines specific guidance in the form of triggers relative to the degree of exceedance of the NMLs – the Additional Mitigation Measures (AMM) matrix. The AMM are reproduced in **Table 21** and defined in **Table 22.** The AMM matrix provides a straightforward method for construction managers to consider additional noise mitigation and management measures following the incorporation of feasible and reasonable standard mitigation measures described in **Section 10**.

**Table 21 Triggers for Additional Mitigation Measures - Airborne Noise**

| Time period | | Mitigation measures | | | |
|---|---|---|---|---|---|
| | | $LA_{eq(15min)}$ noise level above background (RBL) | | | |
| | | Qualitative assessment of noise levels | | | |
| | | 0 to 10 dBA Noticeable | 10 to 20 dBA Clearly audible | 20 to 30 dBA Moderately intrusive | > 30 dBA Highly intrusive |
| Standard | Mon-Fri (7am - 6pm)<br>Sat (8am - 1pm)<br>Sun/Pub Hol (Nil) | - | - | LB, M | LB, M |
| OOH Period 1 | Mon-Fri (6pm - 10pm)<br>Sat (7am-8am) & (1pm- 10pm)<br>Sun/Pub Hol (8am - 6pm) | - | LB | M, LB, | M, IB, LB, RO, PC, SN, RO[2] |
| OOH Period 2 | Mon-Fri (10pm - 7am)<br>Sat (10pm - 8am)<br>Sun/Pub Hol (6pm - 7am) | LB | M, LB, RO[2] | M, IB, LB, PC, SN, RO[2] | AA, M, IB, LB, PC, SN, RO |

RO[2]: Respite Offers identified in OOH Period 2 for clearly audible (10 to 20dBA) and moderately intrusive (20 to 30dBA) work shall only apply if works are expected to continue for more than three consecutive evenings for OOH Period 1 or more than two consecutive nights for OOH Period 2.

**Table 22 Additional Mitigation Measures**

| Mitigation Measure | Abbreviation |
|---|---|
| Alternative accommodation | AA |
| Monitoring | M |
| Individual briefings | IB |
| Letter box drops | LB |
| Project specific respite offer | RO |
| Phone calls | PC |
| Specific notifications | SN |

## 8.5 Construction Vibration Impacts

A qualitative assessment of potential vibration impacts has been completed. Due to the nature of the works proposed and distances to receivers, vibration impacts from the Pipeline Development would be negligible.

The Construction Noise Strategy (TfNSW, 2012) sets out safe working distances to achieve the human response criteria for vibration. The key vibration generating source proposed to be used for the Pipeline Development is a vibratory pile driver. For a small hydraulic hammer, the Construction Noise Strategy sets a safe working distance of 7m to achieve the residential human response criteria for continuous vibration. Therefore, as the nearest receivers to the Pipeline Development site are greater than 10m, human exposure to vibration is anticipated to be minimal. Furthermore, where the human response criteria are satisfied, the structural and cosmetic criteria for sensitive receivers will also be achieved. Therefore, vibration impacts are not considered to be a significant issue to the Pipeline Development and has not been considered further in this assessment.

## 8.6 Heritage

Consistent with the EIS NVIA, the pipeline corridor does not intersect the curtilages of the heritage listed items of Leeholme Homestead and outbuildings; Bathampton Homestead; Binalong and Portland General Cemetery and no direct impacts are expected. For Leeholme Homestead and outbuildings the pipeline corridor is on the western side of O'Connell Road, while the homestead is on the eastern side, approximately 400m from the pipeline. Similarly, Bathampton Homestead and Binalong are 250m and 100m from the northern pipeline alignment, respectively.

Portland Cemetery is adjacent to the pipeline corridor and within 25m. If vibration generating equipment is to be used whilst the pipeline construction is adjacent to the cemetery, the safe working distance for the relevant plant item should be sought as outlined in The Construction Noise Strategy (Transport for NSW, 2012). If there is no data pertaining to the type of equipment in use, then vibration monitoring should be undertaken whilst vibration generating works are within 50m (twice the safe working distance for large vibratory roller) of the cemetery.

## 8.7 Construction Road Traffic Noise Impacts

It is anticipated that each activity would consist of construction crews who would travel to and from each specific work area for each shift. The traffic and access impact assessment for the Pipeline Development (Ason, 2019) estimates that at transient worksites (i.e. pipeline construction) an average of 30 truck movements per day or a peak of 14 truck movements per hour would be required. For static worksites (i.e. pumping station facilities) an average of six truck movements per day or a peak of four truck movements per hour would be required. Peak light vehicle movements are estimated to be 16 vehicles per day for transient worksites and nine vehicles per day for static worksites. A worst-case night-time assessment of road noise emissions using the United States (US) Environmental Protection Agency's road traffic calculation for construction generated road traffic would be approximately 44dB $LA_{eq(9hr)}$ at a nominal offset distance of 10m and satisfy relevant night time road noise criteria and not increase existing levels by more than 2dBA and has not been considered further in this assessment.

## 8.8 Construction Blasting Results

Predicted noise emissions from blasting has been calculated at varying offset distances to determine the offset distance required to meet the blasting criteria at the nearest receiver to the blast location.

**Figure 11** and **Figure 12** shows the relationship between distance and the charge weight (MIC) for airblast overpressure and vibration such that blast emissions can be estimated for receivers for when blasting is required, enabling the MIC to be adjusted such that emissions can be managed within ANZECC limits.

Figure 11 Offset Distances for Airblast Overpressure

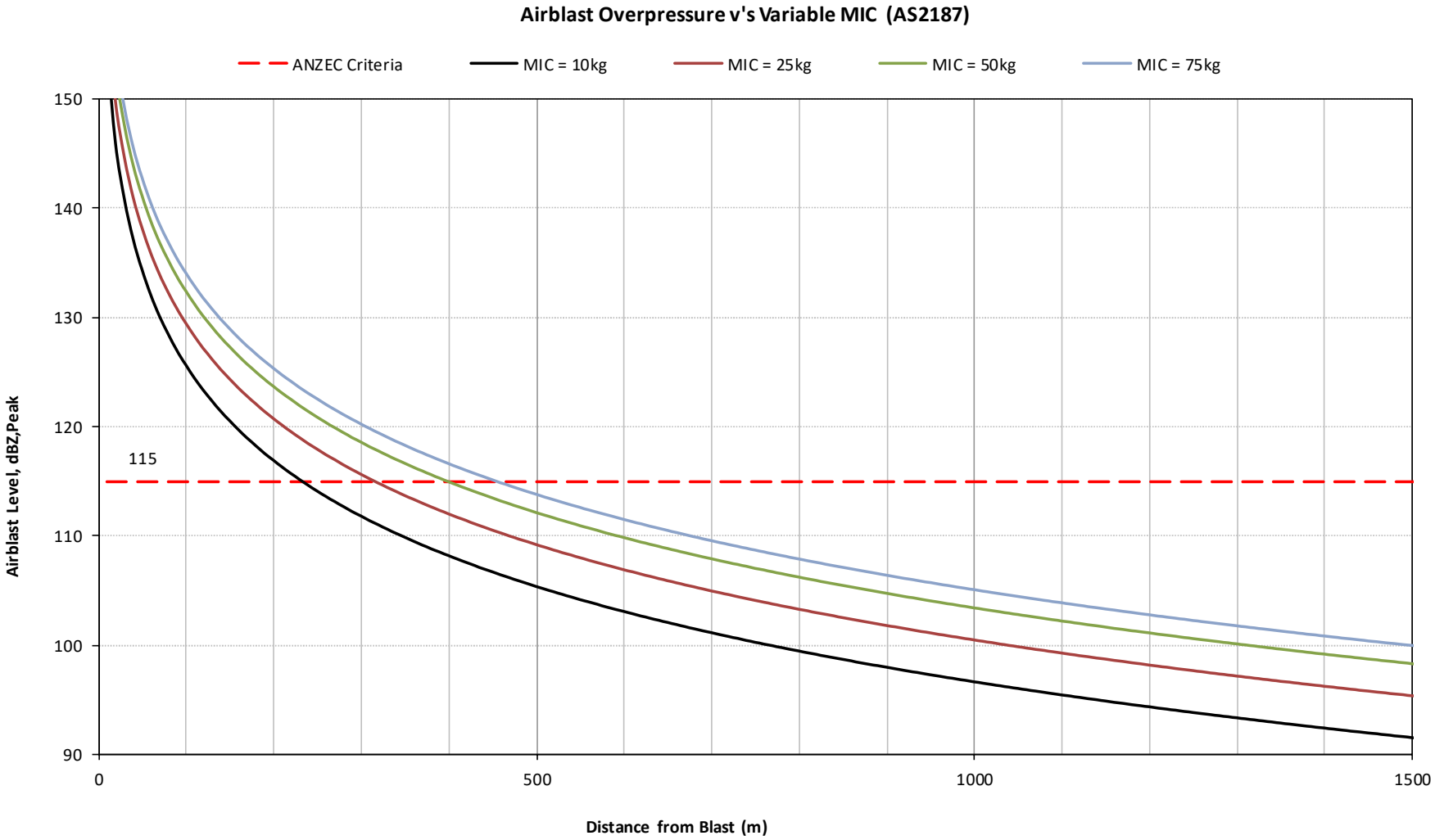
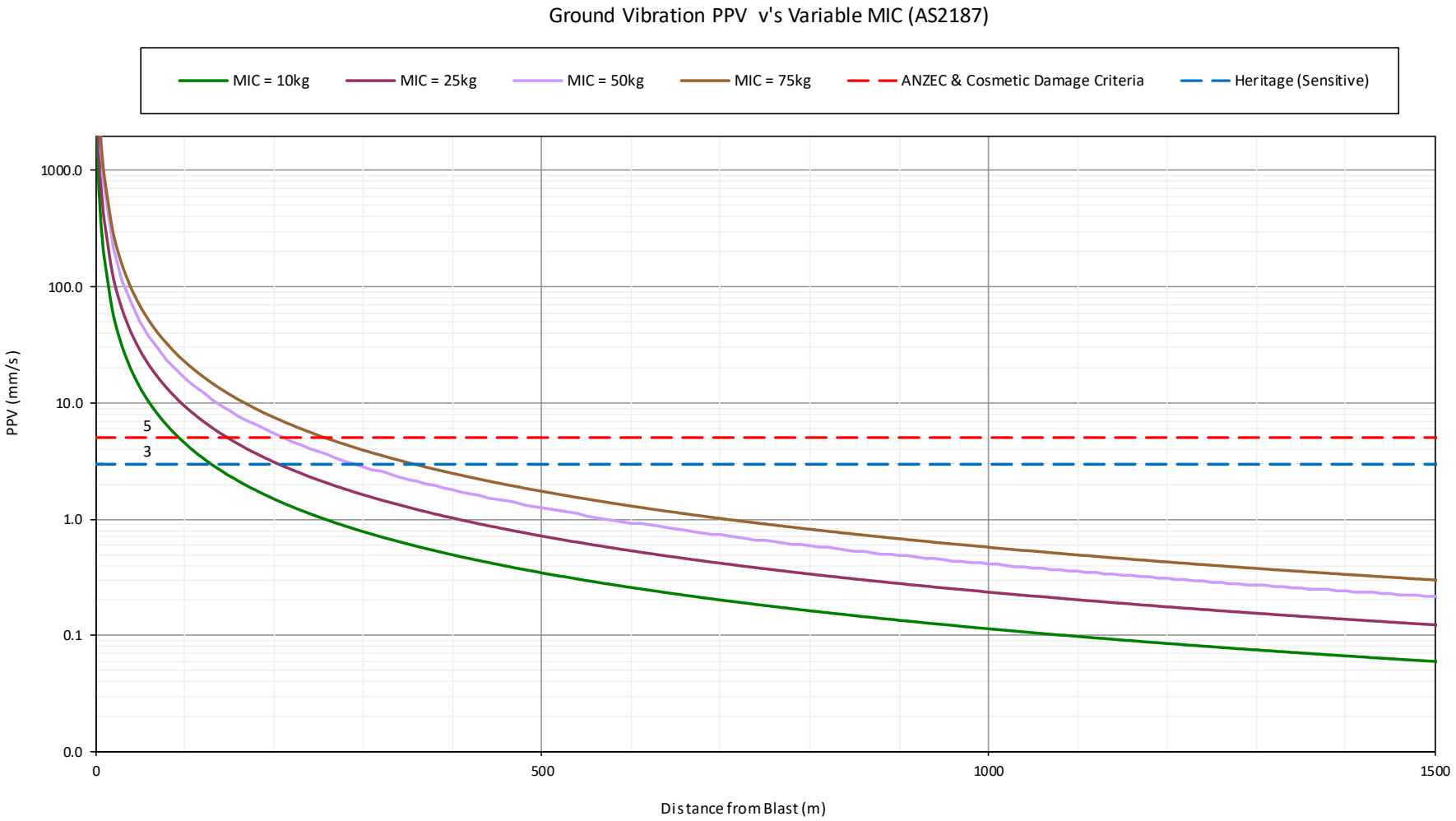


Figure 12 Offset Distances Vibration



# 9 Operational Noise Assessment

Consistent with the EIS NVIA, including the relocated pumping station facility (PS3), noise levels from the operational pump stations, were predicted at identified residential receivers within 1,000m of the four pumping station facilities and the pressure reducing system. Predicted noise emissions are presented in **Figure 13** and demonstrate that the operation of the pumping station facilities and pressure reducing system would satisfy the most conservative night criteria of 35dB $LA_{eq(15min)}$. It is noted that there are no receivers within 850m of the pressure reducing facility.

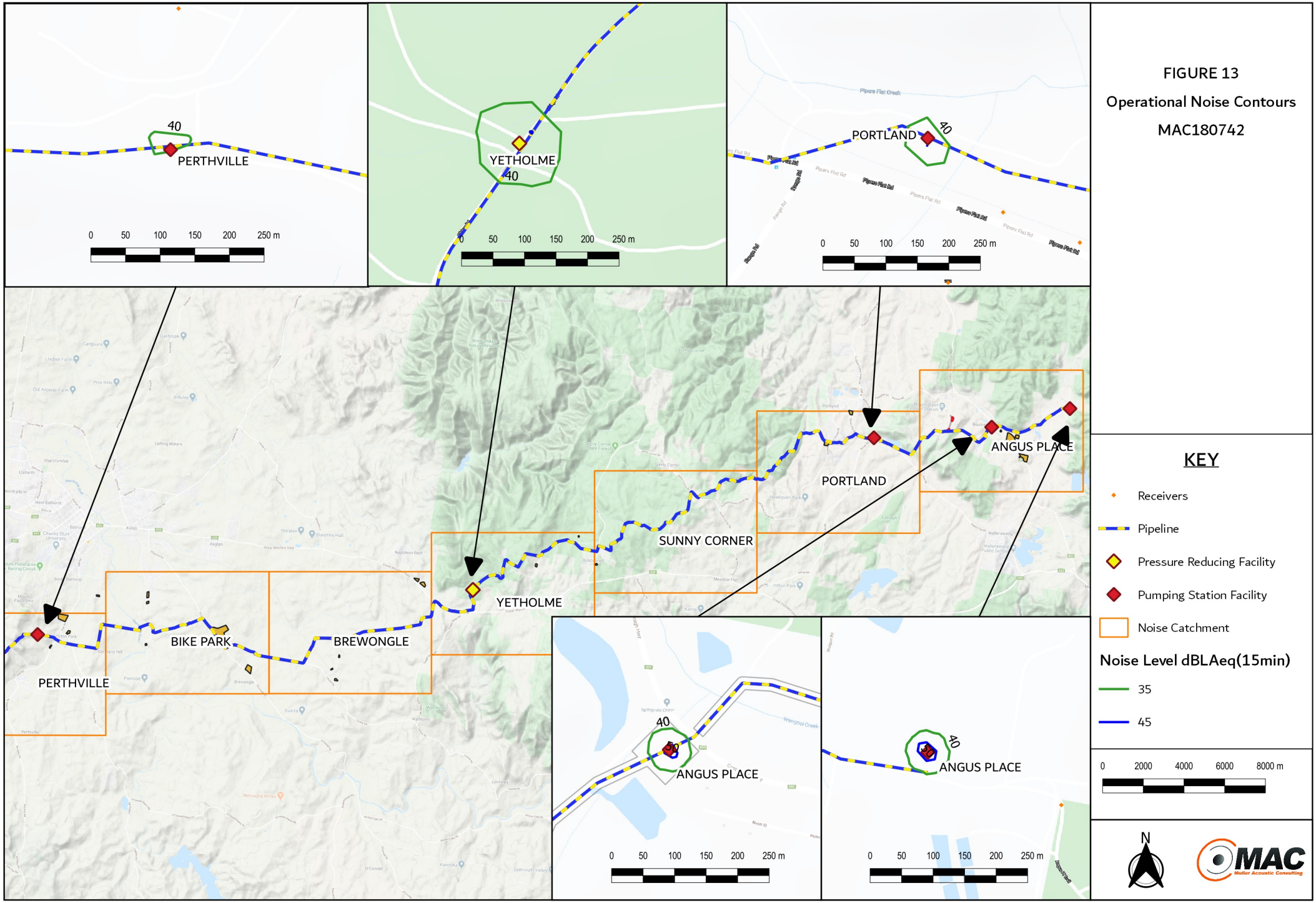



FIGURE 13

Operational Noise Contours

MAC180742

# 10 Noise Mitigation and Management for Construction Activities

Consistent with the EIS NVIA, the results of the assessment indicate that noise levels during construction have the potential to exceed the NMLs at most noise sensitive receivers within 400m of the alignment, although it is expected that during transient activities (clearing and grading, trenching and backfill), exceedances are likely to only occur for one to two shifts. For the static construction activities, such as underboring, exceedances are anticipated to occur for a few shifts during peak construction activities. Notwithstanding, construction noise levels are predicted to satisfy the highly affected $LA_{eq(15min)}$ noise management level of 75dBA at all receivers during all pipeline transient construction activities, however noise levels at some receivers (R108, R121, R613, R167, R172, R223, R226, R260) exceed 70dBA, approaching the highly noise affected threshold.

The primary objective of the Noise Assessment is to provide recommendations regarding noise mitigation and management measures that will minimise noise impacts on surrounding receivers. The pipeline construction manager may adopt the following hierarchical strategy to minimise noise impacts:

- ensure that construction activities meet construction NMLs within standard construction hours as far as practicable;
- where feasible, avoid completing construction activities adjacent to residential receivers between 6pm to 7am (especially Vegetation Clearing and Rock Breaking);
- where noise levels are above relevant noise management levels, implement reasonable and feasible best practice noise controls to minimise noise emissions and/or exposure duration at affected receivers; and
- where the use of best practice noise controls does not adequately address exceedance of noise management levels, adopt alternative measures to minimise impacts on the community.

Australian Standard AS 2436-2010 (R2016) "Guide to Noise Control on Construction, Maintenance and Demolition Sites" sets out numerous practical recommendations to assist in mitigating construction noise emissions. These recommendations include operational strategies, source noise control strategies, noise barrier control strategies, and community consultation.

Standard, and additional Level 1 and Level 2 mitigation measures are described in **Table 23**.

| Table 23 Construction Noise Mitigation and Management Measures | |
|---|---|
| Mitigation Level | Mitigation Measures |
| Standard Mitigation and Management Measures | ▪ Toolbox and induction of personnel prior to shift to discuss noise control measures that may be implemented to reduce noise emissions to surrounding receivers;<br>▪ Training (of employees to conduct quieter work practices);<br>▪ Equipment which is used intermittently is to be shut down when not in use;<br>▪ Where possible, machinery will be located/orientated to direct noise away from the closest sensitive receivers;<br>▪ Undertake regular maintenance of machinery to minimise noise emissions. Maintenance will be confined to standard daytime construction hours and where possible, away from noise sensitive receivers;<br>▪ The quietest suitable machinery reasonably available will be selected for each work activity;<br>▪ Where feasible substitute noisy plant items with a quieter alternative, such as non-explosive rock breaking techniques, including Cardox, Nonex and/or Penetrating Cone Fracture (PCF) (Caldwell, 2005) in lieu of Rock Hammering;<br>▪ Avoid queuing of vehicles adjacent to any receivers;<br>▪ Where practicable, ensure noisy plant/machinery are not working simultaneously in close proximity to receivers;<br>▪ Where possible, all plant are to utilise a broad band reverse alarm in lieu of the traditional hi-frequency type reverse alarm;<br>▪ Minimising the need for reversing or movement alarms. |
| Level 1 Additional Mitigation and Management Measures (Including Standard Level) | ▪ Scheduling of construction activities to minimise the number of work fronts and simultaneous activities occurring to minimise noise levels;<br>▪ Wherever possible, subject to feasibility and reasonability, the quietest plant and equipment should be utilised in combination with management measures to minimise noise impacts;<br>▪ Where vehicle queuing is required, for example due to safety reasons, engines are to be switched off to reduce their overall noise impacts on receivers;<br>▪ Notification of OOH works;<br>▪ Conduct noise monitoring to validate noise emissions are within NMLs. |
| Level 2 Additional Mitigation and Management Measures (Including Level 1) | ▪ Use mobile noise screens (which can achieve noise reductions of up to 8dBA), optimise the positioning of plant and equipment to minimise line of site to receivers or substitute noisy equipment to reduce the noise level at nearby receivers for these activities;<br>▪ Conduct noise monitoring to validate noise emissions are within NMLs;<br>▪ Respite periods;<br>▪ Potential temporary alternative accommodation. |

Employing these strategies could potentially result in noise level reductions ranging:

- Standard – up to 10dB in instances where space requirements place limitations on the attenuation options available;
- Level 1 – potentially up to 20dB depending on mixture of measures and noise sources in operation, location and proximity to receivers;
- Level 2 – potentially over 20dB where the use of enclosures, silencers, etc can be combined with noise barriers and management techniques (eg avoidance of clustering).

Should compliance noise monitoring (see Section 10.2) indicate exceedances of the noise criteria, a combination of comprehensive noise mitigation treatments (i.e. noise barriers, equipment enclosures, silencers, regular equipment maintenance, etc) and consultation with the local community will be considered on a case by case basis to manage exceedances. Further descriptions of management measures and mitigation options are provided for specific construction activities and work areas in the following sections.

## 10.1 Complaints Handling

- Provide a readily accessible contact point, for example, through a toll-free information and complaints line and give complaints a fair hearing.
- Have a documented complaints process, including an escalation procedure so that if a complainant is not satisfied there is a clear path to follow.
- Records of all community complaints will be maintained on an up-to-date complaints register. The records will include:
  - date and time of the complaint;
  - the means by which the complaint was made (telephone, mail or email);
  - any personal details of the complainant that were provided, or if no details are provided, a note to that effect;
  - the nature of the complaint;
  - any actions taken by the site supervisor/construction contractor in relation to the complaint, including any follow up contact with the complainant and the timing for implementing action; and
  - if no action was taken by site supervisor/construction contractor in relation to the complaint, the reason why no action was taken.

- Community complaints will be managed by the onsite Regis representative, who will facilitate the implementation of corrective actions. The details of the complaint will also be circulated to the applicable construction personnel for action, where required.

## 10.2 Noise Monitoring

A noise monitoring program may be considered by the proponent to guide, manage, quantify and control noise emissions from construction activities in the event of community concerns regarding noise emissions or receipt of a formal noise complaint. Where monitoring indicates exceedances, additional mitigation measures and controls may be considered to minimise impacts to nearby sensitive receivers.

The objectives of the noise monitoring program are as follows:

- assess construction noise levels against derived NMLs presented in this report, with consideration given to non-site related ambient and background noise at the time of measurements;
- identify potential noise sources and their relative contribution to noise impacts from construction;
- specify appropriate intervals for noise monitoring to evaluate, assess and report the noise contribution due to construction;
- outline the methodologies to be adopted for monitoring construction noise, including justification for monitoring intervals or triggers, weather conditions, monitoring location selection and timing; and
- incorporate noise management and mitigation strategies outlined in this plan.

The noise measurement procedures employed throughout the monitoring programme shall be guided by the requirements of AS 1055:2018 “Acoustics - Description and Measurement of Environmental Noise” and the EPA’s Noise Policy for Industry (NPI), 2017. Noise monitoring will be undertaken by a suitably qualified acoustic specialist or suitably qualified and trained environment officer.

Operator attended noise measurements and recordings shall be conducted to quantify the intrusive noise emissions from construction as well as the overall level of ambient noise.

The operator shall quantify and characterise the maximum ($L_{Amax}$) and the energy equivalent ($L_{Aeq}$) intrusive noise level from construction over a 15-minute measurement period. In addition, the operator shall quantify and characterise the overall levels of ambient noise over the 15-minute measurement interval. It is recommended that instrumentation used during the monitoring is to be equivalent to a Type 1 meter with 1/3 octave band analysis and have audio recording functionality for post processing source identification. It is noted that 1/3 octave band analysis is required to establish whether modification factors in accordance with the NPI are to be applied.

All acoustic instrumentation used as part of the attended monitoring program must be designed to comply with the requirements of AS/NZS IEC 61672.1-2019, "Electroacoustics - Sound level meters - Specifications" and shall have current NATA or manufacturer calibration certificates. All instrumentation shall be programmed to record continuously statistical noise level indices in 15-minute intervals which may include the $L_{Amax}$, $L_{A1}$, $L_{A5}$, $L_{A10}$, $L_{A90}$, $L_{A99}$, $L_{Amin}$ and the $L_{Aeq}$.

Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA. The measurement position(s) should be selected taking into account:

- weather conditions such as rain and wind, insect noise;
- the location and direction of any noise source/s;
- the most sensitive position at the affected receiver; and
- the need to avoid reflecting surfaces (where possible).

### 10.2.1 Data Presentation and Reporting

The measured $LA_{eq(15min)}$ noise level contributions from construction operations as well as the overall ambient noise levels together with the weather and construction activities at the time of the measurement shall be reported on a regular basis.

In the event of an exceedance of the relevant NMLs, the Construction Manager shall be promptly informed of the location, the margin of exceedance and the source of emission. The noise level, meteorological conditions at the time of the survey and plant operating data shall be documented and forwarded to the Construction Manager so that an appropriate response can be made with respect to conformance.

Reporting of monitoring will include the following:

- monitoring location(s);
- list of operating plant and equipment;
- measured noise and/or vibration levels from construction;
- overall ambient noise levels;
- comparison of results with relevant NMLs;
- monitoring equipment details;
- weather conditions; and
- comments specific to each site.

Compliance reports, discussing compliance against the NMLs, will be prepared and submitted to the Construction Manager as required. Compliance reports will include a summary of the information listed in the preceding sections, specifically issues or non-compliances and the response or management of the issues and non-compliances.

# 11 Discussion and Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has been engaged by EMM on behalf of LFB Resources NL (Regis) to prepare an Amended Noise and Vibration Impact Assessment (ANVIA) for the proposed Pipeline Development, consisting of a 90km pipeline and ancillary infrastructure to transfer raw water from Lithgow to the proposed McPhillamys Mine Site near Blayney, NSW. The ANVIA has quantified potential construction and operational noise emissions from the changes to the Pipeline Development design that have been made since the public exhibition of the EIS and to assess the potential impacts of the Amended Project, compared to those that were presented in the EIS.

Two options for the pipeline alignment are being considered pending finalisation of land access agreements in the Bathampton and McPhillamys catchment areas. The Northern Alignment follows the path of the Mid Western Highway which is relatively flat with good access but is in proximity to numerous receivers whereas the Southern Alignment traversed rural land, encountering more difficult terrain with very few receivers within 1,000m.

The EIS NVIA identified 297 receivers; however, as a result of further ground truthing of receivers, and the revised pipeline alignments (including both the northern and southern option), the receiver list for the pipeline has been updated to a total of 329 receivers. An additional two heritage receivers have also been identified, totalling four.

Consistent with the EIS NVIA, the results of the ANVIA demonstrate that construction noise levels for most activities have the potential to be above the relevant NMLs at most receivers in close proximity to the work, although for the most part are expected to be only for a short duration (ie either one to two shifts or up to a few days). Notwithstanding, construction noise mitigation measures as outlined in Section 10 should be considered to minimise noise impacts. The mitigation measures presented in the EIS NVIA are still applicable and should be applied where practicable.

Furthermore, the highly affected $LA_{eq(15min)}$ noise management level of 75dBA is expected to be satisfied at all receivers during all pipeline construction activities.

Operational noise emissions from the pumping station facilities are anticipated to be negligible at adjacent receivers to each site, although the assessment has assumed each facility is enclosed.

In summary, it is recommended that during construction, noise control and management measures provided in this report are adopted to minimise impacts to surrounding receivers, specifically during noise intensive works when they occur in close proximity to receivers (ie <400m).

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# Appendix A – Glossary of Terms

A number of technical terms have been used in this report and are explained in **Table A1**.

**Table A1 Glossary of Terms**

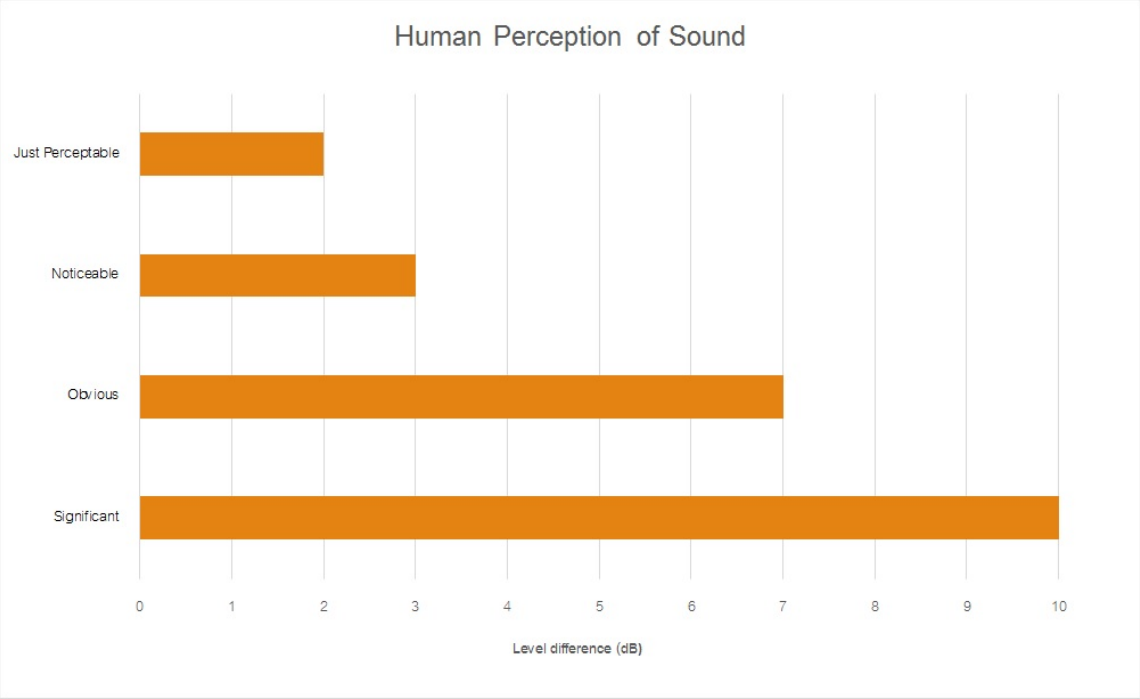
| Term | Description |
|---|---|
| 1/3 Octave | Single octave bands divided into three parts |
| Octave | A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit. |
| ABL | Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels. |
| Ambient Noise | The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant. |
| Extraneous Noise | Noise resulting from activities that are not typical of the area. Atypical activities include sources such as construction and holiday period traffic. |
| A Weighting | A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise. |
| dBA | Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear. |
| dB(Z), dB(L) | Decibels Linear or decibels Z-weighted. |
| Hertz (Hz) | The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz. |
| LA10 | A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels. |
| LA90 | Commonly referred to as the background noise, this is the level exceeded 90% of the time. |
| LAeq,T | The summation of noise over a time period, T. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period. |
| LAmax | The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval. |
| RBL | The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's. |
| Sound Power Level (LW) | This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by :<br>= 10.log10 (W/Wo)<br>Where: W is the sound power in watts and Wo is the sound reference power at $10^{-12}$ Watts. |

**Table A2** provides a list of common noise sources and their typical sound level.

**Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA**

| Source | Typical Sound Pressure Level |
|---|---|
| Threshold of pain | 140 |
| Jet engine | 130 |
| Hydraulic hammer | 120 |
| Chainsaw | 110 |
| Industrial workshop | 100 |
| Lawn-mower (operator position) | 90 |
| Heavy traffic (footpath) | 80 |
| Elevated speech | 70 |
| Typical conversation | 60 |
| Ambient suburban environment | 40 |
| Ambient rural environment | 30 |
| Bedroom (night with windows closed) | 20 |
| Threshold of hearing | 0 |

**Figure A1** – Human Perception of Sound



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# Appendix B – Detailed Receiver List

