

## METAL RECYCLING FACILITY

88 MURRAYS FLAT ROAD, TOWRANG

NOISE & VIBRATION IMPACT ASSESSMENT

RWDI # 2508369

7 February 2025

### SUBMITTED TO

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| <b>B</b> | Final  | 7 February 2025 | Kayla Nassis | Rebecca Warren |

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## GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

**Maximum Noise Level ( $L_{Amax}$ )** – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

**$L_{A1}$**  – The  $L_{A1}$  level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the  $L_{A1}$  level for 99% of the time.

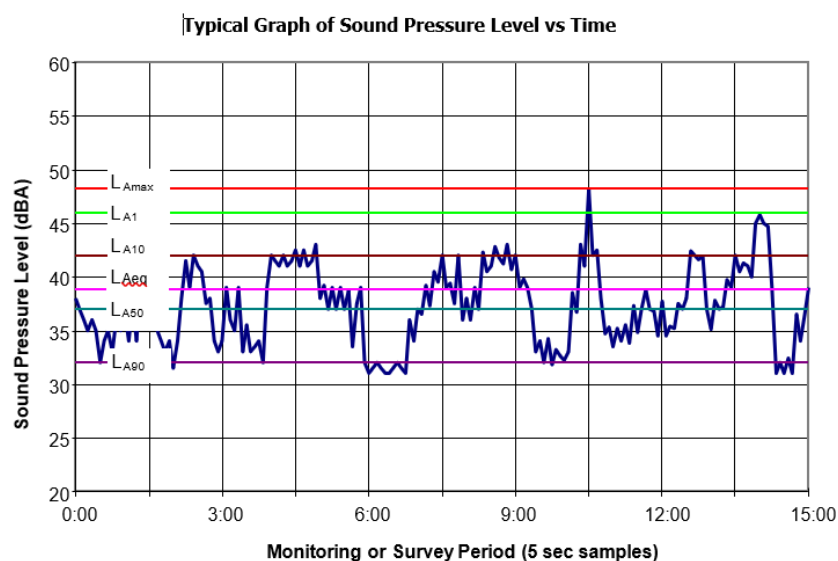
**$L_{A10}$**  – The  $L_{A10}$  level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the  $L_{A10}$  level for 90% of the time. The  $L_{A10}$  is a common noise descriptor for environmental noise and road traffic noise.

**$L_{A90}$**  – The  $L_{A90}$  level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the  $L_{A90}$  level for 10% of the time. This measure is commonly referred to as the background noise level.

**$L_{Aeq}$**  – The equivalent continuous sound level ( $L_{Aeq}$ ) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

**ABL** – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level ( $L_{A90}$ ) for each period.

**RBL** – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.





# TABLE OF CONTENTS

|            |                                                |           |
|------------|------------------------------------------------|-----------|
| <b>1</b>   | <b>INTRODUCTION .....</b>                      | <b>7</b>  |
| <b>2</b>   | <b>PROPOSAL DESCRIPTION.....</b>               | <b>8</b>  |
| <b>2.1</b> | <b>Proposal Location.....</b>                  | <b>8</b>  |
| <b>2.2</b> | <b>Proposed Development.....</b>               | <b>9</b>  |
| <b>2.3</b> | <b>Proposed Site Operation.....</b>            | <b>11</b> |
| <b>2.4</b> | <b>Operating Hours.....</b>                    | <b>11</b> |
| <b>3</b>   | <b>EXISTING NOISE ENVIRONMENT .....</b>        | <b>12</b> |
| <b>3.1</b> | <b>Representative Receivers.....</b>           | <b>12</b> |
| <b>3.2</b> | <b>Unattended Noise Monitoring.....</b>        | <b>13</b> |
| <b>3.3</b> | <b>Attended Noise Monitoring .....</b>         | <b>13</b> |
| <b>3.4</b> | <b>Existing Background Noise Levels .....</b>  | <b>14</b> |
| <b>3.5</b> | <b>Existing Road Traffic Noise Levels.....</b> | <b>15</b> |
| <b>3.6</b> | <b>Meteorological Conditions.....</b>          | <b>15</b> |
| <b>4</b>   | <b>NOISE AND VIBRATION CRITERIA .....</b>      | <b>16</b> |
| <b>4.1</b> | <b>Operational Noise Criteria.....</b>         | <b>16</b> |
| 4.1.1      | Project Intrusiveness Noise Level .....        | 16        |
| 4.1.2      | Project Amenity Noise Levels .....             | 17        |
| 4.1.3      | Project Noise Trigger Levels .....             | 18        |
| 4.1.4      | Sleep Disturbance.....                         | 18        |
| <b>4.2</b> | <b>Construction Noise Criteria .....</b>       | <b>19</b> |
| <b>4.3</b> | <b>Road Traffic Noise Criteria .....</b>       | <b>20</b> |
| <b>5</b>   | <b>OPERATIONAL NOISE ASSESSMENT .....</b>      | <b>21</b> |
| <b>5.1</b> | <b>Operational Activities .....</b>            | <b>21</b> |
| <b>5.2</b> | <b>Modelled Noise Sources .....</b>            | <b>21</b> |
| 5.2.1      | Modelled Line Sources .....                    | 22        |
| 5.2.2      | Modelled Point Sources .....                   | 22        |
| <b>5.3</b> | <b>Noise Modelling Methodology .....</b>       | <b>22</b> |
| <b>5.4</b> | <b>Modifying Factor Adjustments .....</b>      | <b>23</b> |



|            |                                                       |           |
|------------|-------------------------------------------------------|-----------|
| <b>5.5</b> | <b>Predicted Operational Noise Levels.....</b>        | <b>23</b> |
| <b>5.6</b> | <b>Feasible and Reasonable Noise Mitigation .....</b> | <b>25</b> |
| <b>6</b>   | <b>CONSTRUCTION NOISE ASSESSMENT .....</b>            | <b>28</b> |
| <b>6.1</b> | <b>Construction Equipment Noise Sources .....</b>     | <b>28</b> |
| <b>6.2</b> | <b>Predicted Construction Noise Levels .....</b>      | <b>29</b> |
| <b>6.3</b> | <b>Construction Noise Mitigation .....</b>            | <b>30</b> |
| <b>7</b>   | <b>ROAD TRAFFIC NOISE ASSESSMENT .....</b>            | <b>32</b> |
| <b>7.1</b> | <b>Overview.....</b>                                  | <b>32</b> |
| <b>7.2</b> | <b>Assessment .....</b>                               | <b>32</b> |
| <b>8</b>   | <b>CONCLUSION .....</b>                               | <b>33</b> |
| <b>9</b>   | <b>STATEMENT OF LIMITATIONS .....</b>                 | <b>34</b> |

## LIST OF APPENDICES

Appendix A: Unattended Noise Monitoring Plots

## LIST OF FIGURES

|                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------|----|
| Figure 2-1: Site Location and Surrounding Land Use (Source: NSW Legislation).....                         | 8  |
| Figure 2-2: Aerial Existing Site Context and Surrounding Area (Source: NearMap).....                      | 9  |
| Figure 2-3: Overall Site Plan (Source: Bongiorno Hawkins, rev. N dated 18 October 2022).....              | 10 |
| Figure 2-4: Detailed Site Operations Plan (Source: Bongiorno Hawkins, rev. N dated 18 October 2022) ..... | 10 |
| Figure 3-1: Noise Monitoring Locations.....                                                               | 14 |
| Figure 5-1: Location of Proposed Barriers (indicative) .....                                              | 27 |

## LIST OF TABLES

|                                                                           |   |
|---------------------------------------------------------------------------|---|
| Table 1-1 Secretary's Environmental Assessment Requirements (SEARs) ..... | 7 |
|---------------------------------------------------------------------------|---|



|                                                                                                   |           |
|---------------------------------------------------------------------------------------------------|-----------|
| <b>Table 3-1 Summary of Representative Receivers .....</b>                                        | <b>12</b> |
| Table 3-2: Noise Monitoring Equipment.....                                                        | 13        |
| Table 3-3: Attended Noise Monitoring Results, dBA .....                                           | 13        |
| Table 3-4: Unattended Noise Monitoring Results – Ambient Noise Levels, dBA .....                  | 14        |
| Table 3-5: Existing Road Traffic Noise Levels – Hume Highway, dBA.....                            | 15        |
| Table 3-6: Standard and Noise-Enhancing Meteorological Conditions .....                           | 15        |
| Table 4-1: Project Intrusiveness Noise Levels .....                                               | 16        |
| Table 4-2: Project Amenity Noise Levels.....                                                      | 17        |
| Table 4-3: Project Noise Trigger Levels.....                                                      | 18        |
| Table 4-4: ICNG Noise Management Levels at Residences .....                                       | 19        |
| Table 4-5: ICNG Criteria at Sensitive Land Uses .....                                             | 19        |
| Table 4-6: Site-Specific Construction Noise Management Levels.....                                | 20        |
| Table 4-7: Road Traffic Noise Criteria - Residences .....                                         | 20        |
| Table 5-1: Operational Source Sound Power Levels.....                                             | 21        |
| Table 5-2: Daytime Predicted Operational Noise Impacts at Residential Receivers.....              | 23        |
| Table 5-3: Morning Shoulder Predicted Operational Noise Impacts at Residential<br>Receivers ..... | 24        |
| Table 6-1: Construction Equipment and Sound Power Levels .....                                    | 28        |
| Table 6-2: Predicted Construction Noise Impacts .....                                             | 29        |
| Table 6-3: Indicative Construction Noise Mitigation Measures .....                                | 31        |
| Table 7-1: Existing Traffic Volumes Hume Highway (both directions) .....                          | 32        |
| Table 7-2: Future Traffic Volumes Hume Highway (both directions) .....                            | 32        |

# 1 INTRODUCTION

RWDI Australia Pty Ltd (RWDI) has been engaged by JEP Environment & Planning Pty Ltd on behalf of Sincorp Properties Pty Ltd to conduct a Noise and Vibration Impact Assessment (NVIA) for the proposed Metal Recycling Facility (the Proposal) located at 88 Murrays Flat Road, Towrang NSW 2580 (the Site).

The NVIA provides the following details:

- The existing noise environment;
- The land zoning of the site and neighbouring areas;
- The closest existing residential and industrial receivers;
- Relevant noise and vibration criteria;
- An assessment of noise and vibration impacts from the construction and operation of the Proposal, including traffic noise impacts; and
- Recommendations to minimise the noise impact on affected receivers, where required.

The following guidelines and standards have been referenced in this NVIA:

- EPA Noise Policy for Industry 2017 (NPfI);
- NSW Road Noise Policy 2011 (RNP); and
- NSW Interim Construction Noise Guideline 2009 (ICNG).

On review of the proposed activities, it has been determined that no significant vibration-intensive activities are proposed. Given the offset distance to the nearest sensitive receivers, any minor vibration that may occur is expected to be imperceptible. As a result, potential vibration impact has not been considered in this report.

This report forms part of the Development Application (DA) and addresses the Secretary's Environmental Assessment Requirements (SEARs) relevant to the development issued 18 October 2023.

The SEARs relevant to this report have been considered and are addressed as outlined in **Table 1-1**.

**Table 1-1 Secretary's Environmental Assessment Requirements (SEARs)**

| Comment                                                                                                                    | Response                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Noise and Vibration – including:</b>                                                                                    |                                                                                                                                                                             |
| A description of all potential noise and vibration sources during construction and operation, including road traffic noise | Operational noise is assessed in <b>Section 5</b> . Construction noise and vibration is assessed in <b>Section 6</b> . Road traffic noise is assessed in <b>Section 7</b> . |
| A noise and vibration assessment in accordance with the relevant Environment Protection Authority guidelines               | A NVIA has been prepared in accordance with the relevant EPA guidelines.                                                                                                    |
| A description and appraisal of noise and vibration mitigation and monitoring measures                                      | Relevant noise and vibration mitigation and monitoring measures are discussed in <b>Section 5.6</b> and <b>Section 6.3</b> .                                                |

## 2 PROPOSAL DESCRIPTION

### 2.1 Proposal Location

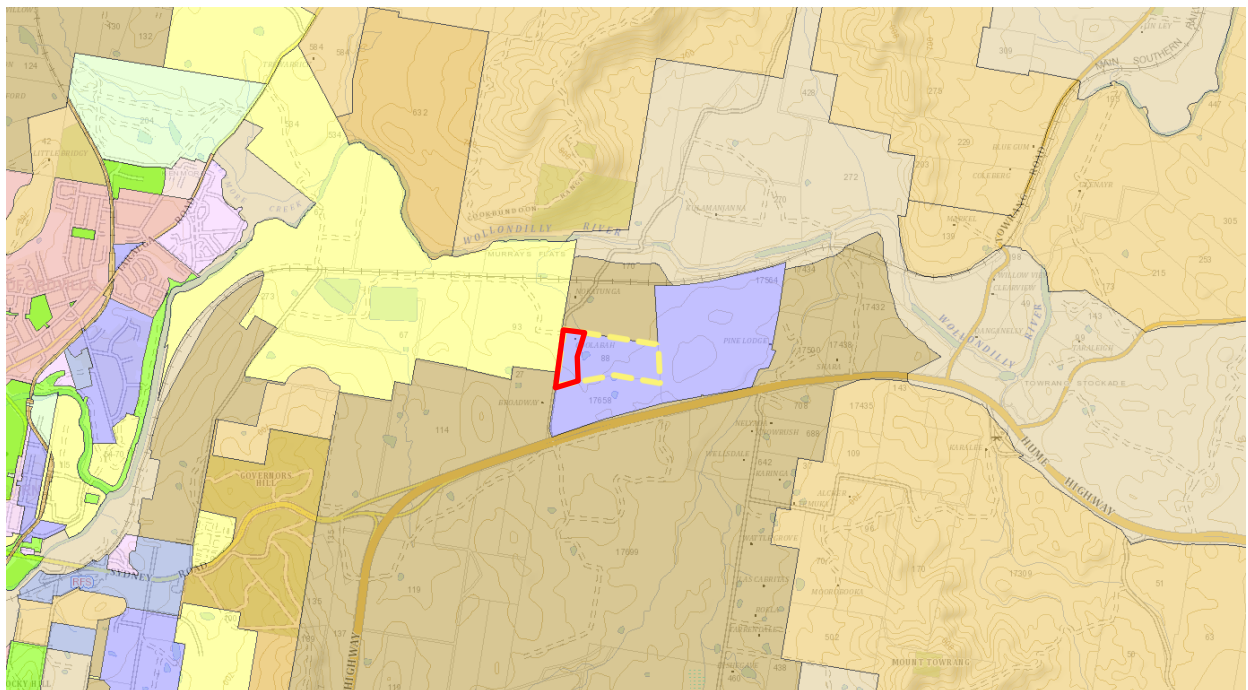
The proposed metal recycling facility is located at 88 Murrays Flat Road, Towrang NSW (Lot 3 DP251779), within the Goulburn Mulwaree Council local government area. In accordance with the Goulburn Mulwaree Local Environmental Plan 2009, the Site is within the “E4 – General Industrial” land zone, as presented in **Figure 2-1**. Land uses surrounding the Site comprise the following zoning categories:

- E4 – General Industrial;
- RU6 – Transition;
- RU2 – Rural Landscape;
- SP2 – Infrastructure (Public Utility Undertaking); and
- C3/C2 – Environmental Management/Conservation.