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| AR01 | Portland | >800m | 70 Irondale Road Portland | Active Recreation | 779939 | 6302097 |
| AR02 | Portland | >800m | Golf Club | Active Recreation | 777507 | 6304670 |
| AR03 | Perthville | 200-400m | Bathurst Cycling Club | Active Recreation | 738600 | 6294051 |
| AR04 | Perthville | 400-800m | Bathurst Light Car Club | Active Recreation | 737835 | 6294430 |
| C01 | Angus Place | 400-800m | Goat Farm | Commercial | 785951 | 6303479 |
| C02 | Portland | 50-100m | Cemetery | Commercial | 776480 | 6303401 |
| C03 | Yetholme | 100-200m | Kirconnell Correctional Centre | Commercial | 764199 | 6298570 |
| C04 | Perthville | 200-400m | The Junktion | Commercial | 737832 | 6294196 |
| C05 | Perthville | >800m | Reid and Sulman Campground | Commercial | 736808 | 6294862 |
| C06 | Bathampton | >800m | Unknown | Commercial | 731331 | 6294917 |
| C07 | Bathampton | >800m | Unknown | Commercial | 731305 | 6294910 |
| C08 | Bathampton | >800m | Unknown | Commercial | 731225 | 6294918 |
| C09 | Bathampton | >800m | Unknown | Commercial | 729100 | 6293353 |
| I01 | Angus Place | 200-400m | Angus Place Colliery | Industrial | 788439 | 6305470 |
| I02 | Angus Place | >800m | Mt Piper Power Station | Industrial | 782080 | 6304805 |
| I03 | Perthville | 400-800m | Omya Australia Pty. Ltd. | Industrial | 738788 | 6294364 |
| I04 | Perthville | 100-200m | Bathurst Community Recycling Centre | Industrial | 737685 | 6294187 |
| PR01 | Angus Place | 200-400m | Newnes State Forest | Passive Recreation | 788654 | 6305014 |
| PR02 | Portland | <50m | Portland Town Common | Passive Recreation | 776109 | 6304013 |
| PR03 | Perthville | 200-400m | Sir Joseph Banks Nature Park | Passive Recreation | 737280 | 6294364 |
| PR04 | McPhillamys | <50m | Vittoria State Forest | Passive Recreation | 719408 | 6293780 |
| R001 | Angus Place | >800m | Unknown | Residential | 788255 | 6304072 |
| R002 | Angus Place | 200-400m | 366 Wolgan Road Lidsdale | Residential | 787721 | 6304642 |
| R003 | Angus Place | 100-200m | Wolgan Road Lidsdale | Residential | 787686 | 6304731 |
| R004 | Angus Place | 400-800m | 224 Wolgan Road Lidsdale | Residential | 787630 | 6304125 |
| R005 | Angus Place | 400-800m | 303 Wolgan Road Lidsdale | Residential | 787437 | 6304150 |
| R006 | Angus Place | 400-800m | 57 View Street Lidsdale | Residential | 786708 | 6303673 |
| R007 | Angus Place | 400-800m | 57 View Street Lidsdale | Residential | 786539 | 6303525 |
| R008 | Angus Place | 400-800m | 61 View Street Lidsdale | Residential | 786473 | 6303264 |
| R009 | Angus Place | >800m | 67 View Street Lidsdale | Residential | 786468 | 6303226 |
| R010 | Angus Place | >800m | 71 View Street Lidsdale | Residential | 786465 | 6303164 |
| R011 | Angus Place | >800m | 68 View Street Lidsdale | Residential | 786399 | 6303200 |
| R012 | Angus Place | 400-800m | 55 View Street Blackmans Flat | Residential | 786353 | 6303336 |
| R013 | Angus Place | 400-800m | 54 View Street Lidsdale | Residential | 786342 | 6303289 |
| R014 | Angus Place | 400-800m | 52 View Street Lidsdale | Residential | 786322 | 6303290 |
| R015 | Angus Place | 400-800m | 51 View Street Blackmans Flat | Residential | 786316 | 6303345 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R016 | Angus Place | 400-800m | 48 View Street Lidsdale | Residential | 786300 | 6303292 |
| R017 | Angus Place | 400-800m | 40 View Street Lidsdale | Residential | 786208 | 6303292 |
| R018 | Angus Place | 400-800m | 36 View Street Lidsdale | Residential | 786163 | 6303308 |
| R019 | Angus Place | >800m | 1434 Castlereagh Highway Lidsdale | Residential | 785984 | 6303108 |
| R020 | Angus Place | 400-800m | View Street Lidsdale | Residential | 785974 | 6303211 |
| R021 | Angus Place | >800m | 1408 Castlereagh Highway Lidsdale | Residential | 785907 | 6302970 |
| R022 | Angus Place | >800m | 1414 Castlereagh Highway Lidsdale | Residential | 785886 | 6303045 |
| R023 | Angus Place | 100-200m | 1470 Castlereagh Highway Blackmans Flat | Residential | 785798 | 6303740 |
| R024 | Angus Place | 200-400m | 1466 Castlereagh Highway Blackmans Flat | Residential | 785776 | 6303647 |
| R025 | Angus Place | >800m | Unknown | Residential | 785743 | 6302934 |
| R026 | Angus Place | 400-800m | 1449 Castlereagh Highway Blackmans Flat | Residential | 785755 | 6303426 |
| R027 | Angus Place | >800m | Unknown | Residential | 785657 | 6302964 |
| R028 | Angus Place | 200-400m | 1549 Castlereagh Highway Blackmans Flat | Residential | 785170 | 6303863 |
| R029 | Angus Place | 200-400m | 1563 Castlereagh Highway Blackmans Flat | Residential | 785075 | 6303829 |
| R030 | Portland | 200-400m | 919 Pipers Flat Road Portland | Residential | 779877 | 6302893 |
| R031 | Portland | >800m | 70 Irondale Road Portland | Residential | 779825 | 6302285 |
| R032 | Portland | >800m | 154 Irondale Road Portland | Residential | 779291 | 6302378 |
| R033 | Portland | 50-100m | Pipers Flat Road Portland | Residential | 779043 | 6303496 |
| R034 | Portland | 50-100m | Pipers Flat Road Portland | Residential | 778921 | 6303544 |
| R035 | Portland | 100-200m | 1024 Pipers Flat Road Portland | Residential | 778833 | 6303432 |
| R036 | Portland | 100-200m | 1043 Pipers Flat Road Portland | Residential | 778167 | 6303544 |
| R037 | Portland | 400-800m | 970 Range Road Portland | Residential | 778130 | 6302976 |
| R038 | Portland | 100-200m | 1146 Pipers Flat Road Portland | Residential | 778141 | 6303937 |
| R039 | Portland | 200-400m | 1148 Pipers Flat Road Portland | Residential | 778077 | 6304081 |
| R040 | Portland | 400-800m | 990 Range Road Portland | Residential | 778030 | 6303013 |
| R041 | Portland | >800m | Pipers Flat Road Portland | Residential | 777990 | 6304781 |
| R042 | Portland | 400-800m | 32 Mary Avenue Portland | Residential | 777873 | 6302913 |
| R043 | Portland | 400-800m | Pipers Flat Road Portland | Residential | 777912 | 6304601 |
| R044 | Portland | >800m | 2 Mary Avenue Portland | Residential | 777837 | 6302666 |
| R045 | Portland | >800m | 30 Mary Avenue Portland | Residential | 777837 | 6302810 |
| R046 | Portland | <50m | John Mackey Drive Portland | Residential | 777785 | 6303806 |
| R047 | Portland | 400-800m | 35 Mary Avenue Portland | Residential | 777747 | 6303026 |
| R048 | Portland | >800m | 12 George Parade Portland | Residential | 777729 | 6302547 |
| R049 | Portland | >800m | 3 Mary Avenue Portland | Residential | 777733 | 6302687 |
| R050 | Portland | 200-400m | 1198 Pipers Flat Road Portland | Residential | 777776 | 6304229 |
| R051 | Portland | 400-800m | 31 Mary Avenue Portland | Residential | 777723 | 6302862 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R052 | Portland | 400-800m | 33 Mary Avenue Portland | Residential | 777713 | 6302962 |
| R053 | Portland | 400-800m | 15 Mary Avenue Portland | Residential | 777693 | 6302792 |
| R054 | Portland | 100-200m | 18 John Mackey Drive Portland | Residential | 777670 | 6303846 |
| R055 | Portland | 100-200m | 34 John Mackey Drive Portland | Residential | 777566 | 6303782 |
| R056 | Portland | >800m | 46 George Parade Portland | Residential | 777499 | 6302611 |
| R057 | Portland | >800m | 48 George Parade Portland | Residential | 777469 | 6302457 |
| R058 | Portland | 400-800m | 47 George Parade Portland | Residential | 777457 | 6302797 |
| R059 | Portland | 100-200m | 56A John Mackey Drive Portland | Residential | 777483 | 6303770 |
| R060 | Portland | >800m | 52 George Parade Portland | Residential | 777403 | 6302530 |
| R061 | Portland | 400-800m | 51 George Parade Portland | Residential | 777397 | 6302745 |
| R062 | Portland | 400-800m | 53 George Parade Portland | Residential | 777373 | 6302648 |
| R063 | Portland | 100-200m | 32 John Mackey Drive Portland | Residential | 777391 | 6303761 |
| R064 | Portland | 400-800m | 67 George Parade Portland | Residential | 777303 | 6302615 |
| R065 | Portland | 200-400m | 58 John Mackey Drive Portland | Residential | 777300 | 6303732 |
| R066 | Portland | >800m | 69 George Parade Portland | Residential | 777241 | 6302537 |
| R067 | Portland | >800m | 71 George Parade Portland | Residential | 777236 | 6302481 |
| R068 | Portland | 100-200m | 62 John Mackey Drive Portland | Residential | 777256 | 6303565 |
| R069 | Portland | 200-400m | 167 Portland Sunny Corner Road Portland | Residential | 777196 | 6303731 |
| R070 | Portland | 400-800m | 44 Sloggetts Lane Portland | Residential | 777138 | 6302869 |
| R071 | Portland | 200-400m | 183 Portland Sunny Corner Road Portland | Residential | 777147 | 6303678 |
| R072 | Portland | 400-800m | 165 Portland Sunny Corner Road Portland | Residential | 777122 | 6303856 |
| R073 | Portland | 400-800m | 147 Portland Sunny Corner Road Portland | Residential | 777099 | 6303934 |
| R074 | Portland | >800m | 38 Ellen Close Portland | Residential | 777032 | 6302592 |
| R075 | Portland | 100-200m | 63 John Mackey Drive Portland | Residential | 777061 | 6303623 |
| R076 | Portland | 400-800m | 132 Portland Sunny Corner Road Portland | Residential | 776998 | 6304110 |
| R077 | Portland | 400-800m | 150 Portland Sunny Corner Road Portland | Residential | 776947 | 6304014 |
| R078 | Portland | 400-800m | 166 Portland Sunny Corner Road Portland | Residential | 776936 | 6303878 |
| R079 | Portland | >800m | 120 Portland Sunny Corner Road Portland | Residential | 776933 | 6304241 |
| R080 | Portland | 100-200m | 203 Portland Sunny Corner Road Portland | Residential | 776910 | 6303525 |
| R081 | Portland | 200-400m | 172 Portland Sunny Corner Road Portland | Residential | 776906 | 6303780 |
| R082 | Portland | 400-800m | 33 Sloggetts Lane Portland | Residential | 776876 | 6302783 |
| R083 | Portland | 100-200m | 183 Portland Sunny Corner Road Portland | Residential | 776890 | 6303544 |
| R084 | Portland | >800m | 34 Ellen Close Portland | Residential | 776856 | 6302512 |
| R085 | Portland | >800m | 112 Portland Sunny Corner Road Portland | Residential | 776874 | 6304284 |
| R086 | Portland | >800m | 104 Portland Sunny Corner Road Portland | Residential | 776839 | 6304349 |
| R087 | Portland | >800m | 35 Ellen Close Portland | Residential | 776783 | 6302603 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R088 | Portland | 200-400m | 180 Portland Sunny Corner Road Portland | Residential | 776808 | 6303775 |
| R089 | Portland | 400-800m | 18 Sloggetts Lane Portland | Residential | 776750 | 6302872 |
| R090 | Portland | 100-200m | 196 Portland Sunny Corner Road Portland | Residential | 776765 | 6303603 |
| R091 | Portland | 400-800m | 23 Ellen Close Portland | Residential | 776734 | 6302611 |
| R092 | Portland | >800m | 22 Ellen Close Portland | Residential | 776709 | 6302516 |
| R093 | Portland | 400-800m | 23 Ellen Close Portland | Residential | 776711 | 6302769 |
| R094 | Portland | >800m | 66 Portland Sunny Corner Road Portland | Residential | 776756 | 6304720 |
| R095 | Portland | 400-800m | 96 Portland Sunny Corner Road Portland | Residential | 776743 | 6304400 |
| R096 | Portland | 400-800m | 90 Portland Sunny Corner Road Portland | Residential | 776726 | 6304452 |
| R097 | Portland | >800m | Unknown | Residential | 776729 | 6304641 |
| R098 | Portland | >800m | 84 Portland Sunny Corner Road Portland | Residential | 776717 | 6304557 |
| R099 | Portland | 400-800m | 98 Portland Sunny Corner Road Portland | Residential | 776692 | 6304333 |
| R100 | Portland | 400-800m | 285 Portland Sunny Corner Road Portland | Residential | 776621 | 6302795 |
| R101 | Portland | <50m | 14 McManus Road Portland | Residential | 776641 | 6303510 |
| R102 | Portland | 100-200m | 202 Portland Sunny Corner Road Portland | Residential | 776642 | 6303666 |
| R103 | Portland | 200-400m | 265 Portland Sunny Corner Road Portland | Residential | 776613 | 6303053 |
| R104 | Portland | 200-400m | 186 Portland Sunny Corner Road Portland | Residential | 776627 | 6303773 |
| R105 | Portland | 400-800m | 269 Portland Sunny Corner Road Portland | Residential | 776578 | 6302978 |
| R106 | Portland | 400-800m | Unknown | Residential | 776583 | 6304046 |
| R107 | Portland | >800m | 313 Portland Sunny Corner Road Portland | Residential | 776527 | 6302532 |
| R108 | Portland | <50m | 22 McManus Road Portland | Residential | 776552 | 6303512 |
| R109 | Portland | 400-800m | 272 Portland Sunny Corner Road Portland | Residential | 776496 | 6302931 |
| R110 | Portland | 50-100m | 32 McManus Road Portland | Residential | 776470 | 6303583 |
| R111 | Portland | 200-400m | Portland Sunny Corner Road Portland | Residential | 776340 | 6303133 |
| R112 | Portland | 200-400m | 66 McManus Road Portland | Residential | 776365 | 6304227 |
| R113 | Portland | 400-800m | Portland Sunny Corner Road Portland | Residential | 776294 | 6302838 |
| R114 | Portland | >800m | 19 Oscar Parade Portland | Residential | 776284 | 6302662 |
| R115 | Portland | 200-400m | Portland Sunny Corner Road Portland | Residential | 776294 | 6303264 |
| R116 | Portland | 50-100m | 54 McManus Road Portland | Residential | 776307 | 6303718 |
| R117 | Portland | 400-800m | Portland Sunny Corner Road Portland | Residential | 776244 | 6303092 |
| R118 | Portland | 400-800m | 32 Oscar Parade Portland | Residential | 776161 | 6302775 |
| R119 | Portland | 200-400m | 141 McManus Road Portland | Residential | 775599 | 6303532 |
| R120 | Portland | <50m | 143 McManus Road Portland | Residential | 775517 | 6303852 |
| R121 | Portland | <50m | 145 McManus Road Portland | Residential | 775516 | 6303918 |
| R122 | Sunny Corner | 200-400m | Unknown | Residential | 772303 | 6301944 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R123 | Sunny Corner | 400-800m | 1068 Portland Sunny Corner Road Meadow Flat | Residential | 771226 | 6300386 |
| R124 | Sunny Corner | 400-800m | 1334 Sunny Corner Road Meadow Flat | Residential | 770624 | 6300245 |
| R125 | Sunny Corner | 400-800m | 1294 Sunny Corner Road Meadow Flat 2795 | Residential | 770618 | 6300493 |
| R126 | Sunny Corner | 200-400m | 1268 Sunny Corner Road Sunny Corner | Residential | 770330 | 6300373 |
| R127 | Sunny Corner | 200-400m | 1243 Sunny Corner Road Sunny Corner | Residential | 770210 | 6301135 |
| R128 | Sunny Corner | 100-200m | 1238 Sunny Corner Road Sunny Corner | Residential | 769931 | 6300731 |
| R129 | Sunny Corner | 200-400m | 1205 Sunny Corner Road Sunny Corner | Residential | 769873 | 6301216 |
| R130 | Sunny Corner | 50-100m | 1226 Sunny Corner Road Sunny Corner | Residential | 769861 | 6300869 |
| R131 | Sunny Corner | 400-800m | 88 Sherwood Road Kirkconnell | Residential | 765998 | 6297383 |
| R132 | Sunny Corner | 100-200m | 176 Sunny Corner Road Kirkconnell | Residential | 765380 | 6298081 |
| R133 | Sunny Corner | 50-100m | 180 Sunny Corner Road Kirkconnell | Residential | 765284 | 6298206 |
| R134 | Sunny Corner | 100-200m | Unknown | Residential | 765214 | 6298521 |
| R135 | Sunny Corner | 200-400m | 137 Sunny Corner Road Kirkconnell | Residential | 765091 | 6297841 |
| R136 | Yetholme | 100-200m | 141 Sunny Corner Road Kirkconnell | Residential | 764916 | 6297952 |
| R137 | Yetholme | >800m | Unknown | Residential | 764853 | 6297128 |
| R138 | Yetholme | 200-400m | 111 Sunny Corner Road Kirkconnell | Residential | 764870 | 6297827 |
| R139 | Yetholme | >800m | 61 Sunny Corner Road Kirkconnell | Residential | 764633 | 6297329 |
| R140 | Yetholme | 400-800m | 226 Barnetts Road Yetholme | Residential | 763234 | 6297695 |
| R141 | Yetholme | 400-800m | 216 Barnetts Road Yetholme | Residential | 763074 | 6297621 |
| R142 | Yetholme | 400-800m | 172 Macabees Road Yetholme | Residential | 762362 | 6297244 |
| R143 | Yetholme | 400-800m | 162 Macabees Road Yetholme | Residential | 762292 | 6297049 |
| R144 | Yetholme | 400-800m | 187 Macabees Road Yetholme | Residential | 762199 | 6297399 |
| R145 | Yetholme | 200-400m | 199 Macabees Road Yetholme | Residential | 762144 | 6297515 |
| R146 | Yetholme | >800m | 137 Macabees Road Yetholme | Residential | 762094 | 6296936 |
| R147 | Yetholme | >800m | 120 Macabees Road Yetholme | Residential | 762074 | 6296723 |
| R148 | Yetholme | 400-800m | 165 Macabees Road Yetholme | Residential | 762056 | 6297238 |
| R149 | Yetholme | 400-800m | Kirk Connell Correctional Centre | Residential | 762007 | 6297148 |
| R150 | Yetholme | 400-800m | 43 Mount Homer Road Yetholme | Residential | 761613 | 6296853 |
| R151 | Yetholme | 200-400m | 129 Mount Homer Road Yetholme | Residential | 761298 | 6297073 |
| R152 | Yetholme | >800m | 107 Slingsbys Road Walang | Residential | 760073 | 6295929 |
| R153 | Yetholme | >800m | 138 Yetholme Drive Walang | Residential | 760022 | 6295534 |
| R154 | Yetholme | >800m | 106 Slingsbys Road Walang | Residential | 759926 | 6295495 |
| R155 | Yetholme | 400-800m | 117 Yetholme Drive Walang | Residential | 759741 | 6295264 |
| R156 | Yetholme | 400-800m | 109 Yetholme Drive Walang | Residential | 759629 | 6295201 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R157 | Yetholme | 400-800m | 3903 Great Western Highway Walang | Residential | 759543 | 6295016 |
| R158 | Yetholme | 200-400m | 59 Slingsbys Road Walang | Residential | 759508 | 6295413 |
| R159 | Yetholme | 200-400m | 77 Yetholme Drive Walang | Residential | 759316 | 6295183 |
| R160 | Yetholme | 400-800m | 43 Timber Ridge Road Walang | Residential | 758903 | 6294596 |
| R161 | Yetholme | >800m | 45 Timber Ridge Road Walang | Residential | 758872 | 6294206 |
| R162 | Yetholme | 400-800m | 15 Timber Ridge Road Walang | Residential | 758843 | 6294754 |
| R163 | Yetholme | <50m | 85 Timber Ridge Road Walang | Residential | 758648 | 6295152 |
| R164 | Yetholme | 50-100m | 3 Timber Ridge Road Walang | Residential | 758556 | 6295001 |
| R165 | Yetholme | 400-800m | 51 Timber Ridge Road Walang | Residential | 758293 | 6294515 |
| R166 | Yetholme | 100-200m | 4023 Great Western Highway Walang | Residential | 758248 | 6295005 |
| R167 | Yetholme | <50m | 4034 Great Western Highway Walang | Residential | 758154 | 6295166 |
| R168 | Yetholme | 400-800m | 3 Yetholme Drive Walang | Residential | 758018 | 6294395 |
| R169 | Yetholme | >800m | 90 Timber Ridge Road Walang | Residential | 757870 | 6294354 |
| R170 | Yetholme | 200-400m | 433 Walang Drive Walang | Residential | 757790 | 6295490 |
| R171 | Yetholme | 400-800m | 435 Walang Drive Walang | Residential | 757794 | 6295784 |
| R172 | Yetholme | <50m | 443 Walang Drive Walang | Residential | 757726 | 6295280 |
| R173 | Yetholme | >800m | 74 Timber Ridge Road Walang | Residential | 757649 | 6294302 |
| R174 | Yetholme | <50m | 421 Walang Drive Walang | Residential | 757555 | 6295412 |
| R175 | Yetholme | 400-800m | 76 Timber Ridge Road Walang | Residential | 757487 | 6294570 |
| R176 | Yetholme | <50m | 409 Walang Drive Walang | Residential | 757454 | 6295516 |
| R177 | Brewongle | 400-800m | 86 Timber Ridge Road Walang | Residential | 756885 | 6294198 |
| R178 | Brewongle | 200-400m | 4179 Great Western Highway Walang | Residential | 756920 | 6295553 |
| R179 | Brewongle | >800m | 281 Walang Drive Walang | Residential | 756729 | 6296436 |
| R180 | Brewongle | 400-800m | 4197 Great Western Highway Walang | Residential | 756615 | 6295760 |
| R181 | Brewongle | >800m | 4217 Great Western Highway Walang | Residential | 756511 | 6296069 |
| R182 | Brewongle | 400-800m | 561 Brewongle Lane Brewongle | Residential | 754495 | 6293507 |
| R183 | Brewongle | 400-800m | 673 Brewongle Lane Glanmire | Residential | 753894 | 6294891 |
| R184 | Brewongle | 400-800m | 673 Brewongle Lane Glanmire | Residential | 752912 | 6293081 |
| R185 | Brewongle | 400-800m | Unknown | Residential | 752721 | 6294474 |
| R186 | Brewongle | >800m | Unknown | Residential | 752534 | 6292768 |
| R187 | Brewongle | >800m | Unknown | Residential | 752521 | 6292911 |
| R188 | Brewongle | 400-800m | 674 Brewongle Lane Brewongle | Residential | 752006 | 6293050 |
| R189 | Brewongle | 100-200m | 390 Tarana Road Brewongle | Residential | 750608 | 6292482 |
| R190 | Brewongle | 100-200m | 380 Tarana Road Brewongle | Residential | 750405 | 6292522 |
| R191 | Brewongle | 400-800m | 315 Tarana Road Brewongle | Residential | 750075 | 6293316 |
| R192 | Brewongle | 100-200m | 264 Tarana Road Brewongle | Residential | 749334 | 6292666 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R193 | Bike Park | 50-100m | 142 Wests Lane Brewongle | Residential | 748835 | 6292828 |
| R194 | Bike Park | 400-800m | 3306 O'Connell Road Brewongle | Residential | 748333 | 6292281 |
| R195 | Bike Park | >800m | 3390 O'Connell Road Brewongle | Residential | 748031 | 6292203 |
| R196 | Bike Park | >800m | 3413 O'Connell Road Brewongle | Residential | 747911 | 6292187 |
| R197 | Bike Park | >800m | 3423 O'Connell Road Brewongle | Residential | 747785 | 6292266 |
| R198 | Bike Park | 200-400m | 72 Tarana Road Brewongle | Residential | 747548 | 6293201 |
| R199 | Bike Park | >800m | 3443 O'Connell Road Brewongle | Residential | 747480 | 6292431 |
| R200 | Bike Park | 400-800m | 3664 O'Connell Road Brewongle | Residential | 746830 | 6294200 |
| R201 | Bike Park | 200-400m | 3664 O'Connell Road Brewongle | Residential | 746150 | 6293944 |
| R202 | Bike Park | >800m | 3786 O'Connell Road Kelso | Residential | 746109 | 6295610 |
| R203 | Bike Park | 400-800m | 3792 O'Connell Road Kelso | Residential | 746090 | 6295299 |
| R204 | Bike Park | 200-400m | 3740 O'Connell Road Kelso | Residential | 745954 | 6294915 |
| R205 | Bike Park | 400-800m | 3790 O'Connell Road Kelso | Residential | 745868 | 6295511 |
| R206 | Bike Park | 100-200m | 3733 O'Connell Road Kelso | Residential | 745769 | 6294624 |
| R207 | Bike Park | 200-400m | 3765 O'Connell Road Kelso | Residential | 745587 | 6294958 |
| R208 | Bike Park | 200-400m | 3711 O'Connell Road Kelso | Residential | 745489 | 6294239 |
| R209 | Bike Park | 400-800m | 3805 O'Connell Road Kelso | Residential | 745409 | 6295377 |
| R210 | Bike Park | 400-800m | 3699 O'Connell Road Kelso | Residential | 745372 | 6294057 |
| R211 | Bike Park | 400-800m | 3819 O'Connell Road Kelso | Residential | 744816 | 6294958 |
| R212 | Bike Park | 400-800m | 3821 O'Connell Road Kelso | Residential | 744593 | 6295202 |
| R213 | Bike Park | 100-200m | 108 Thompsons Hill Retreat White Rock | Residential | 744415 | 6294153 |
| R214 | Bike Park | 50-100m | Unknown | Residential | 744372 | 6294366 |
| R215 | Bike Park | 100-200m | Unknown | Residential | 744201 | 6294437 |
| R216 | Bike Park | 200-400m | Unknown | Residential | 743880 | 6294442 |
| R217 | Bike Park | >800m | 589 White Rock Road White Rock | Residential | 743825 | 6293235 |
| R218 | Bike Park | 200-400m | 503 White Rock Road White Rock | Residential | 743613 | 6293883 |
| R219 | Bike Park | 100-200m | 473 White Rock Road White Rock | Residential | 743497 | 6294365 |
| R220 | Bike Park | 200-400m | 451 White Rock Road White Rock | Residential | 743505 | 6294738 |
| R221 | Bike Park | 200-400m | 527 White Rock Road White Rock | Residential | 743445 | 6293787 |
| R222 | Bike Park | 100-200m | 457 White Rock Road White Rock | Residential | 743450 | 6294485 |
| R223 | Bike Park | <50m | 475 White Rock Road White Rock | Residential | 743397 | 6294193 |
| R224 | Bike Park | 400-800m | 531 White Rock Road White Rock | Residential | 743376 | 6293405 |
| R225 | Bike Park | 200-400m | 429 White Rock Road White Rock | Residential | 743353 | 6294627 |
| R226 | Bike Park | <50m | 472 White Rock Road White Rock | Residential | 743331 | 6294274 |
| R227 | Bike Park | 200-400m | 526 White Rock Road White Rock | Residential | 743180 | 6293825 |
| R228 | Bike Park | 400-800m | 535 White Rock Road White Rock | Residential | 743169 | 6293579 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R229 | Bike Park | 400-800m | 587 White Rock Road White Rock | Residential | 743130 | 6293516 |
| R230 | Bike Park | >800m | 297 White Rock Road White Rock | Residential | 743115 | 6295335 |
| R231 | Bike Park | 400-800m | 569 White Rock Road White Rock | Residential | 743007 | 6293432 |
| R232 | Bike Park | 400-800m | 567 White Rock Road White Rock | Residential | 742971 | 6293503 |
| R233 | Bike Park | 400-800m | 323 White Rock Road White Rock | Residential | 742959 | 6294874 |
| R234 | Bike Park | 400-800m | 351 White Rock Road White Rock | Residential | 742699 | 6295018 |
| R235 | Bike Park | 400-800m | 358 White Rock Road White Rock | Residential | 742616 | 6295015 |
| R236 | Bike Park | 400-800m | 356 White Rock Road White Rock | Residential | 742507 | 6294992 |
| R237 | Bike Park | 50-100m | 162 Montavella Road Gormans Hill | Residential | 742398 | 6294129 |
| R238 | Bike Park | >800m | 100 Montavella Road Gormans Hill | Residential | 742003 | 6293337 |
| R239 | Bike Park | 100-200m | 116 Montavella Road Gormans Hill | Residential | 741903 | 6294153 |
| R240 | Bike Park | 100-200m | 79 Montavella Road Gormans Hill | Residential | 741819 | 6294529 |
| R241 | Bike Park | 100-200m | 80 Montavella Road Gormans Hill | Residential | 741660 | 6294154 |
| R242 | Bike Park | 400-800m | 100 Montavella Road Gormans Hill | Residential | 741612 | 6293570 |
| R243 | Bike Park | >800m | Unknown | Residential | 741591 | 6293451 |
| R244 | Bike Park | >800m | Unknown | Residential | 741573 | 6293369 |
| R245 | Bike Park | >800m | Unknown | Residential | 741509 | 6293284 |
| R246 | Bike Park | 400-800m | Unknown | Residential | 741446 | 6293535 |
| R247 | Bike Park | 200-400m | 78 Montavella Road Gormans Hill | Residential | 741455 | 6293995 |
| R248 | Bike Park | 400-800m | Unknown | Residential | 741411 | 6293425 |
| R249 | Bike Park | 400-800m | 44 Montavella Road Gormans Hill | Residential | 741351 | 6293985 |
| R250 | Bike Park | 400-800m | 42 Montavella Road Gormans Hill | Residential | 741233 | 6293928 |
| R251 | Bike Park | 200-400m | 40 Montavella Road Gormans Hill | Residential | 741195 | 6294093 |
| R252 | Bike Park | 400-800m | 38 Montavella Road Gormans Hill | Residential | 741148 | 6293929 |
| R253 | Bike Park | <50m | 34 Montavella Road Gormans Hill | Residential | 741124 | 6294407 |
| R254 | Perthville | >800m | Unknown | Residential | 740733 | 6292523 |
| R255 | Perthville | 400-800m | 286 Gormans Hill Road Gormans Hill | Residential | 740753 | 6294976 |
| R256 | Perthville | 50-100m | Unknown | Residential | 740575 | 6293576 |
| R257 | Perthville | 200-400m | 372 Gormans Hill Road Gormans Hill | Residential | 740478 | 6294530 |
| R258 | Perthville | >800m | 173 Lagoon Road Orton Park | Residential | 739766 | 6292604 |
| R259 | Perthville | 400-800m | 135 Lagoon Road Orton Park | Residential | 739740 | 6292870 |
| R260 | Perthville | <50m | 85 Lagoon Road Orton Park | Residential | 739375 | 6293518 |
| R261 | Perthville | 400-800m | 30 Lagoon Road Orton Park | Residential | 739326 | 6294264 |
| R262 | Perthville | 400-800m | 29 Lagoon Road Orton Park | Residential | 739188 | 6294059 |
| R263 | Perthville | >800m | 188 Lagoon Road Perthville | Residential | 739133 | 6292565 |
| R264 | Perthville | 200-400m | 46 Lagoon Road Orton Park | Residential | 739108 | 6293824 |

## Table B1 – Detailed Receiver List

| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
|---|---|---|---|---|---|---|
| | | | | | X | Y |
| R265 | Perthville | 200-400m | Unknown | Residential | 738882 | 6293183 |
| R266 | Perthville | 400-800m | 720 Vale Road Orton Park | Residential | 738290 | 6293379 |
| R267 | Perthville | >800m | 752 Vale Road Perthville | Residential | 737977 | 6293101 |
| R268 | Perthville | >800m | 402 Conrod Straight Mt Panorama | Residential | 737969 | 6294820 |
| R269 | Perthville | >800m | 750 Vale Road Perthville | Residential | 737882 | 6293136 |
| R270 | Perthville | >800m | 404 Conrod Straight Mt Panorama | Residential | 737831 | 6294884 |
| R271 | Perthville | >800m | Hen and Chicken Lane Perthville | Residential | 737092 | 6292717 |
| R272 | Perthville | >800m | Unknown | Residential | 736361 | 6292362 |
| R273 | Perthville | 400-800m | 280 Hen and Chicken Lane Perthville | Residential | 735216 | 6293661 |
| R274 | Perthville | >800m | Unknown | Residential | 733602 | 6293884 |
| R275 | Perthville | >800m | Unknown | Residential | 733586 | 6293982 |
| R276 | Bathampton | 400-800m | Unknown | Residential | 731497 | 6294600 |
| R277 | Bathampton | 100-200m | Unknown | Residential | 730662 | 6294955 |
| R278 | Bathampton | 200-400m | Unknown | Residential | 729992 | 6294263 |
| R279 | Bathampton | 100-200m | Unknown | Residential | 729749 | 6294717 |
| R280 | Bathampton | 400-800m | Unknown | Residential | 729616 | 6295075 |
| R281 | Bathampton | 200-400m | Unknown | Residential | 729235 | 6293622 |
| R282 | Bathampton | 400-800m | Unknown | Residential | 729191 | 6293028 |
| R283 | Bathampton | 200-400m | Unknown | Residential | 729186 | 6293493 |
| R284 | Bathampton | 400-800m | Unknown | Residential | 729034 | 6294261 |
| R285 | Bathampton | 400-800m | Unknown | Residential | 728957 | 6293064 |
| R286 | Bathampton | 400-800m | Unknown | Residential | 728915 | 6294283 |
| R287 | Bathampton | >800m | Unknown | Residential | 728684 | 6292565 |
| R288 | Bathampton | 50-100m | Unknown | Residential | 728500 | 6293357 |
| R289 | Bathampton | 100-200m | Unknown | Residential | 728144 | 6293680 |
| R290 | Bathampton | 100-200m | Unknown | Residential | 728062 | 6293282 |
| R291 | Bathampton | 200-400m | Unknown | Residential | 727578 | 6293039 |
| R292 | Bathampton | 200-400m | Unknown | Residential | 726962 | 6292674 |
| R293 | Bathampton | 200-400m | Unknown | Residential | 726221 | 6292466 |
| R294 | Bathampton | 400-800m | Unknown | Residential | 725594 | 6293644 |
| R295 | McPhillamy | >800m | 2021 Mid Western Highway Bathampton | Residential | 724472 | 6291805 |
| R296 | McPhillamy | >800m | Unknown | Residential | 724100 | 6291906 |
| R297 | McPhillamy | >800m | 2021 Mid Western Highway Bathampton | Residential | 724056 | 6291870 |
| R298[1] | McPhillamy | 400-800m | 2082 Mid Western Highway Bathampton | Residential | 723634 | 6291741 |
| R299[1] | McPhillamy | 400-800m | Unknown | Residential | 723596 | 6291676 |
| R300[1] | McPhillamy | 50-100m | 2145 Mid Western Highway Bathampton | Residential | 723499 | 6290989 |

| Table B1 – Detailed Receiver List | | | | | | |
|---|---|---|---|---|---|---|
| ID | Noise Catchment | Offset | Address/ Description | Type | Coordinates (MGA55) | |
| | | | | | X | Y |
| R301 | McPhillamy | >800m | Unknown | Residential | 723386 | 6293006 |
| R302 | McPhillamy | 400-800m | 2086 Mid Western Highway Bathampton | Residential | 722814 | 6291912 |
| R303 | McPhillamy | 400-800m | 2086 Mid Western Highway Bathampton | Residential | 722734 | 6290610 |
| R304 | McPhillamy | 100-200m | Unknown | Residential | 722674 | 6292470 |
| R305 | McPhillamy | 400-800m | Unknown | Residential | 720522 | 6293002 |
| R306 | McPhillamy | 200-400m | 441 Pounds Lane Fitzgeralds Mount | Residential | 719897 | 6293868 |
| R307 | McPhillamy | 200-400m | Unknown | Residential | 719848 | 6293893 |
| W01 | Perthville | 200-400m | Private Church | Place of worship | 740533 | 6294451 |

Note 1: Receivers affected by either the northern or southern pipeline alignment

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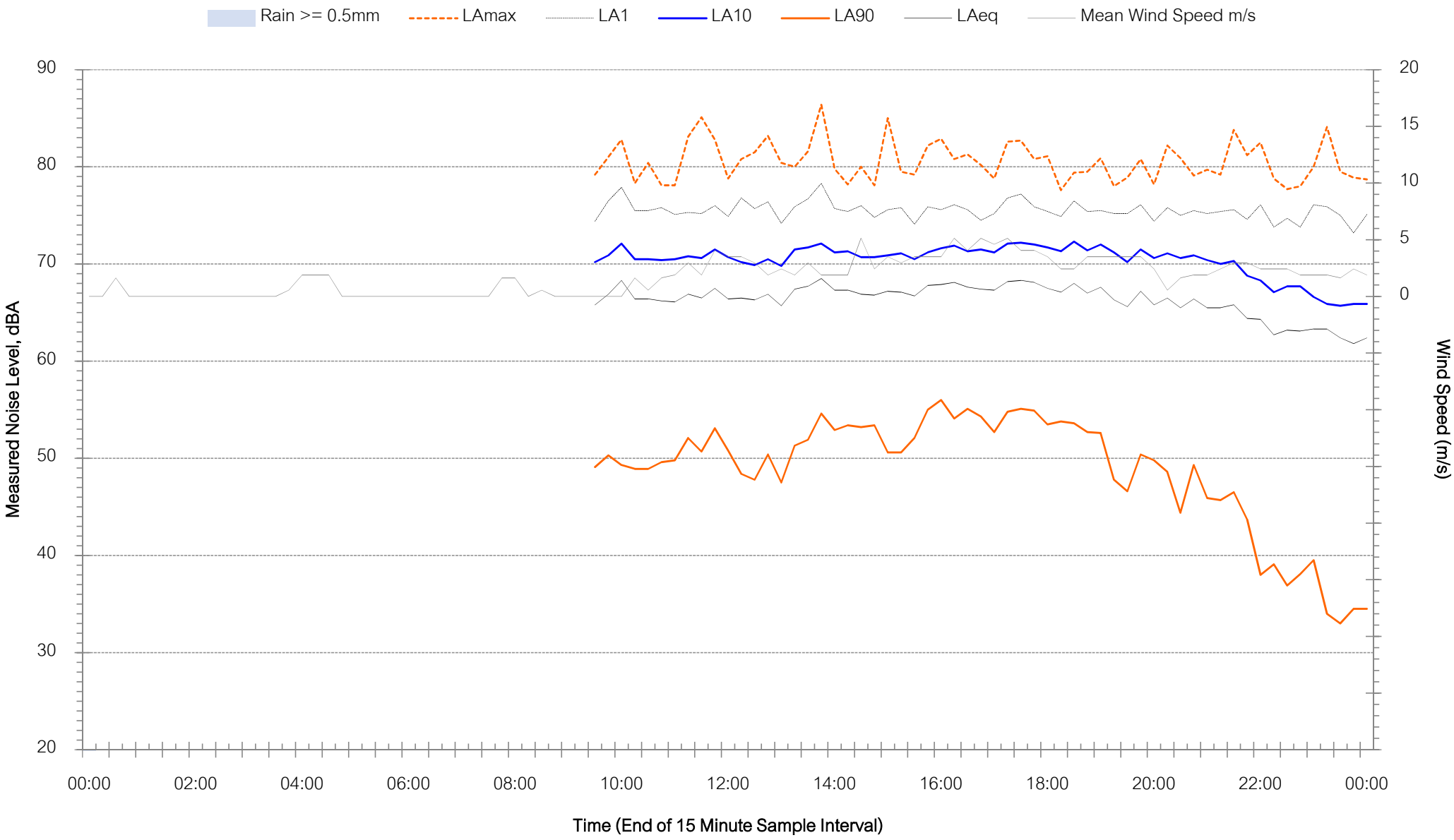
# Appendix C – Noise Monitoring Charts

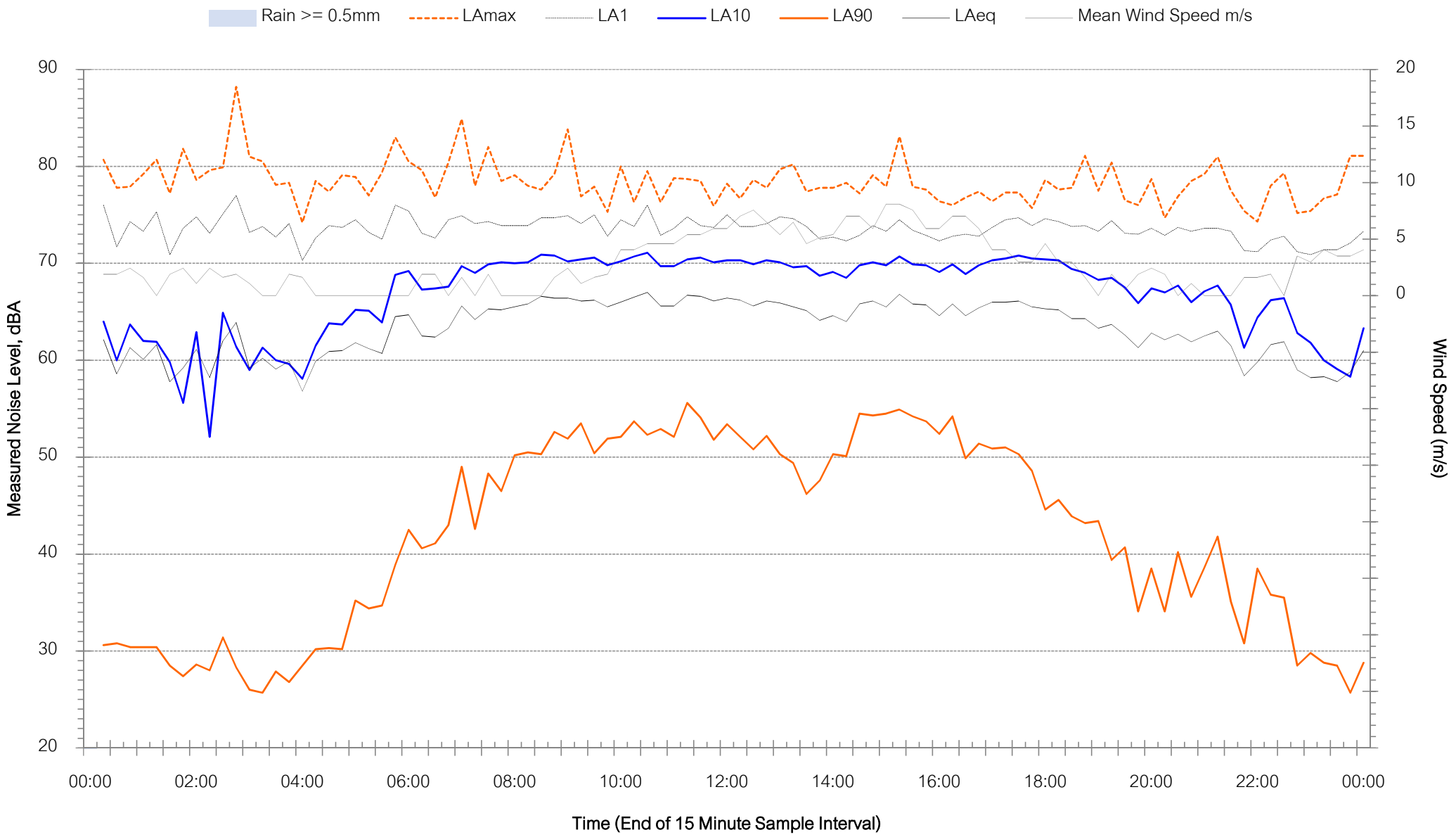
# Background Noise Levels

## Location - NM0 - Friday 19 October 2018



# Background Noise Levels

## Location - NM0 - Saturday 20 October 2018

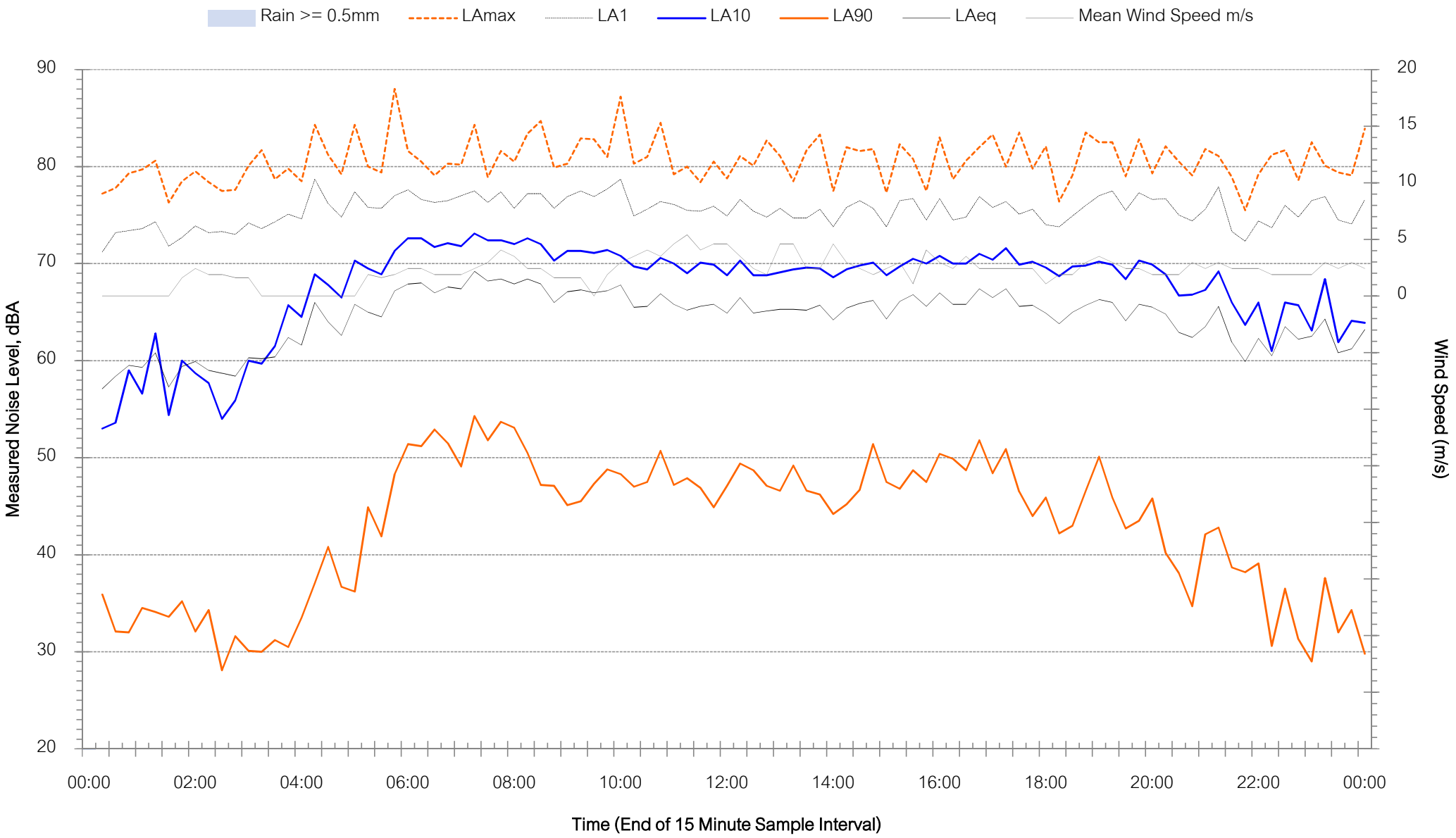


# Background Noise Levels

## Location - NM0 - Sunday 21 October 2018

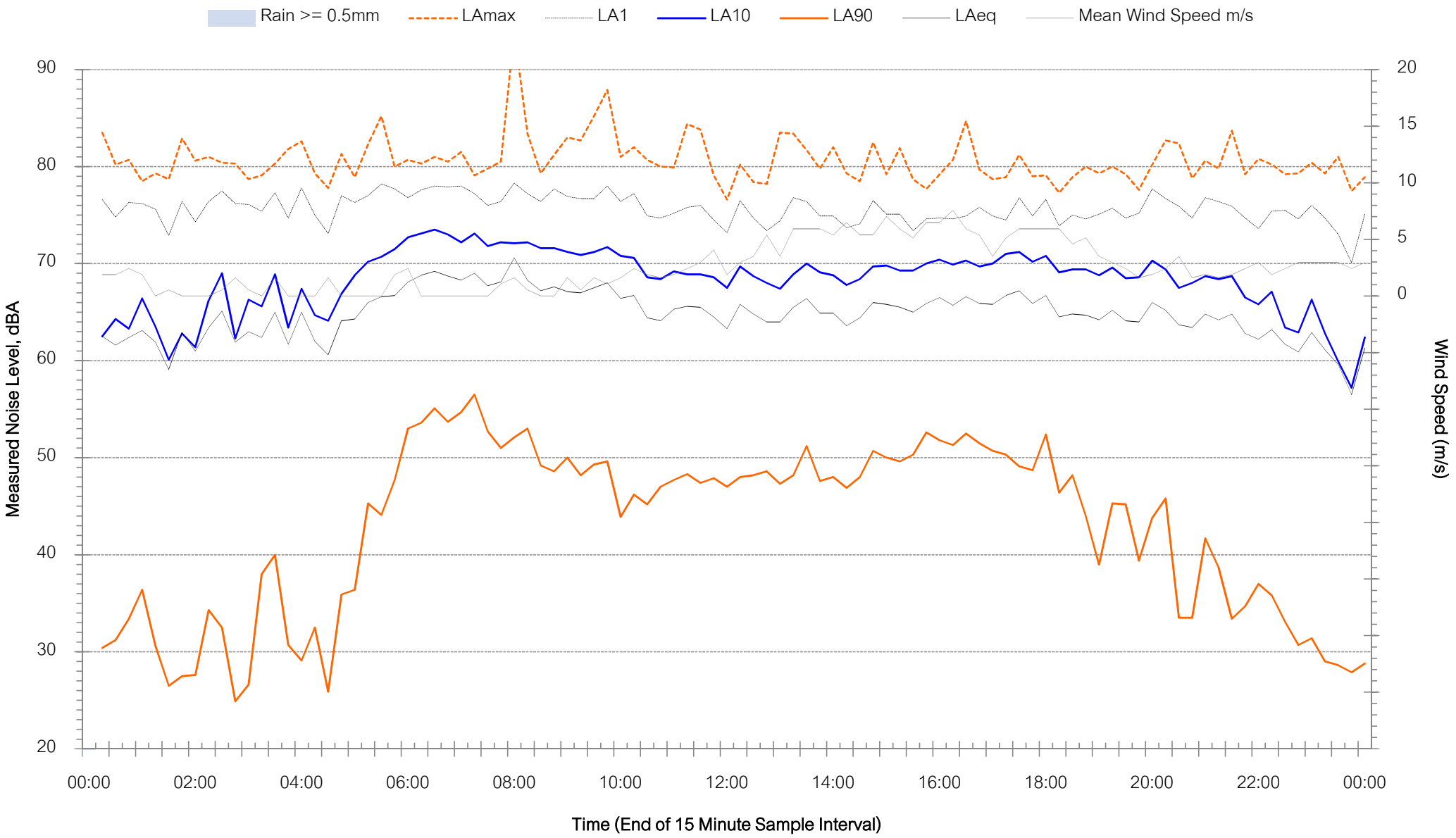
# Background Noise Levels

## Location - NM0 - Monday 22 October 2018



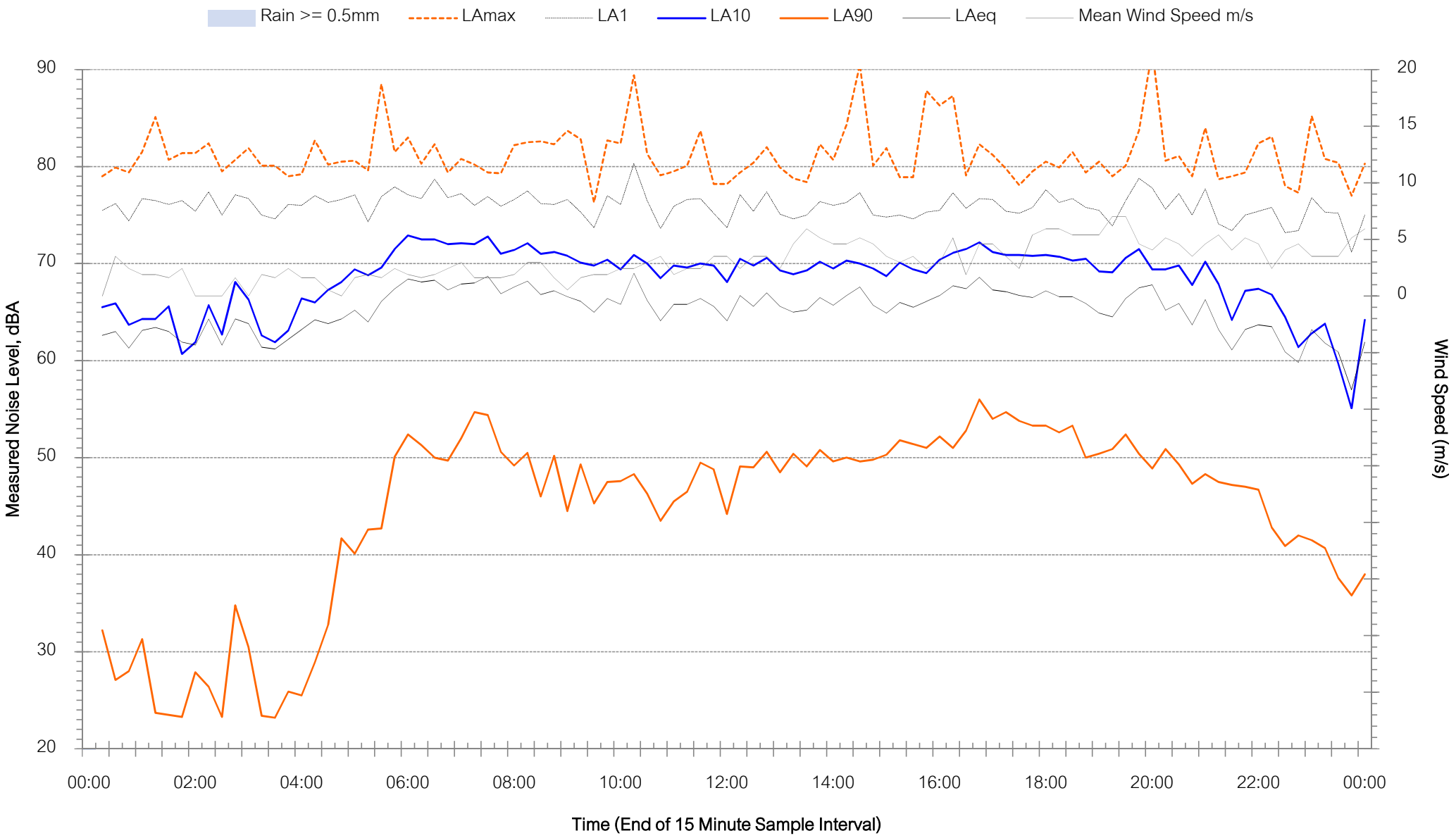
# Background Noise Levels

## Location - NM0 - Tuesday 23 October 2018



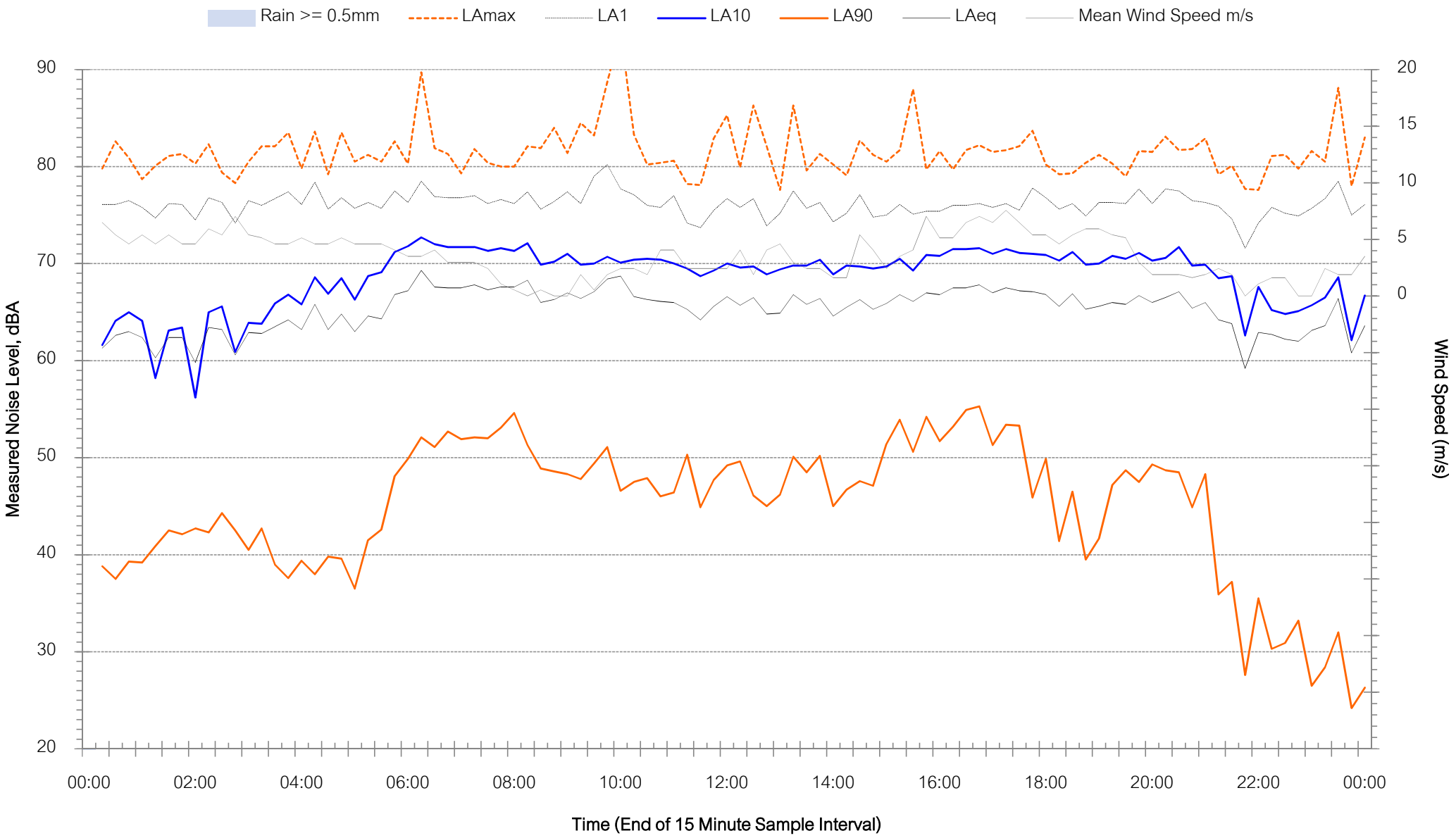
# Background Noise Levels

## Location - NM0 - Wednesday 24 October 2018



# Background Noise Levels

## Location - NM0 - Thursday 25 October 2018

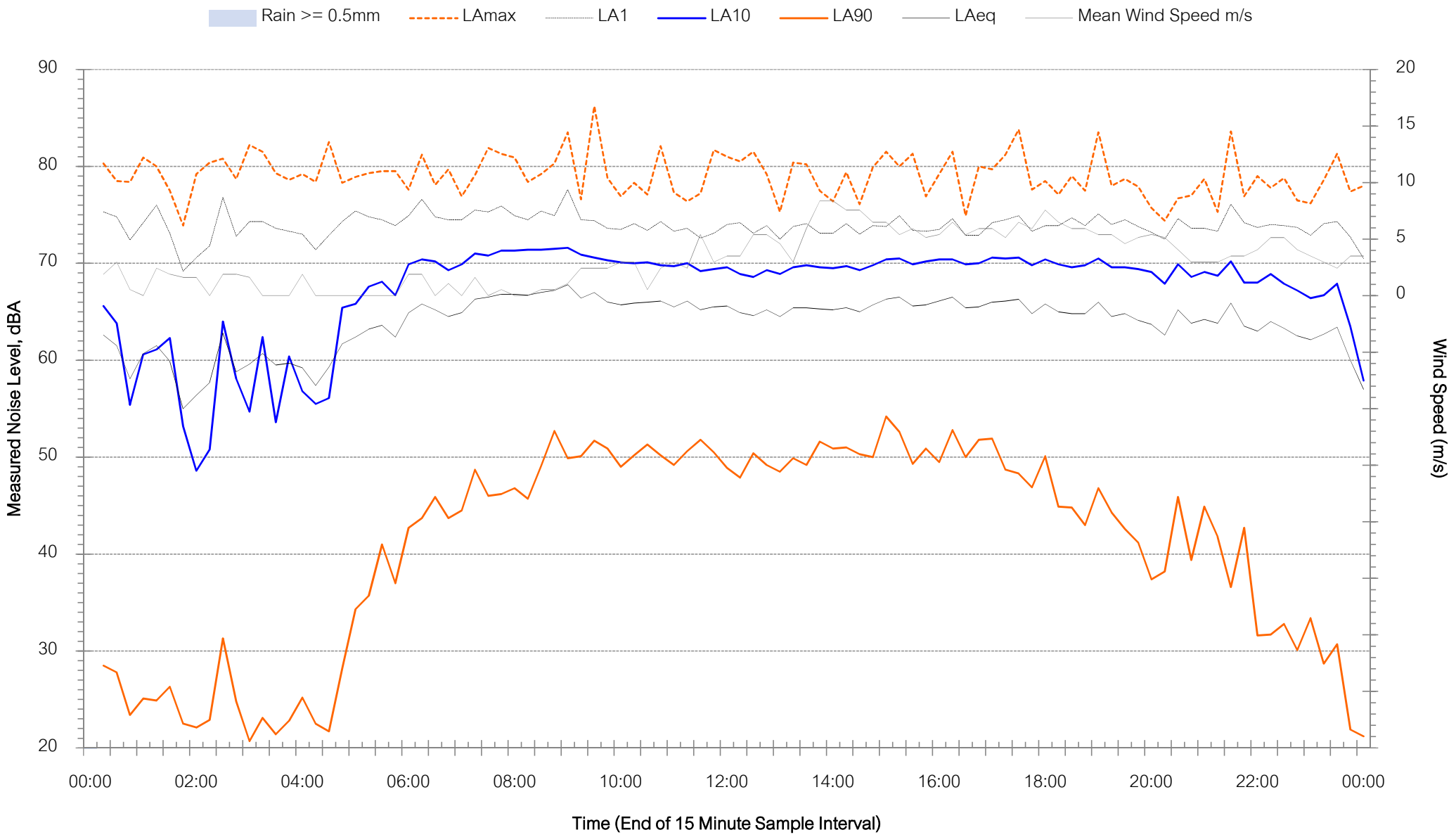


# Background Noise Levels

## Location - NM0 - Friday 26 October 2018

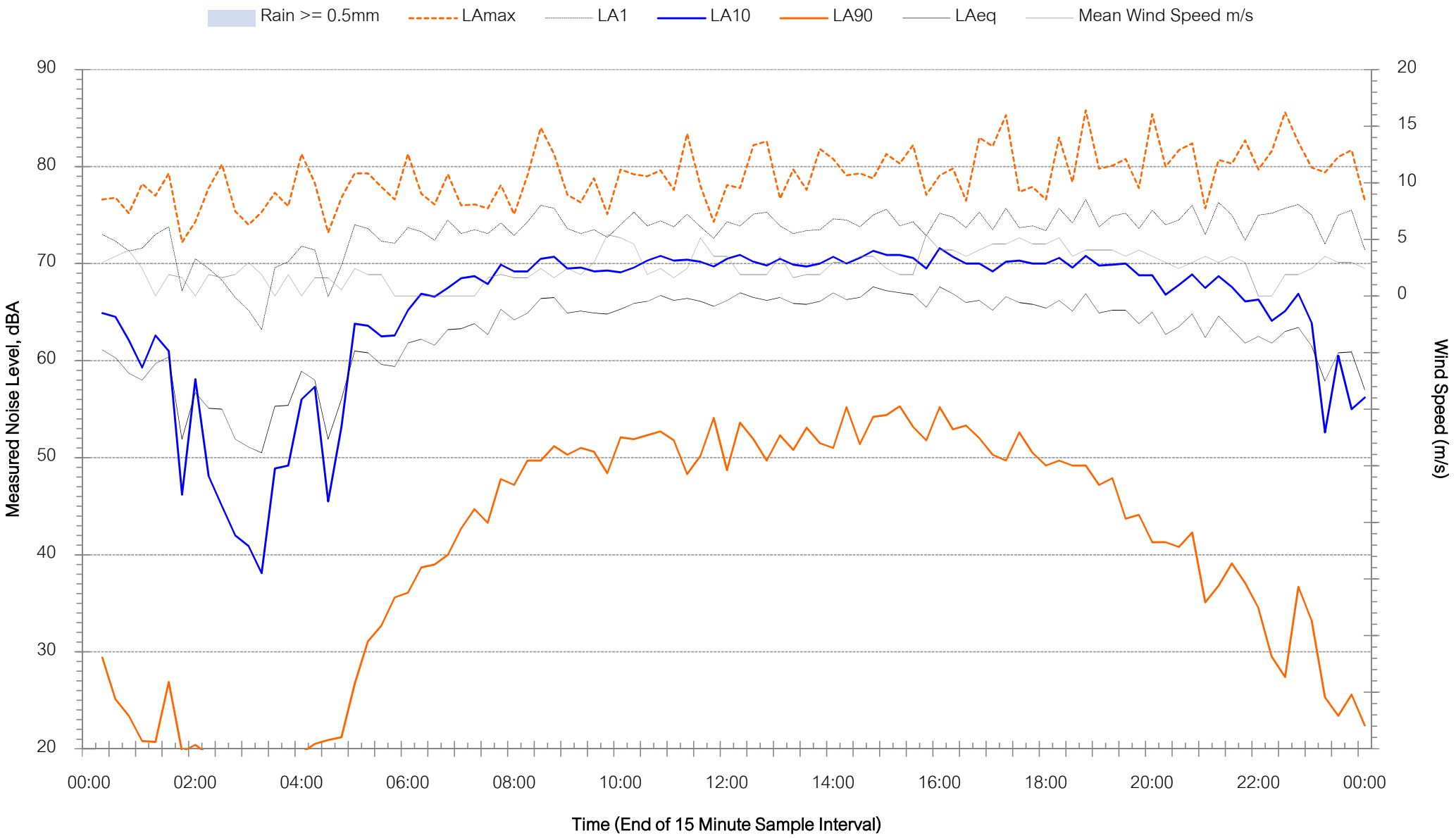
# Background Noise Levels

## Location - NM0 - Saturday 27 October 2018



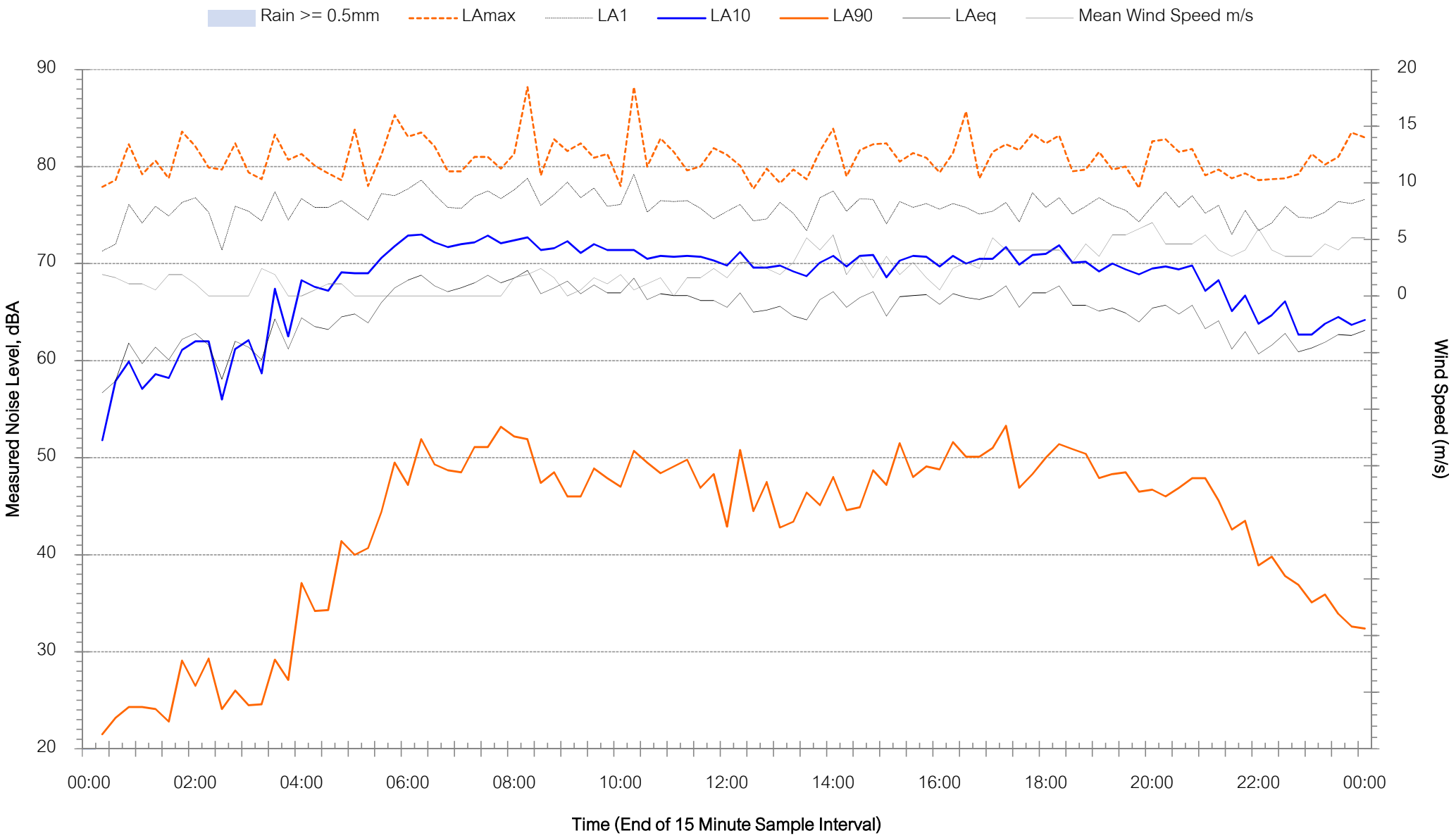
# Background Noise Levels

## Location - NM0 - Sunday 28 October 2018



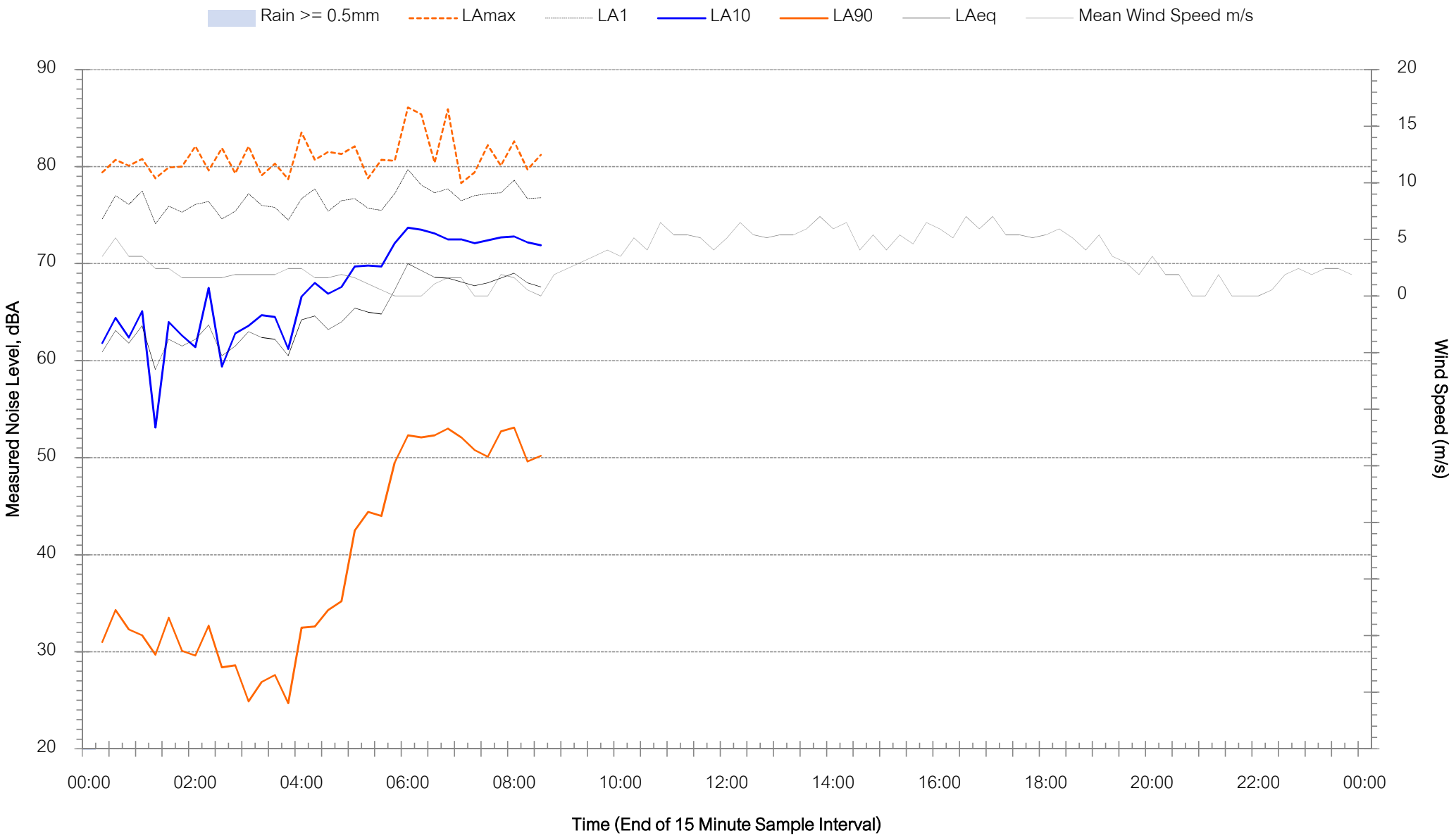
# Background Noise Levels

## Location - NM0 - Monday 29 October 2018



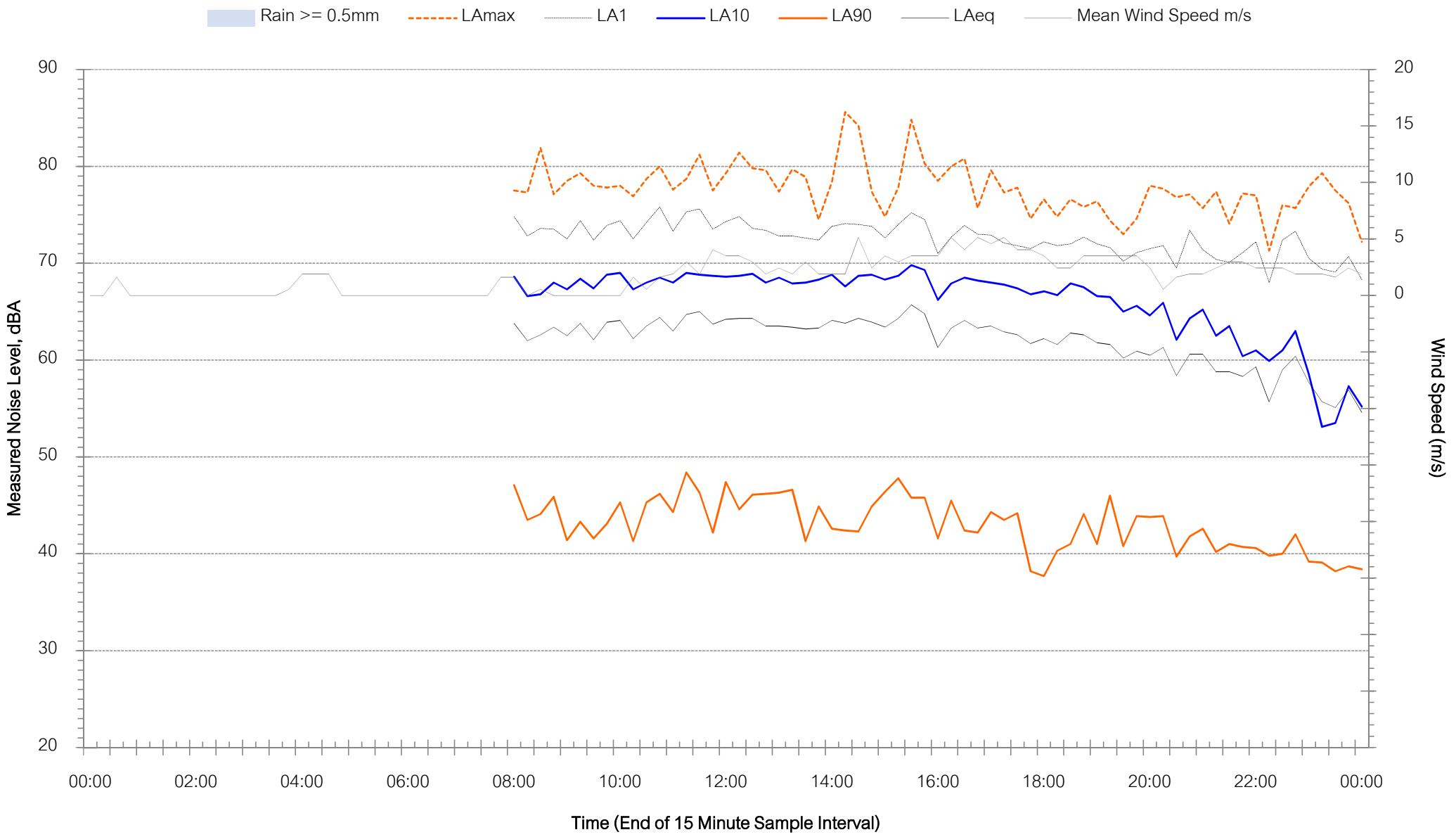
# Background Noise Levels

## Location - NM0 - Tuesday 30 October 2018



# Background Noise Levels

## Location - NM5 - Friday 19 October 2018

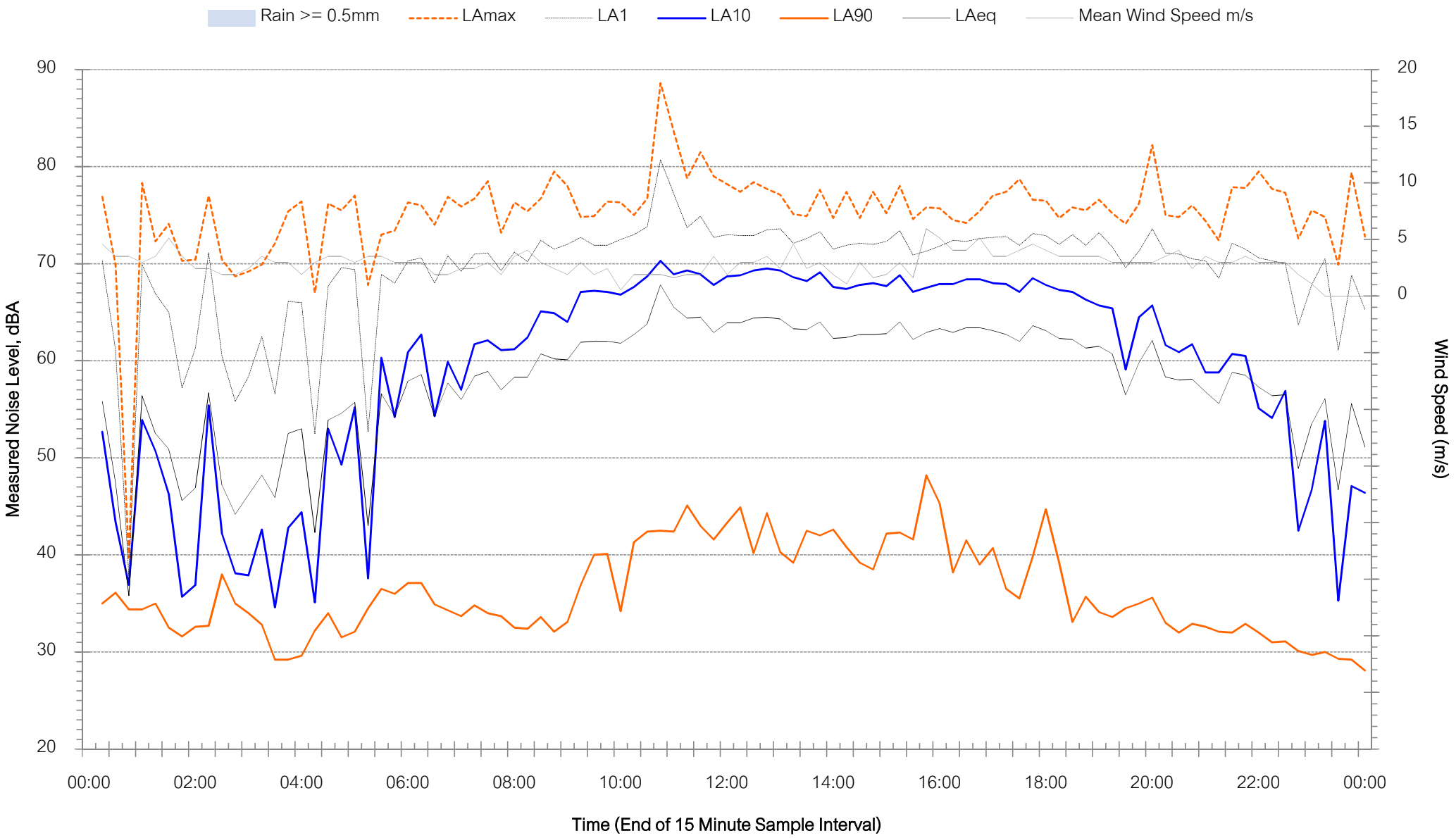


# Background Noise Levels

## Location - NM5 - Saturday 20 October 2018

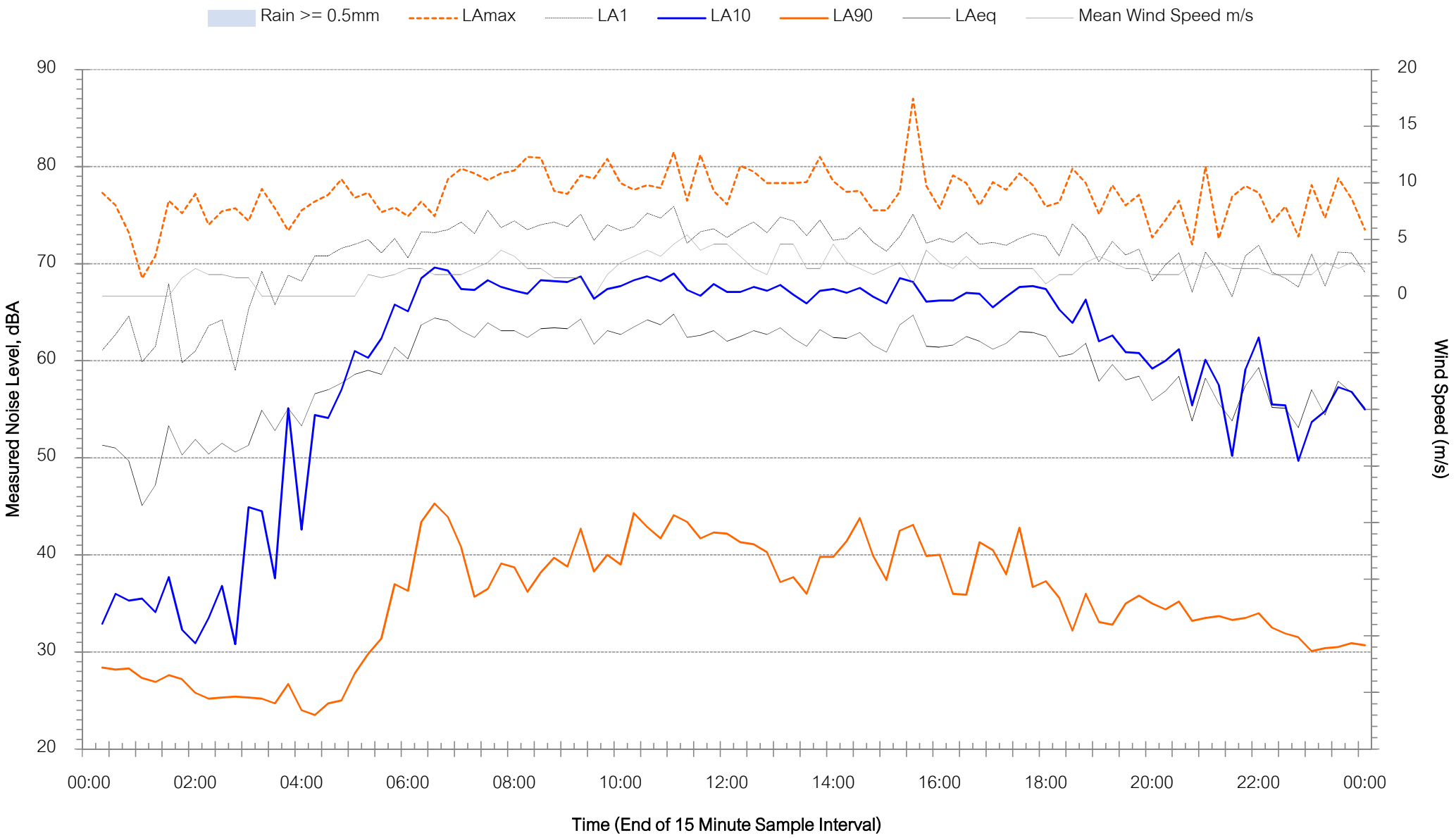
# Background Noise Levels

## Location - NM5 - Sunday 21 October 2018



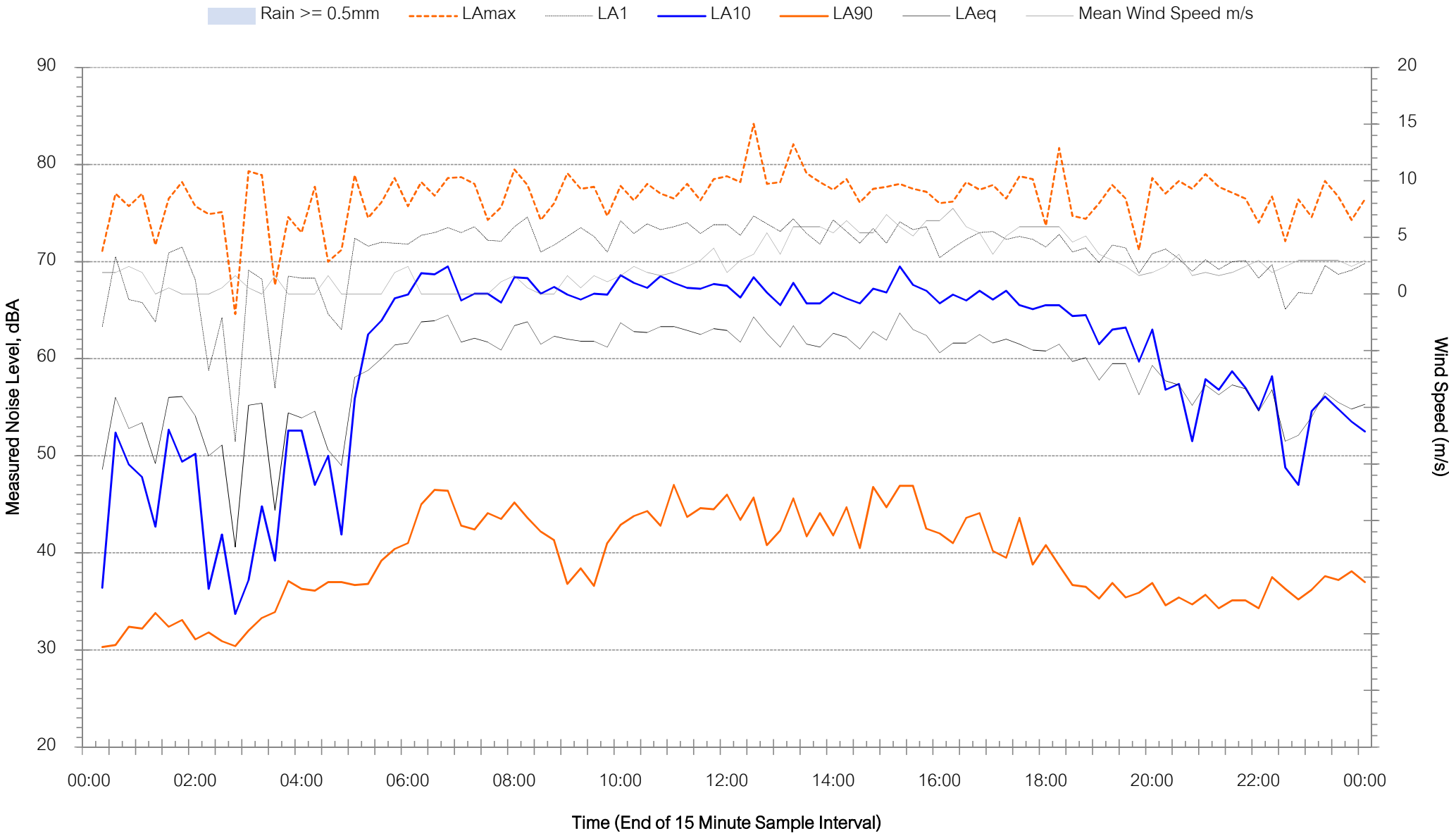