The Site covers about 6.6 hectares of the larger property area of 32.3 hectares and is located to the western end of the property. Adjoining the property, on the west boundary is the SP2 (Infrastructure) zoned area, a Public Utility Undertaking. RU6 Transition zone surrounds the south-western and north-eastern side of the property.

General Industrial zoned E4 land surrounds the eastern and southern side of the property. Wollondilly River flows at approximately 775 m to the northern boundary and an unnamed water course flows through the north-eastern side of the site. The nearest residential house is approximately 280 m from the Site boundary, and the next nearest are about 1.5 km away.

The Site and surrounding context are presented in **Figure 2-2**.



**Figure 2-1: Site Location and Surrounding Land Use (Source: NSW Legislation)**



**Figure 2-2: Aerial Existing Site Context and Surrounding Area (Source: NearMap)**

## 2.2 Proposed Development

The Proposal is to construct and operate a metals recovery facility (up to 30,000 tpa ferrous and non-ferrous metals) which also includes the conversion of an existing on-site residential dwelling to an administrative building, the construction of a staff car parking area, two additional vehicular entry/exit points, a compacted roadbase for heavy vehicles and construction of a weighbridge.

The Proposal involves the receipt, sorting, cutting, shredding and bulk transport of metals to markets for further processing / recycling. The Proposal is proposed to occur largely outdoors, on a hardstand with supporting infrastructure, such as offices, equipment storage and staff amenities.

The Site will have a 20 m wide landscaped area along the Murrays Flat Road. Behind this landscaped buffer area, scrap metals recovery operations will be carried out. The Site has two existing vehicular crossings towards the northern end of the property. Two additional vehicular entry/exit points are proposed. A compacted roadbase for heavy vehicles is proposed to be built to ensure vehicle and site safety is maintained. A weighbridge at the entrance and at the exit will be installed to log the quantities of incoming and outgoing materials.

Conceptual site plans providing an overview of the proposed development and operations including vehicle access points, weighbridge locations and heavy vehicle directional paths are provided in **Figure 2-3** and **Figure 2-4**.

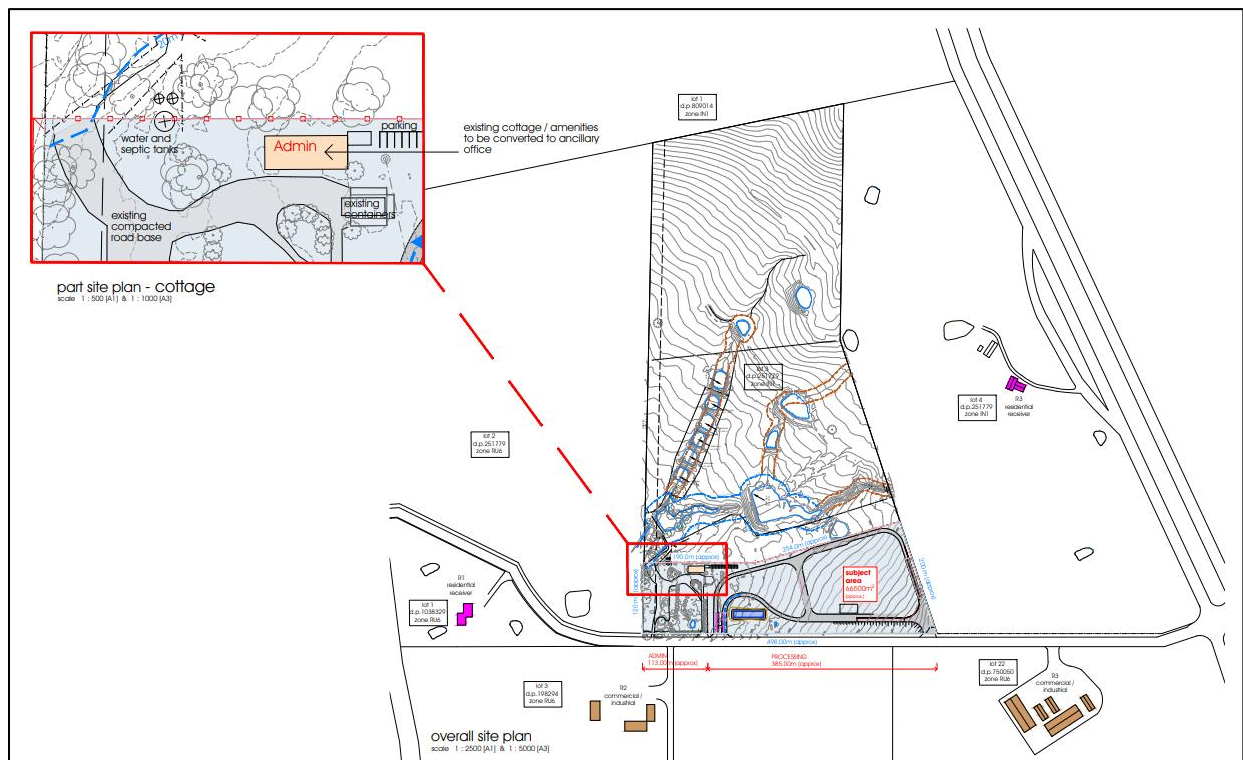


Figure 2-3: Overall Site Plan (Source: Bongiorno Hawkins, rev. N dated 18 October 2022)

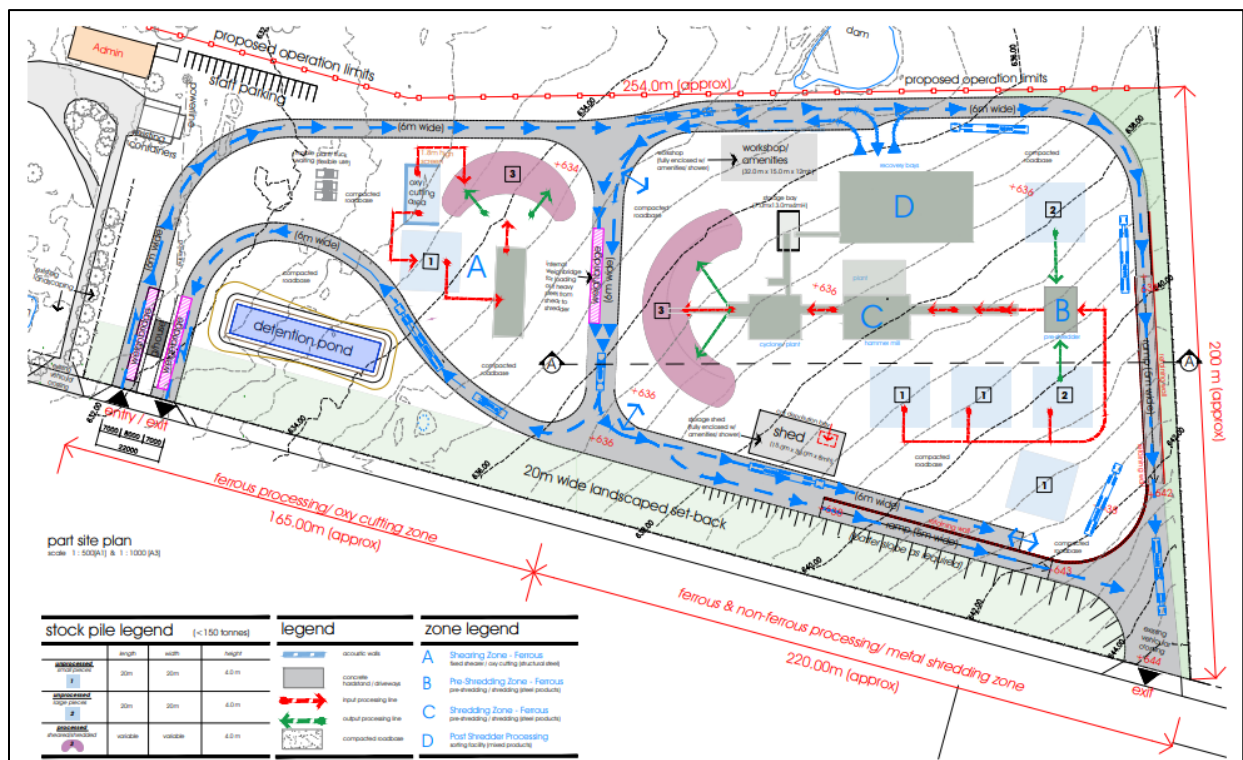


Figure 2-4: Detailed Site Operations Plan (Source: Bongiorno Hawkins, rev. N dated 18 October 2022)



## 2.3 Proposed Site Operation

Access to the Site is via Murrays Flat Road, located less than 500 m from the Hume Highway. The road forms a part of the Transport for NSW approved routes for 19 m Truck and Dog vehicles (Transport for NSW, 2021).

The following activities will occur on the Site:

- Tipping and inspection of incoming scrap metals;
- Primary sorting;
- Oxycutting and shearing;
- Pre-shredding;
- Shredding (hammermill); and
- Storage of processed metals for off-site recycling

Incoming vehicles will enter the Site from Murrays Flat Road, turn right to be weighed on the weighbridge. Unloading and sorting of unprocessed scrap metals will occur in one of two optional areas. One area is near the pre-shredding and shredding area, where most of the unprocessed metals will be tipped. The other area is near the oxycutting and fixed shearing area. Primary tipping areas are marked as blue squares numbered one in **Figure 2-4**.

If unprocessed metals require pre-shredding, the material will be moved from the primary tipping area to the unprocessed metal storage bays marked as blue squares numbered two in **Figure 2-4** to await pre-shredding. Otherwise, metals will go directly into the primary shredder (hammermill) for processing.

Storage of processed metals will occur in various areas, depending on whether the material is shredded ferrous, shredded non-ferrous, large sheared or oxy-cut pieces, metal awaiting further shredding or residual floc. Load out will occur regularly to export processed material off-site for further recycling.

## 2.4 Operating Hours

The proposed Site operations hours are:

- Monday to Friday between 6am – 6pm
- Saturdays from 7am – 4:30pm

No operations are to occur on site on Sunday and public holidays. RWDI have been advised that no operation of the hammermill shredder and pre-shredder will occur during the morning shoulder period 6am-7am. Operations during this time include inbound and outbound truck movements, material handlers, and maintenance of plant and equipment. While maintenance and cleaning activities can occur at any time of the day (24 hours), to maintain the efficiency of operations, they will occur predominantly during:

- Monday to Saturday between 6am – 6pm
- Sundays on a 24-hour basis



## 3 EXISTING NOISE ENVIRONMENT

### 3.1 Representative Receivers

Representative receivers have been selected for this assessment. The receivers considered in this assessment are presented in **Table 3-1**.

**Table 3-1 Summary of Representative Receivers**

| Receiver ID | Receiver Type | Receiver Description                | Land Zoning |
|-------------|---------------|-------------------------------------|-------------|
| R01         | Industrial    | 93 Murrays Flat Road, Towrang       | SP2         |
| R02         | Residential   | 272 Murrays Flat Road, Towrang      | RU6         |
| R03         | Industrial    | 27 Murrays Flat Road, Towrang       | RU6         |
| R04         | Residential   | 17658 Hume Highway, Towrang         | E4          |
| R05         | Residential   | 17699 Hume Highway, Boxers Creek    | RU6         |
| R06         | Residential   | 649 Boxers Creek Road, Boxers Creek | RU6         |
| R07         | Residential   | 669 Boxers Creek Road, Boxers Creek | RU6         |
| R08         | Residential   | 681 Boxers Creek Road, Boxers Creek | RU6         |
| R09         | Residential   | 17500 Hume Highway, Towrang         | RU6         |
| R10         | Residential   | 17564 Hume Highway, Towrang         | RU6         |
| R11         | Residential   | 270 Murrays Flat Road, Towrang      | RU2         |
| R12         | Residential   | 643 Boxers Creek Road, Boxers Creek | RU6         |
| R13         | Residential   | 604 Boxers Creek Road, Boxers Creek | RU6         |
| R14         | Residential   | 624 Boxers Creek Road, Boxers Creek | RU6         |
| R15         | Residential   | 642 Boxers Creek Road, Boxers Creek | RU6         |
| R16         | Residential   | 688 Boxers Creek Road, Boxers Creek | RU6         |
| R17         | Residential   | 708 Boxers Creek Road, Boxers Creek | RU6         |
| R18         | Residential   | 36 Stockade Lane, Boxers Creek      | C3          |
| R19         | Residential   | 37 Stockade Lane Boxers Creek       | C3          |
| R20         | Residential   | 17438 Hume Highway Towrang          | RU6         |



### 3.2 Unattended Noise Monitoring

Unattended noise monitoring was conducted between Wednesday 11 December 2024 and Wednesday 18 December 2024 to quantify the existing noise environment surrounding the Site.

**Table 3-2** summarises the instrumentation used for the survey.

**Table 3-2: Noise Monitoring Equipment**

| Instrumentation   | Manufacturer | Model   | Serial Number |
|-------------------|--------------|---------|---------------|
| Sound Level Meter | Rion         | NL-53EX | 00941351      |
|                   | Rion         | NL-53EX | 00440944      |
| Sound Calibrator  | Brüel & Kjær | 4231    | 2326413       |

Each Sound Level Meter was fitted with a microphone windshield. Calibration of each logger was checked prior to and following measurements. Drift in calibration did not exceed  $\pm 0.5$  dBA. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

Noise monitoring was completed in accordance with Australian Standard AS 1055-2018 *"Acoustics - Description and measurement of environmental noise"*. All acoustic instrumentation utilised complies with AS IEC 61672.1-2004 *"Electroacoustics - Sound level meters - Specifications"*.