# Background Noise Levels

## Location - NM5 - Monday 22 October 2018



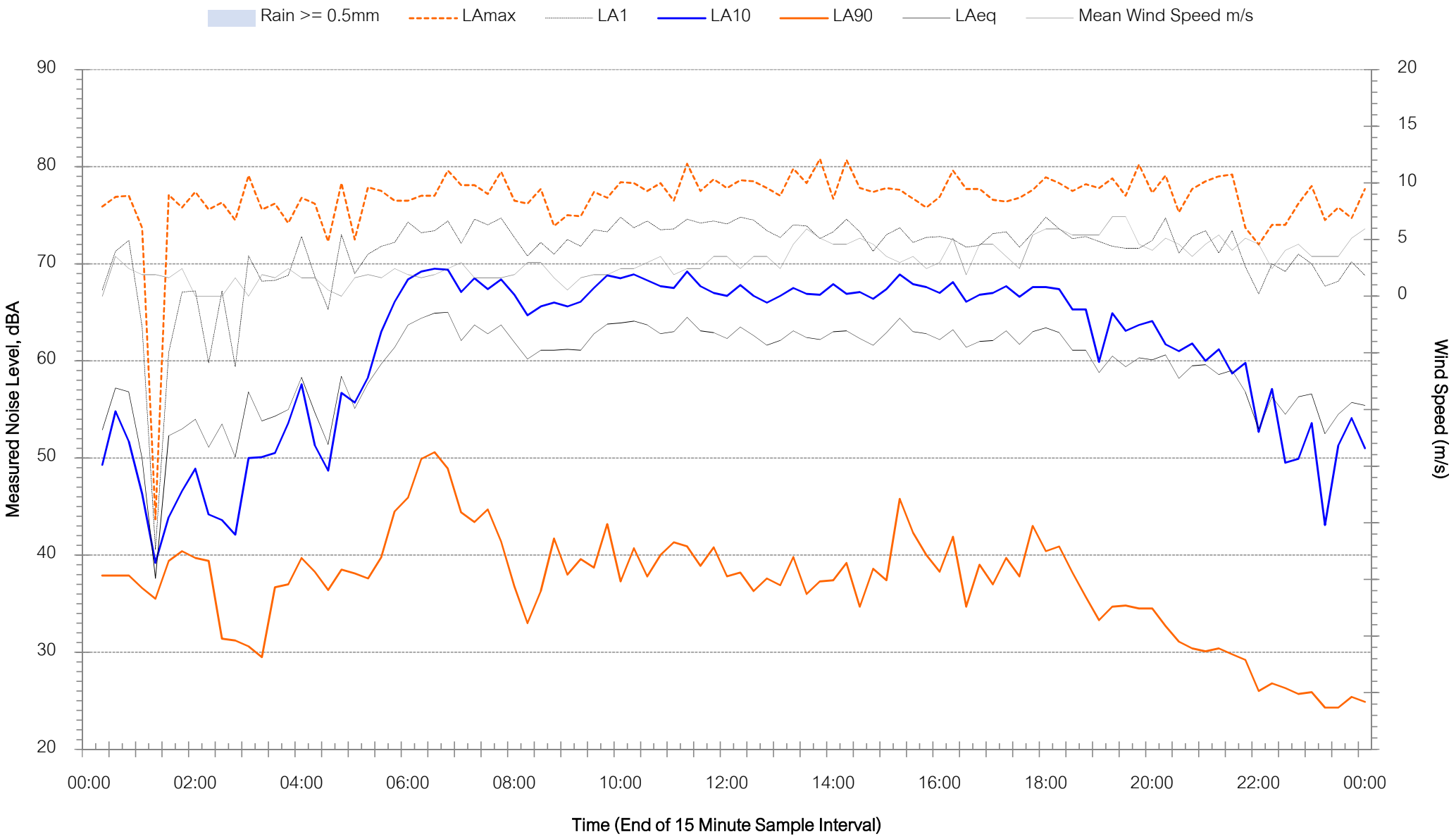
# Background Noise Levels

## Location - NM5 - Tuesday 23 October 2018



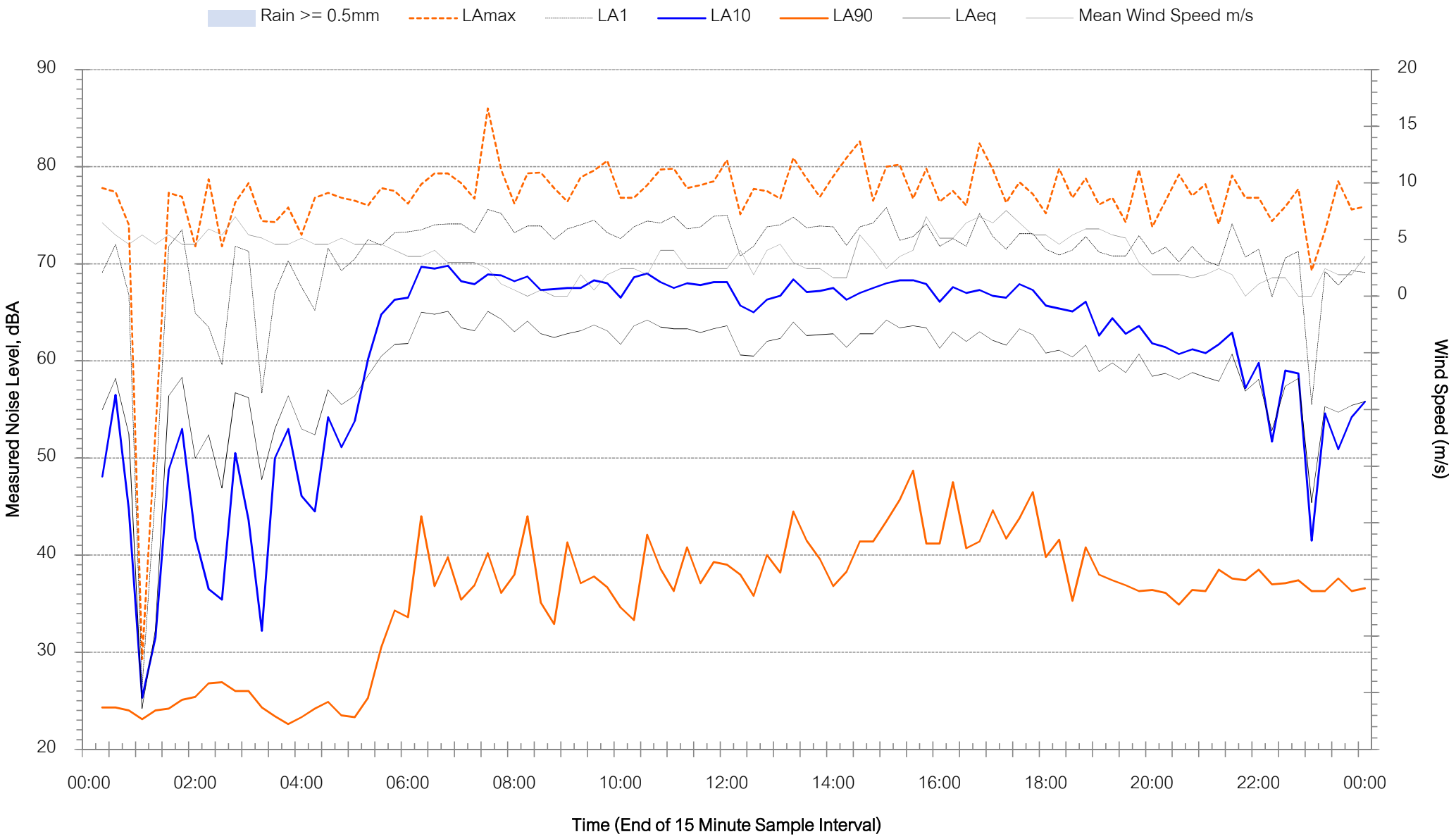
# Background Noise Levels

## Location - NM5 - Wednesday 24 October 2018



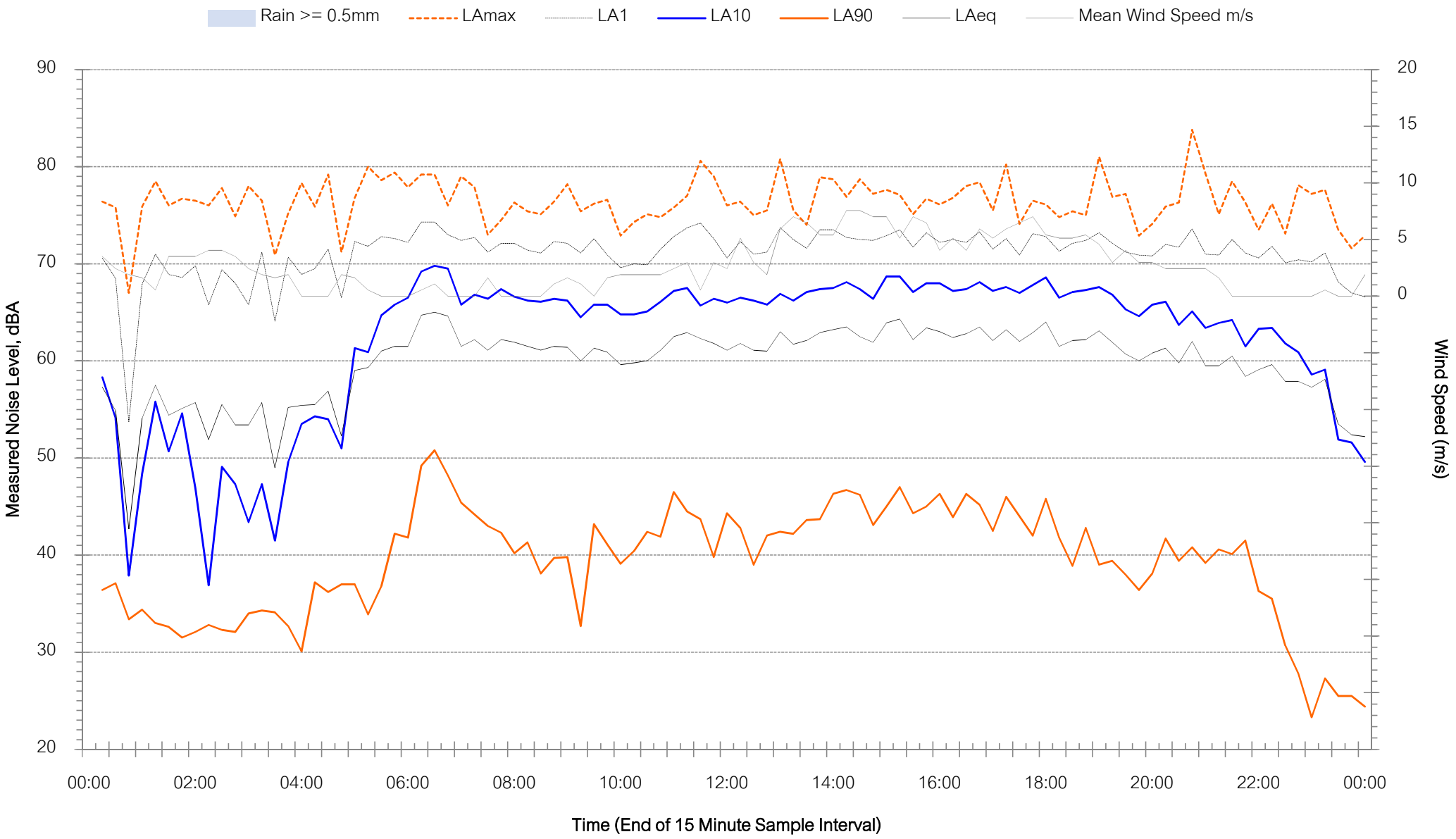
# Background Noise Levels

## Location - NM5 - Thursday 25 October 2018



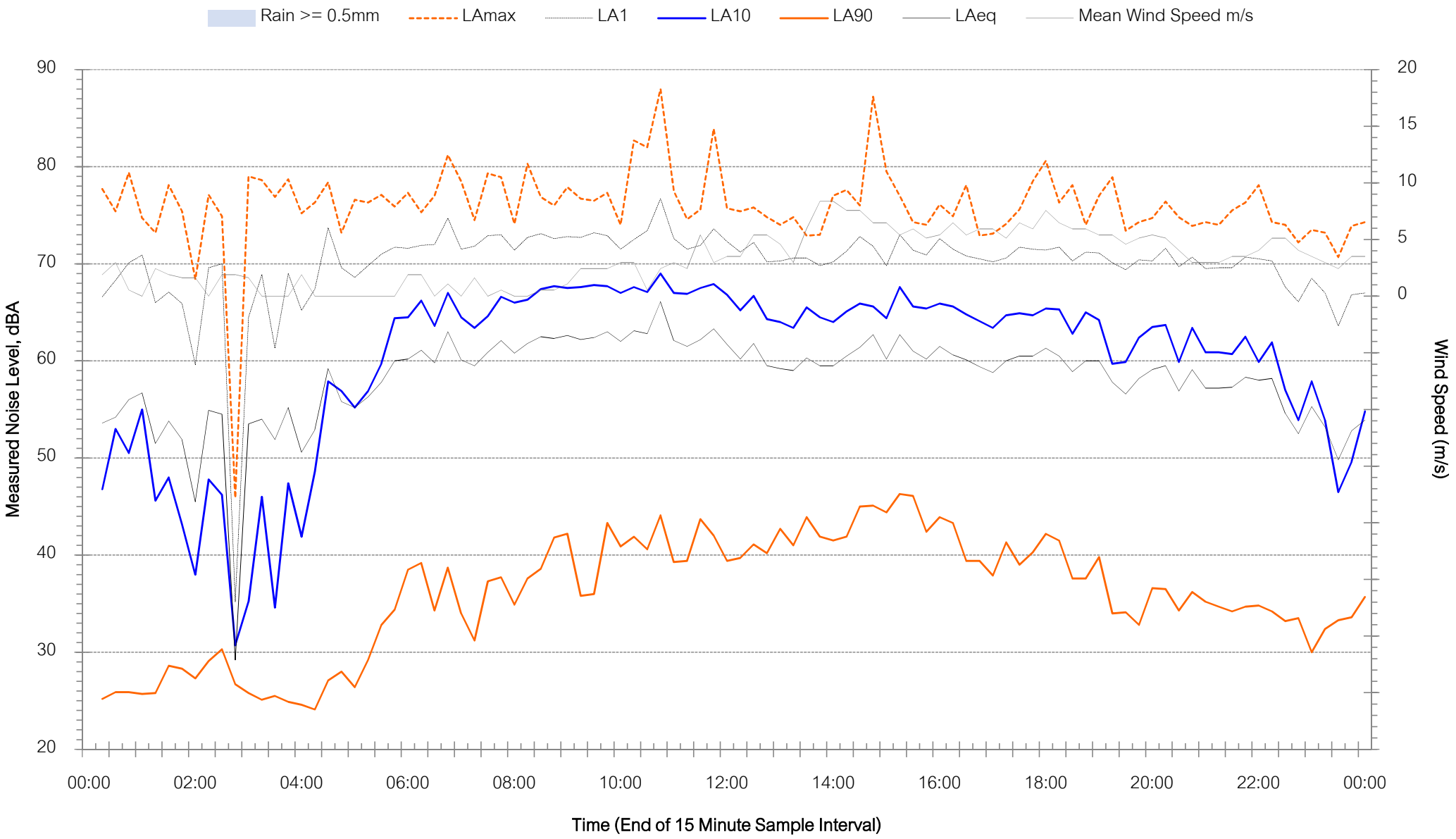
# Background Noise Levels

## Location - NM5 - Friday 26 October 2018



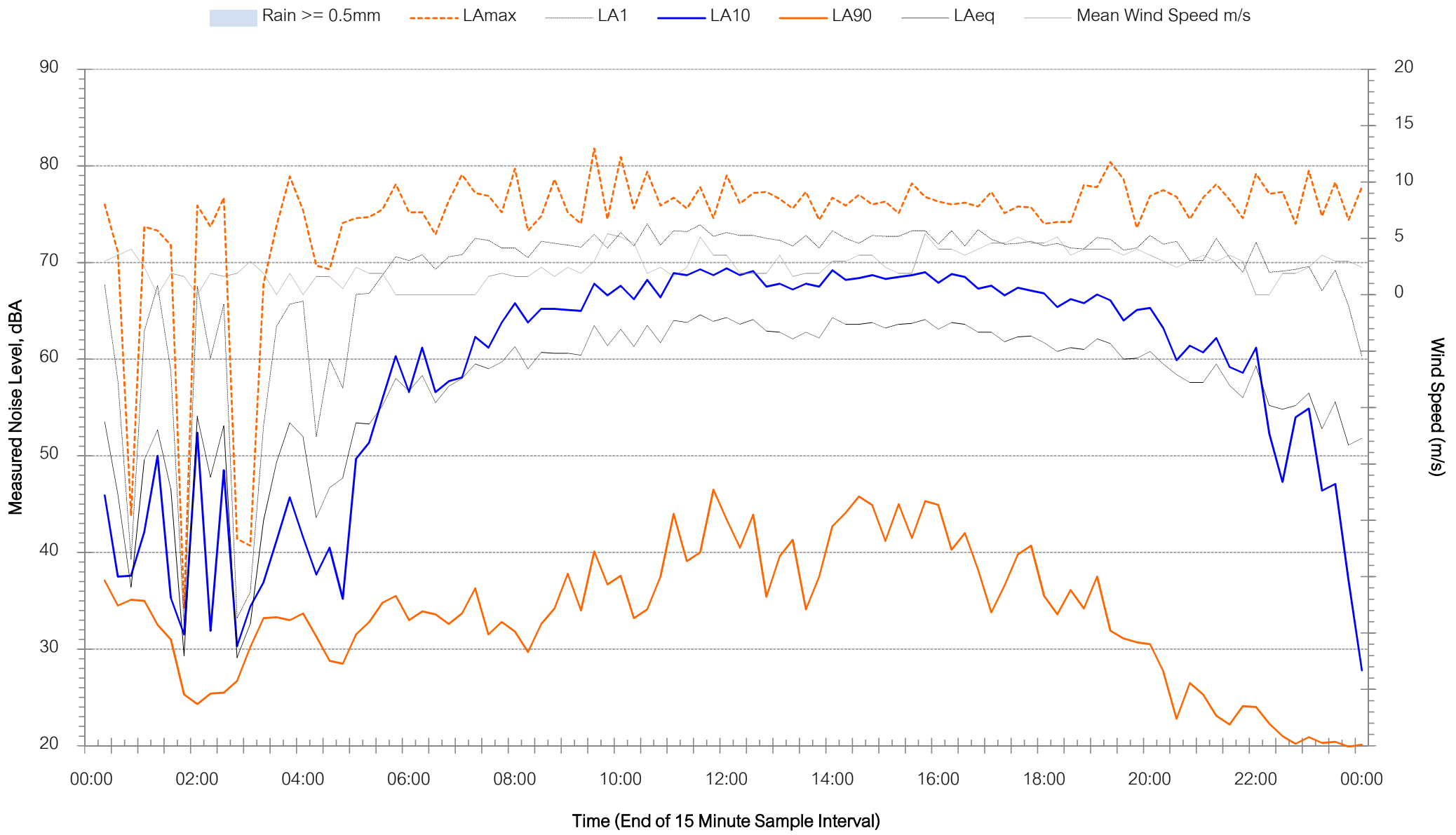
# Background Noise Levels

## Location - NM5 - Saturday 27 October 2018



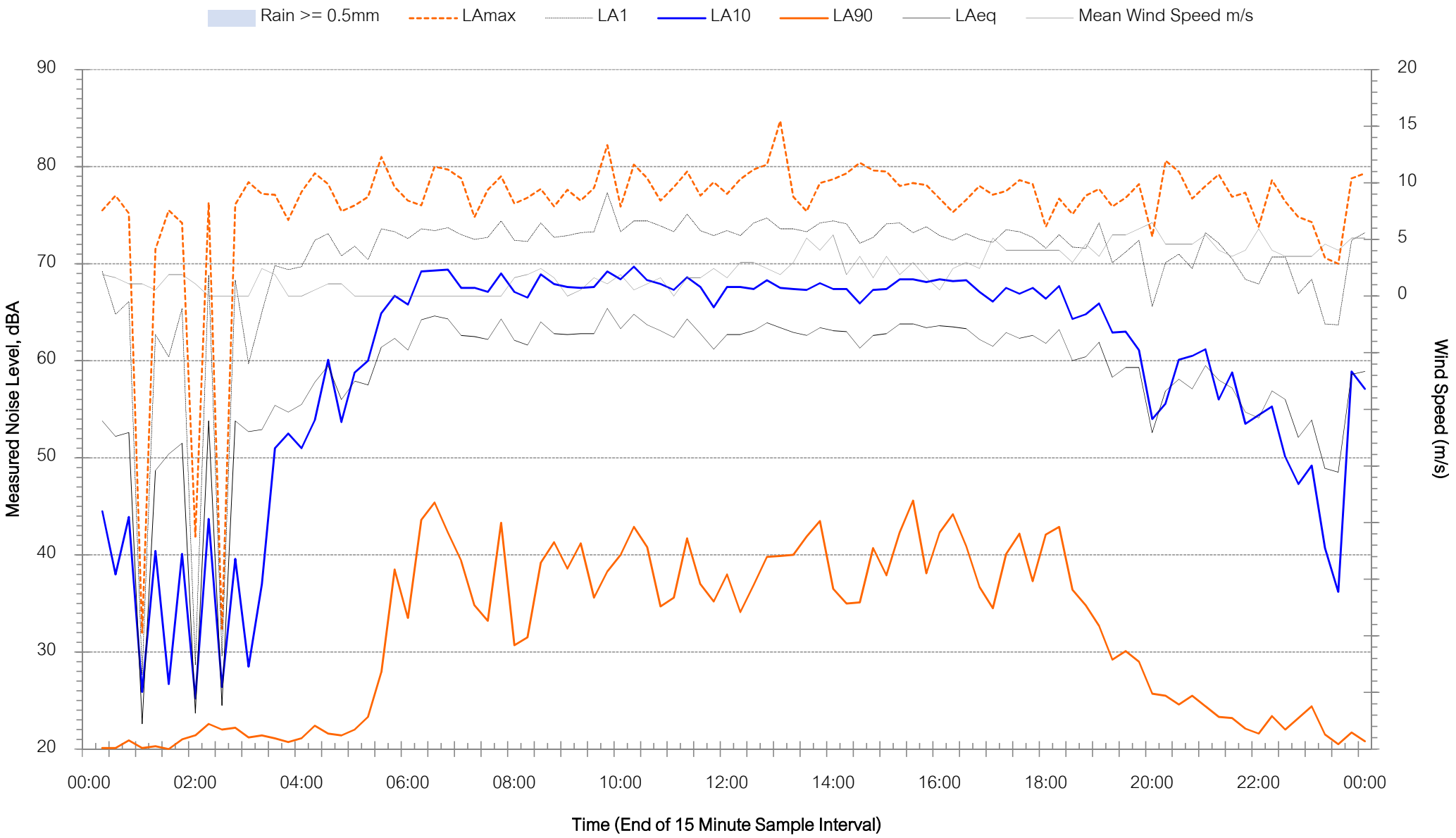
# Background Noise Levels

## Location - NM5 - Sunday 28 October 2018



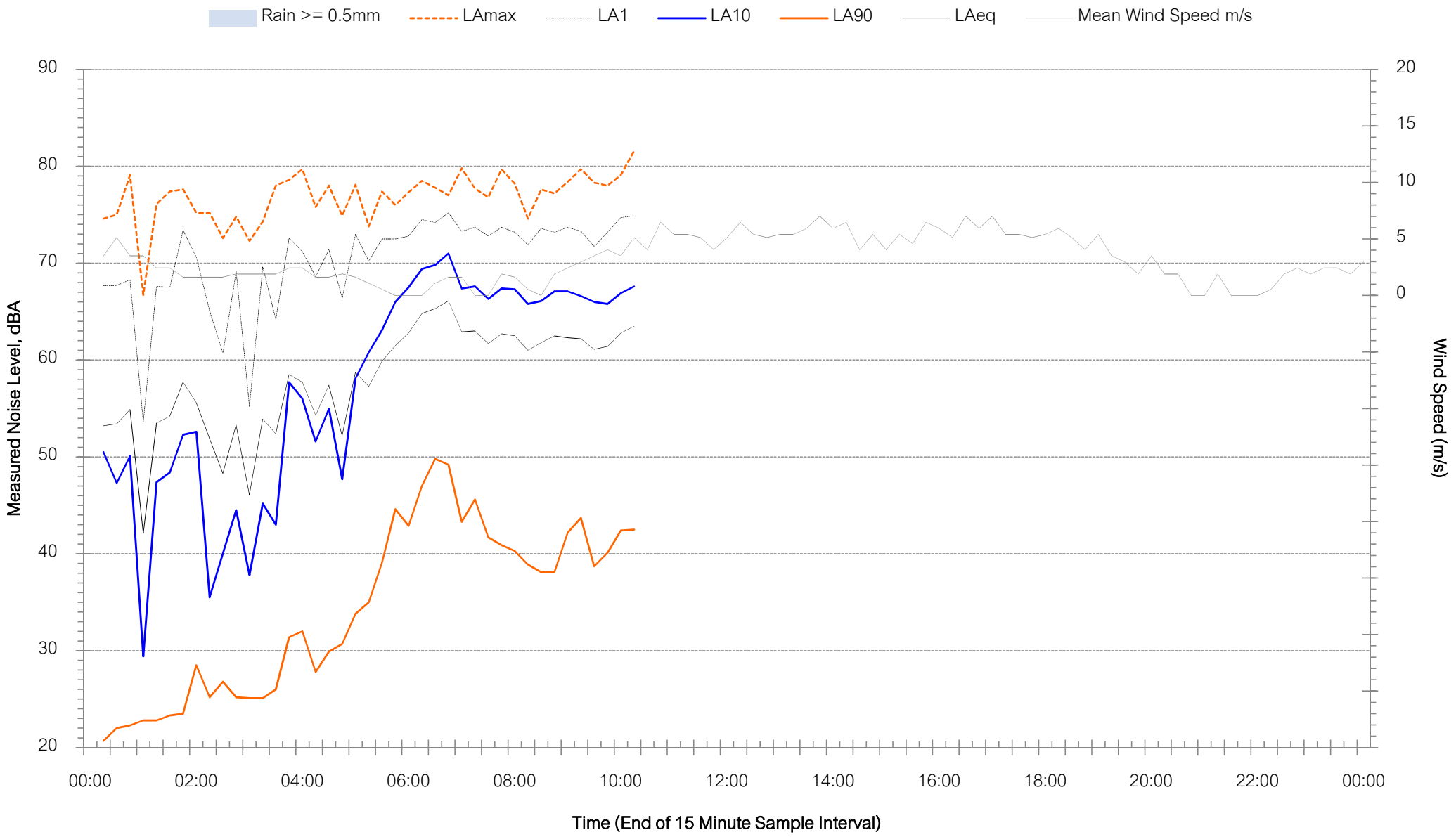
# Background Noise Levels

## Location - NM5 - Monday 29 October 2018



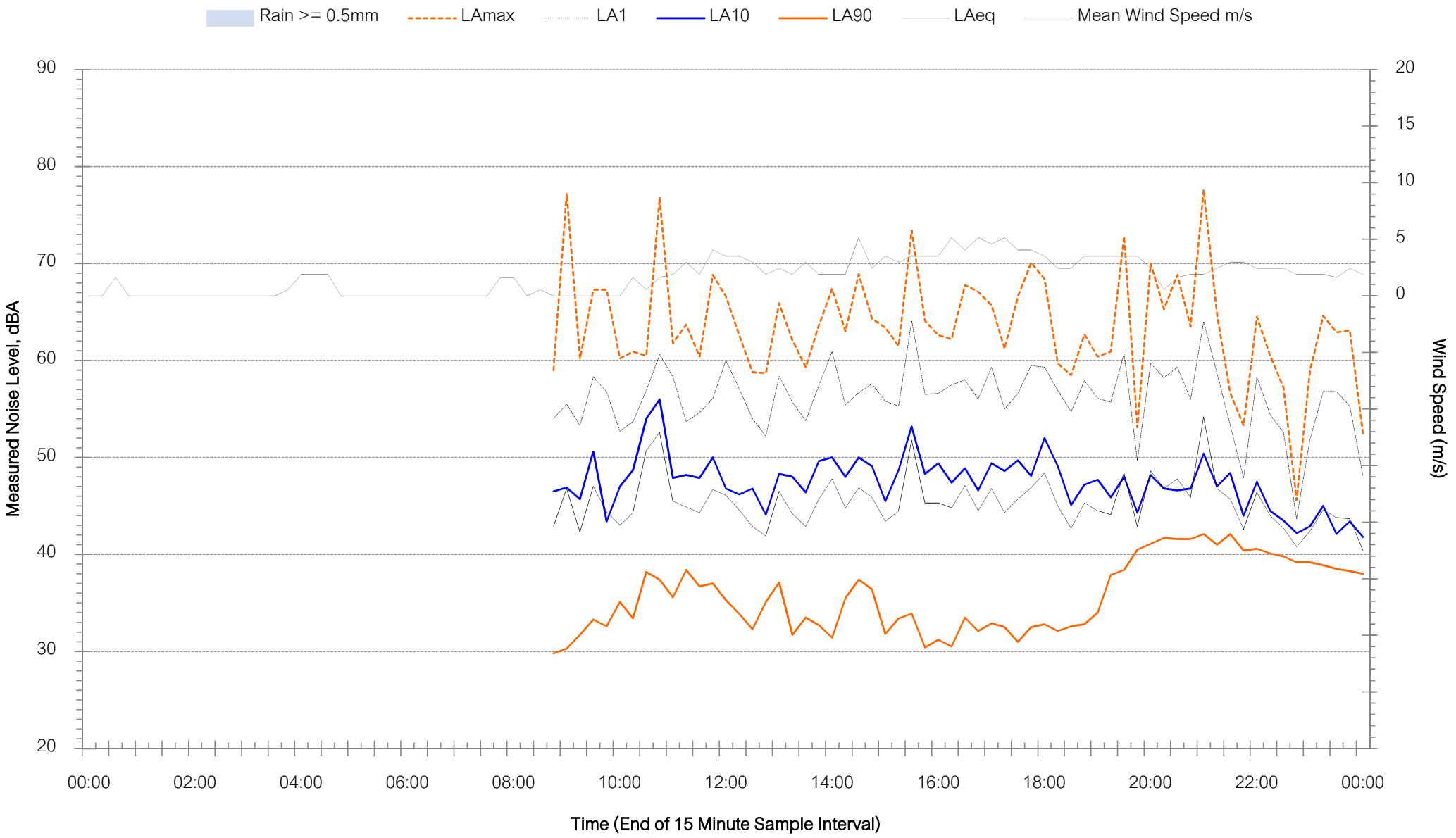
# Background Noise Levels

## Location - NM5 - Tuesday 30 October 2018



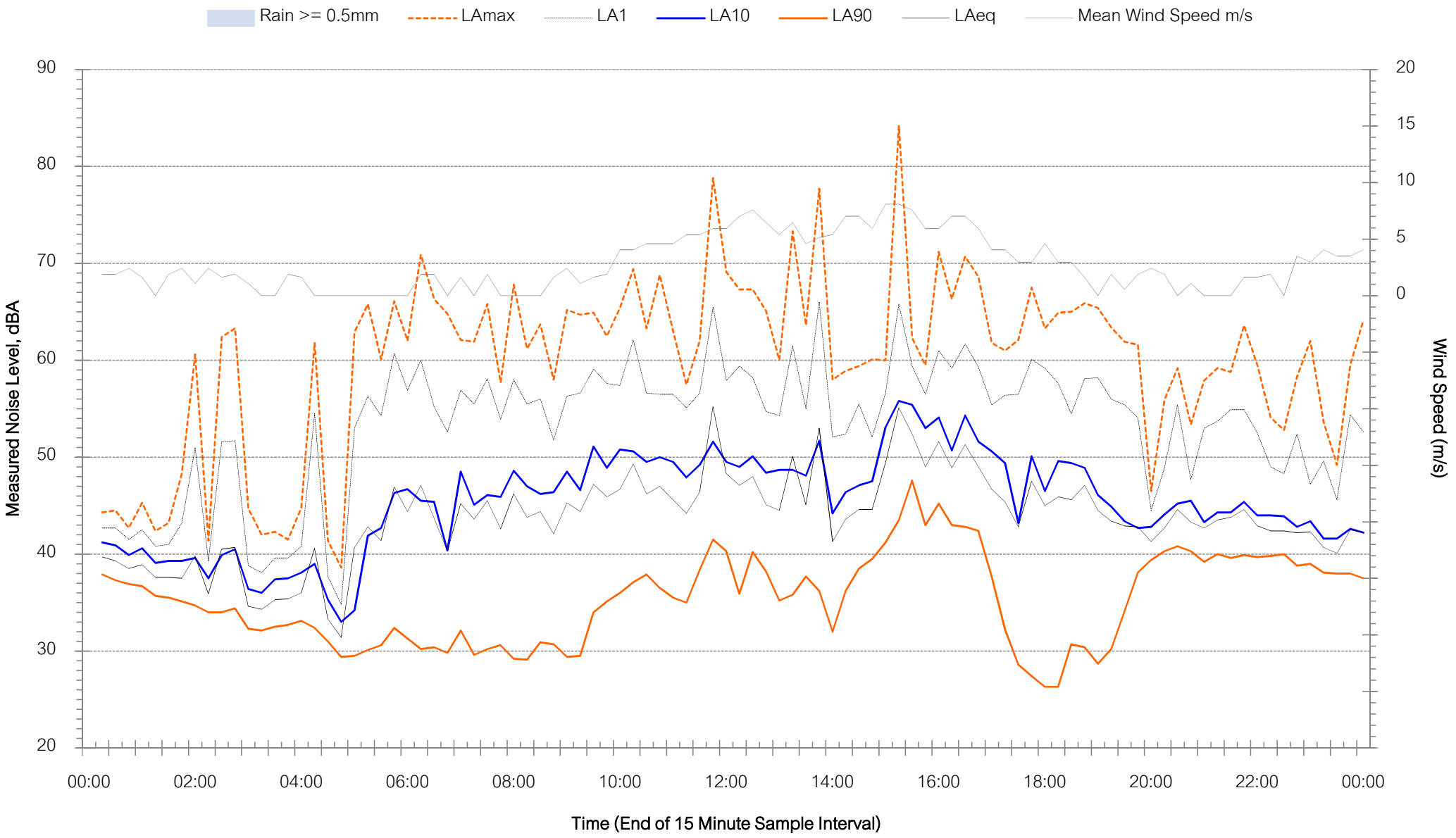
# Background Noise Levels

## Location - NM8 - Friday 19 October 2018



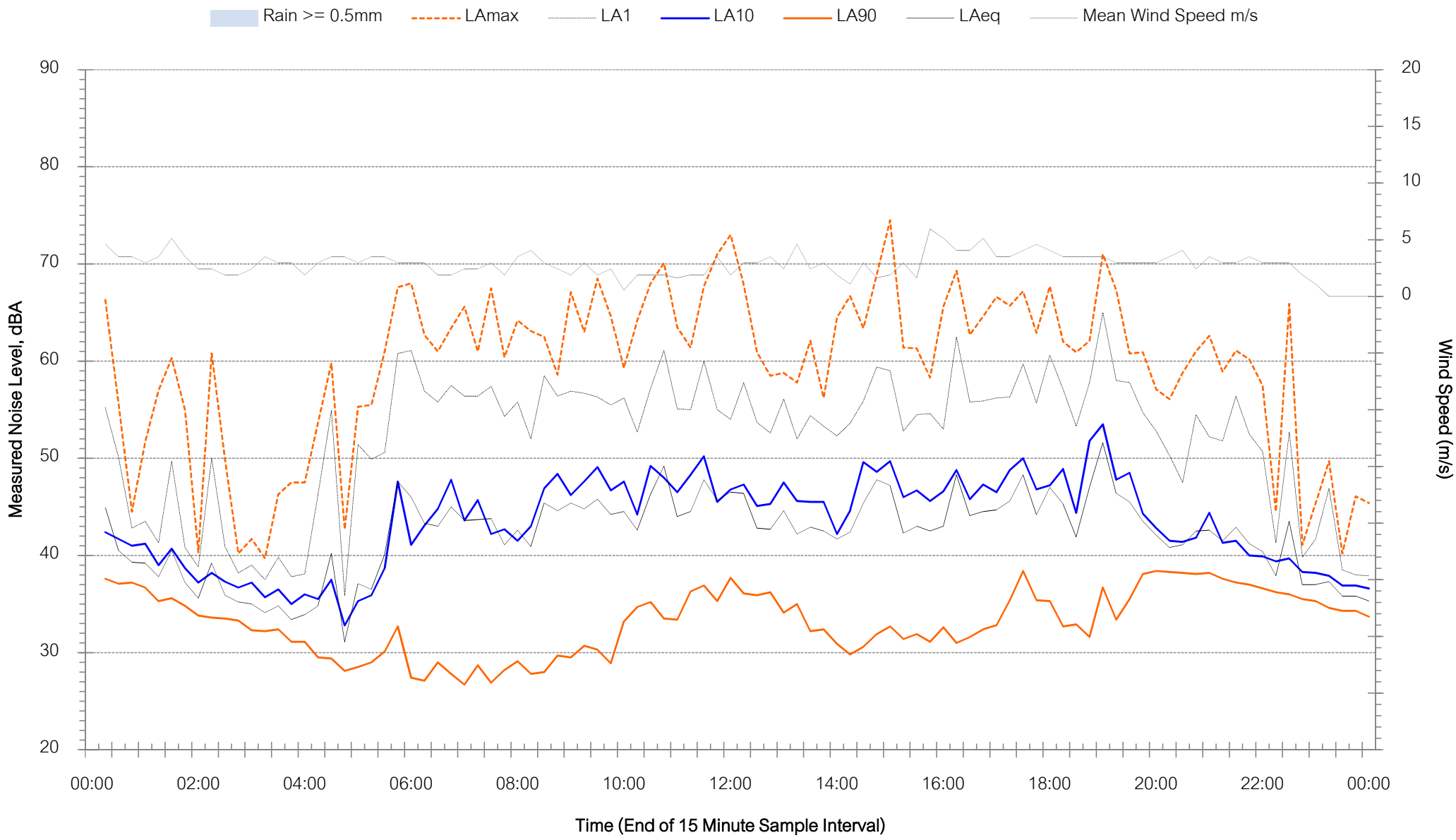
# Background Noise Levels

## Location - NM8 - Saturday 20 October 2018



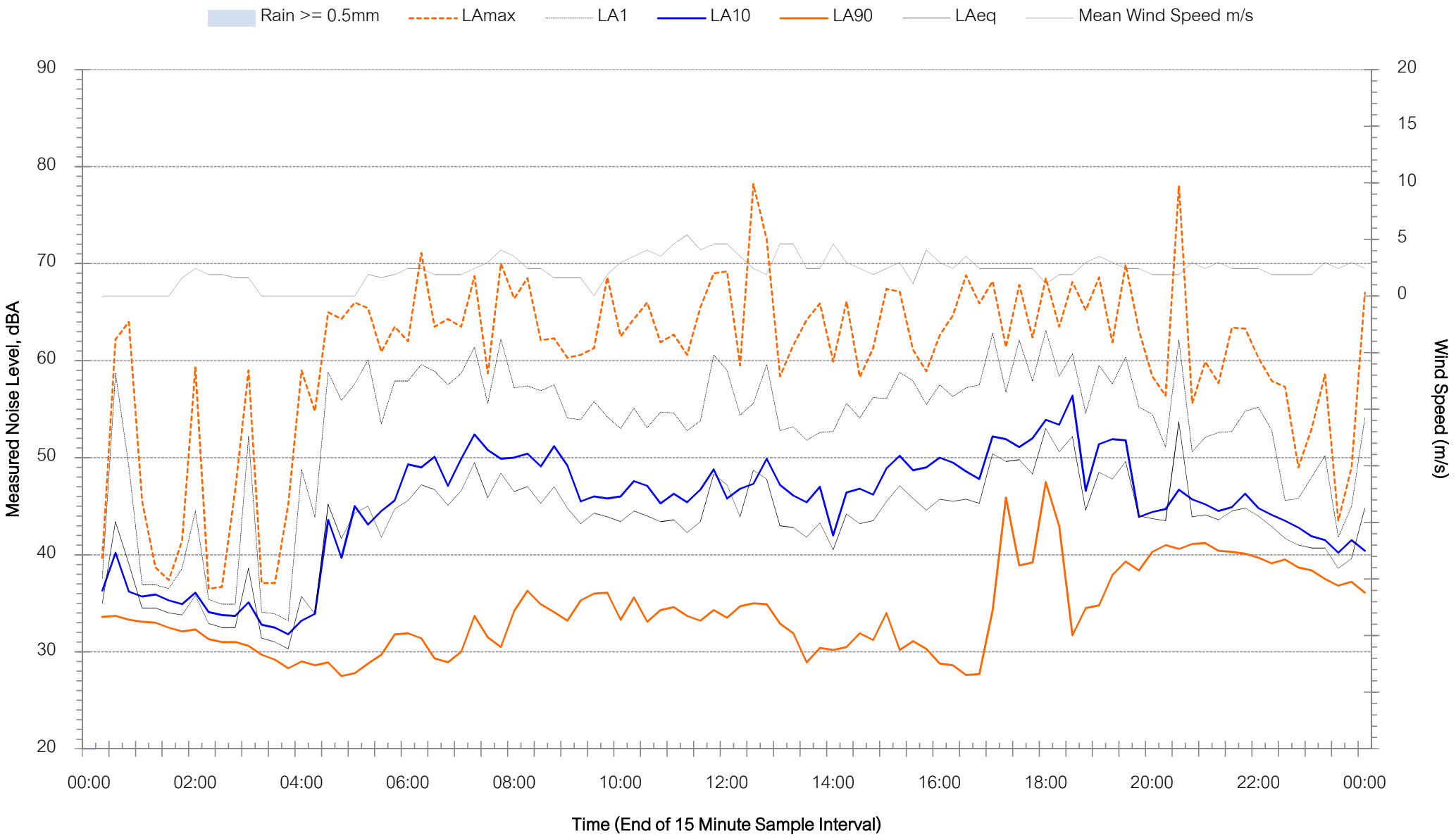
# Background Noise Levels

## Location - NM8 - Sunday 21 October 2018



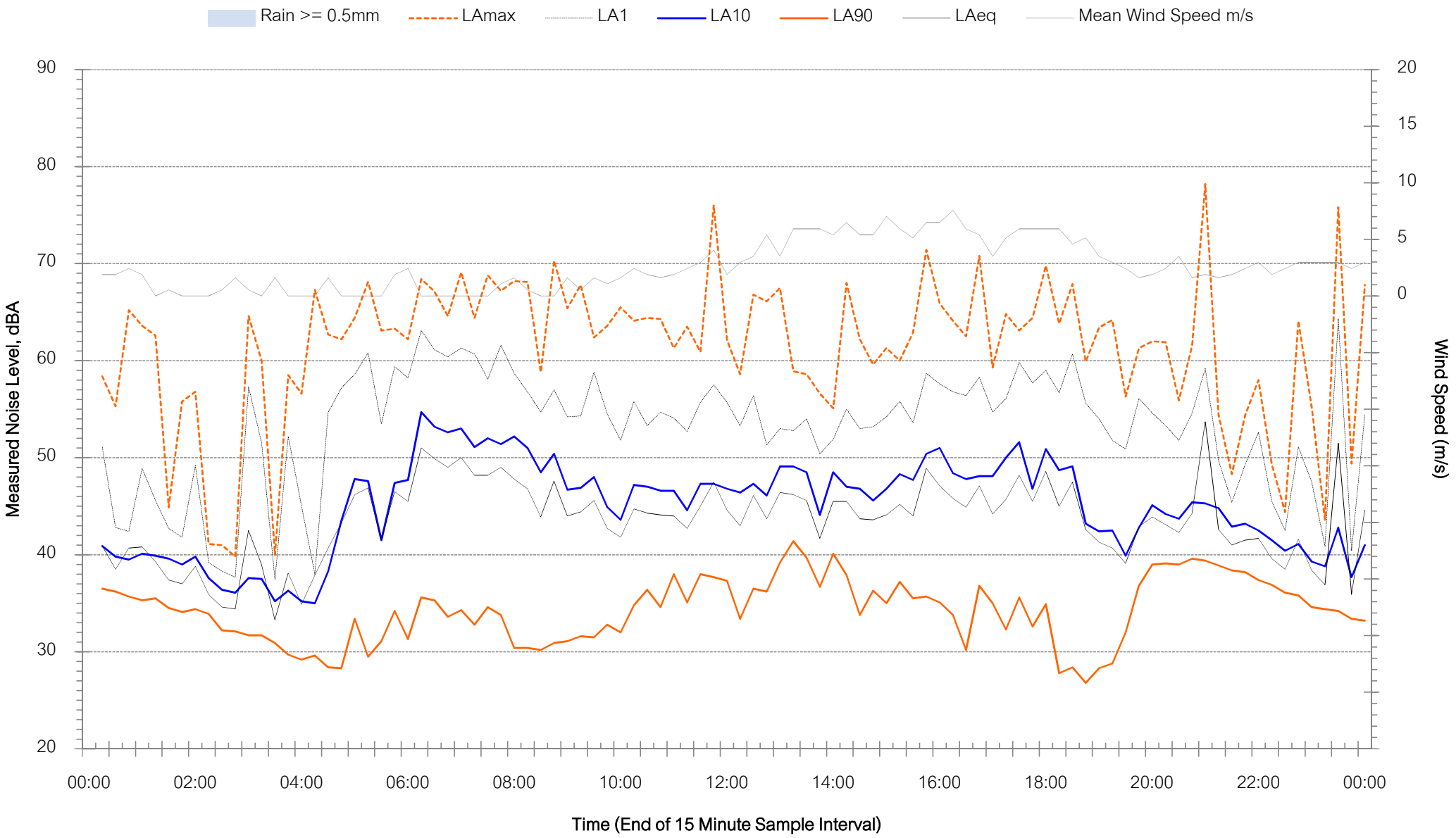
# Background Noise Levels

## Location - NM8 - Monday 22 October 2018



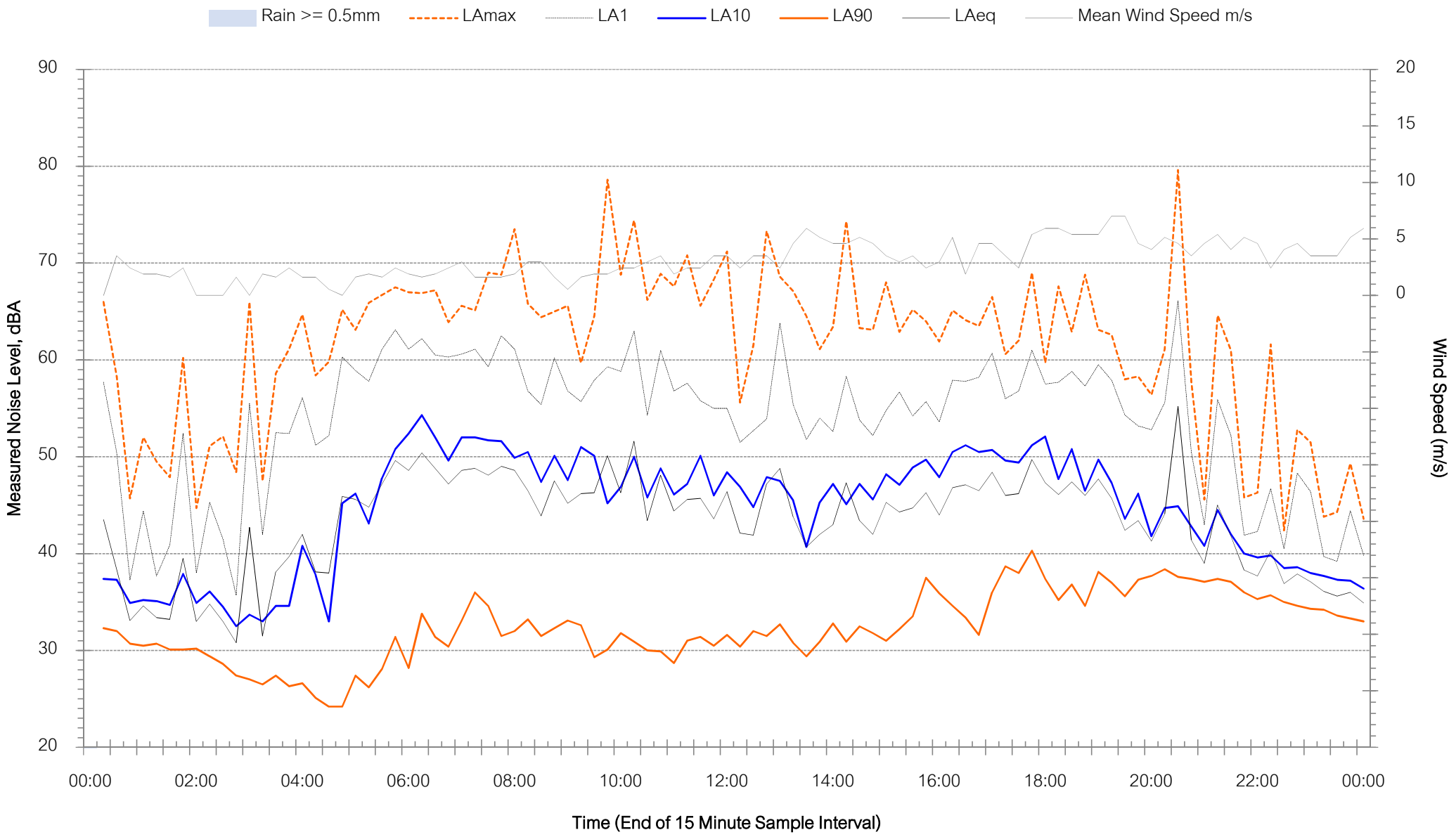
# Background Noise Levels

## Location - NM8 - Tuesday 23 October 2018



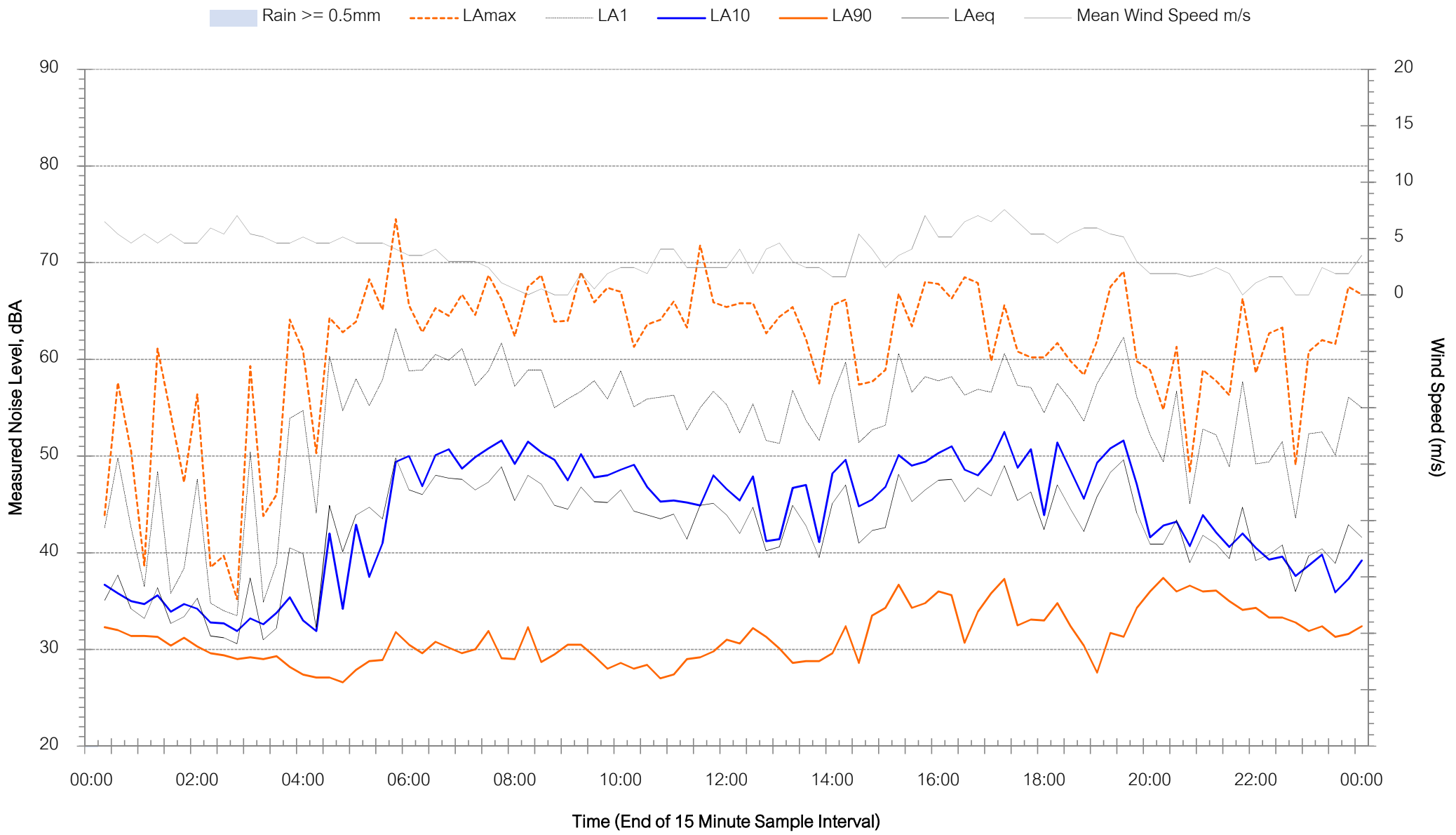
# Background Noise Levels

## Location - NM8 - Wednesday 24 October 2018



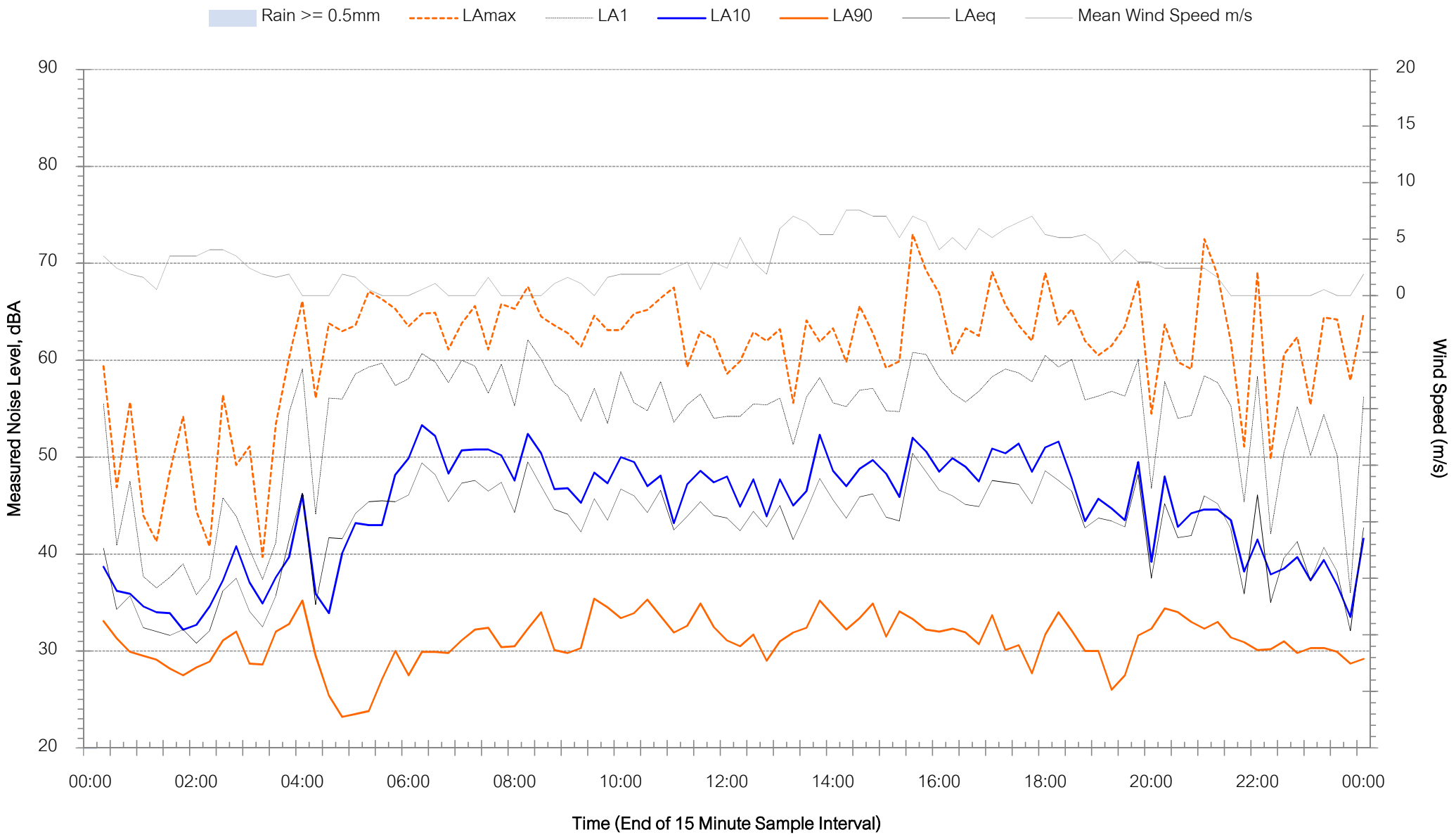