**Figure 3-1** presents the locations of noise monitoring, adopted to be representative of locations near the Proposal. The noise monitor at Location L01 was installed south of the Site within the property boundary of 17658 Hume Highway, Towrang approximately 220 m from the Hume Highway. The noise monitor at Location L02 was installed within the property boundary of 88 Murrays Flat Road, Towrang approximately 150 m from Murrays Flat Road. Noise from Location L01 was dominated by distant road traffic noise from the Hume Highway.

### 3.3 Attended Noise Monitoring

Attended noise monitoring was conducted on Thursday 19 December 2024 to qualify noise contributors. A 10-min measurement was taken at both Locations L01 and L02, presented in **Table 3-3**.

**Table 3-3: Attended Noise Monitoring Results, dBA**

| Location         | Time            | L <sub>Aeq</sub> | L <sub>A90</sub> |
|------------------|-----------------|------------------|------------------|
| L01 <sup>1</sup> | 1:02pm – 1:12pm | 44               | 40               |
| L02 <sup>2</sup> | 1:45pm – 1:55pm | 53               | 45               |

Note 1: L<sub>Aeq</sub> dominated by intermittent bird noise. L<sub>90</sub> dominated by bird noise and distant traffic from Hume Highway.

Note 2: L<sub>Aeq</sub> dominated by wind and intermittent bird/insect noise, as well as loud trucks passing on Hume Highway. L<sub>90</sub> dominated by bird noise and distant from Hume Highway.

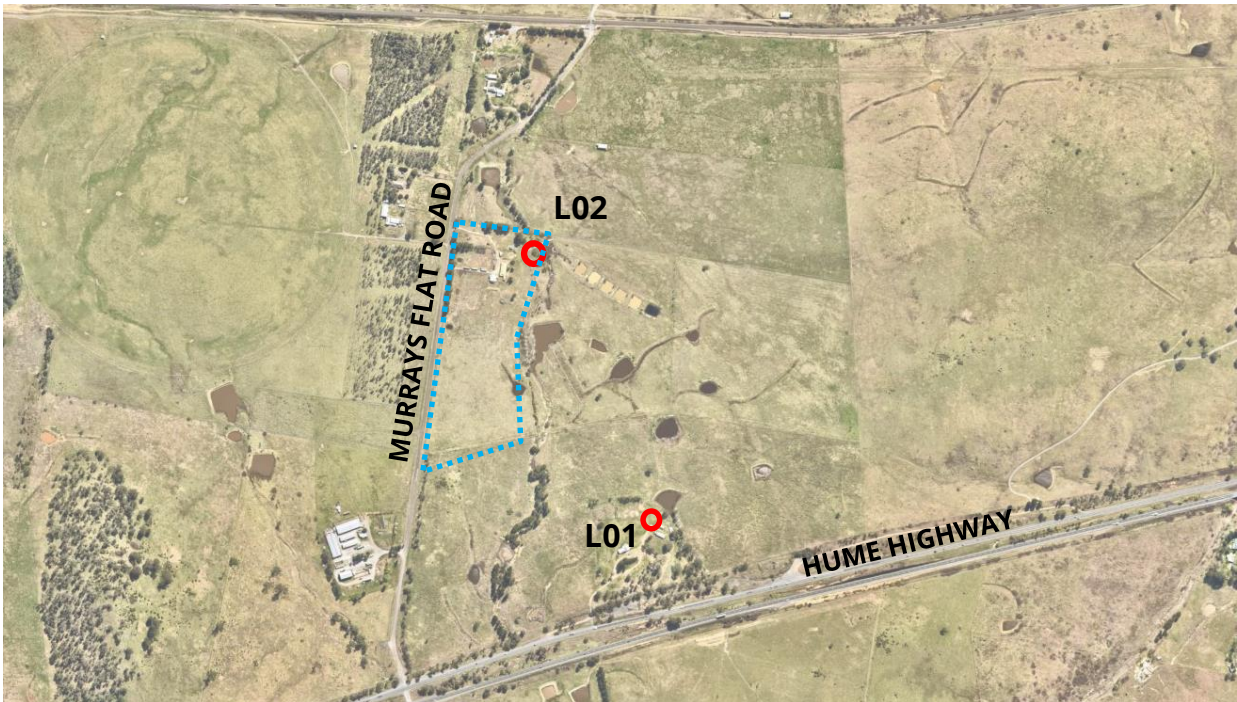


Figure 3-1: Noise Monitoring Locations

3.4 Existing Background Noise Levels

Unattended noise monitoring was conducted between Wednesday 11 December 2024 and Wednesday 18 December 2024 at two locations. The measured data was processed according to the *NPfI* requirements.

**Table 3-4** summarises the  $L_{A90}$  presented as Rating Background Level (RBL) logged during the daytime, evening, and night periods. RBL data affected by adverse meteorological conditions or extraneous noise was removed from the data prior to processing. Full noise monitoring plots are provided in **Appendix A**.

Table 3-4: Unattended Noise Monitoring Results – Ambient Noise Levels, dBA

| Location | Time Period <sup>1</sup> | RBL |
|----------|--------------------------|-----|
| L01      | Day                      | 39  |
|          | Evening                  | 43  |
|          | Night                    | 35  |
|          | Morning Shoulder         | 38  |
| L02      | Day                      | 32  |
|          | Evening                  | 36  |
|          | Night                    | 30  |
|          | Morning Shoulder         | 33  |

Note 1: Daytime (7am – 6pm), Evening (6pm – 10pm), Night (10pm – 7am), and Morning Shoulder (6am – 7am).

### 3.5 Existing Road Traffic Noise Levels

The noise data at L01 was reviewed to determine the existing road traffic noise surrounding the residential receivers. **Table 3-5** presents the measured road traffic noise levels at this location.

**Table 3-5: Existing Road Traffic Noise Levels – Hume Highway, dBA**

| Location | Day <sup>1</sup><br>L <sub>Aeq,15hr</sub> | Night <sup>1</sup><br>L <sub>Aeq,9hr</sub> |
|----------|-------------------------------------------|--------------------------------------------|
| L01      | 50                                        | 50                                         |

Note 1: Daytime (7am – 6pm) and Night (10pm – 7am)

### 3.6 Meteorological Conditions

At relatively large distances from a source, the resultant noise levels at receivers can be influenced by meteorological conditions, particularly temperature inversions and gradient winds. Where these factors are a feature of an area their effect on resultant noise levels should be considered.

The *NPfl* defines standard meteorological conditions and noise-enhancing meteorological conditions to be considered for the assessment. The definition of those conditions is provided in Table D1 of Fact Sheet D in the *NPfl*, reproduced in **Table 3-6**.

**Table 3-6: Standard and Noise-Enhancing Meteorological Conditions**

| Meteorological Conditions | Meteorological Parameters                                                                                                                                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard                  | Day/evening/night: stability categories A-D with wind speed up to 0.5 m/s at 10 m AGL.                                                                                                                                                   |
| Adverse                   | Daytime/evening: stability categories A-D with light winds (up to 3 m/s at 10 m AGL).<br>Night-time: stability categories A-D with light winds (up to 3 m/s at 10 m AGL) and/or stability category F with winds up to 2 m/s at 10 m AGL. |

Notes: m/s = metres per second; m = metres; AGL = above ground level; where a range of conditions is nominated, the meteorological condition delivering the highest predicted noise level should be adopted for assessment purposes. However, feasible and reasonable noise limits in consents and licences derived from this process would apply under the full range of meteorological conditions nominated under standard or noise-enhancing conditions as relevant. All wind speeds are referenced to 10 m AGL. Stability categories are based on the Pasquill-Gifford stability classification scheme.

The *NPfl* provides two options when considering meteorological effects:

1. Conservatively adopt noise-enhancing meteorological conditions without processing meteorological data local to the site; or
2. Determine the significance of noise-enhancing meteorological conditions based on meteorological data local to the site and adopt noise-enhancing conditions for the assessment. Where noise-enhancing meteorological conditions are deemed non-significant, standard meteorological conditions may be adopted.

The first option has been selected for this assessment, with predictions presented under noise-enhancing conditions.

## 4 NOISE AND VIBRATION CRITERIA

There are no quantitative noise criteria relating to noise and vibration in the *Goulburn Mulwaree Local Environmental Plan 2009*.

### 4.1 Operational Noise Criteria

The *Noise Policy for Industry* (NPfI) outlines the NSW Environment Protection Authority's (EPA's) requirements for the assessment and management of noise from industry in NSW.

The emission of noise and potential noise impact from the operation of the Proposal is to be assessed with respect to the site-specific noise trigger levels based on the NPfI. The NPfI assessment procedure has two components: intrusiveness and amenity. The more stringent of these components are then adopted as the site-specific project noise trigger levels. The intrusiveness component applies to residential land uses only; only the amenity criterion applies to non-residential receivers.

#### 4.1.1 Project Intrusiveness Noise Level

The intrusiveness noise level seeks to limit the level of impact that a new noise source creates on an existing environment. The NPfI nominates that noise from new industrial noise sources should not exceed the background noise level by more than 5 dB for each time period (daytime, evening or night-time). To assess intrusiveness, the background noise level ( $L_{A90}$ ) is measured and the RBL is determined for each period when the Proposal is not in operation.

The project intrusiveness noise levels are summarised in **Table 4-1**.

**Table 4-1: Project Intrusiveness Noise Levels**

| Receiver              | Assessment Period <sup>1</sup> | Rating Background Level (RBL) (dBA) | Project Intrusiveness Noise Level $L_{Aeq}$ , period (dBA) |
|-----------------------|--------------------------------|-------------------------------------|------------------------------------------------------------|
| Residential R02       | Day                            | 32                                  | 40 <sup>3</sup>                                            |
|                       | Evening                        | 36                                  | 37 <sup>2</sup>                                            |
|                       | Night                          | 30                                  | 35                                                         |
|                       | Morning Shoulder               | 33                                  | 38                                                         |
| Residential R04 – R20 | Day                            | 39                                  | 44                                                         |
|                       | Evening                        | 43                                  | 44 <sup>2</sup>                                            |
|                       | Night                          | 35                                  | 40                                                         |
|                       | Morning Shoulder               | 38                                  | 43                                                         |

Note 1: Daytime (7am – 6pm), Evening (6pm – 10pm), Night (10pm – 7am), and Morning Shoulder (6am – 7am).

Note 2: As per Section 2.3 of the NPfI, if the evening RBL is greater than the day RBL, the evening PNTL should be set as no greater than the day PNTL.

Note 3: As per Section 2.3 of the NPfI, the minimum projective intrusiveness noise level for daytime is 40 dBA.

### 4.1.2 Project Amenity Noise Levels

The amenity assessment is based on noise criteria specific to land use and associated activities. The amenity noise level aims to limit continuing increases in noise levels which may occur if the intrusiveness level alone is applied to successive development within an area.

The recommended amenity noise level represents the objective for total industrial noise at a receiver location. The project amenity noise level represents the objective for noise from a single industrial development at a receiver location.

Table 2.2 of the NPfI nominates recommended amenity noise levels (RANL) for various receiver types. The amenity criteria are designed to limit the combined ambient noise level from all industrial existing and new noise sources.

The Project Amenity Noise Level (PANL) is calculated as the RANL for the receiver type minus 5 dBA. To compare descriptors, the NPfI assumes that the  $L_{Aeq, 15min}$  equivalent of an  $L_{Aeq, period}$  noise level is equal to the  $L_{Aeq, period}$  level plus 3 dB.

The nearest residential receivers are categorised as Rural under the NPfI. The project amenity noise levels are summarised in **Table 4-2**.

**Table 4-2: Project Amenity Noise Levels**

| Receiver          | Assessment Period <sup>1</sup> | Recommended Amenity Noise Level<br>$L_{Aeq, period}$ (dBA) | Project Amenity Noise Level<br>$L_{Aeq, period}$ (dBA) | Project Amenity Noise Level<br>$L_{Aeq, 15min}$ (dBA) |
|-------------------|--------------------------------|------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|
| Rural Residential | Day                            | 50                                                         | 45                                                     | 48                                                    |
|                   | Evening                        | 45                                                         | 40                                                     | 43                                                    |
|                   | Night                          | 40                                                         | 35                                                     | 38                                                    |
| Industrial        | When in use                    | 70                                                         | 65                                                     | 68                                                    |

Note 1: Day: 7 am – 6pm, Evening 6 pm – 10 pm, Night 10 pm – 7 am.

### 4.1.3 Project Noise Trigger Levels

The project noise trigger levels (PNTLs) are defined as the lower of the project intrusiveness and the project amenity noise levels. The PNTLs are summarised in **Table 4-3**.

**Table 4-3: Project Noise Trigger Levels**

| Receiver              | Assessment Period <sup>1</sup> | Intrusiveness Criteria<br>L <sub>Aeq, 15min</sub><br>(dBA) | Amenity Criteria<br>L <sub>Aeq, 15min</sub><br>(dBA) | Project Noise Trigger Criteria<br>L <sub>Aeq, 15min</sub><br>(dBA) |
|-----------------------|--------------------------------|------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------|
| Residential R02       | Day                            | <b>40</b>                                                  | 48                                                   | 40                                                                 |
|                       | Evening                        | <b>37</b>                                                  | 43                                                   | 37                                                                 |
|                       | Night                          | <b>35</b>                                                  | 38                                                   | 35                                                                 |
|                       | Morning Shoulder               | <b>38</b>                                                  | -                                                    | 38                                                                 |
| Residential R04 – R20 | Day                            | <b>44</b>                                                  | 48                                                   | 44                                                                 |
|                       | Evening                        | 44 <sup>2</sup>                                            | <b>43</b>                                            | 43                                                                 |
|                       | Night                          | 40                                                         | <b>38</b>                                            | 38                                                                 |
|                       | Morning Shoulder               | <b>43</b>                                                  | -                                                    | 43                                                                 |
| Industrial R01, R03   | When in use                    | -                                                          | <b>68</b>                                            | 68                                                                 |

Note 1: Day: 7 am – 6pm, Evening 6 pm – 10 pm, Night 10 pm – 7 am

### 4.1.4 Sleep Disturbance

As per the Scoping Report (JEP Environment & Planning, 26 September 2023), no site operations are to occur in the evening or night-time periods. Therefore, sleep disturbance criteria are not required for this assessment.

## 4.2 Construction Noise Criteria

The NSW EPA *Interim Construction Noise Guidelines (ICNG)* requires project-specific Noise-Management Levels (NMLs) to be established for noise affected receivers. All construction works are expected to be carried out during the standard daytime construction hours as per the *ICNG* of Monday to Friday 7 am – 6pm and Saturday 8 am – 1pm. Where Out-of-Hours-Works (OOHs) are required, it is likely they would require separate approval.

Having investigated all feasible and reasonable work practices, if construction noise levels are still predicted to exceed the NMLs then the potential noise impact would be managed via site specific construction noise management plans, to be prepared in the detailed design phase.

**Table 4-4** and **Table 4-5** presents the application of the *ICNG* noise management levels for residential receivers.

**Table 4-4: ICNG Noise Management Levels at Residences**

| Time of Day    | NML                          | How to Apply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard Hours | Noise Affected RBL + 10 dBA  | 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 works to be carried out, the expected noise levels and duration, as well as contact details.                                                                                                                                                                                                                                  |
|                | Highly Noise Affected 75 dBA | 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: <ol style="list-style-type: none"> <li>1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences;</li> <li>2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.</li> </ol> |

**Table 4-5** details the *ICNG* NMLs for non-residential receivers, which are applicable when the premises are in use.

**Table 4-5: ICNG Criteria at Sensitive Land Uses**

| Land Use            | Management Level <sup>1</sup> LAeq, 15min |
|---------------------|-------------------------------------------|
| Industrial premises | External noise level 75 dBA               |

Note 1: Applies when properties are being used.

**Table 4-6** summarises the applicable noise management levels for construction activities at surrounding receivers that have been adopted for the Proposal. The NMLs are for standard daytime construction hours.

**Table 4-6: Site-Specific Construction Noise Management Levels**

| Receiver Type                   | Construction Noise Management Levels (NMLs) | Highly Noise Affected Noise Level |
|---------------------------------|---------------------------------------------|-----------------------------------|
|                                 | $L_{Aeq, 15min}$                            | $L_{Aeq, 15min}$                  |
| <b>Residential</b> <sup>1</sup> | 42                                          | 75                                |
| <b>Industrial</b> <sup>2</sup>  | 75                                          | N/A                               |

Note 1: The same RBL will be used for all residential receivers.

Note 2: Applies when in use.

## 4.3 Road Traffic Noise Criteria

Guidance for the assessment of traffic noise generated on public roads by new developments is set out in the EPA's *Road Noise Policy (RNP)*.

The *RNP* is normally applied to developments which result in indefinite increases in road traffic noise rather than temporary increases associated with construction projects, however the *ICNG* does not include criteria to assess off-site construction traffic noise, therefore these criteria have been applied for construction and operational traffic.

The road traffic noise criteria relevant to the Proposal, which are only applicable to residential receivers are summarised in **Table 4-7**.

**Table 4-7: Road Traffic Noise Criteria - Residences**

| Type of Project/Land Use                                                                                                                      | Assessment Criteria                          |                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------|
|                                                                                                                                               | Day<br>(7 am – 10 pm)<br>dB $L_{Aeq, 1hour}$ | Night<br>(10 pm – 7 am)<br>dB $L_{Aeq, 1hour}$ |
| <b>Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments</b> | 60 (external)                                | 55 (external)                                  |

Where existing road traffic noise exceeds the relevant baseline criteria presented in **Table 4-7**, the *RNP* requires additional analysis to evaluate whether traffic noise levels at residences would increase by more than 2 dB resulting from increased traffic flows associated with the development. If the increase in overall traffic noise levels is less than 2 dB, this would typically be considered as a barely perceptible increase in noise level to the average person and is unlikely to result in any adverse impacts on residential receivers.

## 5 OPERATIONAL NOISE ASSESSMENT

### 5.1 Operational Activities

RWDI have been advised that operational plant and equipment will include oxy-cutting, stationary shear, pre-shredder, shredder (hammermill), and downstream separation and sorting equipment. Based on available information, it is understood that the shredders are not proposed to be housed or enclosed.

As details of specific operating equipment have not yet been decided, a conservative approach to modelling has been conducted.

### 5.2 Modelled Noise Sources

**Table 5-1** summarises the sound power levels for the proposed equipment used on site and proposed operating hours.

Sound power levels were based on assumptions of similar plant levels from RWDI's internal database and assessments of similar projects.

**Table 5-1: Operational Source Sound Power Levels**

| Noise Source                                   | Noise Characteristic | Sound Power Level (SWL) dBA |
|------------------------------------------------|----------------------|-----------------------------|
| <b>General Operations (7am – 6pm)</b>          |                      |                             |
| <b>Pre-Shredder</b>                            | Quasi-steady         | 107 L <sub>Aeq</sub>        |
| <b>Hammermill Shredder</b>                     | Quasi-steady         | 116 L <sub>Aeq</sub>        |
| <b>Eddy Current Separator</b>                  | Quasi-steady         | 95 L <sub>Aeq</sub>         |
| <b>Oxy Torch</b>                               | Quasi-steady         | 105 L <sub>Aeq</sub>        |
| <b>Metal Shear</b>                             | Quasi-steady         | 99 L <sub>Aeq</sub>         |
| <b>Semi-trailers or B-Doubles <sup>1</sup></b> | Quasi-steady         | 111 L <sub>Aeq</sub>        |
| <b>Front-End Loader</b>                        | Quasi-steady         | 104 L <sub>Aeq</sub>        |
| <b>Material Handler (30 tonne)</b>             | Quasi-steady         | 103 L <sub>Aeq</sub>        |
| <b>Material Handler (50 tonne)</b>             | Quasi-steady         | 103 L <sub>Aeq</sub>        |
| <b>AC Unit</b>                                 | Quasi-steady         | 85 L <sub>Aeq</sub>         |
| <b>Forklift operating on hardstand</b>         | Quasi-steady         | 95 L <sub>Aeq</sub>         |
| <b>Heavy Vehicle<sup>2</sup> @ 10 km/h</b>     | Quasi-steady         | 106 L <sub>Aeq</sub>        |
| <b>Maintenance and Cleaning (24 hours)</b>     |                      |                             |
| <b>Semi-trailers or B-Doubles <sup>1</sup></b> | Quasi-steady         | 111 L <sub>Aeq</sub>        |
| <b>Front-End Loader</b>                        | Quasi-steady         | 104 L <sub>Aeq</sub>        |

| Noise Source                         | Noise Characteristic | Sound Power Level (SWL) dBA |
|--------------------------------------|----------------------|-----------------------------|
| Material Handler (50 tonne)          | Quasi-steady         | 103 L <sub>Aeq</sub>        |
| Heavy Vehicle <sup>2</sup> @ 10 km/h | Quasi-steady         | 106 L <sub>Aeq</sub>        |

Note 1: The SWL for semi-trailers and B-doubles incorporates maximum noise level events associated with loading and unloading of trucks (i.e. SWL of 110 dBA for continuous engine noise + SWL of 120 dBA for maximum noise level events for duration of 30 seconds in 15-minute period)

Note 2: Heavy vehicle defined as any cargo vehicle with three or more axles with gross vehicle weight > 12,000 kg.

### 5.2.1 Modelled Line Sources

The Scoping Report (JEP Environment & Planning, 26 September 2023) included a preliminary traffic assessment, calculating the following traffic will be generated by the Proposal:

- 6 semi-trailer movements per day;
- 4 heavy vehicle movements per day;
- 2 semi-trailer and 1 heavy vehicle movement in peak traffic hours.

A conservative assumption has been made to model two heavy vehicles per hour. Heavy vehicles within the Proposal were modelled as line sources travelling at 10 km/h with a sound power level of 106 dBA and a height of 1.5 m.

### 5.2.2 Modelled Point Sources

As specific operating equipment have not yet been confirmed, conservative assumptions have been made for operational equipment consistent with previous experience on similar projects. Both the hammermill shredder and pre-shredder have been modelled outdoors at a height of 2 m in their proposed locations as depicted in **Figure 2-4**.

Warehouse noise sources such as rooftop mechanical plant and forklifts have been modelled throughout the proposed development. Point sources with a reference sound power level 80 dBA have been modelled at rooftop locations around the development. Four sources have been allocated per building.

Consistent with other developments, external gas-powered forklifts have been modelled as point sources with a SWL of 95 dBA at 1 m in height. It has been assumed that forklifts would operate continuously during any one 15-minute period. One forklift for every two heavy vehicles onsite has been modelled operating externally in the hardstand areas for each of the warehouses.

Mechanical plant serving the proposed development will require review to determine potential noise impacts prior to issue of a construction certificate. Upon final selection, noise emissions from plant to be installed should be compared with the project noise trigger levels listed in **Table 4-3**.

## 5.3 Noise Modelling Methodology

Site related noise emissions were modelled using the CONCAWE noise prediction algorithm within the CadnaA v2025 noise prediction software. A representative 3-D model was constructed of the site and surrounding receivers. Factors that are addressed in the modelling are:

- Equipment sound level emissions (in octave bands) and locations;
- Screening effects from buildings and barriers;
- Receiver locations;
- Ground topography;
- Noise attenuation due to geometric spreading;
- Ground absorption and atmospheric absorption; and
- Meteorological effects.

The following assumptions have been made:

- Site layout based on architectural drawings in **Figure 2-4**;
- Meteorological conditions as discussed in **Section 3.6** and
- Operational noise sources as discussed in **Section 5.1**.

## 5.4 Modifying Factor Adjustments

Tonality, low frequency noise and intermittent noise sources have the potential to generate annoyance at surrounding receivers.

Section C1 of the NPfI outlines 'modifying factor' adjustments to account for potential greater annoyance of a noise source due to these characteristics. These corrections apply at the receiver locations and consider the emergence above existing ambient noise.

The noise sources proposed for site operations are generally broadband in nature and of consistent characteristics and not typically expected to generate any tonal noise, intermittency or low frequency noise components. This assumption should be confirmed as more detailed information on equipment specifications are available.

## 5.5 Predicted Operational Noise Levels

**Table 5-2** presents the predicted noise levels at residential and industrial receivers for the General Operations during daytime. These predicted noise levels are based on conservative internal plant levels, worst-case operation activities, and noise-enhancing meteorological conditions.

**Table 5-2: Daytime Predicted Operational Noise Impacts at Residential Receivers**

| Receiver | Predicted Noise Level,<br>dB L <sub>Aeq, 15min</sub> | PNTL, dB L <sub>Aeq, 15min</sub> | Exceedance |
|----------|------------------------------------------------------|----------------------------------|------------|
| R02      | 46                                                   | 40                               | 6          |
| R04      | 42                                                   | 44                               | -          |
| R05      | 32                                                   |                                  | -          |
| R06      | 26                                                   |                                  | -          |
| R07      | 27                                                   |                                  | -          |
| R08      | 27                                                   |                                  | -          |

| Receiver | Predicted Noise Level,<br>dB LAeq, 15min | PNTL, dB LAeq, 15min | Exceedance |
|----------|------------------------------------------|----------------------|------------|
| R09      | 26                                       |                      | -          |
| R10      | 26                                       |                      | -          |
| R11      | <20                                      |                      | -          |
| R12      | 26                                       |                      | -          |
| R13      | <20                                      |                      | -          |
| R14      | 25                                       |                      | -          |
| R15      | 24                                       |                      | -          |
| R16      | 26                                       |                      | -          |
| R17      | 26                                       |                      | -          |
| R18      | <20                                      |                      | -          |
| R19      | <20                                      |                      | -          |
| R20      | <20                                      |                      | -          |
| R01      | 51                                       | 68                   | -          |
| R03      | 49                                       |                      | -          |

**Table 5-3** presents the predicted noise levels at residential and industrial receivers for the Maintenance and Cleaning activities against the morning shoulder criteria. Maintenance and Cleaning activities can occur at any time of the day (24 hours). Compliance with morning shoulder criteria infers compliance with criteria for morning, evening and night-time periods. These predicted noise levels are based on conservative internal plant levels, worst-case operation activities, and noise-enhancing meteorological conditions.

**Table 5-3: Morning Shoulder Predicted Operational Noise Impacts at Residential Receivers**

| Receiver | Predicted Noise Level,<br>dB LAeq, 15min | PNTL, dB LAeq, 15min | Exceedance |
|----------|------------------------------------------|----------------------|------------|
| R02      | 41                                       | 38                   | 3          |
| R04      | 33                                       | 43                   | -          |
| R05      | 27                                       |                      | -          |
| R06      | 21                                       |                      | -          |
| R07      | 23                                       |                      | -          |
| R08      | 24                                       |                      | -          |
| R09      | 22                                       |                      | -          |
| R10      | 22                                       |                      | -          |

| Receiver | Predicted Noise Level,<br>dB LAeq, 15min | PNTL, dB LAeq, 15min | Exceedance |
|----------|------------------------------------------|----------------------|------------|
| R11      | <20                                      |                      | -          |
| R12      | 21                                       |                      | -          |
| R13      | <20                                      |                      | -          |
| R14      | 19                                       |                      | -          |
| R15      | 16                                       |                      | -          |
| R16      | 23                                       |                      | -          |
| R17      | 22                                       |                      | -          |
| R18      | <20                                      |                      | -          |
| R19      | <20                                      |                      | -          |
| R20      | <20                                      |                      | -          |
| R01      | 47                                       | 68                   | -          |
| R03      | 44                                       |                      | -          |

**Table 5-2** and **Table 5-3** indicate that predicted noise levels from the Proposal comply with the Project Noise Trigger at the majority of receivers during the daytime and morning shoulder periods. An exceedance of 6 dB is expected during the daytime period, and 3 dB during the morning shoulder period at receiver R02.

The most significant contributor to received noise levels at this receiver is the hammermill shredder, which is located approximately 600 m from this receiver, followed by the B-doubles. At the time of writing of this report, it is understood that this equipment is not proposed to be enclosed.