# Background Noise Levels

## Location - NM8 - Thursday 25 October 2018



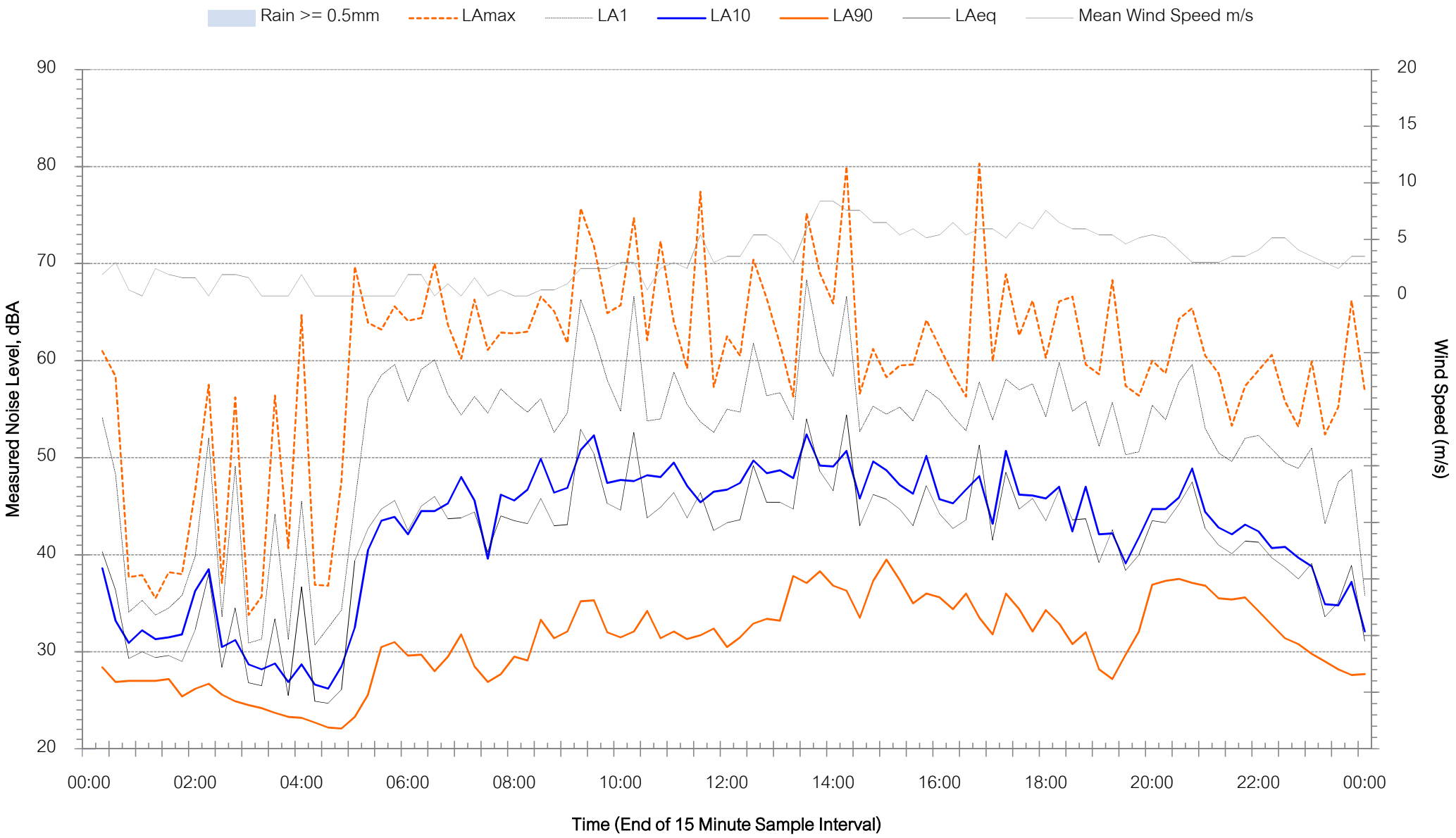
# Background Noise Levels

## Location - NM8 - Friday 26 October 2018



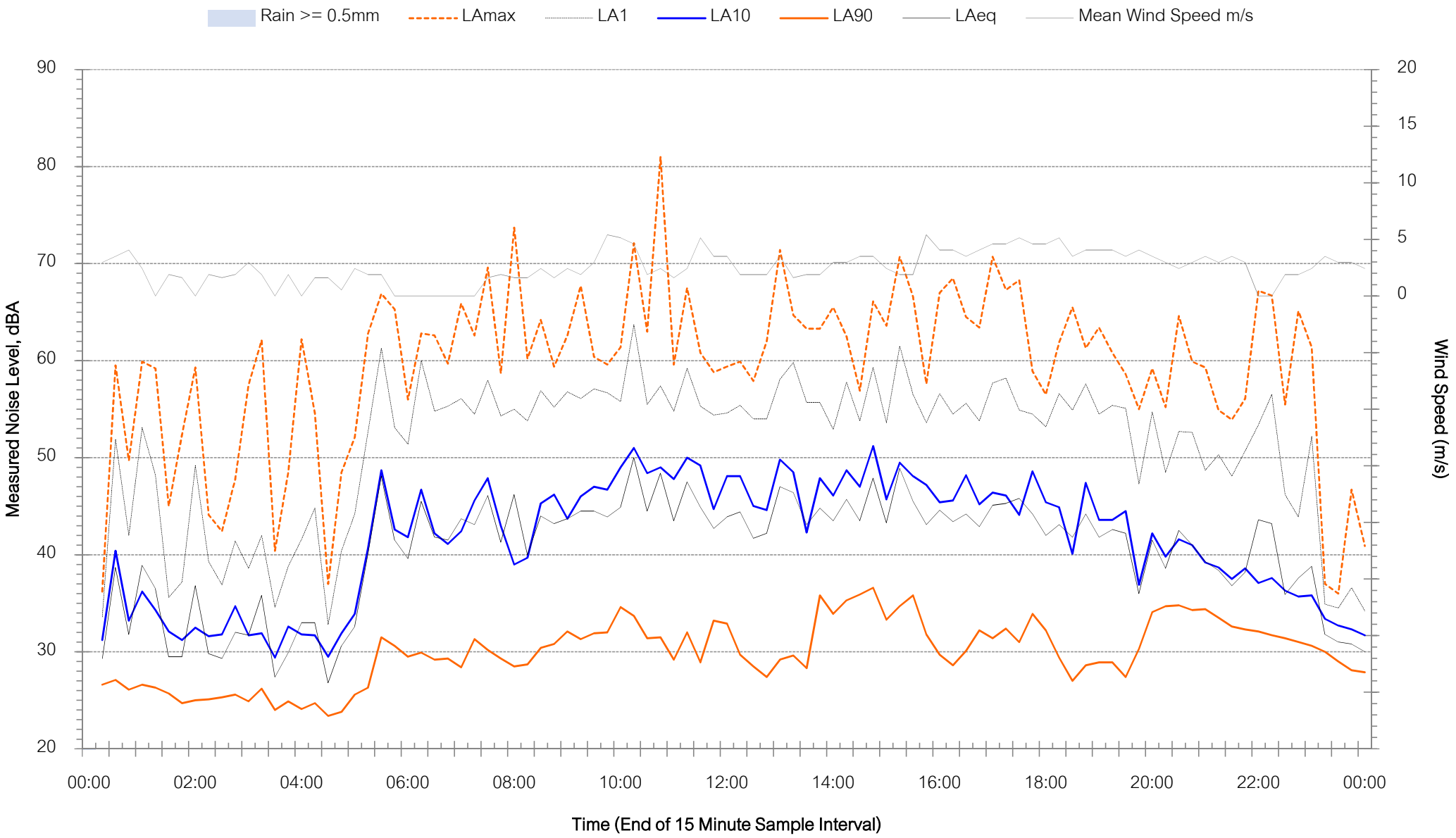
# Background Noise Levels

## Location - NM8 - Saturday 27 October 2018



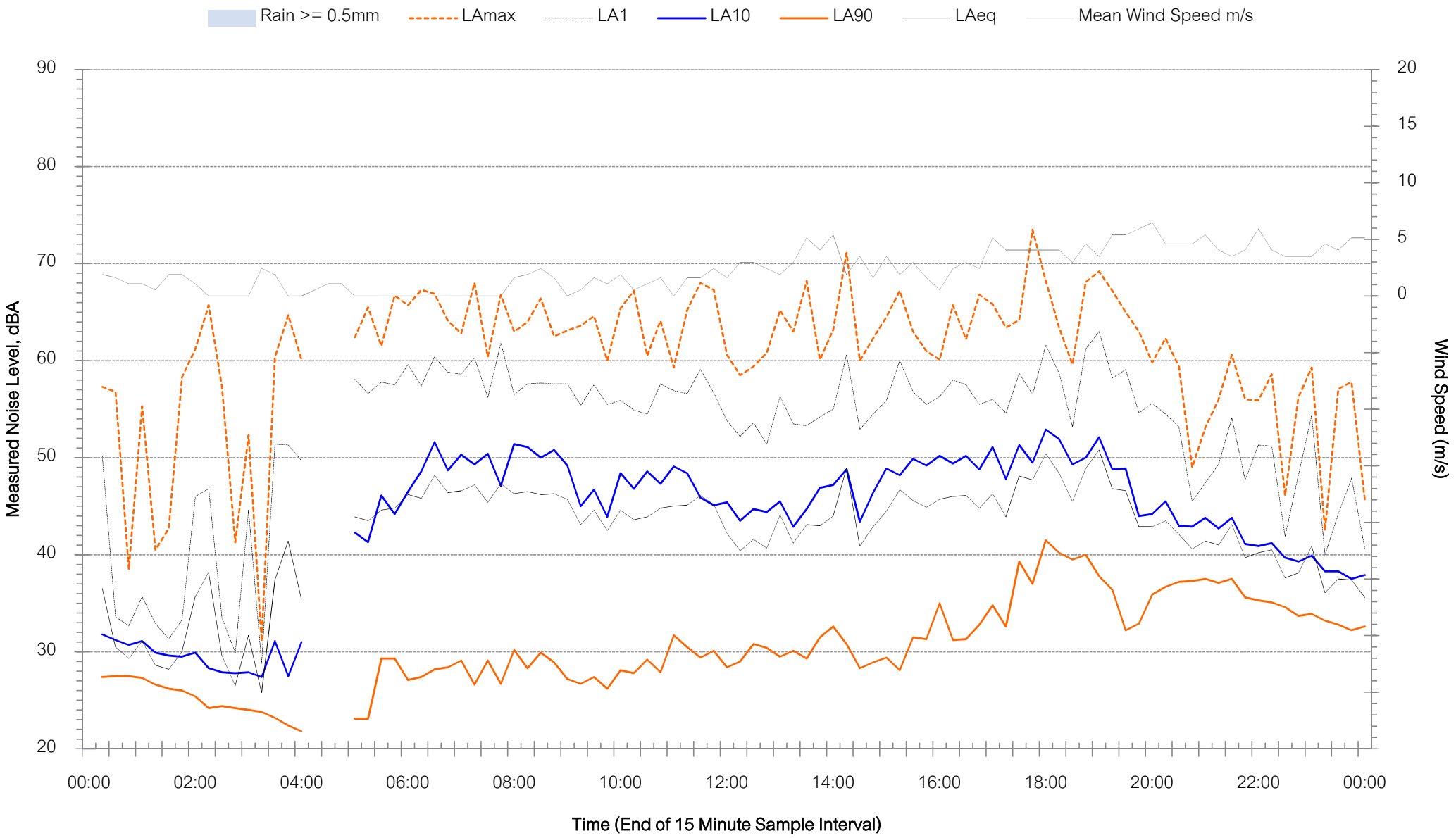
# Background Noise Levels

## Location - NM8 - Sunday 28 October 2018



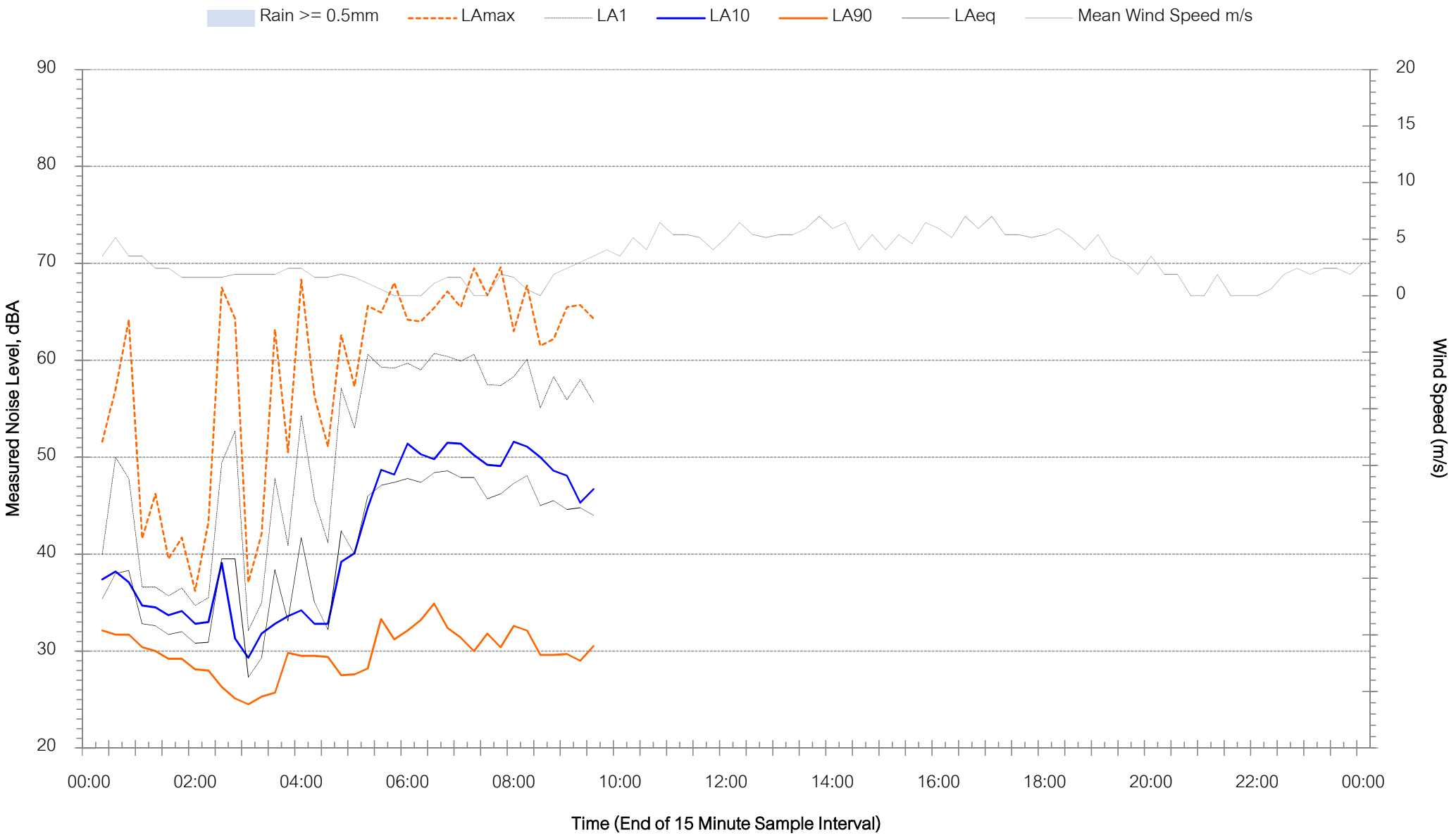
# Background Noise Levels

## Location - NM8 - Monday 29 October 2018



# Background Noise Levels

## Location - NM8 - Tuesday 30 October 2018



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# Appendix D – Clearing & Grading

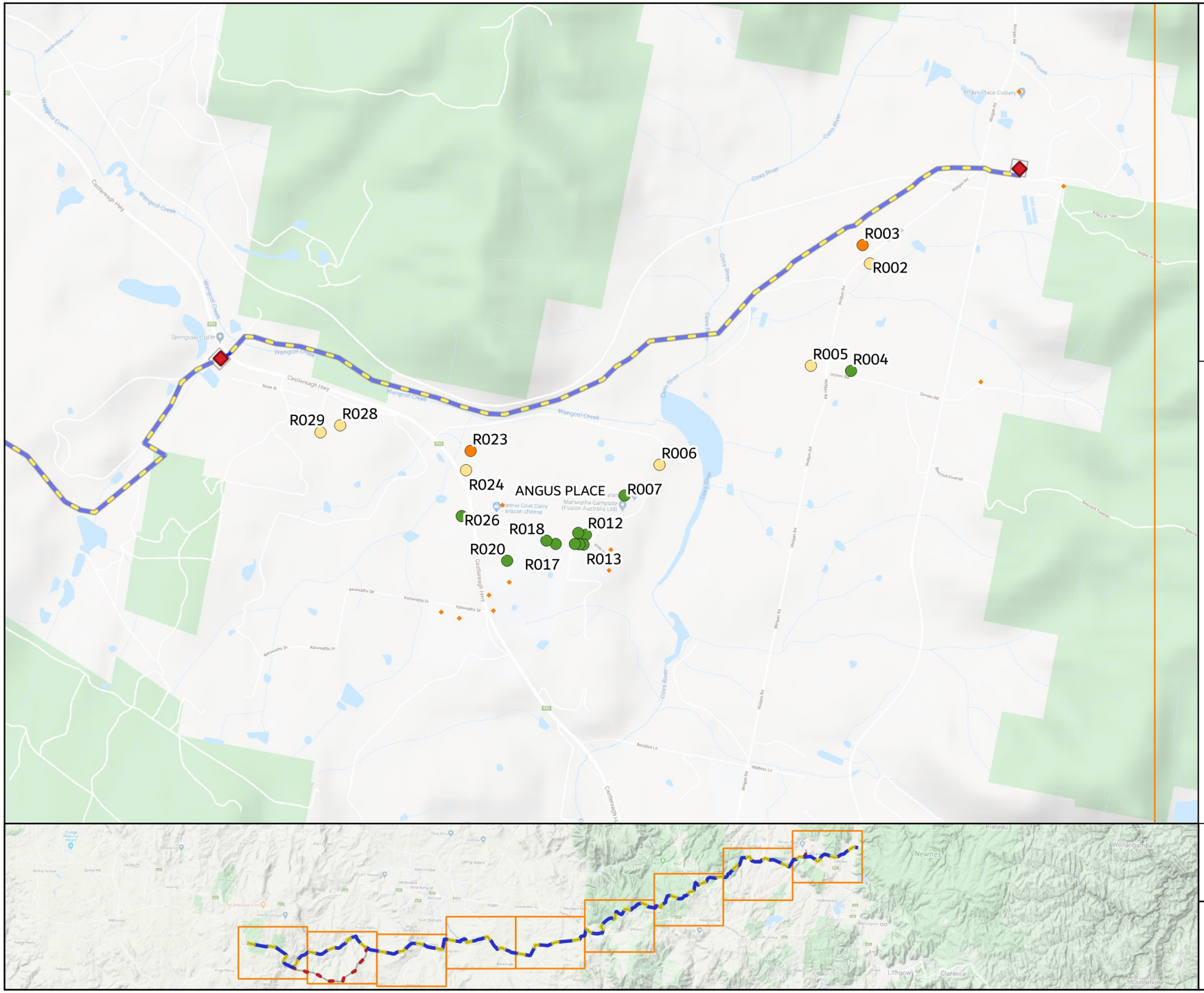



FIGURE D1

Angus Place

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 m

N

MAC
Muller Acoustic Consulting

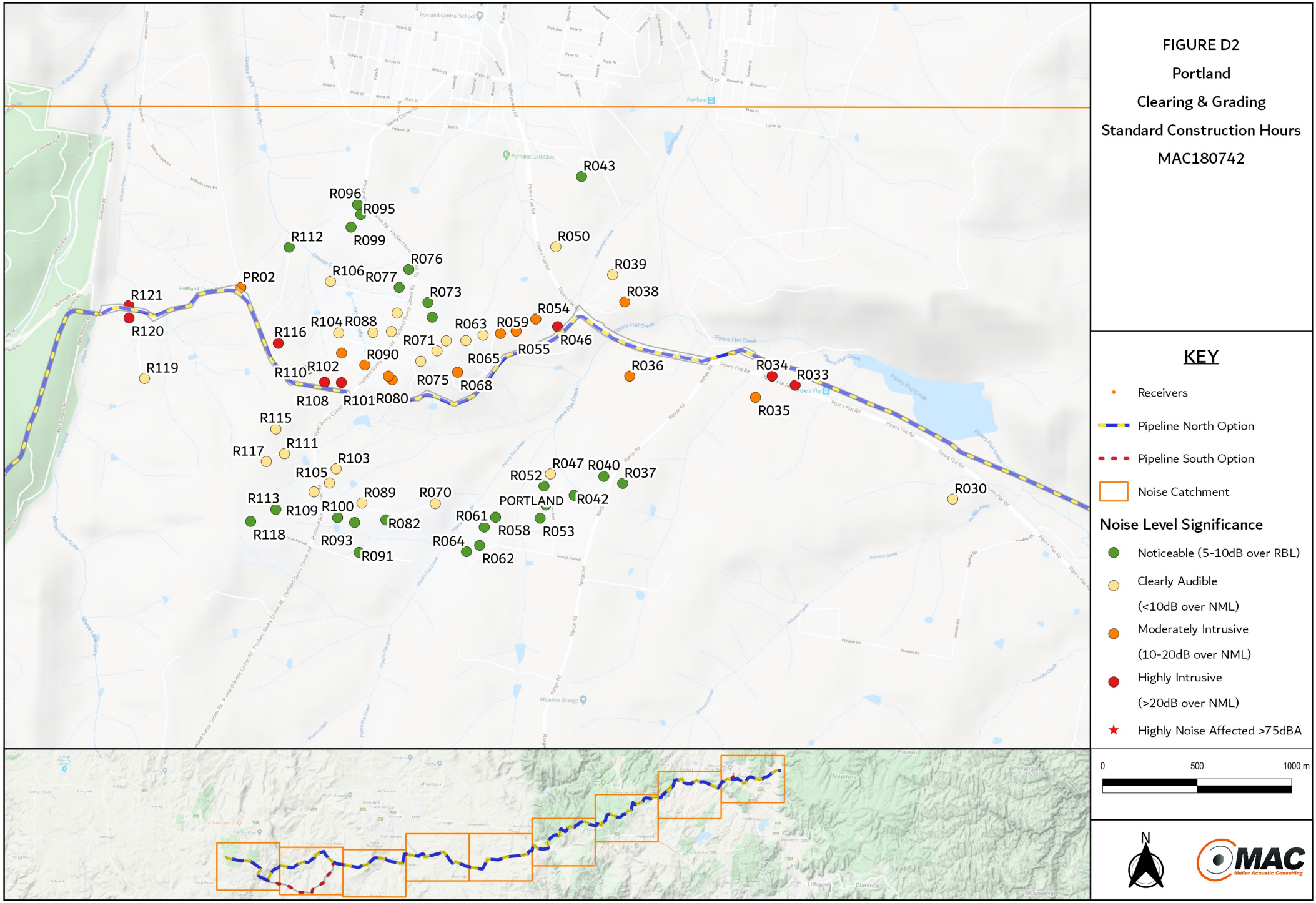


FIGURE D2
Portland
Clearing & Grading
Standard Construction Hours
MAC180742
KEY
Receivers
Pipeline North Option
Pipeline South Option
Noise Catchment
Noise Level Significance
Noticeable (5-10dB over RBL)
Clearly Audible
(<10dB over NML)
Moderately Intrusive
(10-20dB over NML)
Highly Intrusive
(>20dB over NML)
Highly Noise Affected >75dBA
0
500
1000 m
N
MAC
Muller Acoustic Consulting
R043
R096
R095
R099
R112
R050
R039
R076
R106
R077
PR02
R121
R073
R038
R120
R104
R088
R116
R063
R059
R054
R071
R046
R055
R090
R065
R036
R034
R033
R119
R102
R110
R075
R068
R035
R108
R101
R080
R115
R111
R117
R103
R105
R047
R040
R037
R052
R030
R089
R070
R042
PORTLAND
R113
R109
R100
R061
R058
R053
R082
R118
R093
R064
R062
R091