As a result of the exceedance predicted at receiver R02, **Section 5.6** outlines an assessment of the feasibility and reasonableness of potential noise mitigation to minimise this residual exceedance.

## 5.6 Feasible and Reasonable Noise Mitigation

The results of this assessment indicate that operational noise levels are expected to exceed relevant criteria at receiver R02 during daytime and morning shoulder operations.

As a result, an assessment of the feasibility and reasonableness of noise mitigation strategies are discussed in **Table 5-4**.

**Table 5-4: Feasible and Reasonable Mitigation Matrix**

| Mitigation Option        | Feasible Mitigation Test | Reasonable Mitigation Test | Justification for Adopting or Disregarding this Option |
|--------------------------|--------------------------|----------------------------|--------------------------------------------------------|
| Mitigation at the Source |                          |                            |                                                        |

| Mitigation Option                                                                                                                                                                                      | Feasible Mitigation Test                                                                                               | Reasonable Mitigation Test                                                                                                                                                                                                                                        | Justification for Adopting or Disregarding this Option                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Source selection and orientation</b><br>Selection of low noise generating equipment, installation of mufflers, orientation of vehicles and shielding to reduce noise impacts to external receivers. | This option would be feasible.                                                                                         | Fitting residential grade mufflers to mobile plant, using screens or orienting equipment would assist in reducing noise levels to achieve compliance with the PNTLs at the worst affected receiver R02.                                                           | This option is recommended for this Proposal.                                          |
| <b>Mitigation of the Transmission Path</b>                                                                                                                                                             |                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                        |
| <b>Noise barriers on the site</b>                                                                                                                                                                      | This option would be feasible.                                                                                         | A 4 m high noise barrier on the northern boundary of both the cyclone plant and hammermill shredder would most likely reduce noise levels to achieve compliance with the PNTLs at the worst affected receiver R02.                                                | This option is recommended for this Proposal.                                          |
| <b>Mitigation at the Receiver</b>                                                                                                                                                                      |                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                        |
| <b>Noise barriers at receiver</b>                                                                                                                                                                      | These would not be feasible to build as it would require approval from the landowner and likely affect visual amenity. | Noise benefit would be minimal and would require a significant barrier to achieve worthwhile results.                                                                                                                                                             | This option was not implemented as <b>not</b> considered reasonable for this Proposal. |
| <b>Architectural treatment to receivers</b>                                                                                                                                                            | These would be feasible to build.                                                                                      | Noise benefits of this approach would only be applicable to internal spaces. Based on the predicted noise levels, received noise levels would be 31-32 dBA internally with windows open. These levels are considered low and unlikely to impact internal amenity. | This option was not implemented as <b>not</b> considered reasonable for this Proposal. |

Figure 3-1 provides indicative locations for the proposed 4 m barriers.



## 6 CONSTRUCTION NOISE ASSESSMENT

Noise modelling of the construction noise emissions was undertaken using the CadnaA v2025 modelling software.

The noise modelling methodology has been applied consistent to that of the operational noise assessment in **Section 5.3**. Construction is proposed to be limited to standard hours and therefore only daytime predictions have been completed.

### 6.1 Construction Equipment Noise Sources

At this stage of the Proposal details of proposed construction staging is unavailable; as a result, preliminary calculations have been made using one conservative construction scenario provided in **Table 6-1**. An indicative list of construction equipment and processes have been obtained from noise assessments of comparable construction sites. These assumptions can be revisited at the detailed design stage and once a construction contractor has been appointed.

**Table 6-1: Construction Equipment and Sound Power Levels**

| Construction Equipment  | Total Sound Power Level<br>( $L_{Aeq}$ , 15min) |
|-------------------------|-------------------------------------------------|
| Excavator (Approx, 20t) | 105                                             |
| Concrete Truck          | 112                                             |
| Mobile Crane            | 110                                             |
| Hand Tools              | 102                                             |
| Concrete Saw            | 113                                             |

Consistent with the requirements of the *ICNG*, and to inform the scheduling of construction activity and management of noise during the detailed design phase, the construction noise impacts are based on an expected typical worst-case scenario. The *ICNG* recommends that the realistic worst-case or conservative noise levels from the source should be predicted for assessment locations representing the most noise exposed residences or other sensitive land uses.

The majority of construction work will take place at distances of 500 m and 350 m from the facades of worst affected residential receivers R02 and R04 respectively. A worst-case noise scenario was developed based on the following assumptions:

- Shielding from existing barriers only;
- Hand tools used at a height;
- All construction noise sources operating simultaneously.

For most construction activities, it is expected that the construction noise levels would frequently be lower than predicted at the most-exposed receiver as the noise levels presented in this report are based on a realistic worst-case assessment.

## 6.2 Predicted Construction Noise Levels

High level predictions have been completed assuming a typical worst-case scenario whereby all plant is running simultaneously.

The results are considered conservative and represent noise levels in the upper range of impact at nearby receivers during intensive periods of construction. Levels would generally be expected to be lower as works progress throughout the works area.

**Table 6-2** summarises the predicted noise levels for standard daytime construction hours compared to relevant NMLs.

**Table 6-2: Predicted Construction Noise Impacts**

| Receiver   | Receiver Type | Noise Level $L_{Aeq, 15min}$ dBA |                    |            |
|------------|---------------|----------------------------------|--------------------|------------|
|            |               | Predicted Noise Level            | Noise Affected NML | Exceedance |
| <b>R01</b> | Industrial    | 52                               | 75                 | -          |
| <b>R02</b> | Residential   | 47                               | 42                 | <b>5</b>   |
| <b>R03</b> | Industrial    | 46                               | 75                 | -          |
| <b>R04</b> | Residential   | 44                               | 42                 | <b>2</b>   |
| <b>R05</b> | Residential   | 30                               | 42                 | -          |
| <b>R06</b> | Residential   | 27                               | 42                 | -          |
| <b>R07</b> | Residential   | 29                               | 42                 | -          |
| <b>R08</b> | Residential   | 30                               | 42                 | -          |
| <b>R09</b> | Residential   | 29                               | 42                 | -          |
| <b>R10</b> | Residential   | 29                               | 42                 | -          |
| <b>R11</b> | Residential   | <20                              | 42                 | -          |
| <b>R12</b> | Residential   | 27                               | 42                 | -          |
| <b>R13</b> | Residential   | <20                              | 42                 | -          |
| <b>R14</b> | Residential   | 26                               | 42                 | -          |
| <b>R15</b> | Residential   | 22                               | 42                 | -          |
| <b>R16</b> | Residential   | 28                               | 42                 | -          |
| <b>R17</b> | Residential   | 28                               | 42                 | -          |
| <b>R18</b> | Residential   | <20                              | 42                 | -          |
| <b>R19</b> | Residential   | <20                              | 42                 | -          |

| Receiver | Receiver Type | Noise Level $L_{Aeq, 15min}$ dBA |                    |            |
|----------|---------------|----------------------------------|--------------------|------------|
|          |               | Predicted Noise Level            | Noise Affected NML | Exceedance |
| R20      | Residential   | <20                              | 42                 | -          |

During standard construction hours, construction noise levels are predicted to comply with relevant NMLs at the majority of sensitive receivers. Exceedances of the NMLs of up to 5 dB are expected at receivers R02 and R04.

No noise sensitive receivers that are expected to be highly noise affected, i.e. with predicted noise levels exceeding 75 dBA.

Measures to manage construction noise emissions are discussed in **Section 6.3**.

## 6.3 Construction Noise Mitigation

As discussed in **Section 6.2**, noise levels from construction activities during standard hours may marginally exceed the NMLs of the *ICNG* at receivers R02 and R04. Therefore, in accordance with the *ICNG*, all reasonable and feasible measures should be applied to manage construction noise emissions from the site.

A detailed Construction Noise and Vibration Management Plan (CNVMP) should be prepared and include, but not be limited to the following:

- Identification of nearby residences and other sensitive land uses;
- Description of approved hours of work;
- Description and identification of construction activities, including work areas, equipment and duration;
- Description of what work practices (generic and specific) will be applied to minimise noise;
- Consider the selection of plant and processes with reduced noise emissions;
- A complaints handling process;
- Noise monitoring procedures;
- Overview of community consultation required for identified high impact works;
- Overview of community consultation process and assessment required for identified additional works outside of standard construction hours; and
- Induction and training will be provided to relevant staff and sub- contractors outlining their responsibilities with regard to noise.

Examples of typical construction noise mitigation measures are provided in **Table 6-3**, along with the likely reduction in noise levels. Where reasonable and feasible, these measures should be employed during the construction of the development.

**Table 6-3: Indicative Construction Noise Mitigation Measures**

| Mitigation Measure                                                                                                                                                                    | Anticipated Noise Reduction<br>dBA |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>Administrative Controls</b>                                                                                                                                                        |                                    |
| Operate during approved hours                                                                                                                                                         | N/A                                |
| Undertake regular noise monitoring to determine the impact of operating plant on sensitive receivers                                                                                  | N/A                                |
| Appropriate training of onsite staff                                                                                                                                                  | N/A                                |
| Undertake community consultation and respond to complaints in accordance with established project procedures                                                                          | N/A                                |
| Turning off machinery when not in use                                                                                                                                                 | 0-5                                |
| Respite periods for pile drivers and rock breakers (if applicable)                                                                                                                    | N/A                                |
| Conducting regular maintenance of plant to ensure that they are operating as efficiently and quietly as practicable                                                                   | N/A                                |
| <b>Engineering Controls</b>                                                                                                                                                           |                                    |
| Portable temporary screens                                                                                                                                                            | 5-10                               |
| Screen or enclosure for stationary equipment                                                                                                                                          | 10-15                              |
| Maximising the offset distance between noisy plant items and sensitive receivers                                                                                                      | 3-6                                |
| Avoiding using noisy plant simultaneously and / or close together, adjacent to sensitive receivers                                                                                    | 2-3                                |
| Orienting equipment away from sensitive receivers                                                                                                                                     | 3-5                                |
| Carrying out loading and unloading away from sensitive receivers                                                                                                                      | 3-5                                |
|                                                                                                                                                                                       |                                    |
| Using noise source controls, such as the use of residential class mufflers, to reduce noise from all plant and equipment including bulldozers, cranes, graders, excavators and trucks | 5-10                               |
| Selecting site access points and roads as far as reasonably practicable away from sensitive receivers                                                                                 | 3-6                                |
| Using spotters, closed circuit television monitors, "smart" reversing alarms, or "squawker" type reversing alarms in place of traditional reversing alarms                            | 2-5                                |
| Employ non-noise-generating structures such as site offices, storage sheds, stockpiles and tanks as noise barriers                                                                    | 5-10                               |

## 7 ROAD TRAFFIC NOISE ASSESSMENT

### 7.1 Overview

The traffic volumes recorded in 2021 on the section of the M31 Hume Highway nearest to the site by the NSW Roads and Maritime Service (RMS) are presented in **Table 7-1**. The percentage of heavy vehicles has been conservatively assumed to be 10% based on RWDI experience.

**Table 7-1: Existing Traffic Volumes Hume Highway (both directions)**

| Vehicle Type        | Day (7am-10pm) | Night (10pm-7am) | Total Daily  |
|---------------------|----------------|------------------|--------------|
| Light Vehicles      | 14900          | 2658             | 17558        |
| Heavy Vehicles      | 2980           | 532              | 3512         |
| <b>All Vehicles</b> | <b>18625</b>   | <b>3323</b>      | <b>21948</b> |

Source: RMS Traffic Volume Viewer <https://roads-waterways.transport.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/aadt-map/index.html/?z=6>.

As part of the scoping report provided by the client, a preliminary traffic assessment calculated the following traffic will be generated by the development:

- 6 semi-trailer movements per day;
- 4 heavy vehicle movements per day;
- 2 semi-trailer and 1 heavy vehicle movement in peak traffic hours.

Based on this data, the predicted future volumes including trip generation from the redevelopment of the site are presented in **Table 7-2**.

**Table 7-2: Future Traffic Volumes Hume Highway (both directions)**

| Vehicle Type        | Day (Increase)     | Night (Increase) | Total Daily (Increase) |
|---------------------|--------------------|------------------|------------------------|
| Light Vehicles      | 14900 (405)        | 2658 (0)         | 17558 (405)            |
| Heavy Vehicles      | 2980 (45)          | 532 (0)          | 3512 (45)              |
| <b>All Vehicles</b> | <b>18625 (450)</b> | <b>3323 (0)</b>  | <b>21948 (450)</b>     |

### 7.2 Assessment

Due to negligible traffic volumes anticipated to be generated, relative to the existing traffic flows along the Hume Highway, changes to traffic noise levels will be less than 0.5 dB. As such, the increase in noise level due to the additional traffic generated by the Proposal is considered to be barely perceptible to the average person and is unlikely to result in any adverse impact on residential receivers.



## 8 CONCLUSION

This noise and vibration impact assessment was prepared by RWDI Australia on behalf of JEP Environment & Planning Pty Ltd and Sincorp Properties Pty Ltd, in support of the Development Application for the proposed Metal Recycling Facility at 88 Murrays Flat Road, Towrang NSW.

The NVIA has confirmed that noise emissions from operations and construction of the Proposal will generally remain below compliance limits at the majority of sensitive receivers, with minor exceedances of operational and construction limits at receivers R02 and R04. These exceedances could be managed with mitigation measures as discussed in **Section 5.6** and **Section 6.3** of this report.

It is expected that vibration generated from the operation and construction of the Proposal will meet relevant standards.

Additional road traffic noise generated during construction and operation of the Proposal will be minimal and meet relevant noise goals.