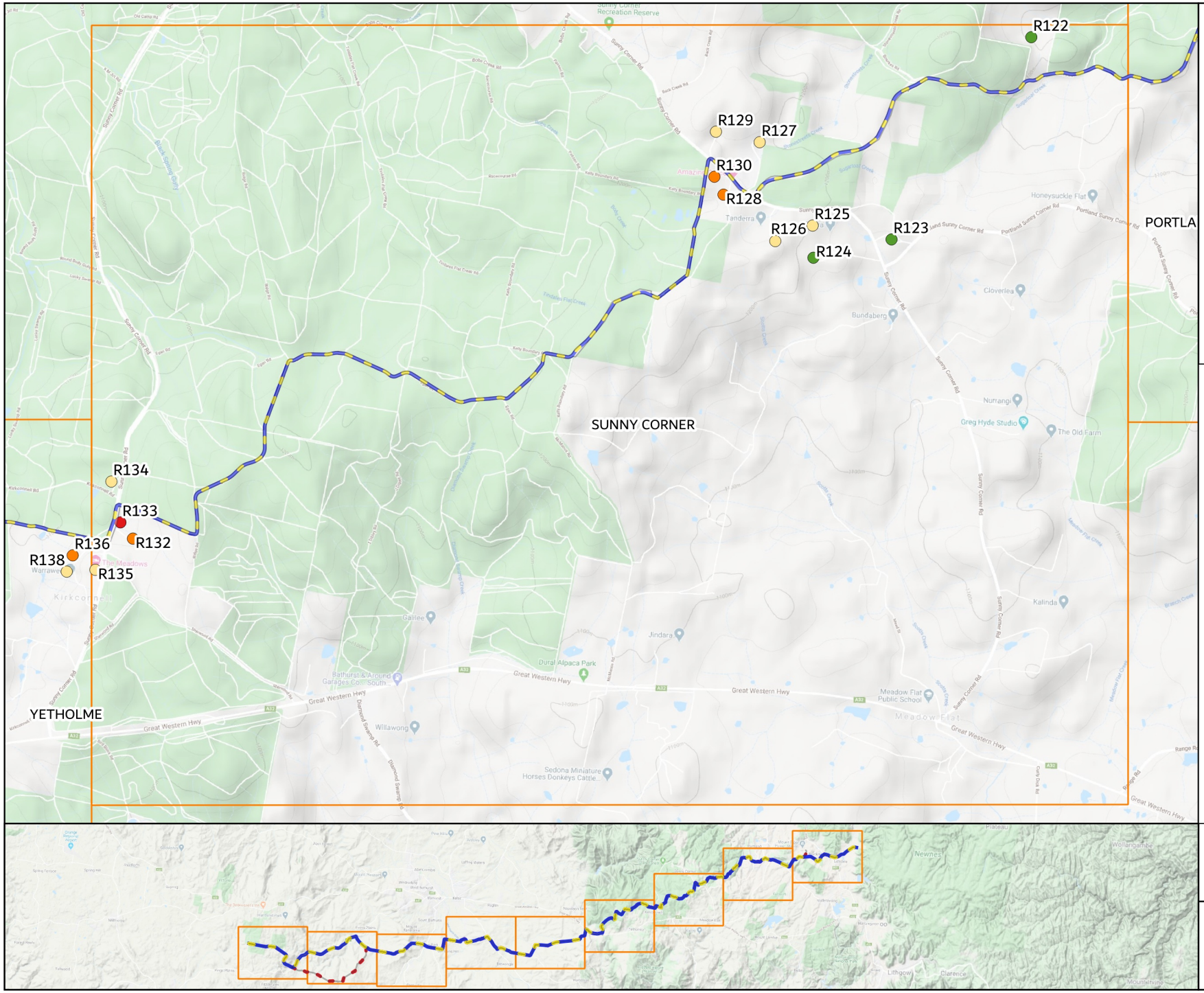



FIGURE D3

Sunny Corner

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

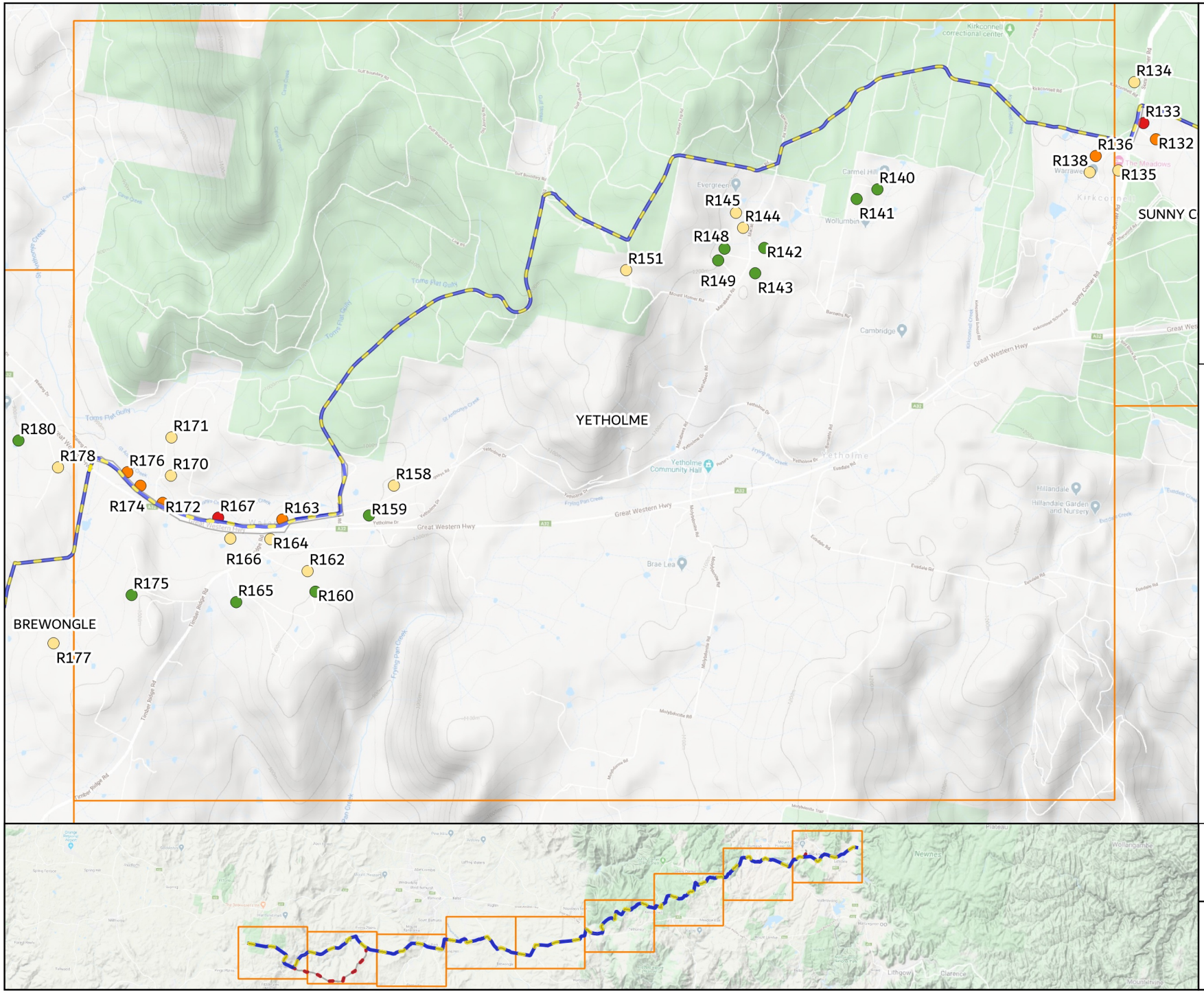



FIGURE D4

Yetholme

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

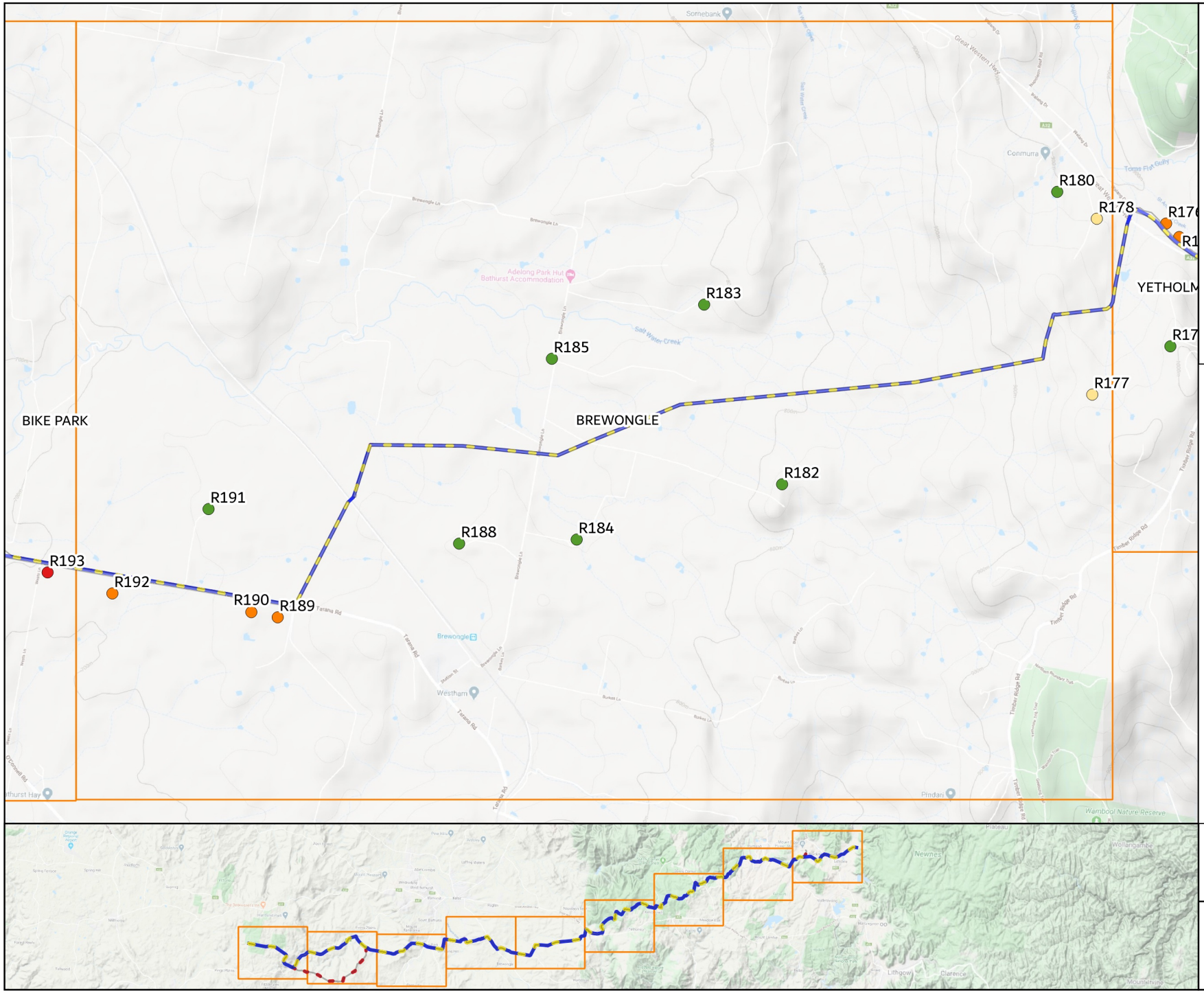



FIGURE D5

Brewongle

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

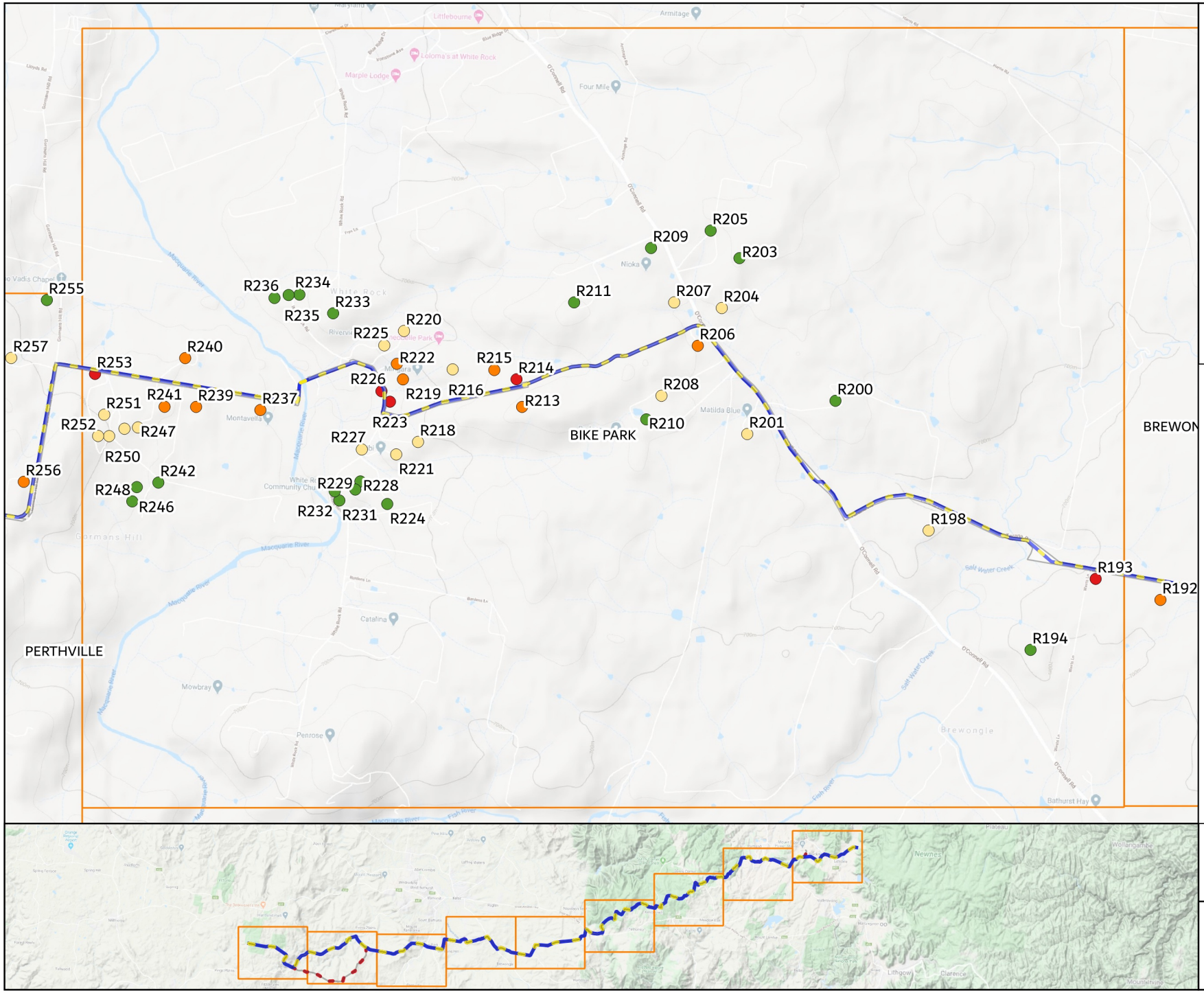



FIGURE D6

Bathurst Bike Park

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

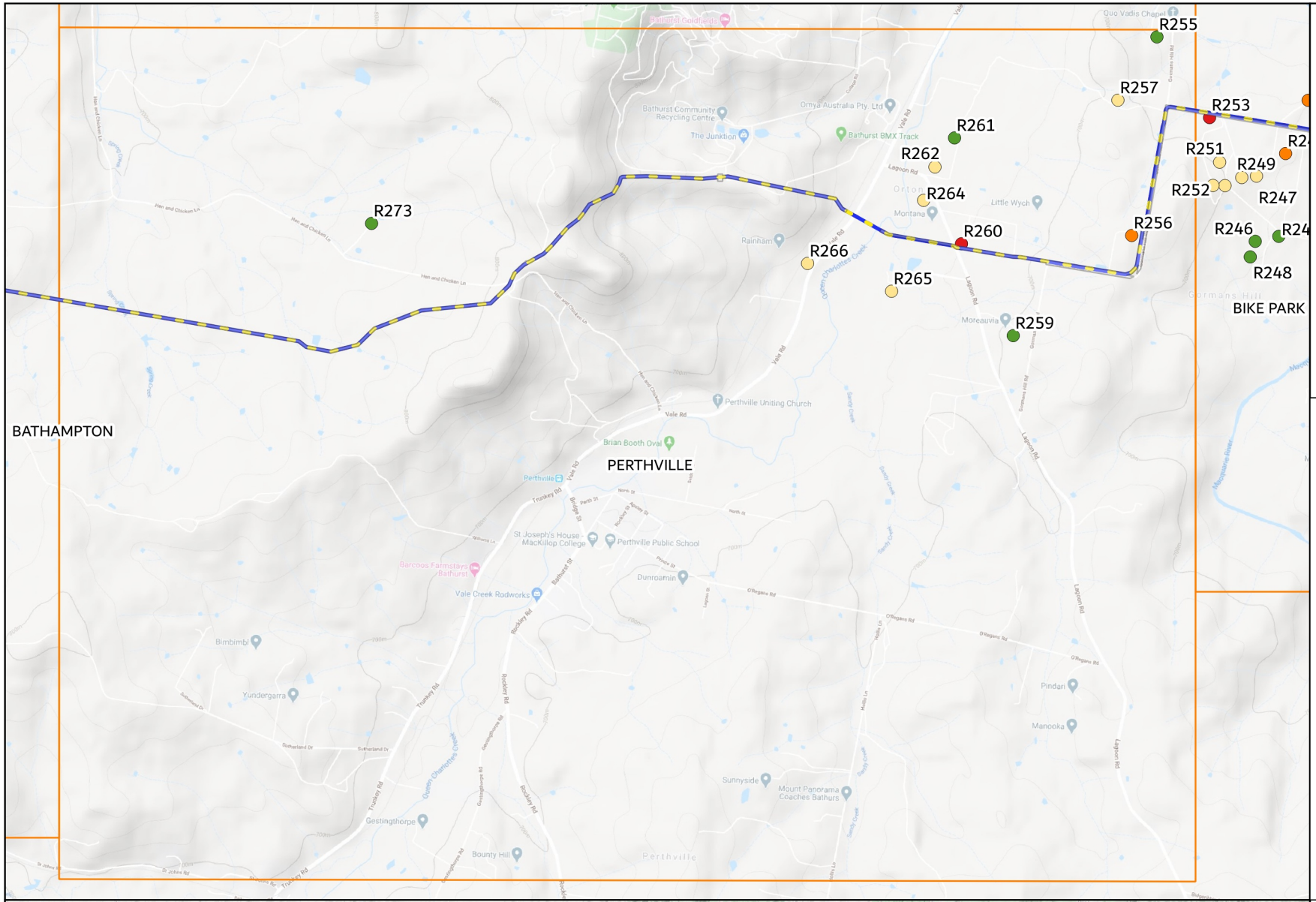



FIGURE D7

Perthville

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

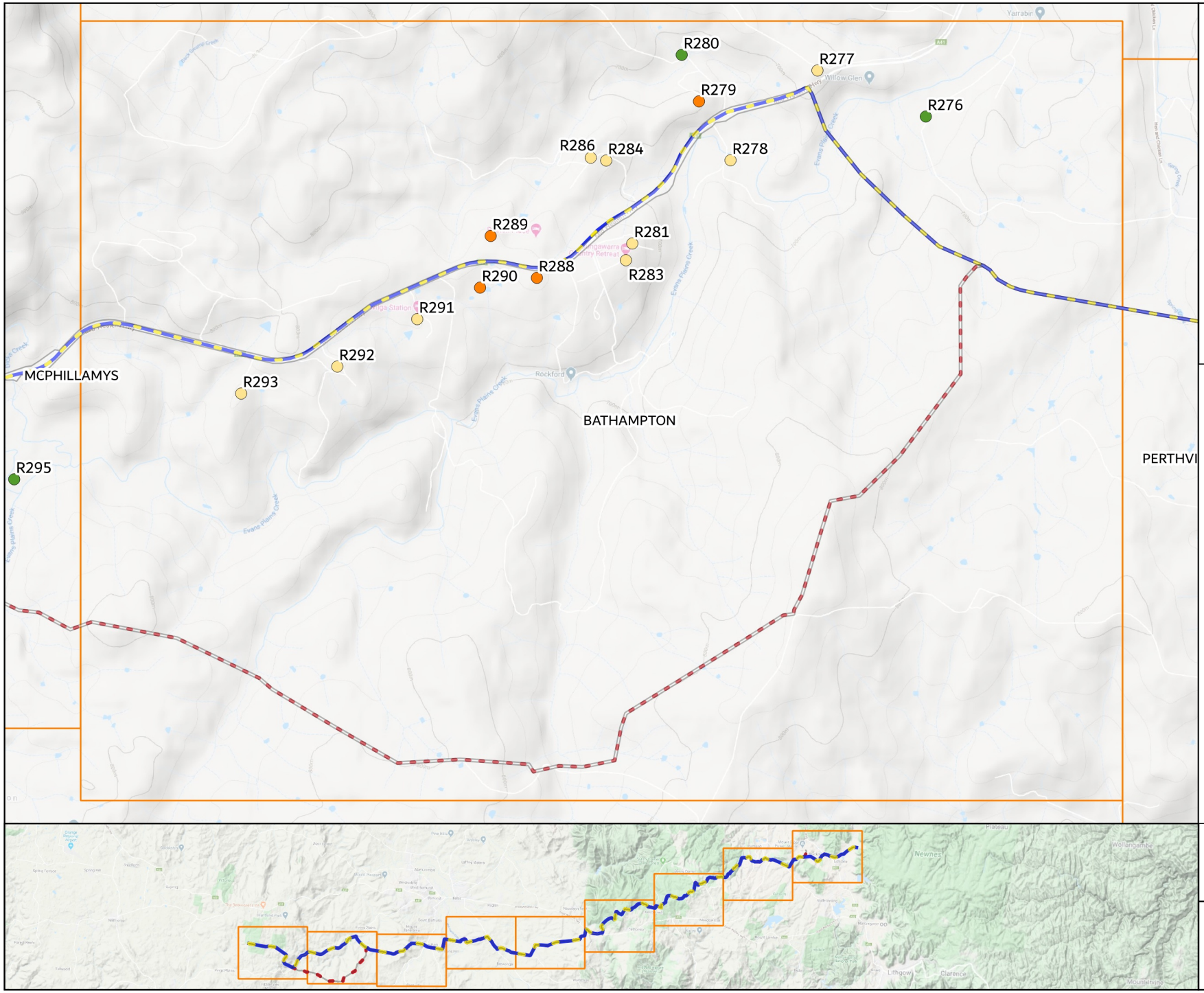



FIGURE D8

Bathampton

Clearing & Grading

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

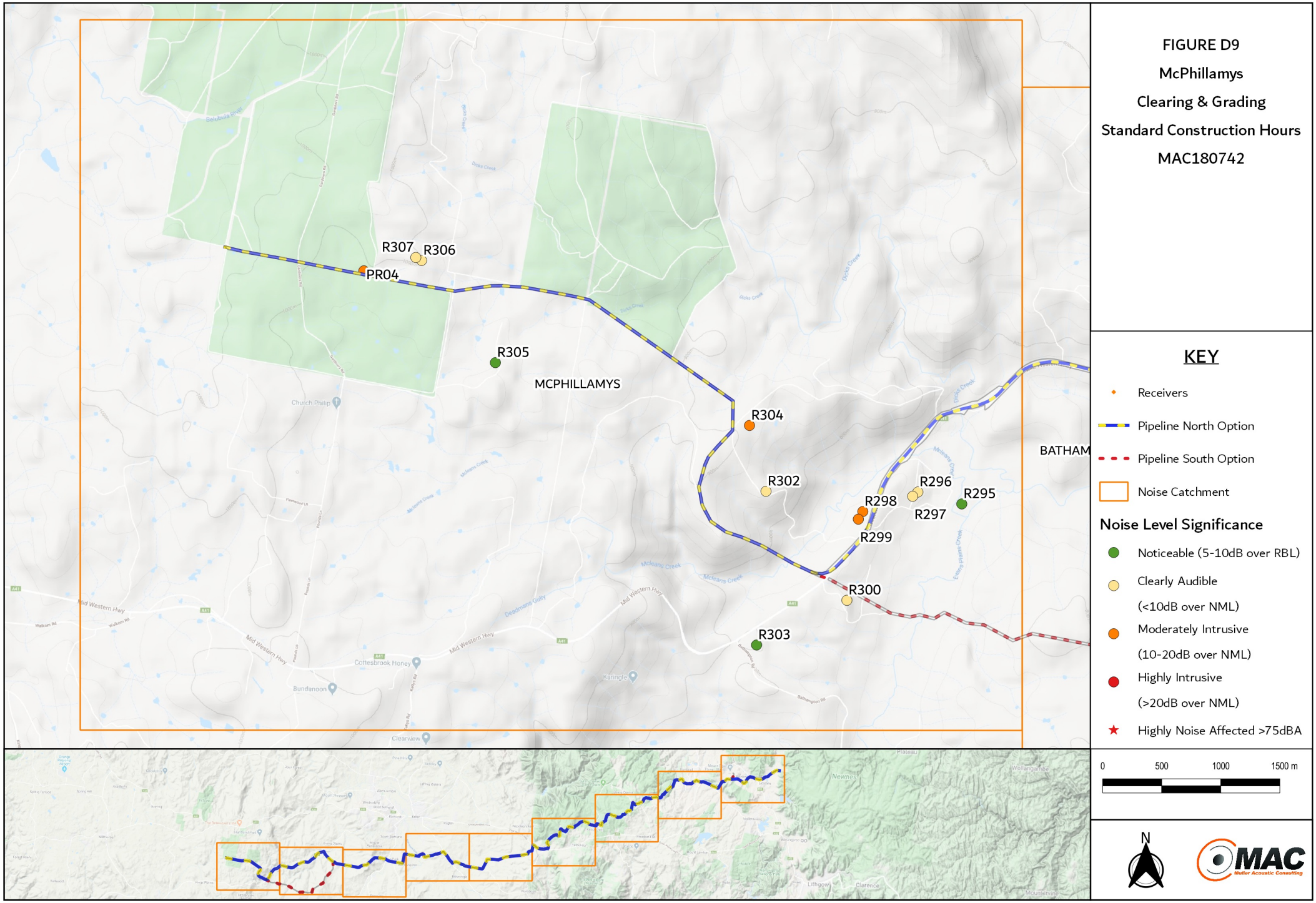
**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting


R307
R306
PR04
R305
MCPHILLAMYS
R304
BATHAM
R302
R296
R295
R298
R297
R299
R300
R303
Church Philip
Cottesbrook Honey
Bundanoon
Karingle
Clearview
Mid Western Hwy
McLeans Creek
Docks Creek
Deadmans Gully
Newnes
Lithgow
Clarence
FIGURE D9
McPhillamys
Clearing & Grading
Standard Construction Hours
MAC180742
KEY
Receivers
Pipeline North Option
Pipeline South Option
Noise Catchment
Noise Level Significance
Noticeable (5-10dB over RBL)
Clearly Audible
(<10dB over NML)
Moderately Intrusive
(10-20dB over NML)
Highly Intrusive
(>20dB over NML)
Highly Noise Affected >75dBA
0
500
1000
1500 m
N
MAC
Muller Acoustic Consulting

# Appendix E – Trenching

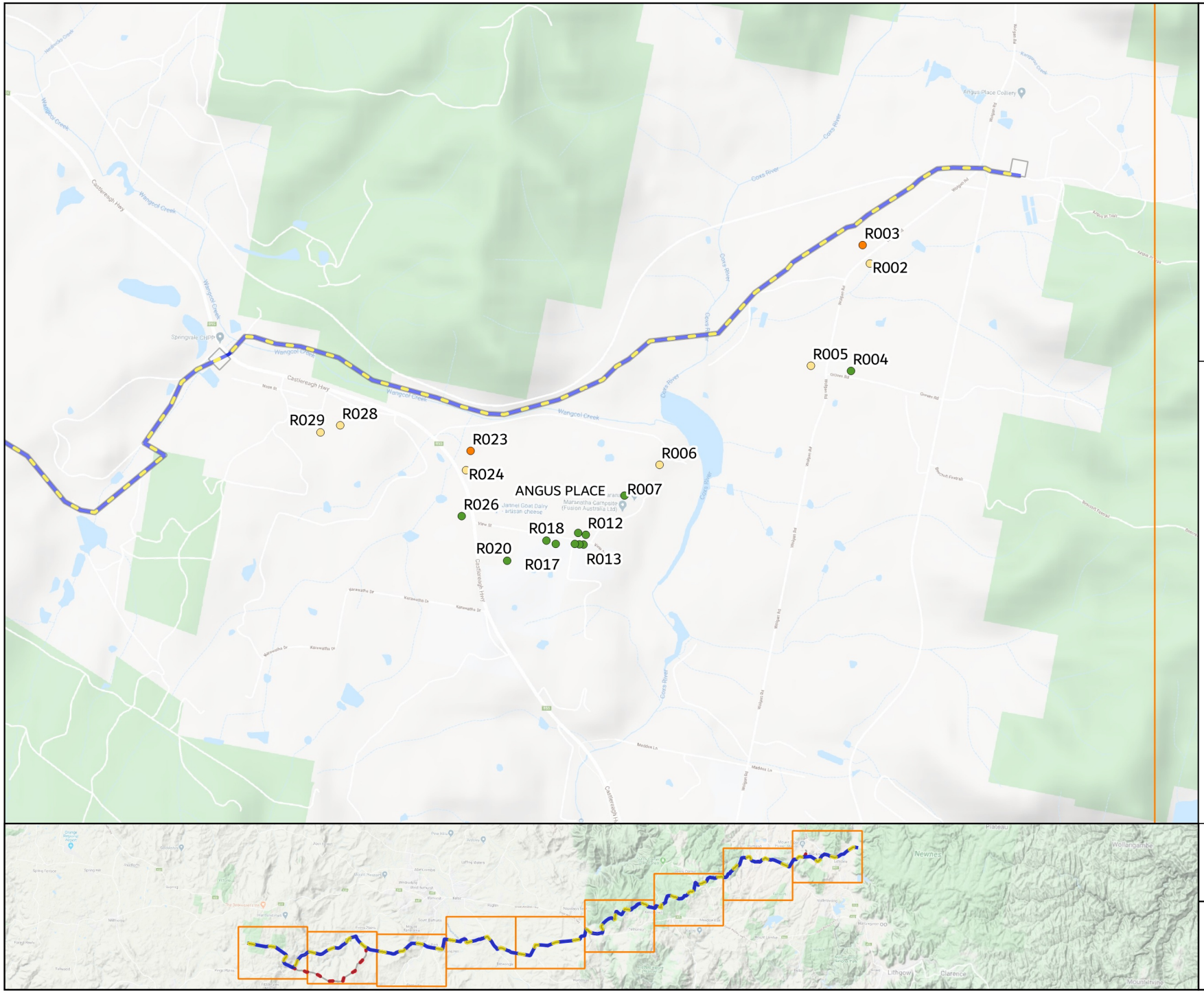



FIGURE E1

Angus Place

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 m

N

MAC
Muller Acoustic Consulting

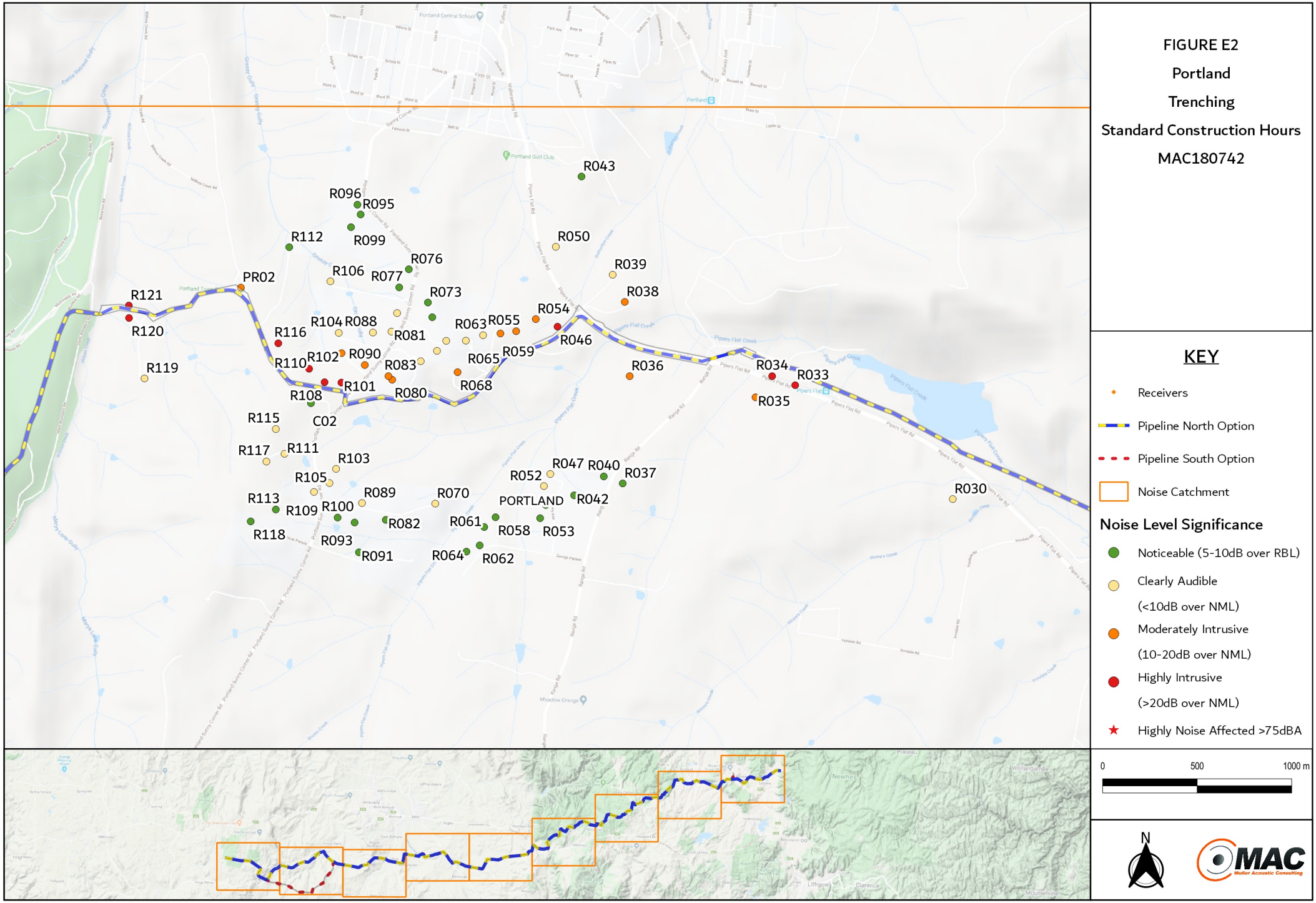


FIGURE E2
Portland
Trenching
Standard Construction Hours
MAC180742
KEY
Receivers
Pipeline North Option
Pipeline South Option
Noise Catchment
Noise Level Significance
Noticeable (5-10dB over RBL)
Clearly Audible
(<10dB over NML)
Moderately Intrusive
(10-20dB over NML)
Highly Intrusive
(>20dB over NML)
Highly Noise Affected >75dBA
0
500
1000 m
N
MAC
Muller Acoustic Consulting
R043
R096
R095
R099
R112
R050
R039
R076
R106
R077
PR02
R073
R038
R121
R054
R104
R088
R063
R055
R120
R116
R081
R046
R110
R102
R090
R059
R065
R036
R034
R033
R119
R083
R068
R101
R080
R035
R108
R115
C02
R117
R111
R103
R047
R040
R037
R052
R105
R089
R070
R042
R030
R113
R109
R100
PORTLAND
R082
R061
R058
R053
R118
R093
R091
R064
R062

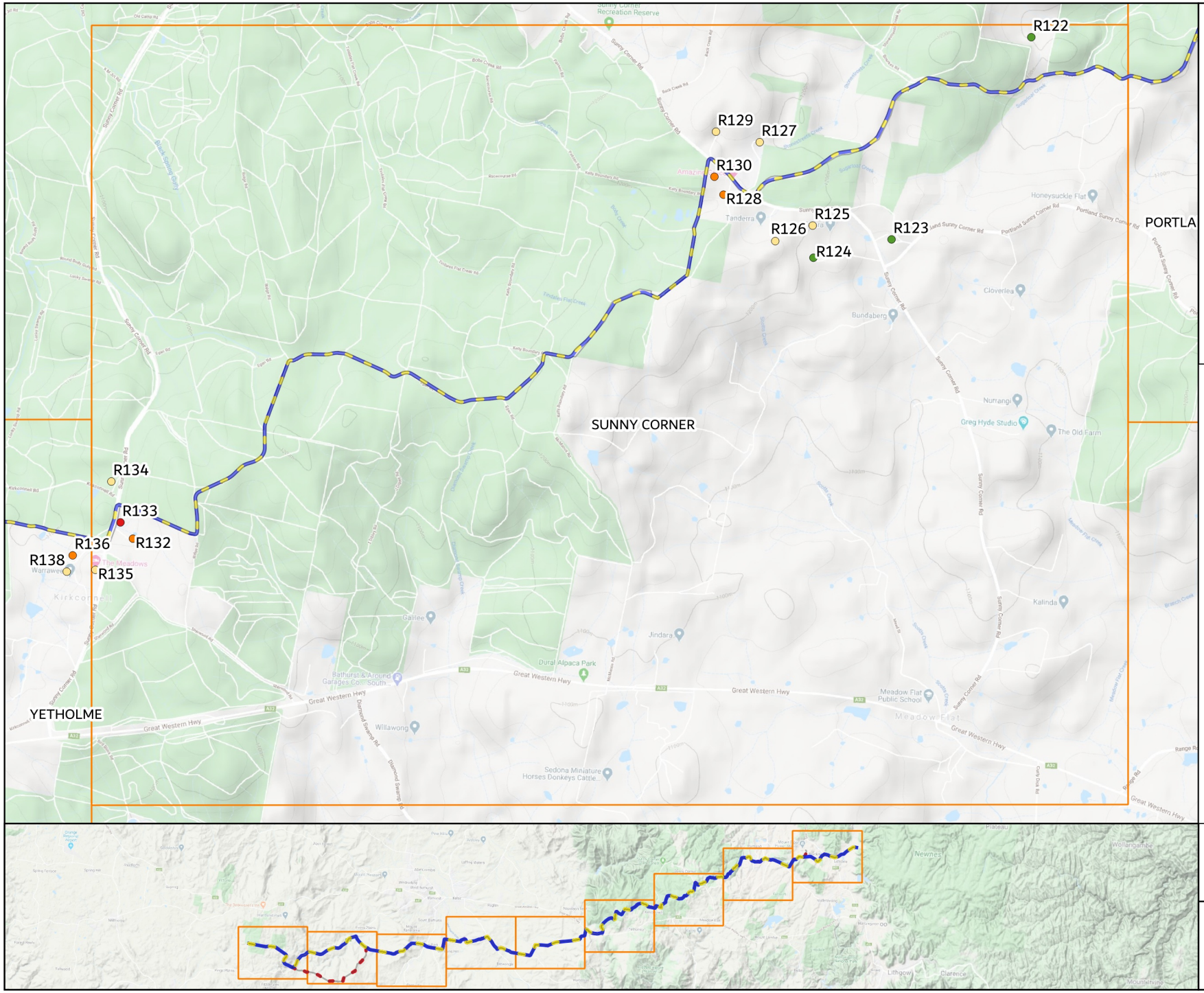



FIGURE E3

Sunny Corner

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

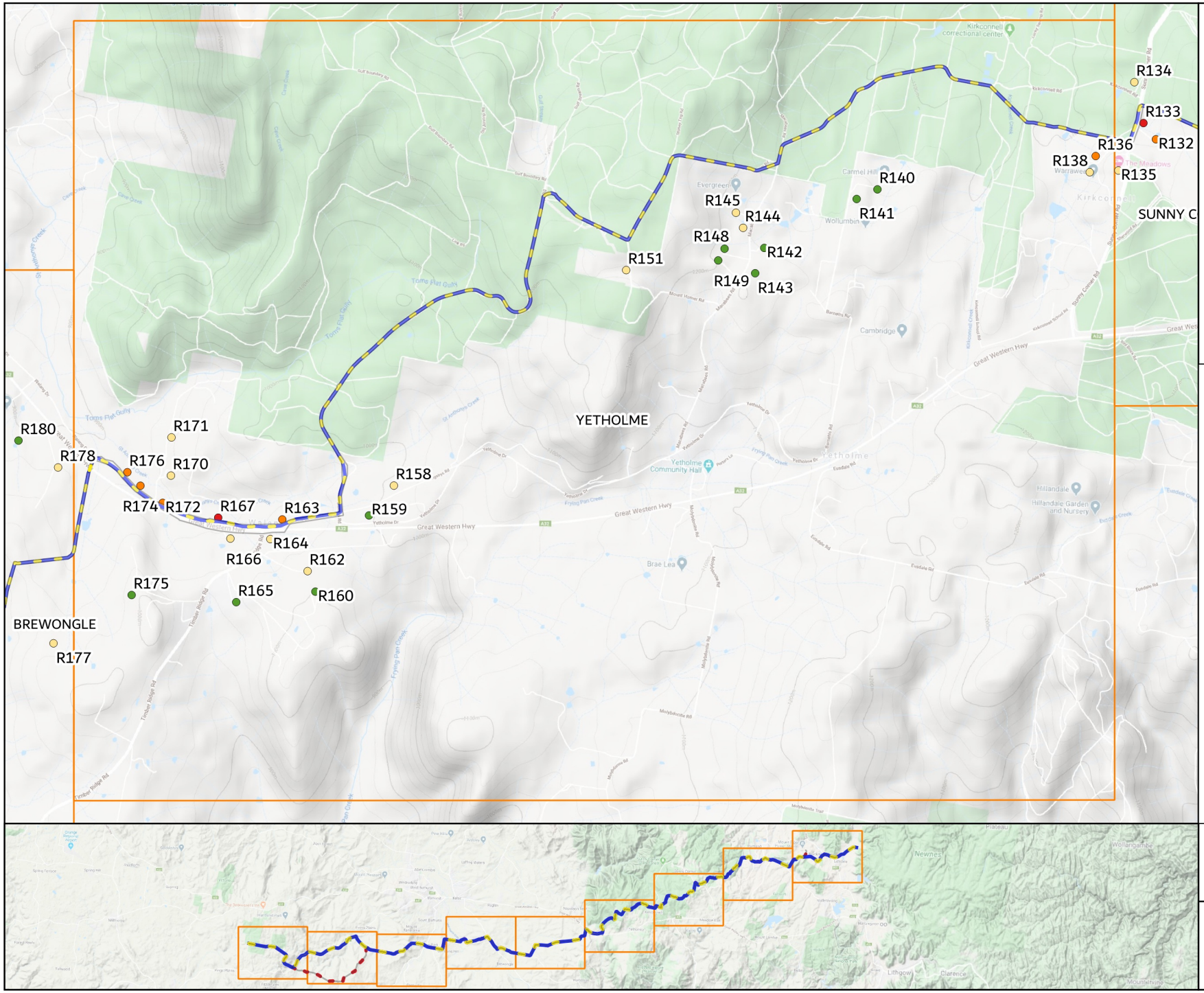



FIGURE E4

Yetholme

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

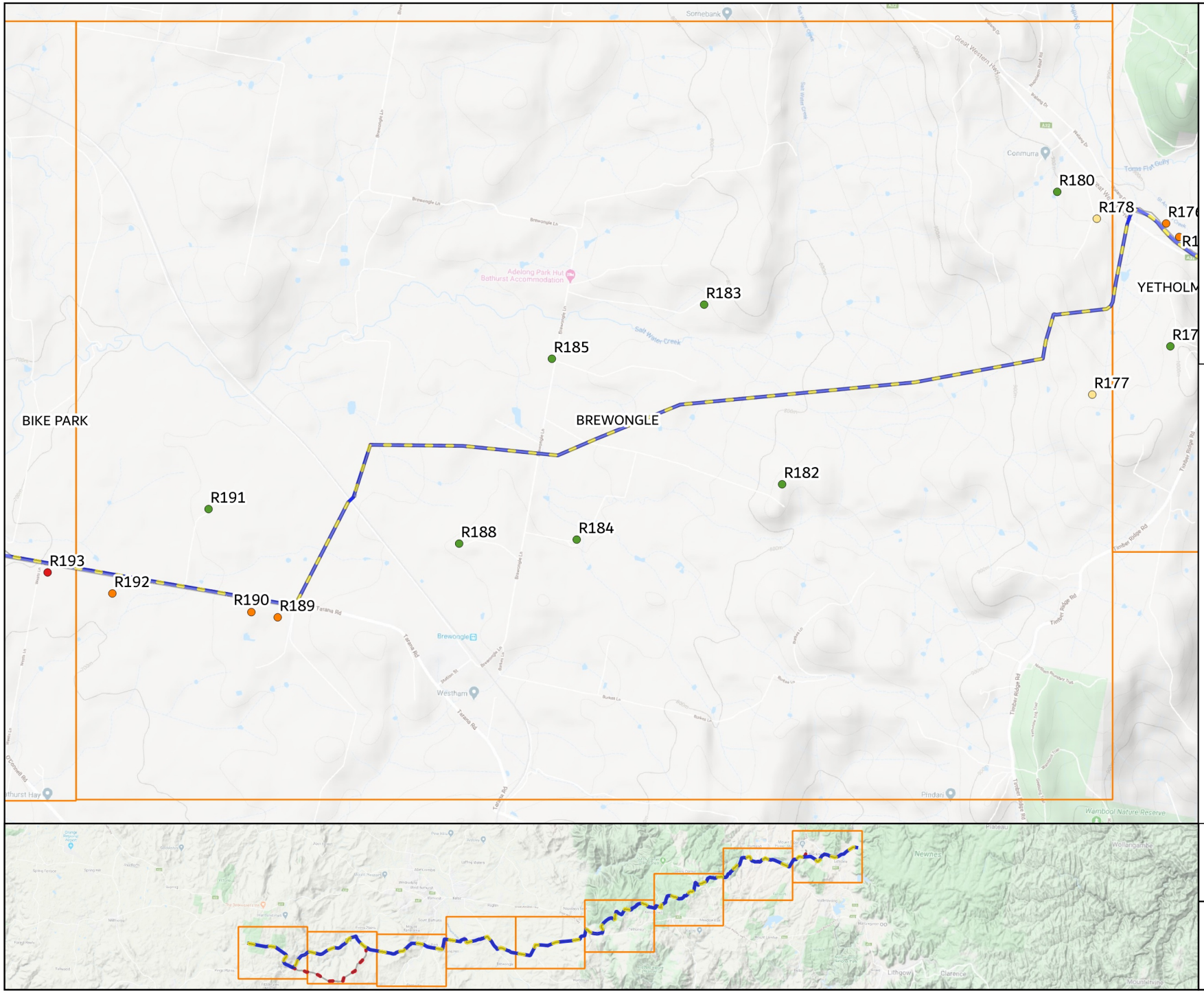



FIGURE E5

Brewongle

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

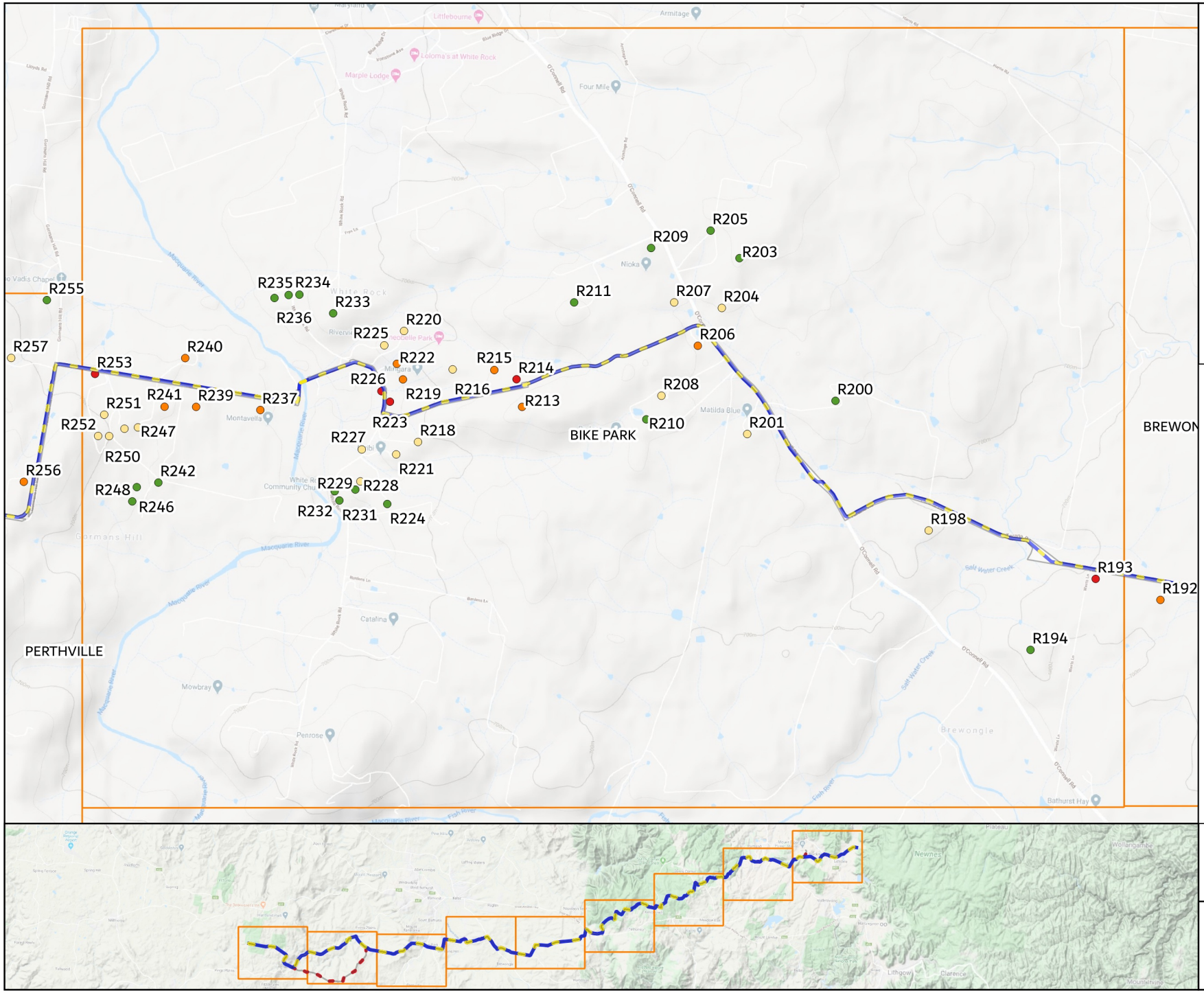



FIGURE E6

Bathurst Bike Park

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

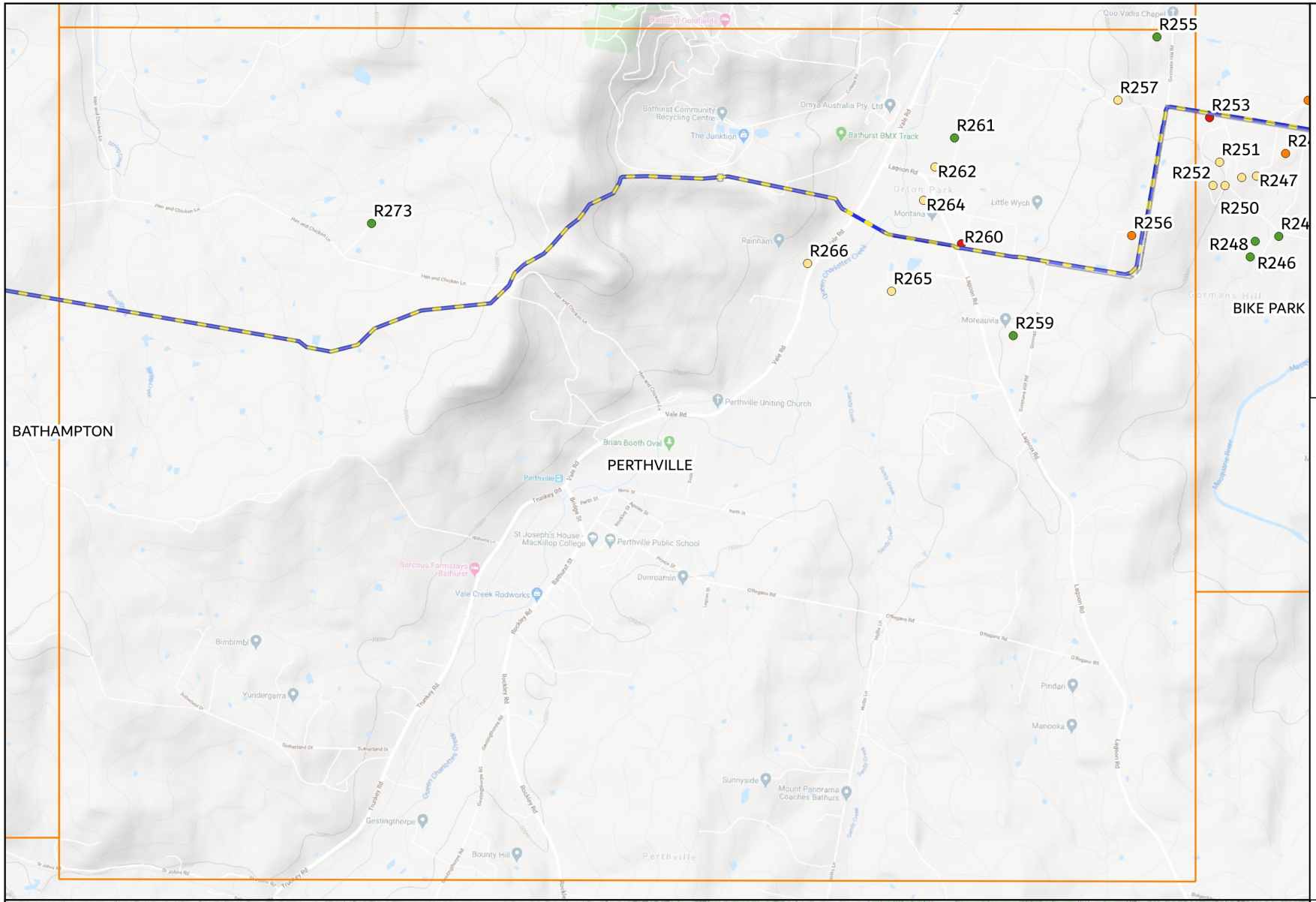



FIGURE E7

Perthville

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

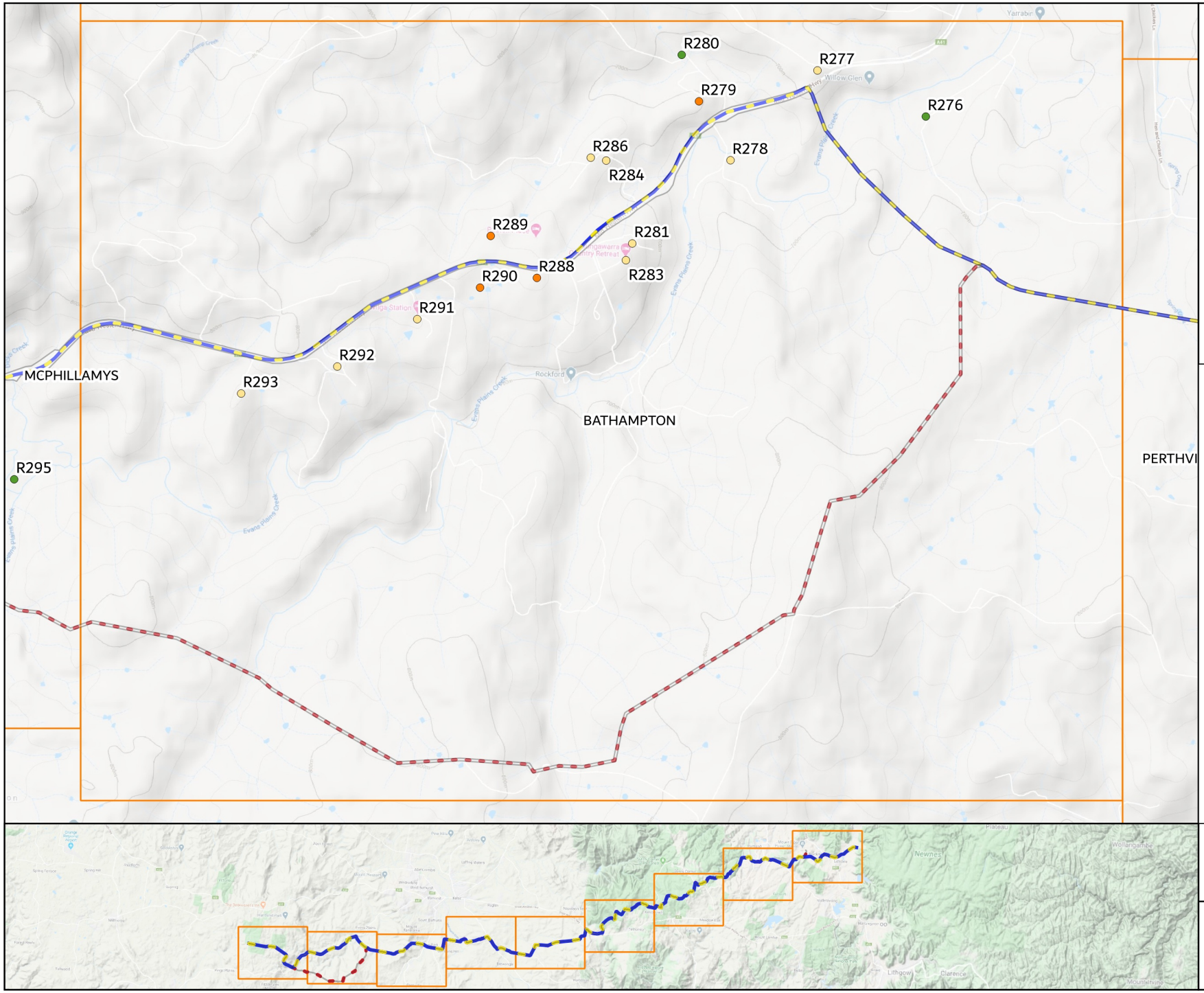



FIGURE E8

Bathampton

Trenching

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

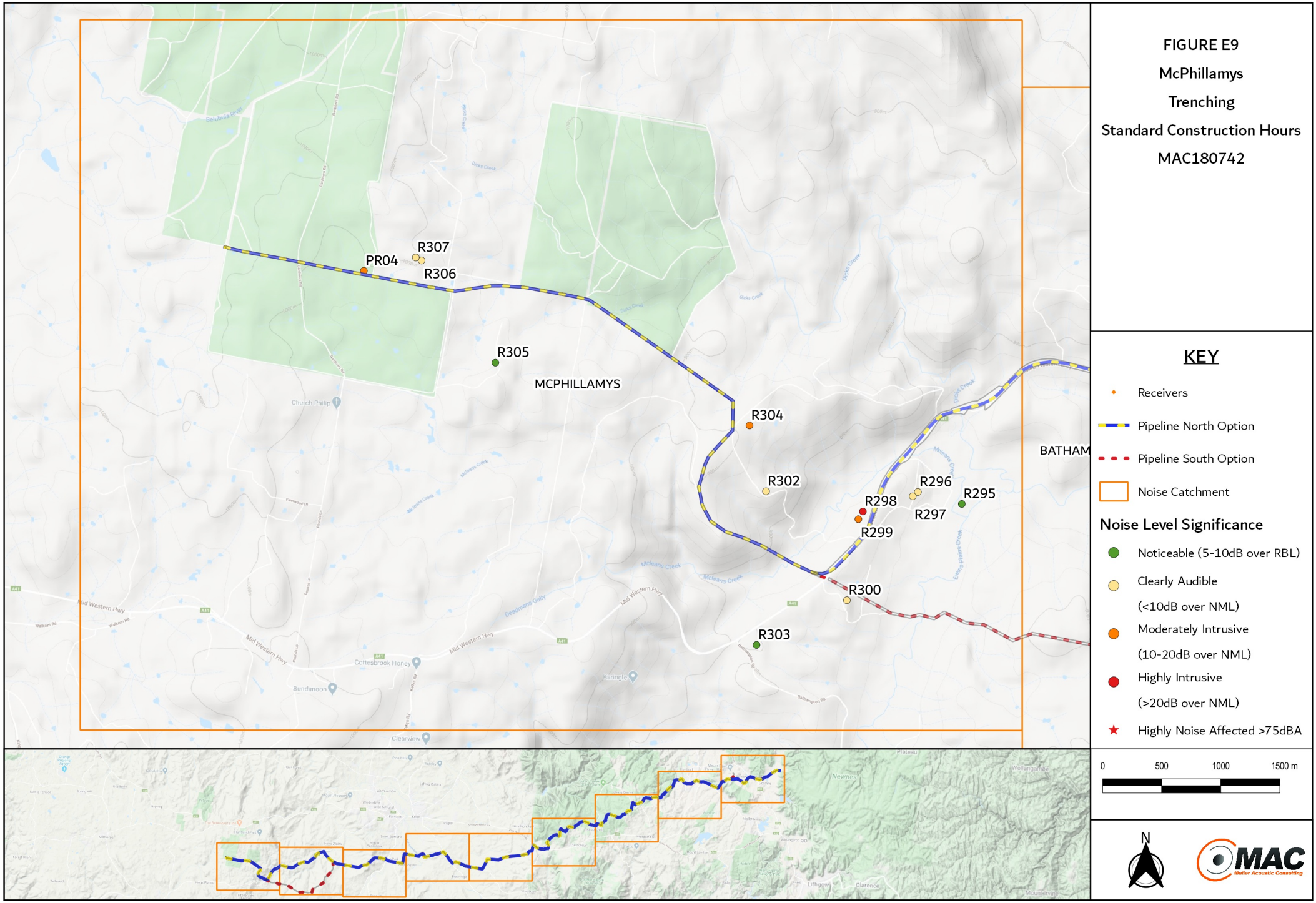


FIGURE E9
McPhillamys
Trenching
Standard Construction Hours
MAC180742
KEY
Receivers
Pipeline North Option
Pipeline South Option
Noise Catchment
Noise Level Significance
Noticeable (5-10dB over RBL)
Clearly Audible
(<10dB over NML)
Moderately Intrusive
(10-20dB over NML)
Highly Intrusive
(>20dB over NML)
Highly Noise Affected >75dBA
0
500
1000
1500 m
N
MAC
Muller Acoustic Consulting
PR04
R307
R306
R305
MCPHILLAMYS
R304
BATHAM
R302
R296
R295
R298
R297
R299
R300
R303
Mid Western Hwy
Cottesbrook Honey
Bundanoon
Clearview
Karingle
Church Philip
Newnes
Lithgow
Clarence