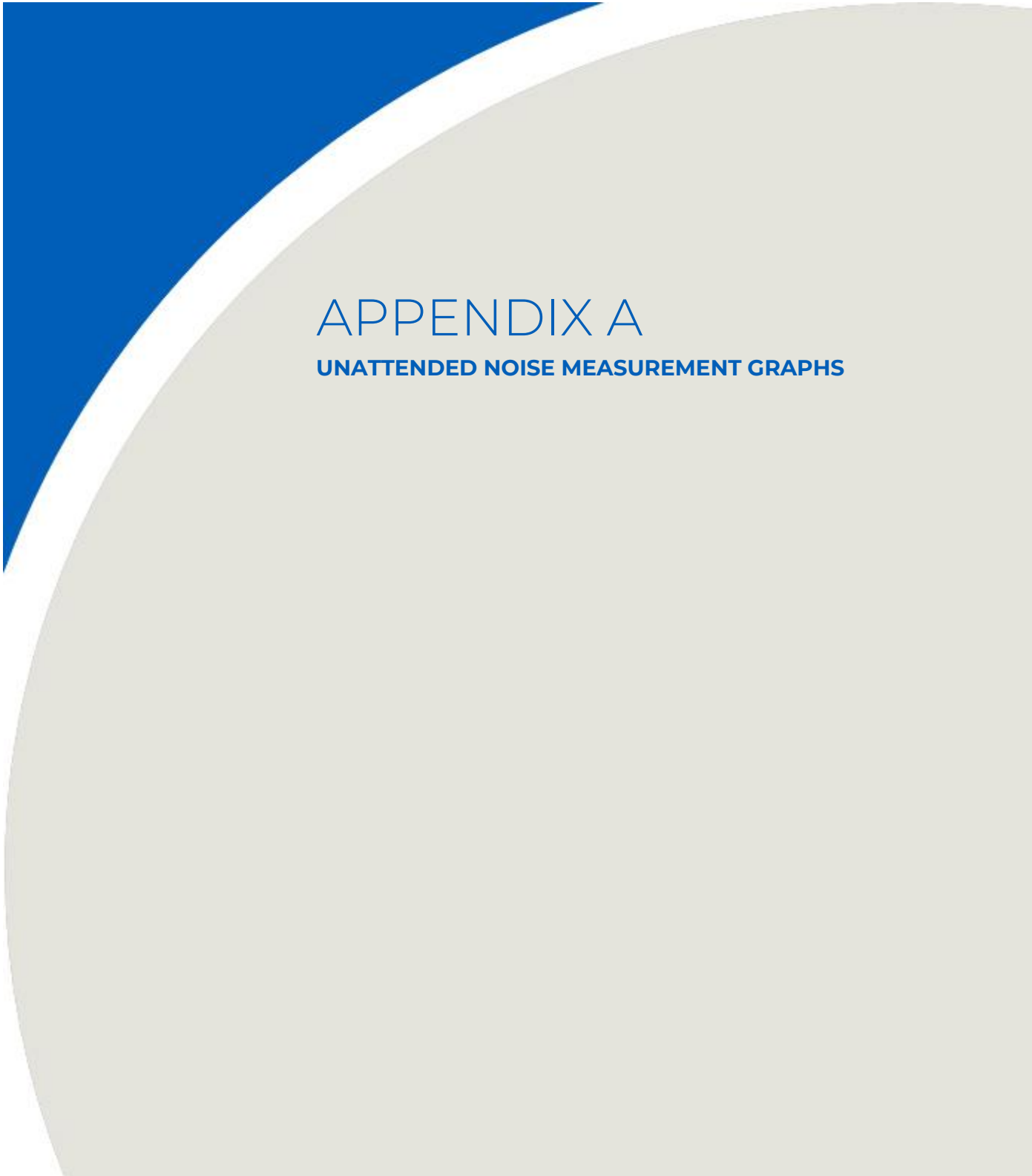


## 9 STATEMENT OF LIMITATIONS

This report entitled *Metal Recycling Facility –Noise and Vibration Impact Assessment*, dated 3 February 2025 was prepared by RWDI Australia Pty Ltd (“RWDI”) for Sincorp Properties Pty Ltd (“Client”). The findings and conclusions presented in this report have been prepared for the Client and are specific to the proposal described herein (“Proposal”). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Proposal or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the Proposal to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Proposal .

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or proposal without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

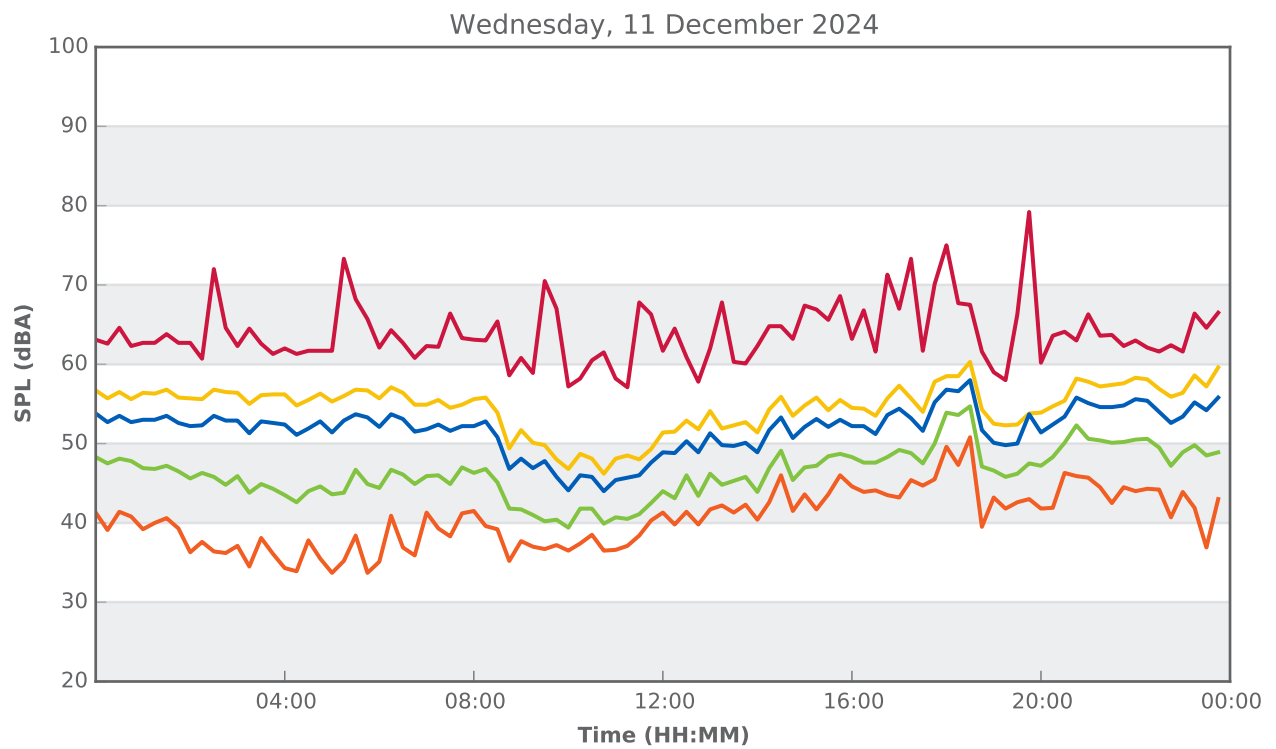
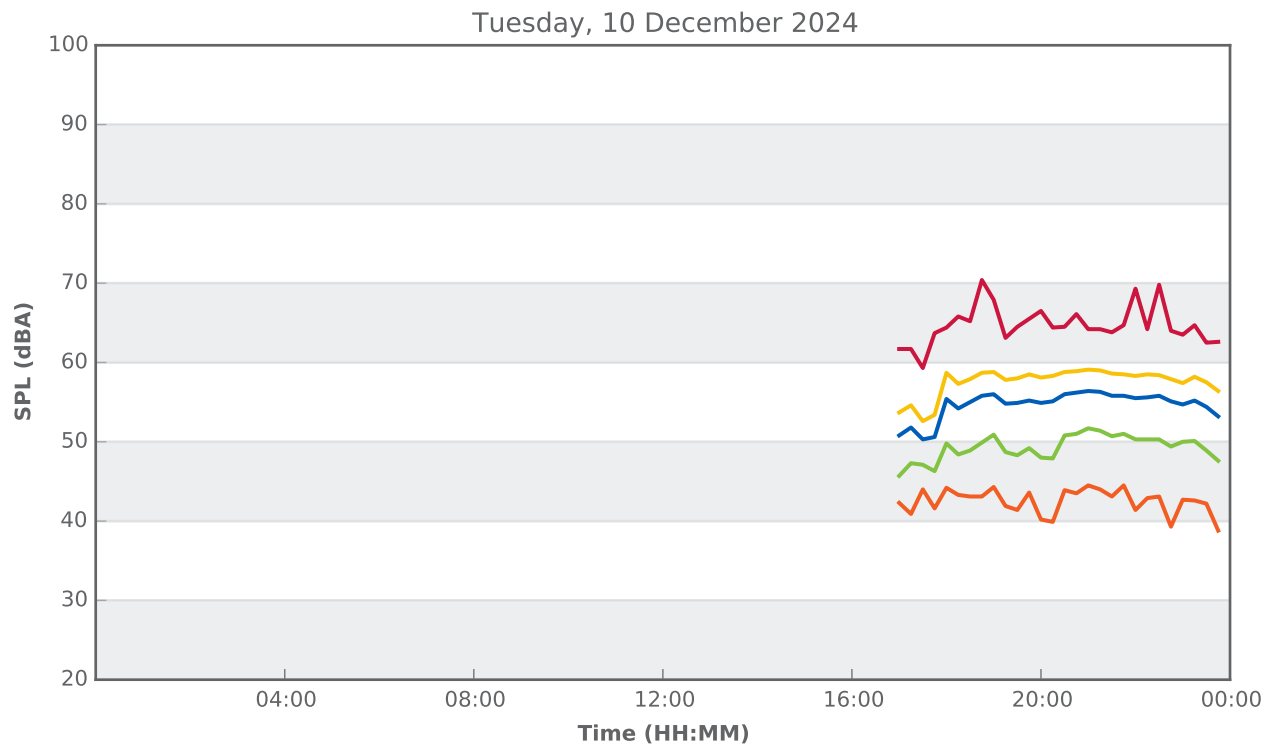
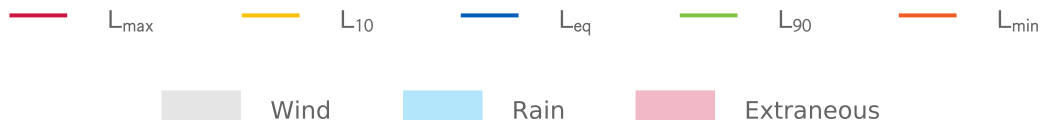
Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

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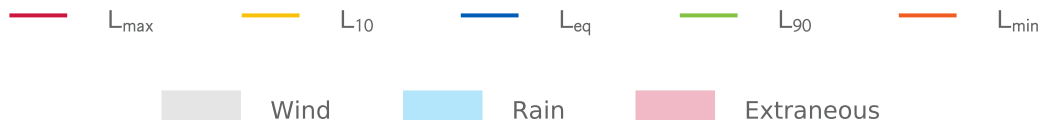
# APPENDIX A