# Appendix F – Backfill & Restoration

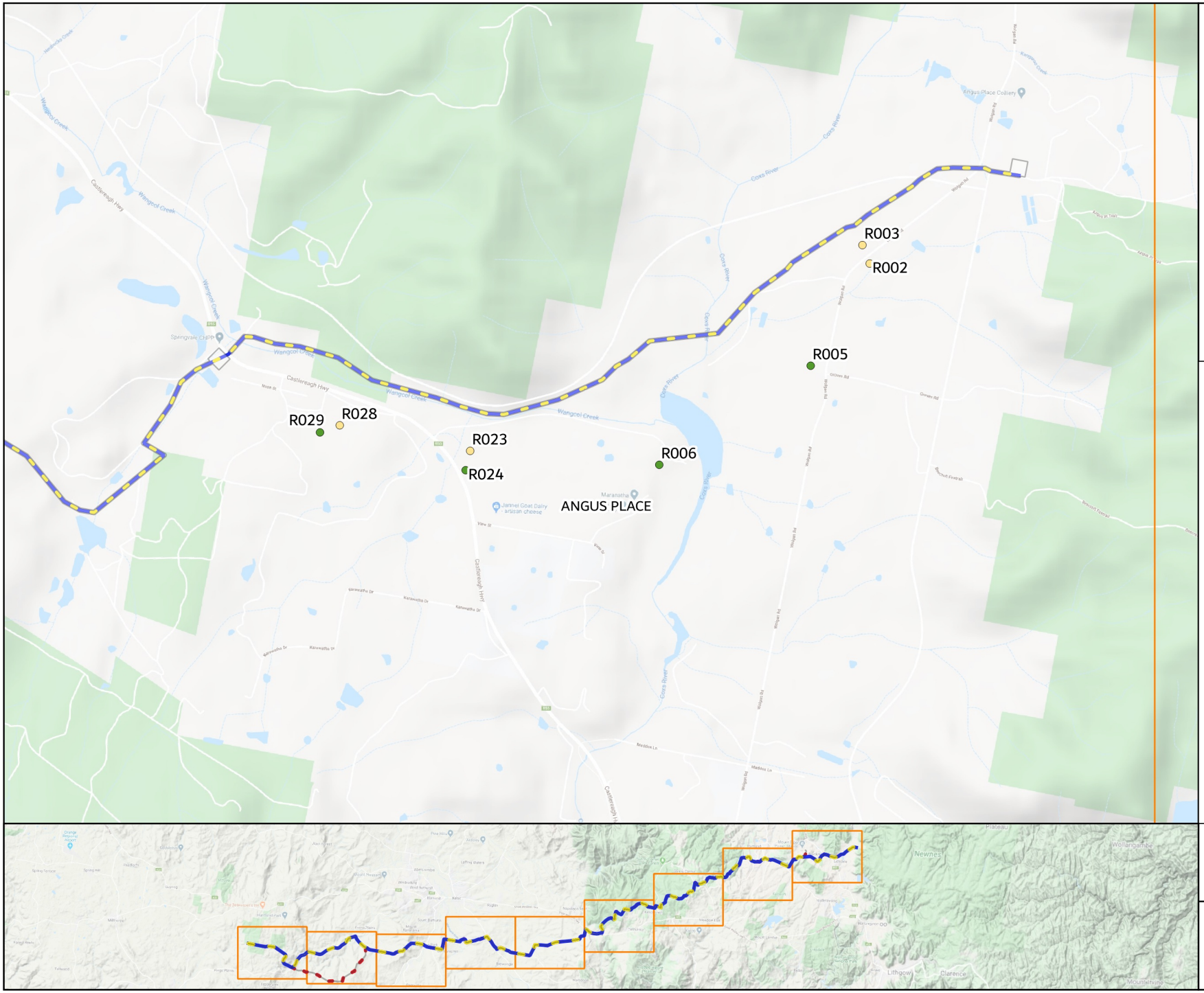



FIGURE F1

Angus Place

Backfill & Restoration

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 m

N

MAC Muller Acoustic Consulting

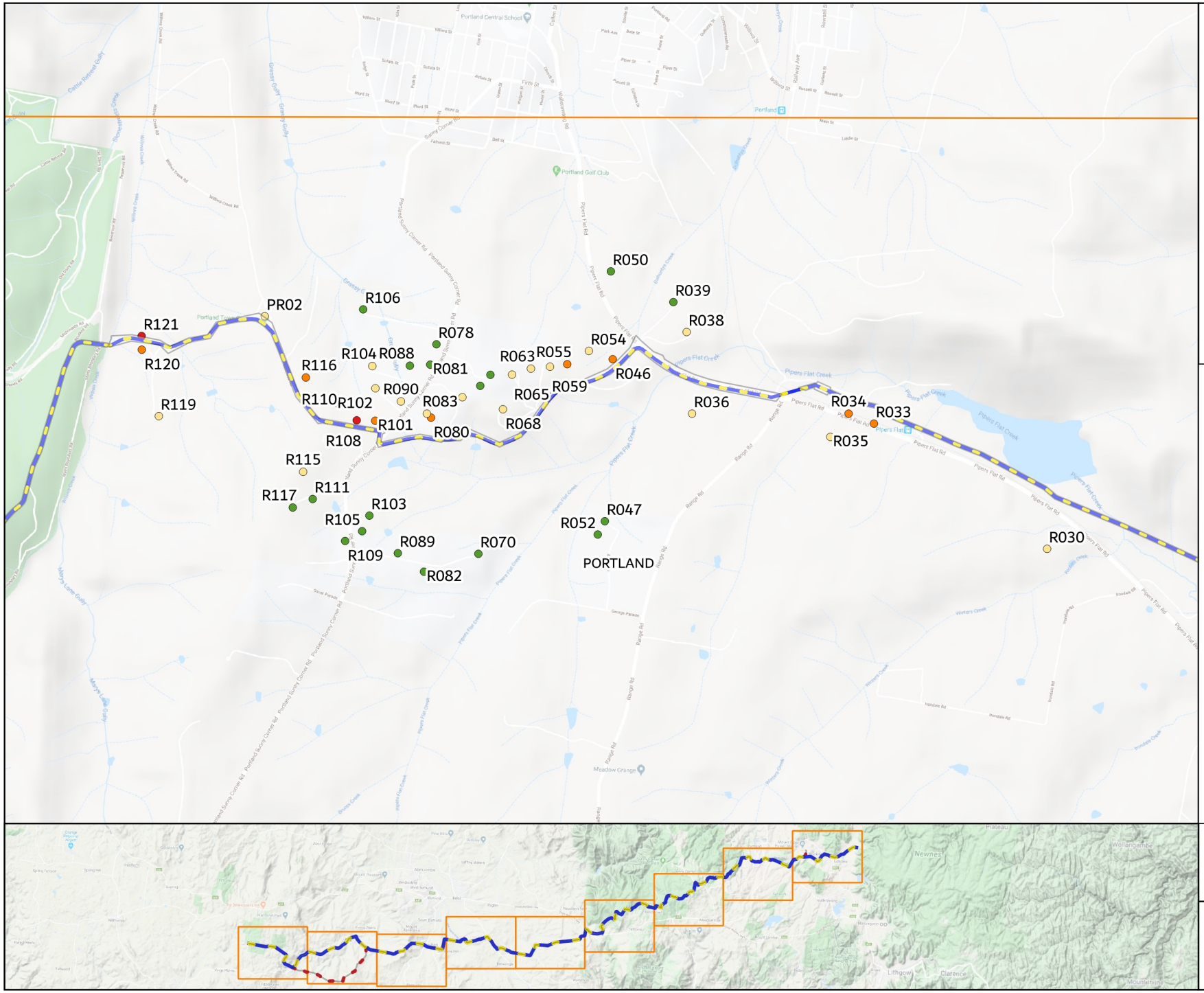



FIGURE F2

Portland

Backfill & Restoration

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 m

N

MAC Muller Acoustic Consulting

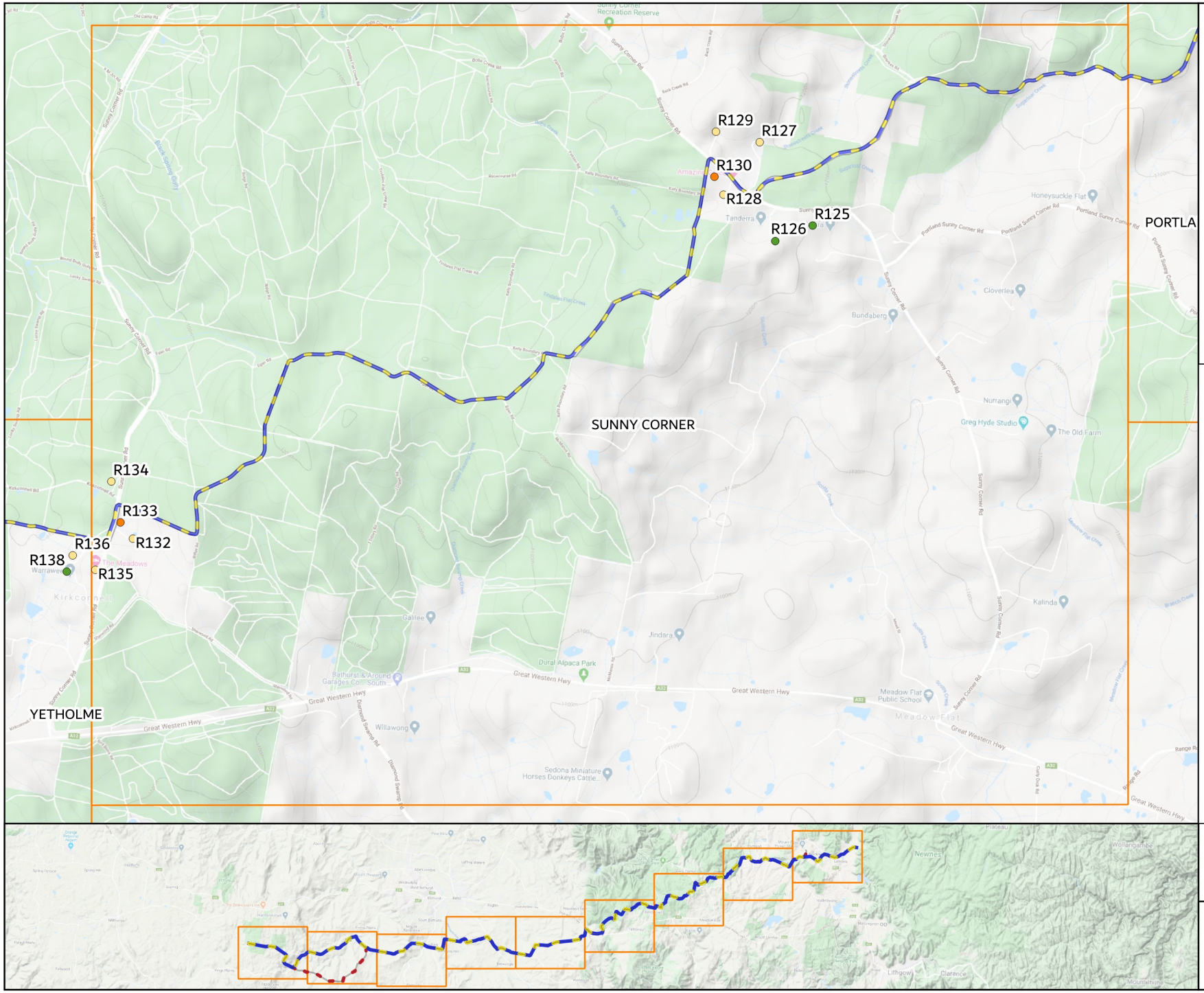



FIGURE F3

Sunny Corner

Backfill & Restoration

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

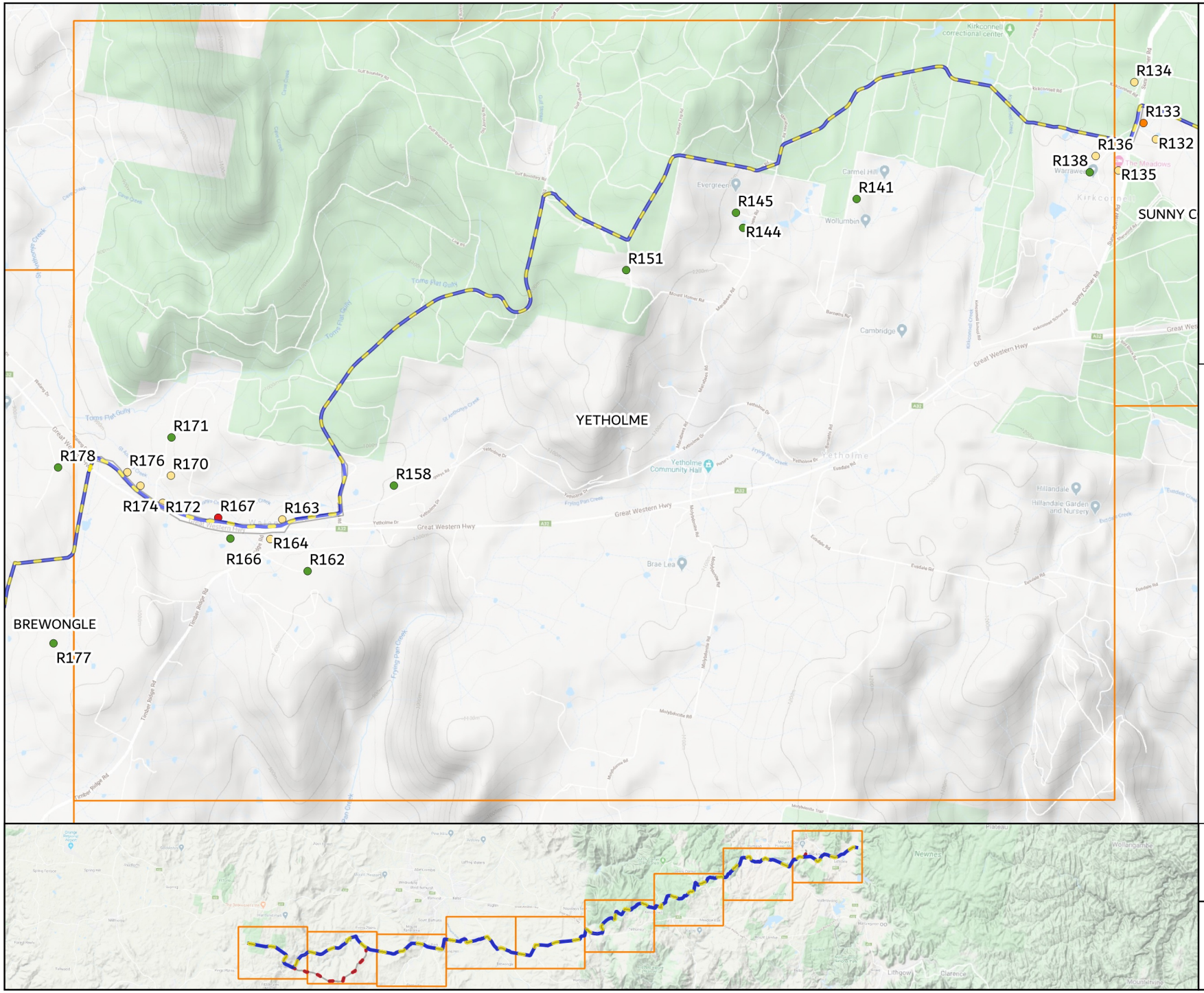



FIGURE F4

Yetholme

Backfill & Restoration

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

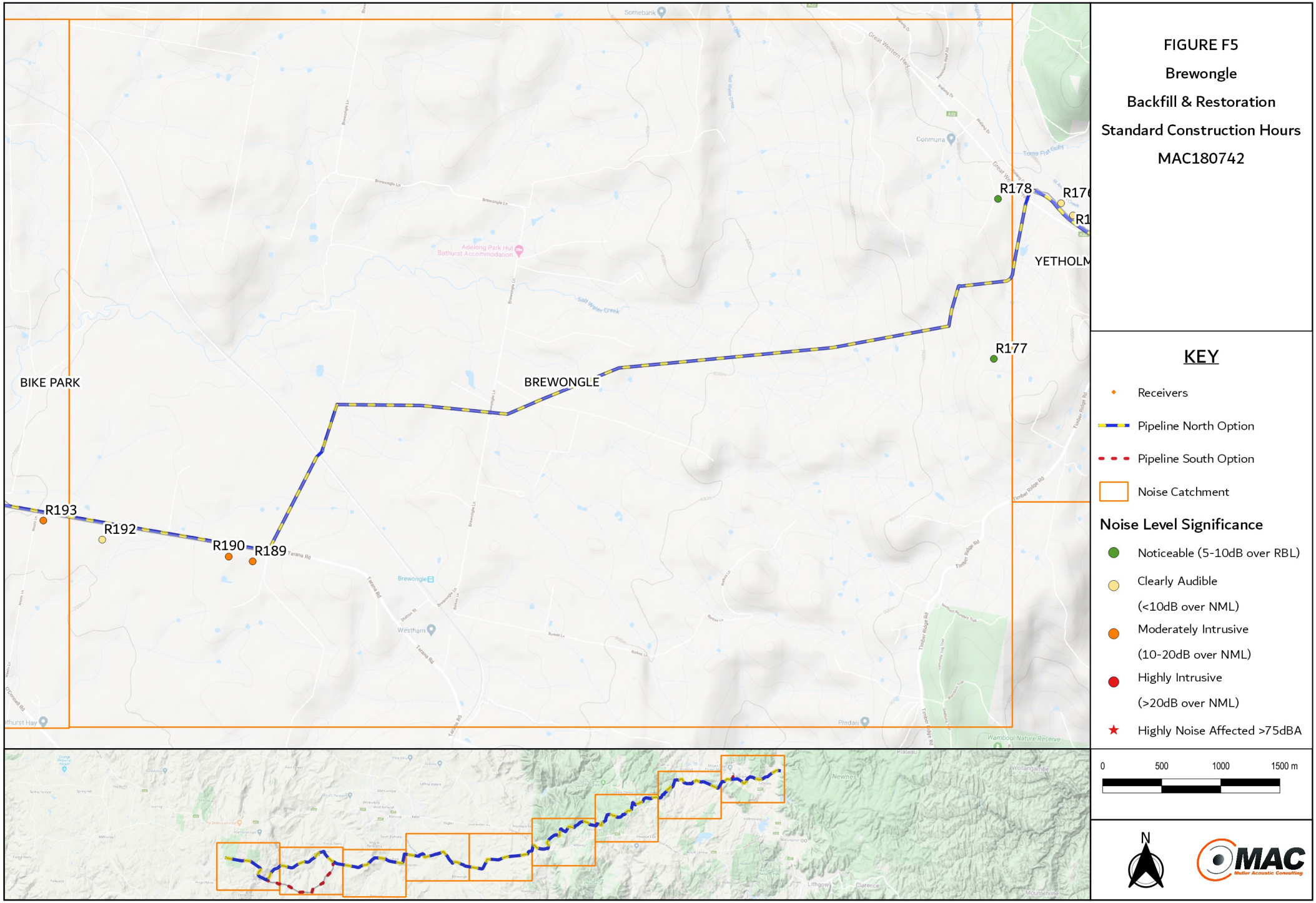


FIGURE F5
Brewongle
Backfill & Restoration
Standard Construction Hours
MAC180742
KEY
Receivers
Pipeline North Option
Pipeline South Option
Noise Catchment
Noise Level Significance
Noticeable (5-10dB over RBL)
Clearly Audible
(<10dB over NML)
Moderately Intrusive
(10-20dB over NML)
Highly Intrusive
(>20dB over NML)
Highly Noise Affected >75dBA
0
500
1000
1500 m
N
MAC
Muller Acoustic Consulting
BIKE PARK
BREWONGLE
YETHOLM
R193
R192
R190
R189
R177
R178
Sornebank
Conmurra
Adelong Park Hut
Bathurst Accommodation
Salt Water Creek
Brewongle
Westham
Pindari
Wambool Nature Reserve
Newnes
Lithgow
Clarence

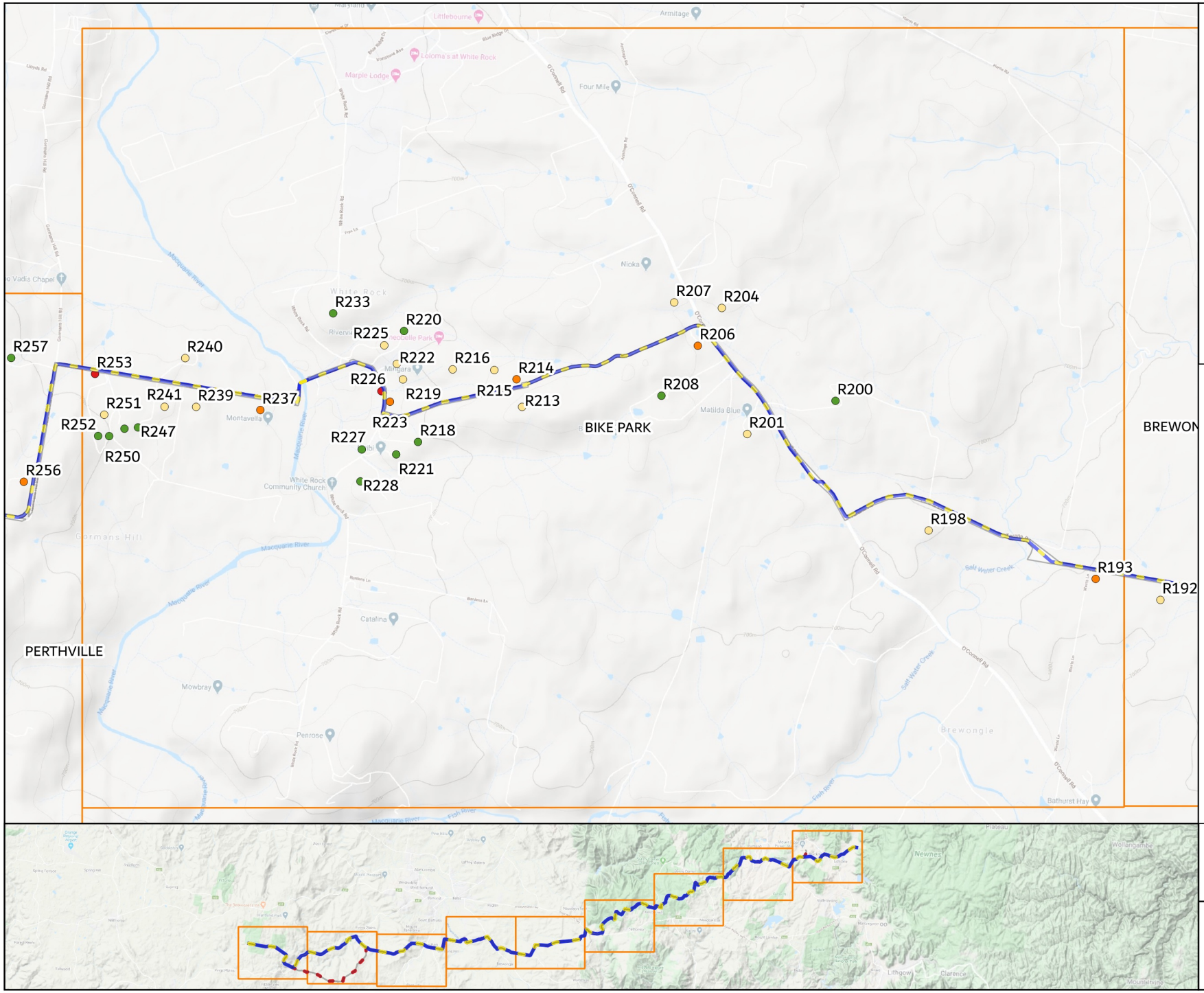



FIGURE F6

Bathurst Bike Park

Backfill & Restoration

Standard Construction Hours

MAC180742

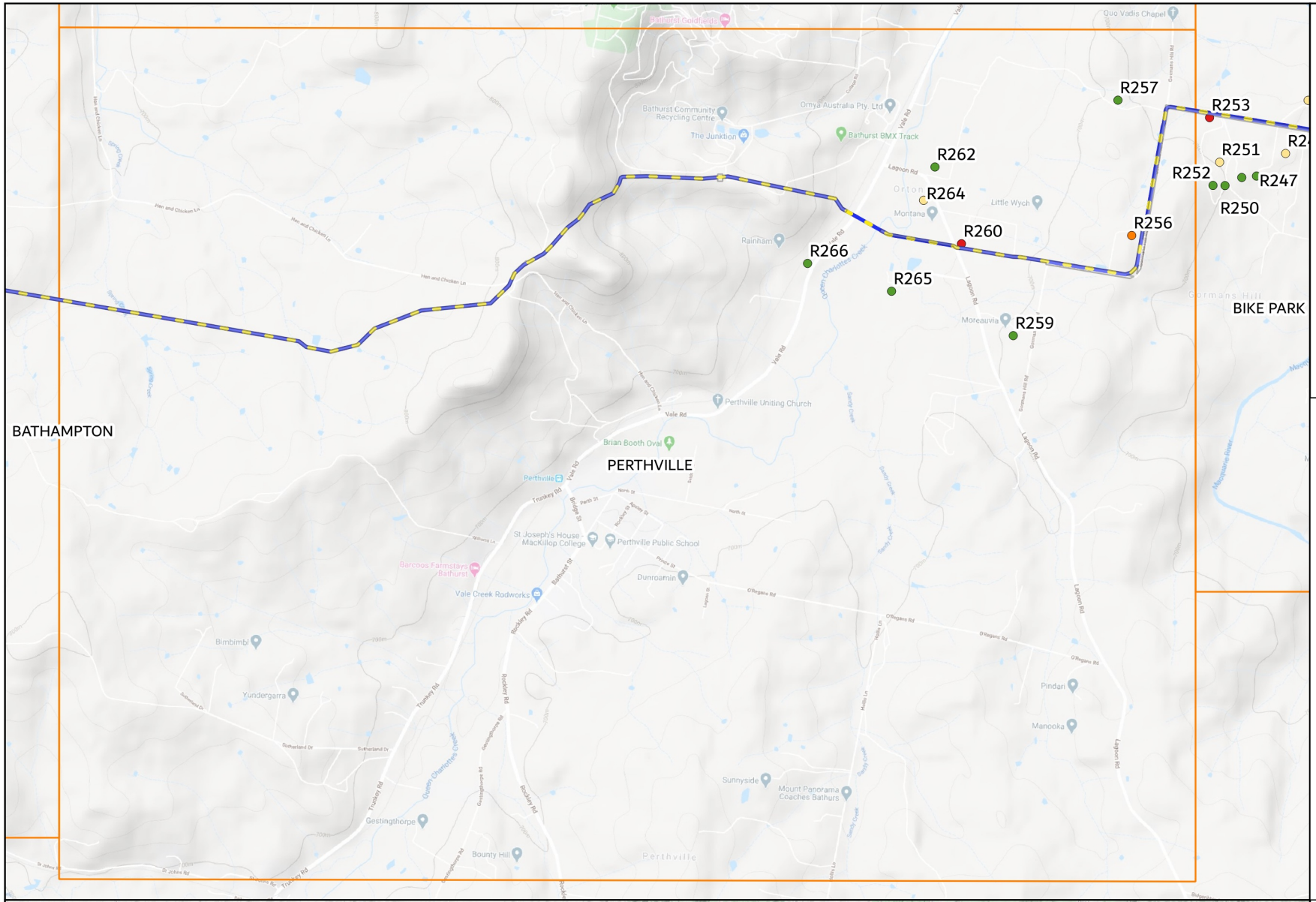



FIGURE F7

Perthville

Backfill & Restoration

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

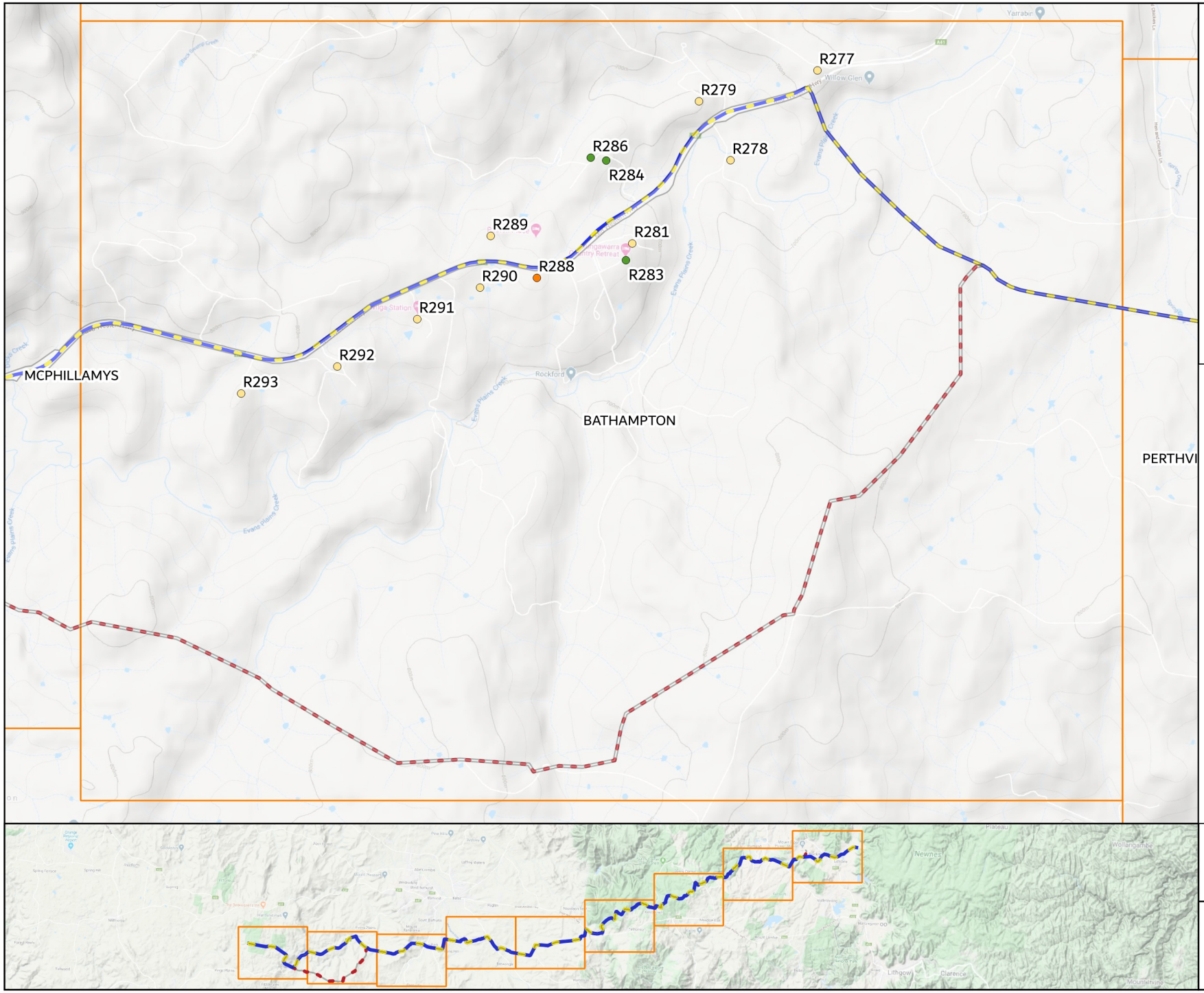



FIGURE F8

Bathampton

Backfill & Restoration

Standard Construction Hours

MAC180742

## KEY

- Receivers
- Pipeline North Option
- Pipeline South Option
- Noise Catchment

**Noise Level Significance**

- Noticeable (5-10dB over RBL)
- Clearly Audible (<10dB over NML)
- Moderately Intrusive (10-20dB over NML)
- Highly Intrusive (>20dB over NML)
- Highly Noise Affected >75dBA

0 500 1000 1500 m

N

MAC Muller Acoustic Consulting

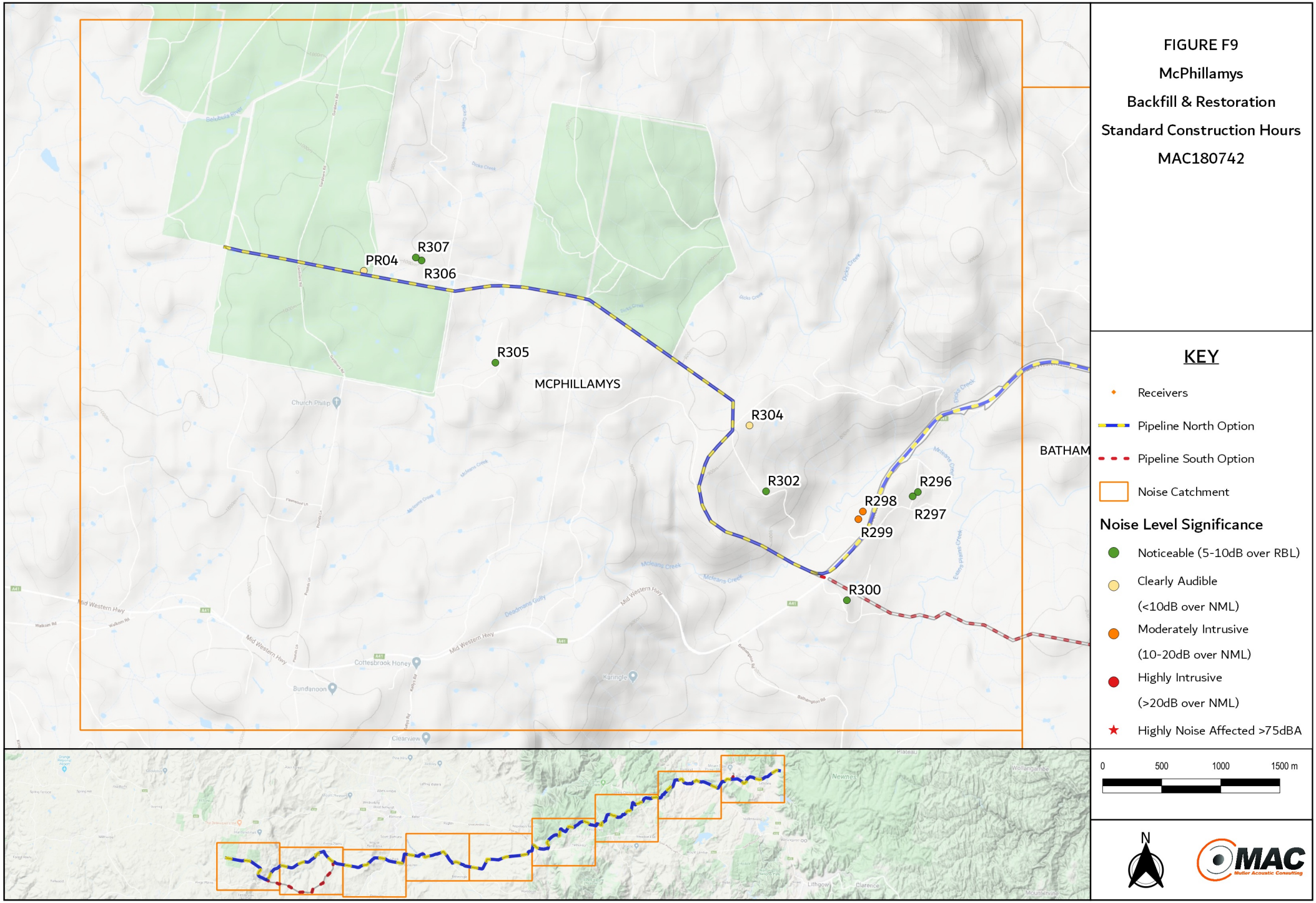


FIGURE F9
McPhillamys
Backfill & Restoration
Standard Construction Hours
MAC180742
KEY
Receivers
Pipeline North Option
Pipeline South Option
Noise Catchment
Noise Level Significance
Noticeable (5-10dB over RBL)
Clearly Audible
(<10dB over NML)
Moderately Intrusive
(10-20dB over NML)
Highly Intrusive
(>20dB over NML)
Highly Noise Affected >75dBA
0
500
1000
1500 m
N
MAC
Muller Acoustic Consulting
PR04
R307
R306
R305
MCPHILLAMYS
R304
R302
R296
R298
R297
R299
R300
BATHAM
Church Philip
Cottesbrook Honey
Bundanoon
Karingle
Clearview
Mid Western Hwy
Deadmans Gully
McLeans Creek
Docks Creek
Belubula River