## UNATTENDED NOISE MEASUREMENT GRAPHS

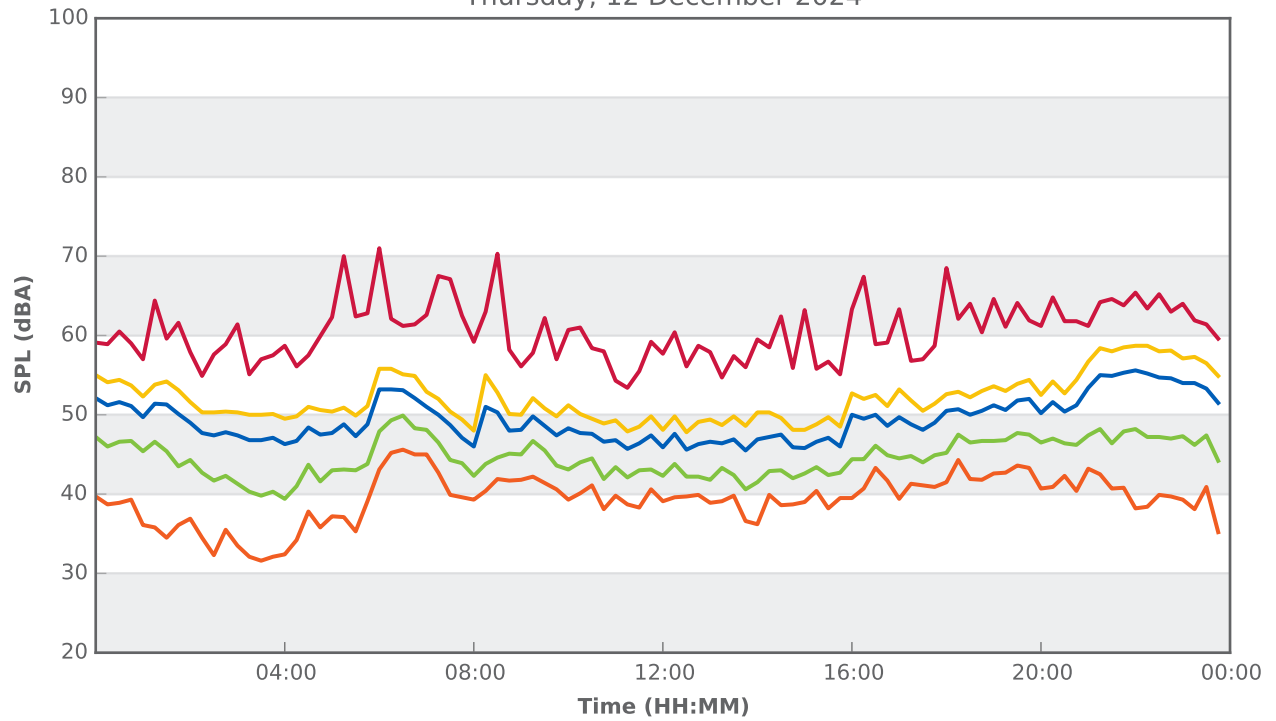
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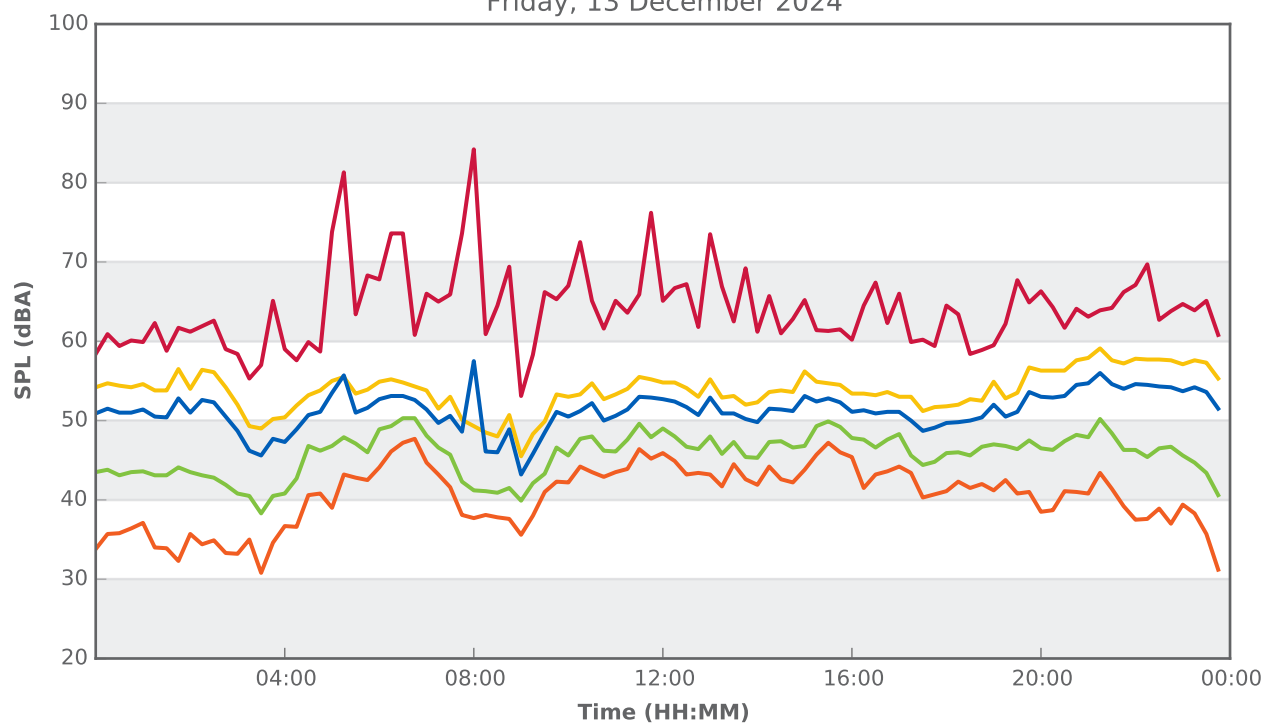
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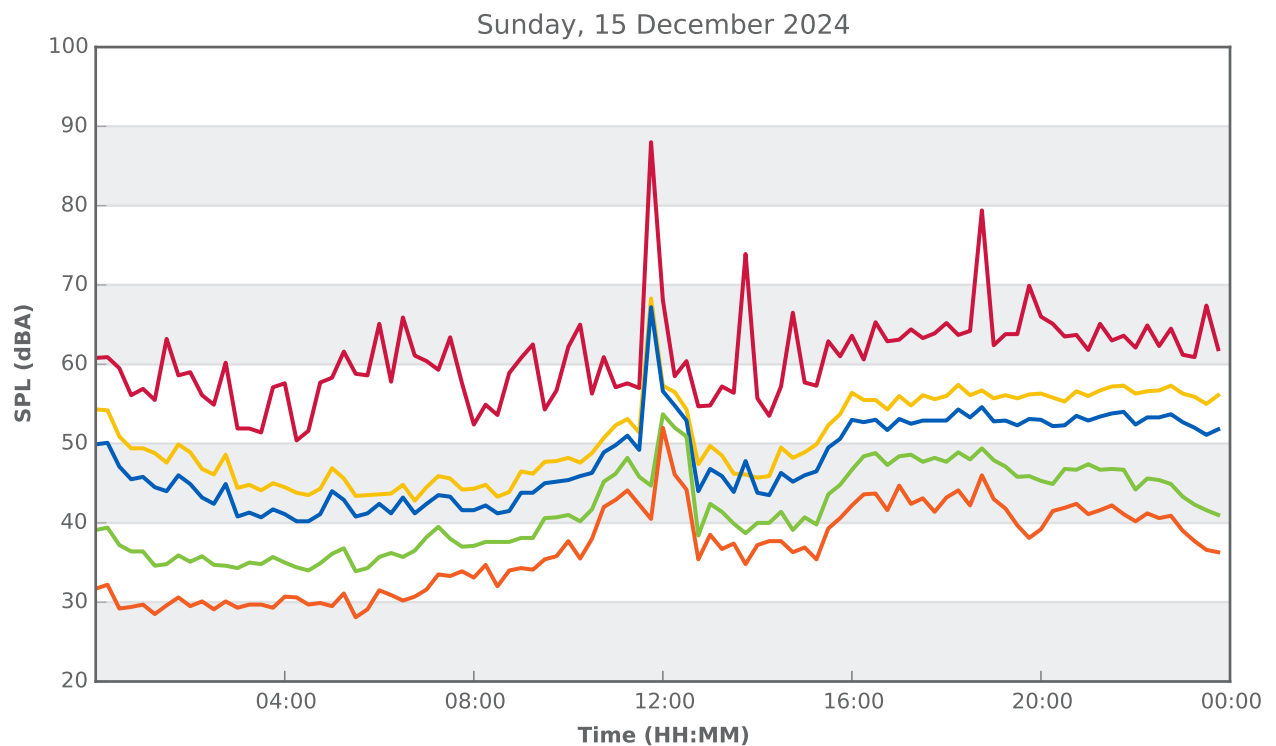
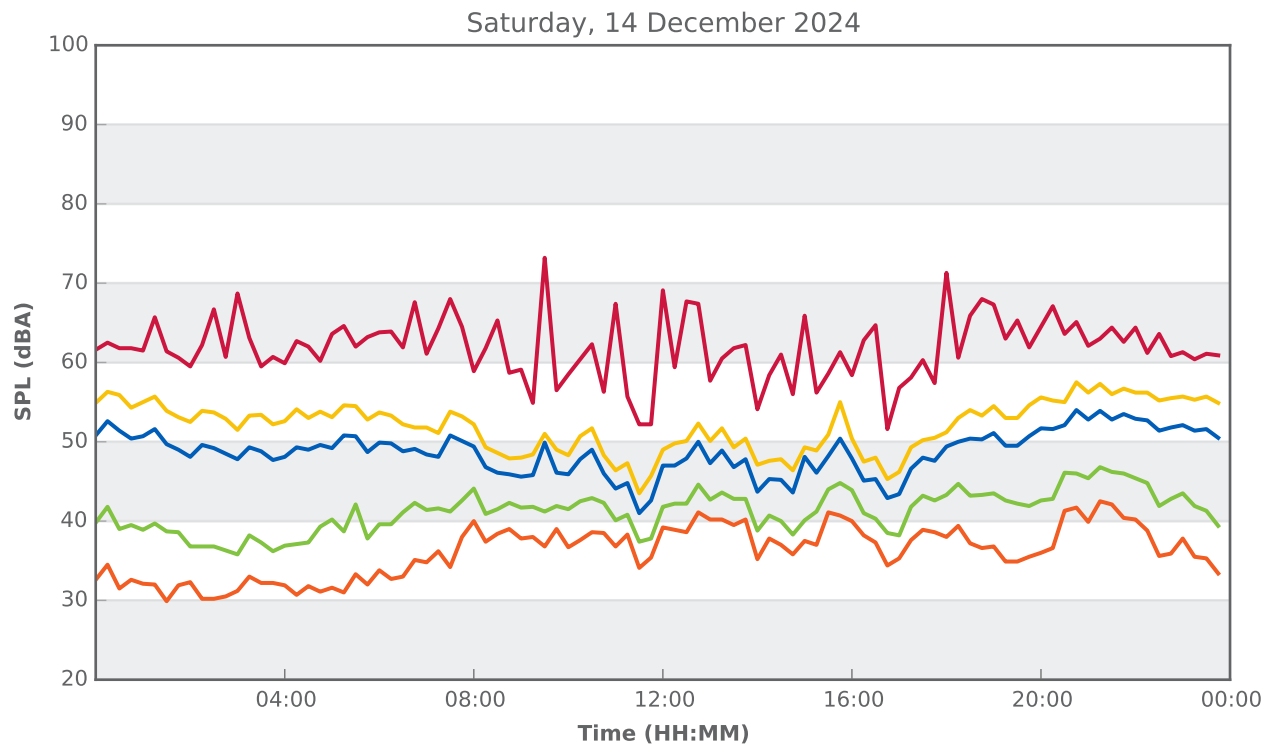
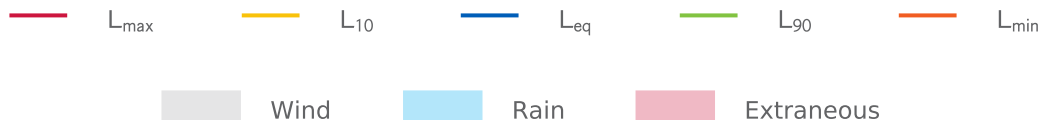
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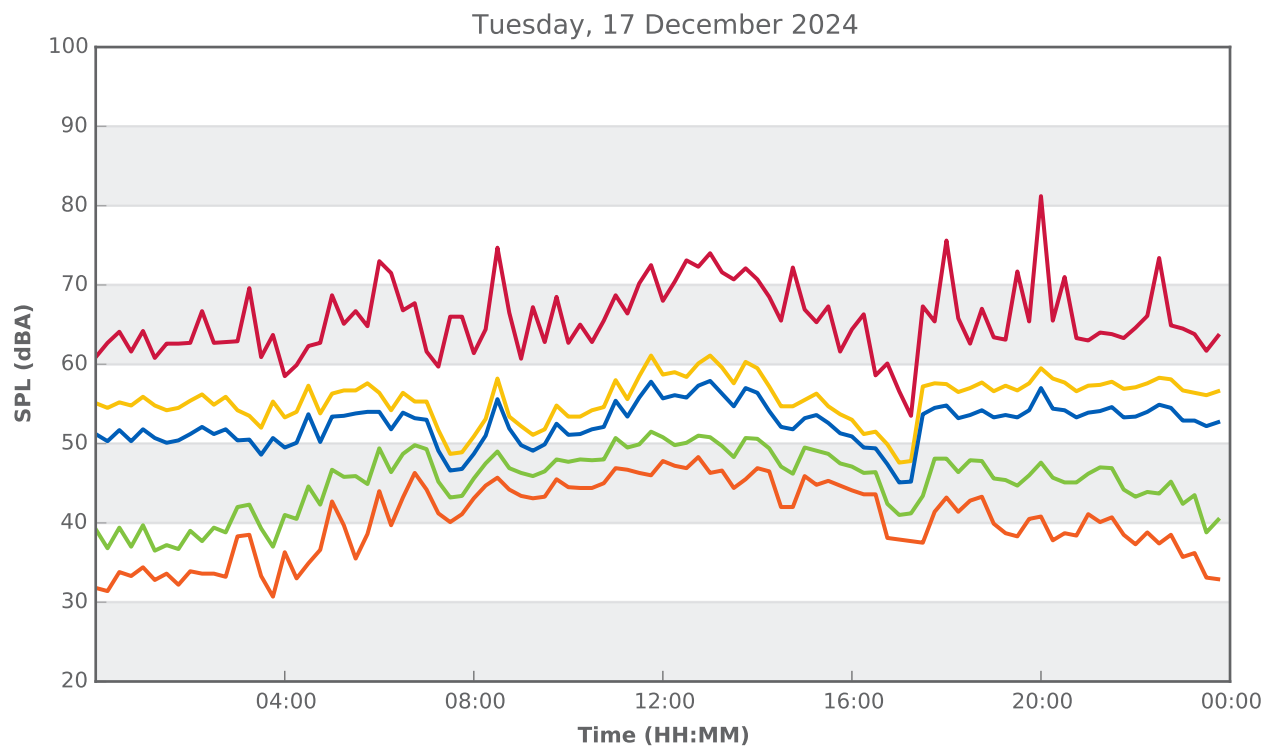
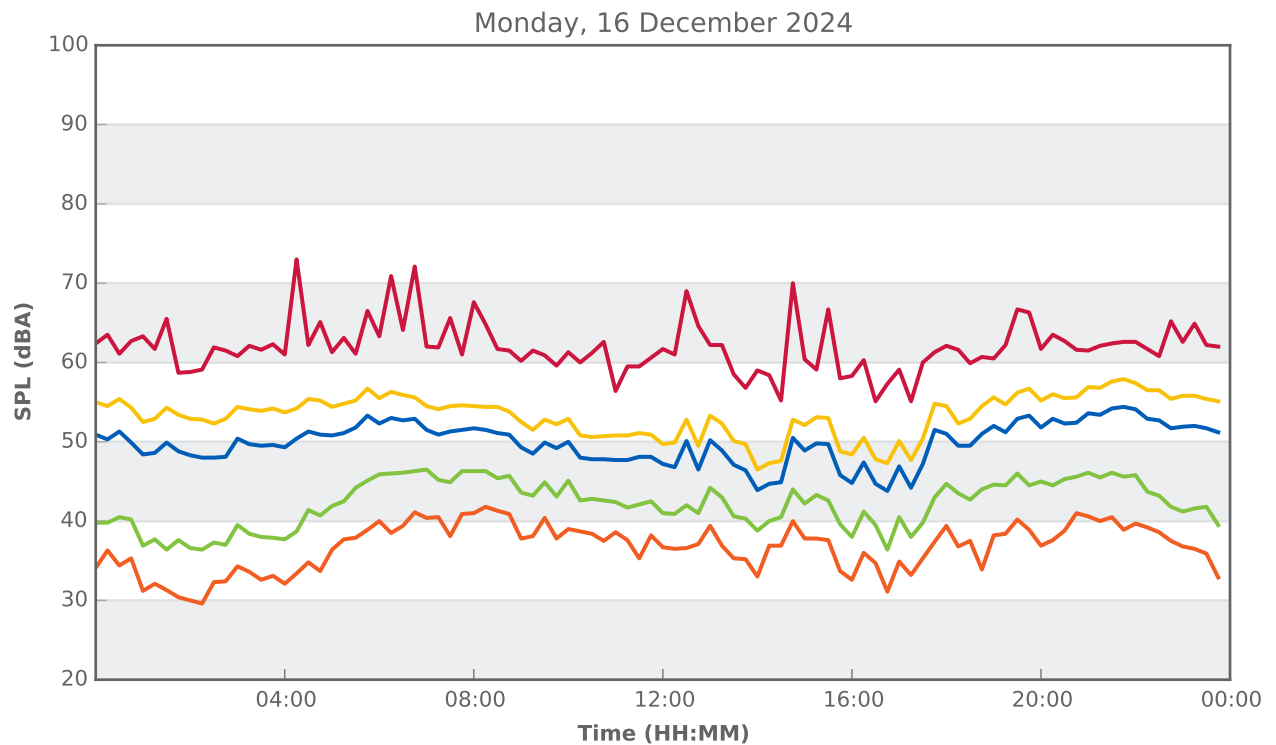