# Appendix G – Detailed Tabulated Results

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR01 | Portland | >800m | 36 | 65 | 65 | 65 | -30 | -30 | -30 | -- | -- | -- |
| AR02 | Portland | >800m | 32 | 65 | 65 | 65 | -33 | -33 | -33 | -- | -- | -- |
| AR03 | Perthville | 200-400m | 53 | 65 | 65 | 65 | -12 | -12 | -12 | -- | -- | -- |
| AR04 | Perthville | 400-800m | 46 | 65 | 65 | 65 | -19 | -19 | -19 | -- | -- | -- |
| C01 | Angus Place | 400-800m | 48 | 70 | 70 | 70 | -22 | -22 | -22 | -- | -- | -- |
| C02 | Portland | 50-100m | 64 | 70 | 70 | 70 | -6 | -6 | -6 | -- | -- | -- |
| C03 | Yetholme | 100-200m | 59 | 70 | 70 | 70 | -11 | -11 | -11 | -- | -- | -- |
| C04 | Perthville | 200-400m | 53 | 70 | 70 | 70 | -17 | -17 | -17 | -- | -- | -- |
| C05 | Perthville | >800m | 31 | 70 | 70 | 70 | -39 | -39 | -39 | -- | -- | -- |
| C06 | Bathampton | 400-800m | 44 | 70 | 70 | 70 | -26 | -26 | -26 | -- | -- | -- |
| C07 | Bathampton | 400-800m | 44 | 70 | 70 | 70 | -26 | -26 | -26 | -- | -- | -- |
| C08 | Bathampton | 400-800m | 45 | 70 | 70 | 70 | -25 | -25 | -25 | -- | -- | -- |
| C09 | Bathampton | 200-400m | 44 | 70 | 70 | 70 | -26 | -26 | -26 | -- | -- | -- |
| I01 | Angus Place | 200-400m | 22 | 75 | 75 | 75 | -53 | -53 | -53 | -- | -- | -- |
| I02 | Angus Place | >800m | 35 | 75 | 75 | 75 | -40 | -40 | -40 | -- | -- | -- |
| I03 | Perthville | 400-800m | 45 | 75 | 75 | 75 | -30 | -30 | -30 | -- | -- | -- |
| I04 | Perthville | 100-200m | 55 | 75 | 75 | 75 | -20 | -20 | -20 | -- | -- | -- |
| PR01 | Angus Place | 200-400m | 41 | 60 | 60 | 60 | -19 | -19 | -19 | -- | -- | -- |
| PR02 | Portland | <50m | 71 | 60 | 60 | 60 | 11 | 11 | 11 | PN, V | PN | PN, V |
| PR03 | Perthville | 200-400m | 45 | 60 | 60 | 60 | -15 | -15 | -15 | -- | -- | -- |
| PR04 | McPhillamy | <50m | 71 | 60 | 60 | 60 | 11 | 11 | 11 | PN, V | PN | PN, V |
| R001 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R002 | Angus Place | 200-400m | 55 | 47 | 39 | 35 | 8 | 16 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R003 | Angus Place | 100-200m | 62 | 47 | 39 | 35 | 15 | 23 | 27 | PN, V | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R004 | Angus Place | 400-800m | 47 | 47 | 39 | 35 | -1 | 8 | 12 | -- | PN | PN, V |
| R005 | Angus Place | 400-800m | 49 | 47 | 39 | 35 | 2 | 10 | 14 | -- | PN | PN, V |
| R006 | Angus Place | 400-800m | 48 | 47 | 39 | 35 | 1 | 9 | 13 | -- | PN | PN, V |
| R007 | Angus Place | 400-800m | 47 | 47 | 39 | 35 | -1 | 8 | 12 | -- | PN | PN, V |
| R008 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -6 | 3 | 7 | -- | -- | PN, V |
| R009 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R010 | Angus Place | >800m | 34 | 47 | 39 | 35 | -13 | -5 | -1 | -- | -- | -- |
| R011 | Angus Place | >800m | 36 | 47 | 39 | 35 | -12 | -4 | 1 | -- | -- | PN |
| R012 | Angus Place | 400-800m | 43 | 47 | 39 | 35 | -4 | 4 | 8 | -- | -- | PN, V |
| R013 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R014 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R015 | Angus Place | 400-800m | 44 | 47 | 39 | 35 | -3 | 5 | 9 | -- | -- | PN, V |
| R016 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R017 | Angus Place | 400-800m | 43 | 47 | 39 | 35 | -4 | 4 | 8 | -- | -- | PN, V |
| R018 | Angus Place | 400-800m | 45 | 47 | 39 | 35 | -2 | 6 | 10 | -- | PN | PN, V |
| R019 | Angus Place | >800m | 37 | 47 | 39 | 35 | -10 | -2 | 2 | -- | -- | PN |
| R020 | Angus Place | 400-800m | 44 | 47 | 39 | 35 | -3 | 5 | 9 | -- | -- | PN, V |
| R021 | Angus Place | >800m | 33 | 47 | 39 | 35 | -14 | -6 | -2 | -- | -- | -- |
| R022 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R023 | Angus Place | 100-200m | 58 | 47 | 39 | 35 | 11 | 19 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R024 | Angus Place | 200-400m | 52 | 47 | 39 | 35 | 5 | 13 | 17 | -- | PN | PN, V, SN, RP, DR |
| R025 | Angus Place | >800m | 33 | 47 | 39 | 35 | -14 | -6 | -2 | -- | -- | -- |
| R026 | Angus Place | 400-800m | 46 | 47 | 39 | 35 | -1 | 7 | 11 | -- | PN | PN, V |
| R027 | Angus Place | >800m | 33 | 47 | 39 | 35 | -14 | -6 | -2 | -- | -- | -- |
| R028 | Angus Place | 200-400m | 53 | 47 | 39 | 35 | 6 | 14 | 18 | -- | PN | PN, V, SN, RP, DR |
| R029 | Angus Place | 200-400m | 52 | 47 | 39 | 35 | 5 | 13 | 17 | -- | PN | PN, V, SN, RP, DR |
| R030 | Portland | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R031 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R032 | Portland | >800m | 34 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R033 | Portland | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R034 | Portland | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R035 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R036 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R037 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R038 | Portland | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R039 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R040 | Portland | 400-800m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R041 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R042 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R043 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R044 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R045 | Portland | >800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R046 | Portland | <50m | 70 | 45 | 35 | 35 | 25 | 35 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R047 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R048 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R049 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R050 | Portland | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R051 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R052 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R053 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R054 | Portland | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R055 | Portland | 100-200m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R056 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R057 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R058 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R059 | Portland | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R060 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R061 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R062 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R063 | Portland | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R064 | Portland | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R065 | Portland | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R066 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R067 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R068 | Portland | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R069 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R070 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R071 | Portland | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R072 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R073 | Portland | 400-800m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R074 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R075 | Portland | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R076 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R077 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R078 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R079 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R080 | Portland | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R081 | Portland | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R082 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R083 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R084 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R085 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R086 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R087 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R088 | Portland | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R089 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R090 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R091 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R092 | Portland | >800m | 36 | 45 | 35 | 35 | -10 | 1 | 1 | -- | -- | PN |
| R093 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R094 | Portland | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R095 | Portland | 400-800m | 43 | 45 | 35 | 35 | -3 | 8 | 8 | -- | PN | PN, V |
| R096 | Portland | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R097 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R098 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R099 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R100 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R101 | Portland | <50m | 69 | 45 | 35 | 35 | 24 | 34 | 34 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R102 | Portland | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R103 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R104 | Portland | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R105 | Portland | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R106 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R107 | Portland | >800m | 33 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R108 | Portland | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R109 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R110 | Portland | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R111 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R112 | Portland | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R113 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R114 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R115 | Portland | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R116 | Portland | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R117 | Portland | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R118 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R119 | Portland | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R120 | Portland | <50m | 69 | 45 | 35 | 35 | 24 | 34 | 34 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R121 | Portland | <50m | 73 | 45 | 35 | 35 | 28 | 38 | 38 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R122 | Sunny Corner | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R123 | Sunny Corner | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R124 | Sunny Corner | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R125 | Sunny Corner | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R126 | Sunny Corner | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R127 | Sunny Corner | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R128 | Sunny Corner | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R129 | Sunny Corner | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R130 | Sunny Corner | 50-100m | 64 | 45 | 35 | 35 | 19 | 29 | 29 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R131 | Sunny Corner | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R132 | Sunny Corner | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R133 | Sunny Corner | 50-100m | 68 | 45 | 35 | 35 | 23 | 33 | 33 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R134 | Sunny Corner | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R135 | Sunny Corner | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R136 | Yetholme | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R137 | Yetholme | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R138 | Yetholme | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R139 | Yetholme | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R140 | Yetholme | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R141 | Yetholme | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R142 | Yetholme | 400-800m | 44 | 45 | 35 | 35 | -2 | 9 | 9 | -- | PN | PN, V |
| R143 | Yetholme | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R144 | Yetholme | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R145 | Yetholme | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R146 | Yetholme | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R147 | Yetholme | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R148 | Yetholme | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R149 | Yetholme | 400-800m | 43 | 45 | 45 | 40 | -2 | -2 | 3 | -- | -- | PN |
| R150 | Yetholme | 400-800m | 39 | 45 | 35 | 35 | -7 | 4 | 4 | -- | -- | PN |
| R151 | Yetholme | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R152 | Yetholme | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R153 | Yetholme | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R154 | Yetholme | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R155 | Yetholme | 400-800m | 44 | 57 | 42 | 35 | -13 | 2 | 9 | -- | -- | PN, V |
| R156 | Yetholme | 400-800m | 45 | 57 | 42 | 35 | -12 | 3 | 10 | -- | -- | PN, V |
| R157 | Yetholme | 400-800m | 42 | 57 | 42 | 35 | -15 | 0 | 7 | -- | -- | PN, V |
| R158 | Yetholme | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R159 | Yetholme | 200-400m | 53 | 57 | 42 | 35 | -5 | 11 | 18 | -- | PN | PN, V, SN, RP, DR |
| R160 | Yetholme | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R161 | Yetholme | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R162 | Yetholme | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R163 | Yetholme | <50m | 70 | 57 | 42 | 35 | 13 | 28 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R164 | Yetholme | 50-100m | 64 | 57 | 42 | 35 | 7 | 22 | 29 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R165 | Yetholme | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R166 | Yetholme | 100-200m | 61 | 57 | 42 | 35 | 4 | 19 | 26 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R167 | Yetholme | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R168 | Yetholme | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R169 | Yetholme | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R170 | Yetholme | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R171 | Yetholme | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R172 | Yetholme | <50m | 71 | 57 | 42 | 35 | 14 | 29 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R173 | Yetholme | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R174 | Yetholme | <50m | 69 | 57 | 42 | 35 | 12 | 27 | 34 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R175 | Yetholme | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R176 | Yetholme | <50m | 69 | 57 | 42 | 35 | 12 | 27 | 34 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R177 | Brewongle | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R178 | Brewongle | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R179 | Brewongle | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R180 | Brewongle | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R181 | Brewongle | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R182 | Brewongle | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R183 | Brewongle | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R184 | Brewongle | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R185 | Brewongle | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R186 | Brewongle | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R187 | Brewongle | >800m | 37 | 45 | 35 | 35 | -9 | 2 | 2 | -- | -- | PN |
| R188 | Brewongle | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R189 | Brewongle | 100-200m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R190 | Brewongle | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R191 | Brewongle | 400-800m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R192 | Brewongle | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R193 | Bike Park | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R194 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R195 | Bike Park | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R196 | Bike Park | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R197 | Bike Park | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R198 | Bike Park | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R199 | Bike Park | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R200 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R201 | Bike Park | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R202 | Bike Park | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R203 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R204 | Bike Park | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R205 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R206 | Bike Park | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R207 | Bike Park | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R208 | Bike Park | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R209 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R210 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R211 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R212 | Bike Park | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R213 | Bike Park | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R214 | Bike Park | 50-100m | 67 | 45 | 35 | 35 | 22 | 32 | 32 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R215 | Bike Park | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R216 | Bike Park | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R217 | Bike Park | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R218 | Bike Park | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R219 | Bike Park | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R220 | Bike Park | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R221 | Bike Park | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R222 | Bike Park | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R223 | Bike Park | <50m | 70 | 45 | 35 | 35 | 25 | 35 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R224 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R225 | Bike Park | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R226 | Bike Park | <50m | 74 | 45 | 35 | 35 | 29 | 39 | 39 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R227 | Bike Park | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R228 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R229 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R230 | Bike Park | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R231 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R232 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R233 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R234 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R235 | Bike Park | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R236 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R237 | Bike Park | 50-100m | 64 | 45 | 35 | 35 | 19 | 29 | 29 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R238 | Bike Park | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R239 | Bike Park | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R240 | Bike Park | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R241 | Bike Park | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R242 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R243 | Bike Park | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R244 | Bike Park | >800m | 36 | 45 | 35 | 35 | -10 | 1 | 1 | -- | -- | PN |
| R245 | Bike Park | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R246 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R247 | Bike Park | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R248 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R249 | Bike Park | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R250 | Bike Park | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R251 | Bike Park | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R252 | Bike Park | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R253 | Bike Park | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R254 | Perthville | >800m | 35 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R255 | Perthville | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R256 | Perthville | 50-100m | 64 | 45 | 35 | 35 | 19 | 29 | 29 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R257 | Perthville | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R258 | Perthville | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R259 | Perthville | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R260 | Perthville | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R261 | Perthville | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R262 | Perthville | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R263 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R264 | Perthville | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R265 | Perthville | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R266 | Perthville | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R267 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R268 | Perthville | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R269 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R270 | Perthville | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R271 | Perthville | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R272 | Perthville | >800m | 27 | 45 | 35 | 35 | -18 | -8 | -8 | -- | -- | -- |
| R273 | Perthville | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R274 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R275 | Perthville | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R276 | Bathampton | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R277 | Bathampton | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R278 | Bathampton | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R279 | Bathampton | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R280 | Bathampton | 400-800m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R281 | Bathampton | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R282 | Bathampton | 400-800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R283 | Bathampton | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R284 | Bathampton | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R285 | Bathampton | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R286 | Bathampton | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R287 | Bathampton | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R288 | Bathampton | 50-100m | 64 | 45 | 35 | 35 | 19 | 29 | 29 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R289 | Bathampton | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R290 | Bathampton | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R291 | Bathampton | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R292 | Bathampton | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R293 | Bathampton | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R294 | Bathampton | 400-800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R295 | McPhillamy | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R296 | McPhillamy | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R297 | McPhillamy | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R298 | McPhillamy | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R299 | McPhillamy | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R300 | McPhillamy | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R300(S) | McPhillamy | 50-100m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R301 | McPhillamy | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R302 | McPhillamy | 400-800m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R303 | McPhillamy | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R304 | McPhillamy | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R305 | McPhillamy | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R306 | McPhillamy | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R307 | McPhillamy | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| W01 | Perthville | 200-400m | 45 | 55 | 55 | 55 | -10 | -10 | -10 | -- | -- | -- |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR01 | Portland | >800m | 36 | 65 | 65 | 65 | -30 | -30 | -30 | -- | -- | -- |
| AR02 | Portland | >800m | 31 | 65 | 65 | 65 | -34 | -34 | -34 | -- | -- | -- |
| AR03 | Perthville | 200-400m | 54 | 65 | 65 | 65 | -11 | -11 | -11 | -- | -- | -- |
| AR04 | Perthville | 400-800m | 46 | 65 | 65 | 65 | -19 | -19 | -19 | -- | -- | -- |
| C01 | Angus Place | 400-800m | 48 | 70 | 70 | 70 | -22 | -22 | -22 | -- | -- | -- |
| C02 | Portland | 50-100m | 65 | 70 | 70 | 70 | -5 | -5 | -5 | -- | -- | -- |
| C03 | Yetholme | 100-200m | 60 | 70 | 70 | 70 | -10 | -10 | -10 | -- | -- | -- |
| C04 | Perthville | 200-400m | 53 | 70 | 70 | 70 | -17 | -17 | -17 | -- | -- | -- |
| C05 | Perthville | >800m | 31 | 70 | 70 | 70 | -40 | -40 | -40 | -- | -- | -- |
| C06 | Bathampton | 400-800m | 44 | 70 | 70 | 70 | -26 | -26 | -26 | -- | -- | -- |
| C07 | Bathampton | 400-800m | 44 | 70 | 70 | 70 | -26 | -26 | -26 | -- | -- | -- |
| C08 | Bathampton | 400-800m | 45 | 70 | 70 | 70 | -25 | -25 | -25 | -- | -- | -- |
| C09 | Bathampton | 200-400m | 44 | 70 | 70 | 70 | -27 | -27 | -27 | -- | -- | -- |
| I01 | Angus Place | 200-400m | 22 | 75 | 75 | 75 | -54 | -54 | -54 | -- | -- | -- |
| I02 | Angus Place | >800m | 35 | 75 | 75 | 75 | -40 | -40 | -40 | -- | -- | -- |
| I03 | Perthville | 400-800m | 46 | 75 | 75 | 75 | -29 | -29 | -29 | -- | -- | -- |
| I04 | Perthville | 100-200m | 56 | 75 | 75 | 75 | -20 | -20 | -20 | -- | -- | -- |
| PR01 | Angus Place | 200-400m | 41 | 60 | 60 | 60 | -19 | -19 | -19 | -- | -- | -- |
| PR02 | Portland | <50m | 72 | 60 | 60 | 60 | 12 | 12 | 12 | PN, V | PN | PN, V |
| PR03 | Perthville | 200-400m | 46 | 60 | 60 | 60 | -15 | -15 | -15 | -- | -- | -- |
| PR04 | McPhillamy | <50m | 72 | 60 | 60 | 60 | 12 | 12 | 12 | PN, V | PN | PN, V |
| R001 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R002 | Angus Place | 200-400m | 56 | 47 | 39 | 35 | 9 | 17 | 21 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R003 | Angus Place | 100-200m | 63 | 47 | 39 | 35 | 16 | 24 | 28 | PN, V | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R004 | Angus Place | 400-800m | 47 | 47 | 39 | 35 | 0 | 8 | 12 | -- | PN | PN, V |
| R005 | Angus Place | 400-800m | 49 | 47 | 39 | 35 | 2 | 10 | 14 | -- | PN | PN, V |
| R006 | Angus Place | 400-800m | 48 | 47 | 39 | 35 | 1 | 9 | 13 | -- | PN | PN, V |
| R007 | Angus Place | 400-800m | 47 | 47 | 39 | 35 | 0 | 8 | 12 | -- | PN | PN, V |
| R008 | Angus Place | 400-800m | 41 | 47 | 39 | 35 | -6 | 2 | 6 | -- | -- | PN, V |
| R009 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R010 | Angus Place | >800m | 34 | 47 | 39 | 35 | -13 | -5 | -1 | -- | -- | -- |
| R011 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R012 | Angus Place | 400-800m | 43 | 47 | 39 | 35 | -4 | 4 | 8 | -- | -- | PN, V |
| R013 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R014 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R015 | Angus Place | 400-800m | 44 | 47 | 39 | 35 | -3 | 5 | 9 | -- | -- | PN, V |
| R016 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R017 | Angus Place | 400-800m | 43 | 47 | 39 | 35 | -4 | 4 | 8 | -- | -- | PN, V |
| R018 | Angus Place | 400-800m | 45 | 47 | 39 | 35 | -2 | 6 | 10 | -- | PN | PN, V |
| R019 | Angus Place | >800m | 36 | 47 | 39 | 35 | -11 | -3 | 1 | -- | -- | PN |
| R020 | Angus Place | 400-800m | 44 | 47 | 39 | 35 | -3 | 5 | 9 | -- | -- | PN, V |
| R021 | Angus Place | >800m | 31 | 47 | 39 | 35 | -16 | -8 | -4 | -- | -- | -- |
| R022 | Angus Place | >800m | 35 | 47 | 39 | 35 | -12 | -4 | 0 | -- | -- | -- |
| R023 | Angus Place | 100-200m | 59 | 47 | 39 | 35 | 12 | 20 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R024 | Angus Place | 200-400m | 53 | 47 | 39 | 35 | 6 | 14 | 18 | -- | PN | PN, V, SN, RP, DR |
| R025 | Angus Place | >800m | 31 | 47 | 39 | 35 | -16 | -8 | -4 | -- | -- | -- |
| R026 | Angus Place | 400-800m | 47 | 47 | 39 | 35 | 0 | 8 | 12 | -- | PN | PN, V |
| R027 | Angus Place | >800m | 31 | 47 | 39 | 35 | -16 | -8 | -4 | -- | -- | -- |
| R028 | Angus Place | 200-400m | 54 | 47 | 39 | 35 | 7 | 15 | 19 | -- | PN | PN, V, SN, RP, DR |
| R029 | Angus Place | 200-400m | 52 | 47 | 39 | 35 | 5 | 13 | 17 | -- | PN | PN, V, SN, RP, DR |
| R030 | Portland | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R031 | Portland | >800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R032 | Portland | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R033 | Portland | 50-100m | 67 | 45 | 35 | 35 | 22 | 32 | 32 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R034 | Portland | 50-100m | 67 | 45 | 35 | 35 | 22 | 32 | 32 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R035 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R036 | Portland | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R037 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R038 | Portland | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R039 | Portland | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R040 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R041 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R042 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R043 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R044 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R045 | Portland | >800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R046 | Portland | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R047 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R048 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R049 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R050 | Portland | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R051 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R052 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R053 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R054 | Portland | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R055 | Portland | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R056 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R057 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R058 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R059 | Portland | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R060 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R061 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R062 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R063 | Portland | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R064 | Portland | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R065 | Portland | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R066 | Portland | >800m | 36 | 45 | 35 | 35 | -10 | 1 | 1 | -- | -- | PN |
| R067 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R068 | Portland | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R069 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R070 | Portland | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R071 | Portland | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R072 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R073 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R074 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R075 | Portland | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R076 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R077 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R078 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R079 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R080 | Portland | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R081 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R082 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R083 | Portland | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R084 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R085 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R086 | Portland | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R087 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R088 | Portland | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R089 | Portland | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R090 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R091 | Portland | 400-800m | 41 | 45 | 35 | 35 | -5 | 6 | 6 | -- | PN | PN, V |
| R092 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R093 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R094 | Portland | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R095 | Portland | 400-800m | 43 | 45 | 35 | 35 | -3 | 8 | 8 | -- | PN | PN, V |
| R096 | Portland | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R097 | Portland | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R098 | Portland | >800m | 36 | 45 | 35 | 35 | -10 | 1 | 1 | -- | -- | PN |
| R099 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R100 | Portland | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R101 | Portland | <50m | 70 | 45 | 35 | 35 | 25 | 35 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R102 | Portland | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R103 | Portland | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R104 | Portland | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R105 | Portland | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R106 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R107 | Portland | >800m | 32 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R108 | Portland | <50m | 72 | 45 | 35 | 35 | 27 | 37 | 37 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R109 | Portland | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R110 | Portland | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R111 | Portland | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R112 | Portland | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R113 | Portland | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R114 | Portland | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R115 | Portland | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R116 | Portland | 50-100m | 67 | 45 | 35 | 35 | 22 | 32 | 32 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R117 | Portland | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R118 | Portland | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R119 | Portland | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R120 | Portland | <50m | 70 | 45 | 35 | 35 | 25 | 35 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R121 | Portland | <50m | 74 | 45 | 35 | 35 | 29 | 39 | 39 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R122 | Sunny Corner | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R123 | Sunny Corner | 400-800m | 41 | 45 | 35 | 35 | -5 | 6 | 6 | -- | PN | PN, V |
| R124 | Sunny Corner | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R125 | Sunny Corner | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R126 | Sunny Corner | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R127 | Sunny Corner | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R128 | Sunny Corner | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R129 | Sunny Corner | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R130 | Sunny Corner | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R131 | Sunny Corner | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R132 | Sunny Corner | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R133 | Sunny Corner | 50-100m | 69 | 45 | 35 | 35 | 24 | 34 | 34 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R134 | Sunny Corner | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R135 | Sunny Corner | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R136 | Yetholme | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R137 | Yetholme | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R138 | Yetholme | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R139 | Yetholme | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R140 | Yetholme | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R141 | Yetholme | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R142 | Yetholme | 400-800m | 44 | 45 | 35 | 35 | -2 | 9 | 9 | -- | PN | PN, V |
| R143 | Yetholme | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R144 | Yetholme | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R145 | Yetholme | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R146 | Yetholme | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R147 | Yetholme | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R148 | Yetholme | 400-800m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R149 | Yetholme | 400-800m | 43 | 45 | 45 | 40 | -2 | -2 | 3 | -- | -- | PN |
| R150 | Yetholme | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R151 | Yetholme | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R152 | Yetholme | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R153 | Yetholme | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R154 | Yetholme | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R155 | Yetholme | 400-800m | 44 | 57 | 42 | 35 | -13 | 2 | 9 | -- | -- | PN, V |
| R156 | Yetholme | 400-800m | 45 | 57 | 42 | 35 | -12 | 3 | 10 | -- | -- | PN, V |
| R157 | Yetholme | 400-800m | 42 | 57 | 42 | 35 | -15 | 0 | 7 | -- | -- | PN, V |
| R158 | Yetholme | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R159 | Yetholme | 200-400m | 53 | 57 | 42 | 35 | -4 | 11 | 18 | -- | PN | PN, V, SN, RP, DR |
| R160 | Yetholme | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R161 | Yetholme | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R162 | Yetholme | 400-800m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R163 | Yetholme | <50m | 71 | 57 | 42 | 35 | 14 | 29 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R164 | Yetholme | 50-100m | 65 | 57 | 42 | 35 | 8 | 23 | 30 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R165 | Yetholme | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R166 | Yetholme | 100-200m | 62 | 57 | 42 | 35 | 5 | 20 | 27 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R167 | Yetholme | <50m | 72 | 45 | 35 | 35 | 27 | 37 | 37 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R168 | Yetholme | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R169 | Yetholme | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R170 | Yetholme | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R171 | Yetholme | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R172 | Yetholme | <50m | 72 | 57 | 42 | 35 | 15 | 30 | 37 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R173 | Yetholme | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R174 | Yetholme | <50m | 70 | 57 | 42 | 35 | 13 | 28 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R175 | Yetholme | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R176 | Yetholme | <50m | 70 | 57 | 42 | 35 | 13 | 28 | 35 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R177 | Brewongle | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R178 | Brewongle | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R179 | Brewongle | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R180 | Brewongle | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R181 | Brewongle | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R182 | Brewongle | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R183 | Brewongle | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R184 | Brewongle | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R185 | Brewongle | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R186 | Brewongle | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R187 | Brewongle | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R188 | Brewongle | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R189 | Brewongle | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R190 | Brewongle | 100-200m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R191 | Brewongle | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R192 | Brewongle | 100-200m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R193 | Bike Park | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R194 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R195 | Bike Park | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R196 | Bike Park | >800m | 34 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R197 | Bike Park | >800m | 35 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R198 | Bike Park | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R199 | Bike Park | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R200 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R201 | Bike Park | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R202 | Bike Park | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R203 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R204 | Bike Park | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R205 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R206 | Bike Park | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R207 | Bike Park | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R208 | Bike Park | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R209 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -3 | 8 | 8 | -- | PN | PN, V |
| R210 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R211 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R212 | Bike Park | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R213 | Bike Park | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R214 | Bike Park | 50-100m | 68 | 45 | 35 | 35 | 23 | 33 | 33 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R215 | Bike Park | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R216 | Bike Park | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R217 | Bike Park | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R218 | Bike Park | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R219 | Bike Park | 100-200m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R220 | Bike Park | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R221 | Bike Park | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R222 | Bike Park | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R223 | Bike Park | <50m | 71 | 45 | 35 | 35 | 26 | 36 | 36 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R224 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R225 | Bike Park | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R226 | Bike Park | <50m | 75 | 45 | 35 | 35 | 30 | 40 | 40 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R227 | Bike Park | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R228 | Bike Park | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R229 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R230 | Bike Park | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R231 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R232 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R233 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R234 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R235 | Bike Park | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R236 | Bike Park | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R237 | Bike Park | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R238 | Bike Park | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R239 | Bike Park | 100-200m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R240 | Bike Park | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R241 | Bike Park | 100-200m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R242 | Bike Park | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R243 | Bike Park | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R244 | Bike Park | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R245 | Bike Park | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R246 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R247 | Bike Park | 200-400m | 50 | 45 | 35 | 35 | 5 | 15 | 15 | -- | PN | PN, V |
| R248 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R249 | Bike Park | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R250 | Bike Park | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R251 | Bike Park | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R252 | Bike Park | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R253 | Bike Park | <50m | 72 | 45 | 35 | 35 | 27 | 37 | 37 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R254 | Perthville | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R255 | Perthville | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R256 | Perthville | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R257 | Perthville | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R258 | Perthville | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R259 | Perthville | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R260 | Perthville | <50m | 72 | 45 | 35 | 35 | 27 | 37 | 37 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R261 | Perthville | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R262 | Perthville | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R263 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R264 | Perthville | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R265 | Perthville | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R266 | Perthville | 400-800m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R267 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R268 | Perthville | >800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R269 | Perthville | >800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R270 | Perthville | >800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R271 | Perthville | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R272 | Perthville | >800m | 26 | 45 | 35 | 35 | -19 | -9 | -9 | -- | -- | -- |
| R273 | Perthville | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R274 | Perthville | >800m | 36 | 45 | 35 | 35 | -10 | 1 | 1 | -- | -- | PN |
| R275 | Perthville | >800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R276 | Bathampton | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R277 | Bathampton | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R278 | Bathampton | 200-400m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R279 | Bathampton | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R280 | Bathampton | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R281 | Bathampton | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R282 | Bathampton | 400-800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R283 | Bathampton | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R284 | Bathampton | 400-800m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R285 | Bathampton | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R286 | Bathampton | 400-800m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R287 | Bathampton | >800m | 28 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R288 | Bathampton | 50-100m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R289 | Bathampton | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R290 | Bathampton | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R291 | Bathampton | 200-400m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R292 | Bathampton | 200-400m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R293 | Bathampton | 200-400m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R294 | Bathampton | 400-800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R295 | McPhillamy | 400-800m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R296 | McPhillamy | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R297 | McPhillamy | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R298 | McPhillamy | 50-100m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R299 | McPhillamy | 100-200m | 63 | 45 | 35 | 35 | 18 | 28 | 28 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R300 | McPhillamy | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R300(S) | McPhillamy | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R301 | McPhillamy | >800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R302 | McPhillamy | 400-800m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R303 | McPhillamy | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R304 | McPhillamy | 100-200m | 58 | 45 | 35 | 35 | 13 | 23 | 23 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R305 | McPhillamy | 400-800m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R306 | McPhillamy | 200-400m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R307 | McPhillamy | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| W01 | Perthville | 200-400m | 45 | 55 | 55 | 55 | -10 | -10 | -10 | -- | -- | -- |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR01 | Portland | >800m | 30 | 65 | 65 | 65 | -35 | -35 | -35 | -- | -- | -- |
| AR02 | Portland | >800m | 28 | 65 | 65 | 65 | -38 | -38 | -38 | -- | -- | -- |
| AR03 | Perthville | 200-400m | 48 | 65 | 65 | 65 | -17 | -17 | -17 | -- | -- | -- |
| AR04 | Perthville | 400-800m | 40 | 65 | 65 | 65 | -25 | -25 | -25 | -- | -- | -- |
| C01 | Angus Place | 400-800m | 42 | 70 | 70 | 70 | -28 | -28 | -28 | -- | -- | -- |
| C02 | Portland | 50-100m | 59 | 70 | 70 | 70 | -11 | -11 | -11 | -- | -- | -- |
| C03 | Yetholme | 100-200m | 54 | 70 | 70 | 70 | -16 | -16 | -16 | -- | -- | -- |
| C04 | Perthville | 200-400m | 48 | 70 | 70 | 70 | -23 | -23 | -23 | -- | -- | -- |
| C05 | Perthville | >800m | 26 | 70 | 70 | 70 | -44 | -44 | -44 | -- | -- | -- |
| C06 | Bathampton | 400-800m | 38 | 70 | 70 | 70 | -32 | -32 | -32 | -- | -- | -- |
| C07 | Bathampton | 400-800m | 39 | 70 | 70 | 70 | -31 | -31 | -31 | -- | -- | -- |
| C08 | Bathampton | 400-800m | 40 | 70 | 70 | 70 | -31 | -31 | -31 | -- | -- | -- |
| C09 | Bathampton | 200-400m | 39 | 70 | 70 | 70 | -31 | -31 | -31 | -- | -- | -- |
| I01 | Angus Place | 200-400m | 17 | 75 | 75 | 75 | -58 | -58 | -58 | -- | -- | -- |
| I02 | Angus Place | >800m | 30 | 75 | 75 | 75 | -46 | -46 | -46 | -- | -- | -- |
| I03 | Perthville | 400-800m | 40 | 75 | 75 | 75 | -35 | -35 | -35 | -- | -- | -- |
| I04 | Perthville | 100-200m | 50 | 75 | 75 | 75 | -25 | -25 | -25 | -- | -- | -- |
| PR01 | Angus Place | 200-400m | 37 | 60 | 60 | 60 | -24 | -24 | -24 | -- | -- | -- |
| PR02 | Portland | <50m | 66 | 60 | 60 | 60 | 6 | 6 | 6 | -- | PN | PN, V |
| PR03 | Perthville | 200-400m | 40 | 60 | 60 | 60 | -20 | -20 | -20 | -- | -- | -- |
| PR04 | McPhillamy | <50m | 66 | 60 | 60 | 60 | 6 | 6 | 6 | -- | PN | PN, V |
| R001 | Angus Place | >800m | 30 | 47 | 39 | 35 | -17 | -9 | -5 | -- | -- | -- |
| R002 | Angus Place | 200-400m | 50 | 47 | 39 | 35 | 3 | 11 | 15 | -- | PN | PN, V |
| R003 | Angus Place | 100-200m | 57 | 47 | 39 | 35 | 10 | 18 | 22 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R004 | Angus Place | 400-800m | 41 | 47 | 39 | 35 | -6 | 2 | 6 | -- | -- | PN, V |
| R005 | Angus Place | 400-800m | 43 | 47 | 39 | 35 | -4 | 4 | 8 | -- | -- | PN, V |
| R006 | Angus Place | 400-800m | 42 | 47 | 39 | 35 | -5 | 3 | 7 | -- | -- | PN, V |
| R007 | Angus Place | 400-800m | 41 | 47 | 39 | 35 | -6 | 2 | 6 | -- | -- | PN, V |
| R008 | Angus Place | 400-800m | 36 | 47 | 39 | 35 | -11 | -3 | 1 | -- | -- | PN |
| R009 | Angus Place | >800m | 30 | 47 | 39 | 35 | -17 | -9 | -5 | -- | -- | -- |
| R010 | Angus Place | >800m | 29 | 47 | 39 | 35 | -18 | -10 | -6 | -- | -- | -- |
| R011 | Angus Place | >800m | 30 | 47 | 39 | 35 | -17 | -9 | -5 | -- | -- | -- |
| R012 | Angus Place | 400-800m | 38 | 47 | 39 | 35 | -10 | -2 | 3 | -- | -- | PN |
| R013 | Angus Place | 400-800m | 37 | 47 | 39 | 35 | -10 | -2 | 2 | -- | -- | PN |
| R014 | Angus Place | 400-800m | 37 | 47 | 39 | 35 | -10 | -2 | 2 | -- | -- | PN |
| R015 | Angus Place | 400-800m | 38 | 47 | 39 | 35 | -9 | -1 | 3 | -- | -- | PN |
| R016 | Angus Place | 400-800m | 37 | 47 | 39 | 35 | -10 | -2 | 2 | -- | -- | PN |
| R017 | Angus Place | 400-800m | 38 | 47 | 39 | 35 | -9 | -1 | 3 | -- | -- | PN |
| R018 | Angus Place | 400-800m | 39 | 47 | 39 | 35 | -8 | 0 | 4 | -- | -- | PN |
| R019 | Angus Place | >800m | 31 | 47 | 39 | 35 | -16 | -8 | -4 | -- | -- | -- |
| R020 | Angus Place | 400-800m | 38 | 47 | 39 | 35 | -9 | -1 | 3 | -- | -- | PN |
| R021 | Angus Place | >800m | 28 | 47 | 39 | 35 | -19 | -11 | -7 | -- | -- | -- |
| R022 | Angus Place | >800m | 30 | 47 | 39 | 35 | -17 | -9 | -5 | -- | -- | -- |
| R023 | Angus Place | 100-200m | 53 | 47 | 39 | 35 | 6 | 14 | 18 | -- | PN | PN, V, SN, RP, DR |
| R024 | Angus Place | 200-400m | 47 | 47 | 39 | 35 | 0 | 8 | 12 | -- | PN | PN, V |
| R025 | Angus Place | >800m | 28 | 47 | 39 | 35 | -19 | -11 | -7 | -- | -- | -- |
| R026 | Angus Place | 400-800m | 41 | 47 | 39 | 35 | -6 | 2 | 6 | -- | -- | PN, V |
| R027 | Angus Place | >800m | 28 | 47 | 39 | 35 | -19 | -11 | -7 | -- | -- | -- |
| R028 | Angus Place | 200-400m | 48 | 47 | 39 | 35 | 1 | 9 | 13 | -- | PN | PN, V |
| R029 | Angus Place | 200-400m | 46 | 47 | 39 | 35 | -1 | 7 | 11 | -- | PN | PN, V |
| R030 | Portland | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R031 | Portland | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R032 | Portland | >800m | 29 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R033 | Portland | 50-100m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R034 | Portland | 50-100m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R035 | Portland | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R036 | Portland | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R037 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R038 | Portland | 100-200m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R039 | Portland | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R040 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R041 | Portland | >800m | 27 | 45 | 35 | 35 | -19 | -9 | -9 | -- | -- | -- |
| R042 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R043 | Portland | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R044 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R045 | Portland | >800m | 33 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R046 | Portland | <50m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R047 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R048 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R049 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R050 | Portland | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R051 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R052 | Portland | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R053 | Portland | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R054 | Portland | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R055 | Portland | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R056 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R057 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R058 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R059 | Portland | 100-200m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R060 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R061 | Portland | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R062 | Portland | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R063 | Portland | 100-200m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R064 | Portland | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R065 | Portland | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R066 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R067 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R068 | Portland | 100-200m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R069 | Portland | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R070 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R071 | Portland | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R072 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R073 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R074 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R075 | Portland | 100-200m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R076 | Portland | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R077 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R078 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R079 | Portland | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R080 | Portland | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R081 | Portland | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R082 | Portland | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R083 | Portland | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R084 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R085 | Portland | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R086 | Portland | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R087 | Portland | >800m | 31 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R088 | Portland | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R089 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R090 | Portland | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R091 | Portland | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R092 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R093 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R094 | Portland | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R095 | Portland | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R096 | Portland | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R097 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R098 | Portland | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R099 | Portland | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R100 | Portland | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R101 | Portland | <50m | 64 | 45 | 35 | 35 | 19 | 29 | 29 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R102 | Portland | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R103 | Portland | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R104 | Portland | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R105 | Portland | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R106 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R107 | Portland | >800m | 28 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R108 | Portland | <50m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R109 | Portland | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R110 | Portland | 50-100m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R111 | Portland | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R112 | Portland | 200-400m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R113 | Portland | 400-800m | 39 | 45 | 35 | 35 | -7 | 4 | 4 | -- | -- | PN |
| R114 | Portland | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R115 | Portland | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R116 | Portland | 50-100m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R117 | Portland | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R118 | Portland | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R119 | Portland | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R120 | Portland | <50m | 64 | 45 | 35 | 35 | 19 | 29 | 29 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R121 | Portland | <50m | 68 | 45 | 35 | 35 | 23 | 33 | 33 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R122 | Sunny Corner | 200-400m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R123 | Sunny Corner | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R124 | Sunny Corner | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R125 | Sunny Corner | 400-800m | 43 | 45 | 35 | 35 | -3 | 8 | 8 | -- | PN | PN, V |
| R126 | Sunny Corner | 200-400m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R127 | Sunny Corner | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R128 | Sunny Corner | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R129 | Sunny Corner | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R130 | Sunny Corner | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R131 | Sunny Corner | 400-800m | 33 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R132 | Sunny Corner | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R133 | Sunny Corner | 50-100m | 63 | 45 | 35 | 35 | 18 | 28 | 28 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R134 | Sunny Corner | 100-200m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R135 | Sunny Corner | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R136 | Yetholme | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R137 | Yetholme | >800m | 27 | 45 | 35 | 35 | -18 | -8 | -8 | -- | -- | -- |
| R138 | Yetholme | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R139 | Yetholme | >800m | 30 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R140 | Yetholme | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R141 | Yetholme | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R142 | Yetholme | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R143 | Yetholme | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R144 | Yetholme | 400-800m | 41 | 45 | 35 | 35 | -5 | 6 | 6 | -- | PN | PN, V |
| R145 | Yetholme | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R146 | Yetholme | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R147 | Yetholme | >800m | 27 | 45 | 35 | 35 | -18 | -8 | -8 | -- | -- | -- |
| R148 | Yetholme | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R149 | Yetholme | 400-800m | 38 | 45 | 45 | 40 | -7 | -7 | -2 | -- | -- | -- |
| R150 | Yetholme | 400-800m | 34 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |
| R151 | Yetholme | 200-400m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R152 | Yetholme | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R153 | Yetholme | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R154 | Yetholme | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R155 | Yetholme | 400-800m | 39 | 57 | 42 | 35 | -18 | -3 | 4 | -- | -- | PN |
| R156 | Yetholme | 400-800m | 40 | 57 | 42 | 35 | -17 | -2 | 5 | -- | -- | PN |
| R157 | Yetholme | 400-800m | 37 | 57 | 42 | 35 | -20 | -5 | 2 | -- | -- | PN |
| R158 | Yetholme | 200-400m | 43 | 45 | 35 | 35 | -3 | 8 | 8 | -- | PN | PN, V |
| R159 | Yetholme | 200-400m | 47 | 57 | 42 | 35 | -10 | 5 | 12 | -- | -- | PN, V |
| R160 | Yetholme | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R161 | Yetholme | >800m | 28 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R162 | Yetholme | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R163 | Yetholme | <50m | 65 | 57 | 42 | 35 | 8 | 23 | 30 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R164 | Yetholme | 50-100m | 59 | 57 | 42 | 35 | 2 | 17 | 24 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R165 | Yetholme | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R166 | Yetholme | 100-200m | 56 | 57 | 42 | 35 | -1 | 14 | 21 | -- | PN | PN, V, SN, RP, DR |
| R167 | Yetholme | <50m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R168 | Yetholme | 400-800m | 33 | 45 | 35 | 35 | -12 | -2 | -2 | -- | -- | -- |
| R169 | Yetholme | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R170 | Yetholme | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R171 | Yetholme | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R172 | Yetholme | <50m | 66 | 57 | 42 | 35 | 9 | 24 | 31 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R173 | Yetholme | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R174 | Yetholme | <50m | 64 | 57 | 42 | 35 | 7 | 22 | 29 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R175 | Yetholme | 400-800m | 40 | 45 | 35 | 35 | -6 | 5 | 5 | -- | -- | PN |
| R176 | Yetholme | <50m | 64 | 57 | 42 | 35 | 7 | 22 | 29 | -- | PN, V, SN, RO | PN, V, SN, AA, RP, DR |
| R177 | Brewongle | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R178 | Brewongle | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R179 | Brewongle | >800m | 28 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R180 | Brewongle | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R181 | Brewongle | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R182 | Brewongle | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R183 | Brewongle | 400-800m | 38 | 45 | 35 | 35 | -8 | 3 | 3 | -- | -- | PN |
| R184 | Brewongle | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R185 | Brewongle | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R186 | Brewongle | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R187 | Brewongle | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R188 | Brewongle | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R189 | Brewongle | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R190 | Brewongle | 100-200m | 56 | 45 | 35 | 35 | 11 | 21 | 21 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R191 | Brewongle | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R192 | Brewongle | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R193 | Bike Park | 50-100m | 61 | 45 | 35 | 35 | 16 | 26 | 26 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R194 | Bike Park | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R195 | Bike Park | >800m | 27 | 45 | 35 | 35 | -18 | -8 | -8 | -- | -- | -- |
| R196 | Bike Park | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R197 | Bike Park | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R198 | Bike Park | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R199 | Bike Park | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R200 | Bike Park | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R201 | Bike Park | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R202 | Bike Park | >800m | 28 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R203 | Bike Park | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R204 | Bike Park | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R205 | Bike Park | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R206 | Bike Park | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R207 | Bike Park | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R208 | Bike Park | 200-400m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R209 | Bike Park | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R210 | Bike Park | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R211 | Bike Park | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R212 | Bike Park | 400-800m | 35 | 45 | 35 | 35 | -11 | -1 | -1 | -- | -- | -- |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R213 | Bike Park | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R214 | Bike Park | 50-100m | 62 | 45 | 35 | 35 | 17 | 27 | 27 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R215 | Bike Park | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R216 | Bike Park | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R217 | Bike Park | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R218 | Bike Park | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R219 | Bike Park | 100-200m | 54 | 45 | 35 | 35 | 9 | 19 | 19 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R220 | Bike Park | 200-400m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R221 | Bike Park | 200-400m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R222 | Bike Park | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R223 | Bike Park | <50m | 65 | 45 | 35 | 35 | 20 | 30 | 30 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R224 | Bike Park | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R225 | Bike Park | 200-400m | 47 | 45 | 35 | 35 | 2 | 12 | 12 | -- | PN | PN, V |
| R226 | Bike Park | <50m | 69 | 45 | 35 | 35 | 24 | 34 | 34 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R227 | Bike Park | 200-400m | 45 | 45 | 35 | 35 | -1 | 10 | 10 | -- | PN | PN, V |
| R228 | Bike Park | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R229 | Bike Park | 400-800m | 38 | 45 | 35 | 35 | -8 | 3 | 3 | -- | -- | PN |
| R230 | Bike Park | >800m | 29 | 45 | 35 | 35 | -17 | -7 | -7 | -- | -- | -- |
| R231 | Bike Park | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R232 | Bike Park | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R233 | Bike Park | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R234 | Bike Park | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R235 | Bike Park | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R236 | Bike Park | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R237 | Bike Park | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R238 | Bike Park | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R239 | Bike Park | 100-200m | 55 | 45 | 35 | 35 | 10 | 20 | 20 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R240 | Bike Park | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R241 | Bike Park | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R242 | Bike Park | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |
| R243 | Bike Park | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R244 | Bike Park | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R245 | Bike Park | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R246 | Bike Park | 400-800m | 37 | 45 | 35 | 35 | -8 | 2 | 2 | -- | -- | PN |
| R247 | Bike Park | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| R248 | Bike Park | 400-800m | 36 | 45 | 35 | 35 | -9 | 1 | 1 | -- | -- | PN |
| R249 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R250 | Bike Park | 400-800m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R251 | Bike Park | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R252 | Bike Park | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R253 | Bike Park | <50m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R254 | Perthville | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R255 | Perthville | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R256 | Perthville | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R257 | Perthville | 200-400m | 41 | 45 | 35 | 35 | -4 | 6 | 6 | -- | PN | PN, V |
| R258 | Perthville | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R259 | Perthville | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R260 | Perthville | <50m | 66 | 45 | 35 | 35 | 21 | 31 | 31 | PN, V | PN, V, SN, RO, RP#,DR# | PN, V, SN, AA, RP, DR |
| R261 | Perthville | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R262 | Perthville | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R263 | Perthville | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R264 | Perthville | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R265 | Perthville | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R266 | Perthville | 400-800m | 42 | 45 | 35 | 35 | -4 | 7 | 7 | -- | PN | PN, V |
| R267 | Perthville | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R268 | Perthville | >800m | 32 | 45 | 35 | 35 | -13 | -3 | -3 | -- | -- | -- |
| R269 | Perthville | >800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R270 | Perthville | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R271 | Perthville | >800m | 25 | 45 | 35 | 35 | -20 | -10 | -10 | -- | -- | -- |
| R272 | Perthville | >800m | 23 | 45 | 35 | 35 | -22 | -12 | -12 | -- | -- | -- |
| R273 | Perthville | 400-800m | 38 | 45 | 35 | 35 | -7 | 3 | 3 | -- | -- | PN |

| Name | Catchment | Offset | Predicted Noise Level dB LAeq,15min | NML STD | NML P1 | NML P2 | PNL-NML STD | PNL-NML P1 | PNL-NML P2 | AMMM STD | AMMM P1 | AMMM P2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R274 | Perthville | >800m | 30 | 45 | 35 | 35 | -15 | -5 | -5 | -- | -- | -- |
| R275 | Perthville | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R276 | Bathampton | 400-800m | 40 | 45 | 35 | 35 | -6 | 5 | 5 | -- | -- | PN |
| R277 | Bathampton | 100-200m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R278 | Bathampton | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R279 | Bathampton | 100-200m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R280 | Bathampton | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R281 | Bathampton | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R282 | Bathampton | 400-800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R283 | Bathampton | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R284 | Bathampton | 400-800m | 42 | 45 | 35 | 35 | -3 | 7 | 7 | -- | PN | PN, V |
| R285 | Bathampton | 400-800m | 35 | 45 | 35 | 35 | -10 | 0 | 0 | -- | -- | -- |
| R286 | Bathampton | 400-800m | 41 | 45 | 35 | 35 | -5 | 6 | 6 | -- | PN | PN, V |
| R287 | Bathampton | >800m | 25 | 45 | 35 | 35 | -20 | -10 | -10 | -- | -- | -- |
| R288 | Bathampton | 50-100m | 59 | 45 | 35 | 35 | 14 | 24 | 24 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R289 | Bathampton | 100-200m | 52 | 45 | 35 | 35 | 7 | 17 | 17 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R290 | Bathampton | 100-200m | 51 | 45 | 35 | 35 | 6 | 16 | 16 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R291 | Bathampton | 200-400m | 49 | 45 | 35 | 35 | 4 | 14 | 14 | -- | PN | PN, V |
| R292 | Bathampton | 200-400m | 48 | 45 | 35 | 35 | 3 | 13 | 13 | -- | PN | PN, V |
| R293 | Bathampton | 200-400m | 46 | 45 | 35 | 35 | 1 | 11 | 11 | -- | PN | PN, V |
| R294 | Bathampton | 400-800m | 31 | 45 | 35 | 35 | -14 | -4 | -4 | -- | -- | -- |
| R295 | McPhillamy | 400-800m | 39 | 45 | 35 | 35 | -6 | 4 | 4 | -- | -- | PN |
| R296 | McPhillamy | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R297 | McPhillamy | 200-400m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R298 | McPhillamy | 50-100m | 60 | 45 | 35 | 35 | 15 | 25 | 25 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R299 | McPhillamy | 100-200m | 57 | 45 | 35 | 35 | 12 | 22 | 22 | PN, V | PN, V, SN, RO | PN, V, SN, RP, DR |
| R300 | McPhillamy | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R300(S) | McPhillamy | 50-100m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R301 | McPhillamy | >800m | 29 | 45 | 35 | 35 | -16 | -6 | -6 | -- | -- | -- |
| R302 | McPhillamy | 400-800m | 43 | 45 | 35 | 35 | -2 | 8 | 8 | -- | PN | PN, V |
| R303 | McPhillamy | 400-800m | 36 | 45 | 35 | 35 | -10 | 1 | 1 | -- | -- | PN |
| R304 | McPhillamy | 100-200m | 53 | 45 | 35 | 35 | 8 | 18 | 18 | -- | PN, V, SN, RO | PN, V, SN, RP, DR |
| R305 | McPhillamy | 400-800m | 40 | 45 | 35 | 35 | -5 | 5 | 5 | -- | -- | PN |
| R306 | McPhillamy | 200-400m | 45 | 45 | 35 | 35 | 0 | 10 | 10 | -- | PN | PN, V |
| R307 | McPhillamy | 200-400m | 44 | 45 | 35 | 35 | -1 | 9 | 9 | -- | PN | PN, V |
| W01 | Perthville | 200-400m | 40 | 55 | 55 | 55 | -15 | -15 | -15 | -- | -- | -- |

**Table 4: Additional Mitigation Measures**

| Measure | Abbreviation |
|---|---|
| Alternative accommodation | AA |
| Monitoring | M |
| Individual briefings | IB |
| Letter box drops[10] | LB |
| Project specific respite offer | RO |
| Phone calls | PC |
| Specific notifications | SN |

**Table 5: AMMM – Airborne construction noise**

| Time period | | Mitigation measures | | | |
|---|---|---|---|---|---|
| | | $L_{Aeq(15minute)}$ noise level above background (RBL)<br>Qualitative assessment of noise levels[1] | | | |
| | | 0 to 10 dBA<br>Noticeable | 10 to 20 dBA<br>Clearly audible | 20 to 30 dBA<br>Moderately intrusive | > 30 dBA<br>Highly intrusive |
| Standard | Mon-Fri (7am - 6pm) | - | - | LB, M | LB, M |
| | Sat (8am - 1pm) | | | | |
| | Sun/Pub Hol (Nil) | | | | |
| OOHW Period 1 | Mon-Fri (6pm - 10pm) | - | LB | M, LB | M, IB, LB, RO, PC, SN, RO[2] |
| | Sat (7am-8am) & (1pm- 10pm) | | | | |
| | Sun/Pub Hol (8am - 6pm) | | | | |
| OOHW Period 2 | Mon-Fri (10pm - 7am) | LB | M, LB, RO[2] | M, IB, LB, PC, SN, RO[2] | AA, M, IB, LB, PC, SN, RO |
| | Sat (10pm - 8am) | | | | |
| | Sun/Pub Hol (6pm - 7am) | | | | |

**Notes:**

1. For some types of construction activities (refer Appendix B), a qualitative assessment of the potential noise impacts can be undertaken in lieu of detailed noise modelling. For these activities, noise mitigation measures should be evaluated on the basis of the noise levels being noticeable, clearly audible, moderately intrusive or highly intrusive. The qualitative assessment should consider the type of equipment being used, the character of the noise emissions, time of day, the location of the nearest receivers and the noise sensitivity of the nearest receivers. Where a qualitative assessment is being undertaken, this will need to be approved by the Environmental Management Representative.
2. Respite Offers identified in Period 2 for clearly audible (10 to 20dBA) and moderately intrusive (20 to 30dBA) work shall only apply if works are expected to continue for more than 3 consecutive evenings for Period 1 or more than 2 consecutive nights for Period 2.

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