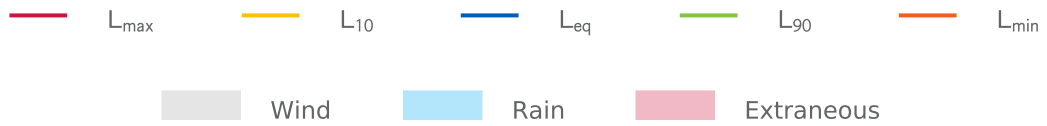
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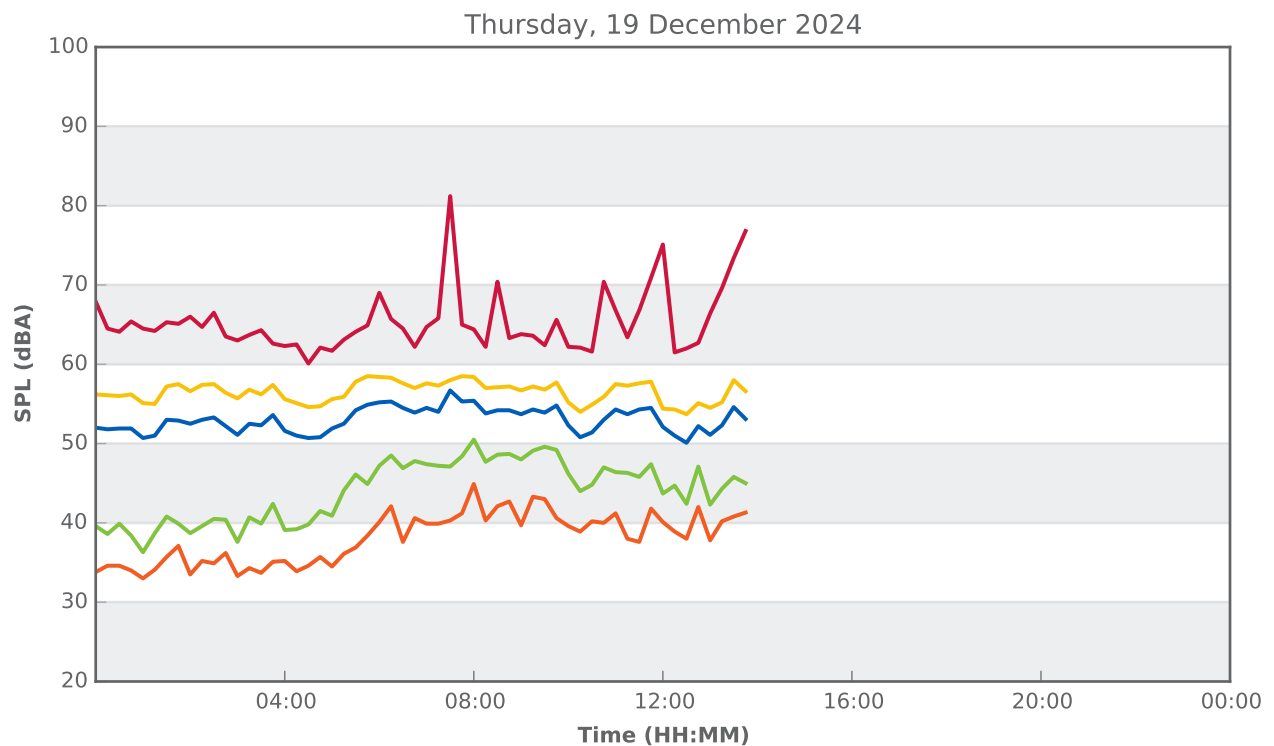
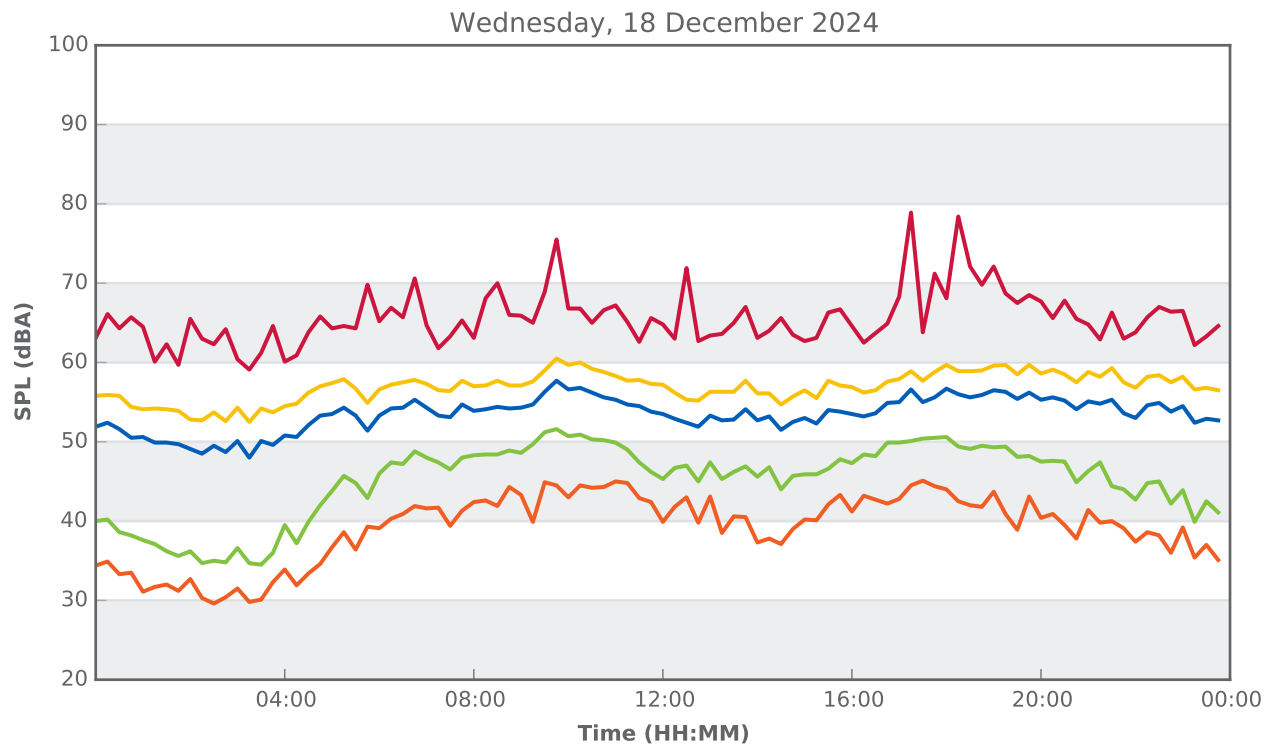
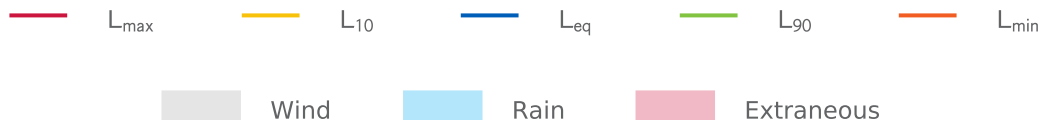
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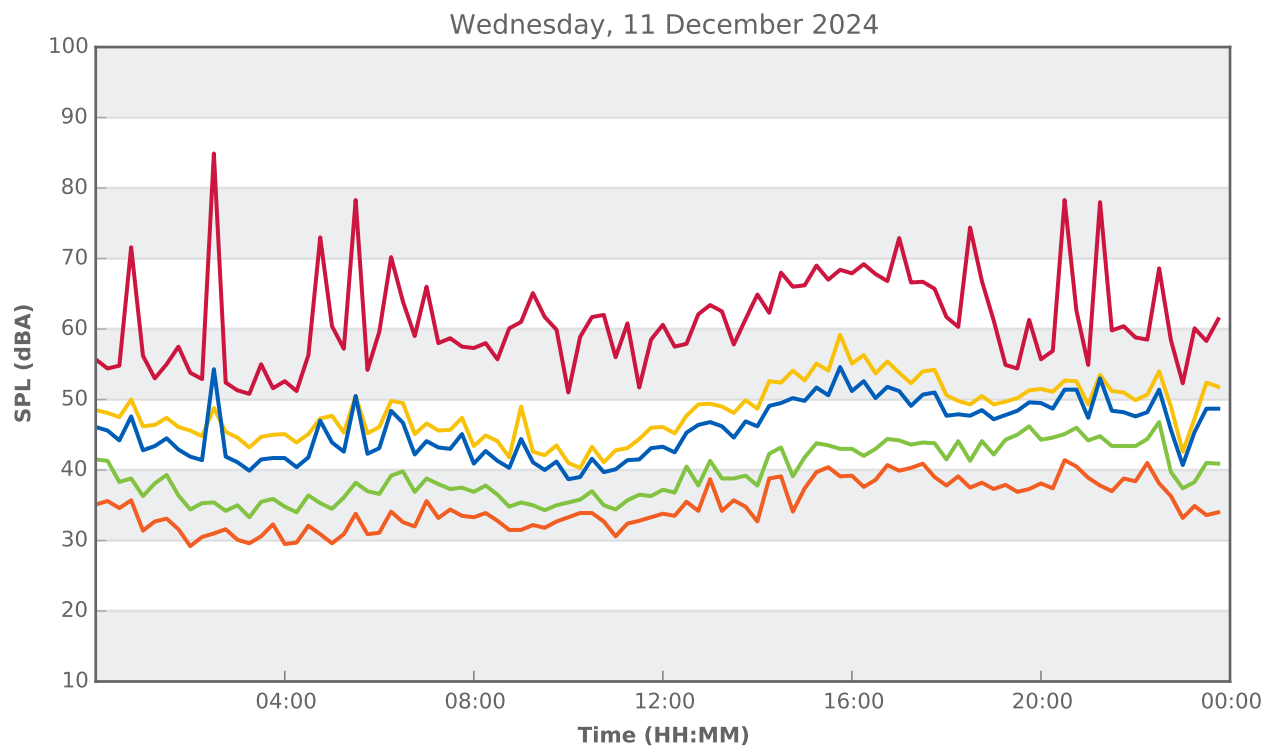
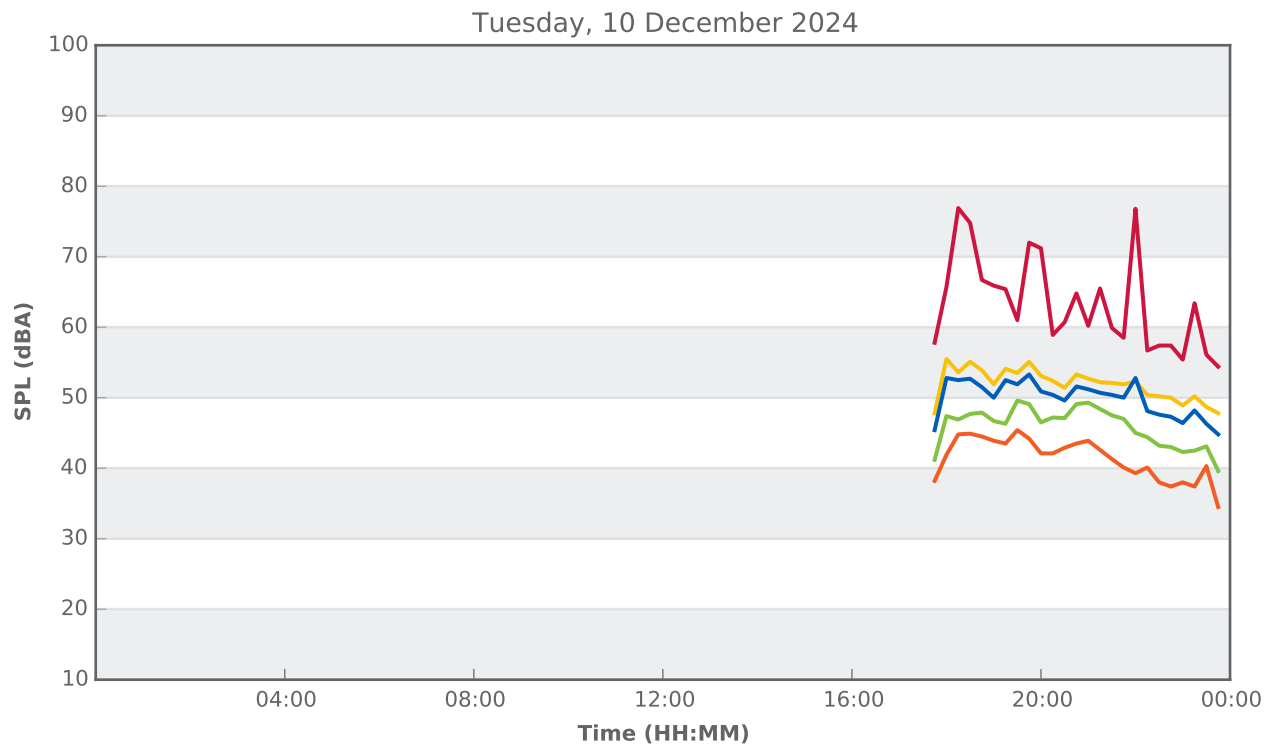
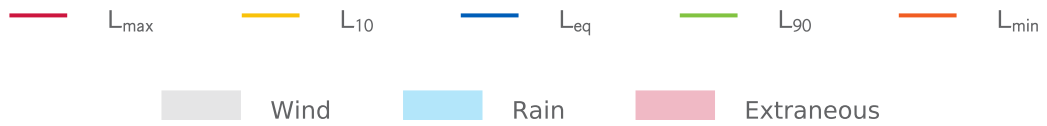
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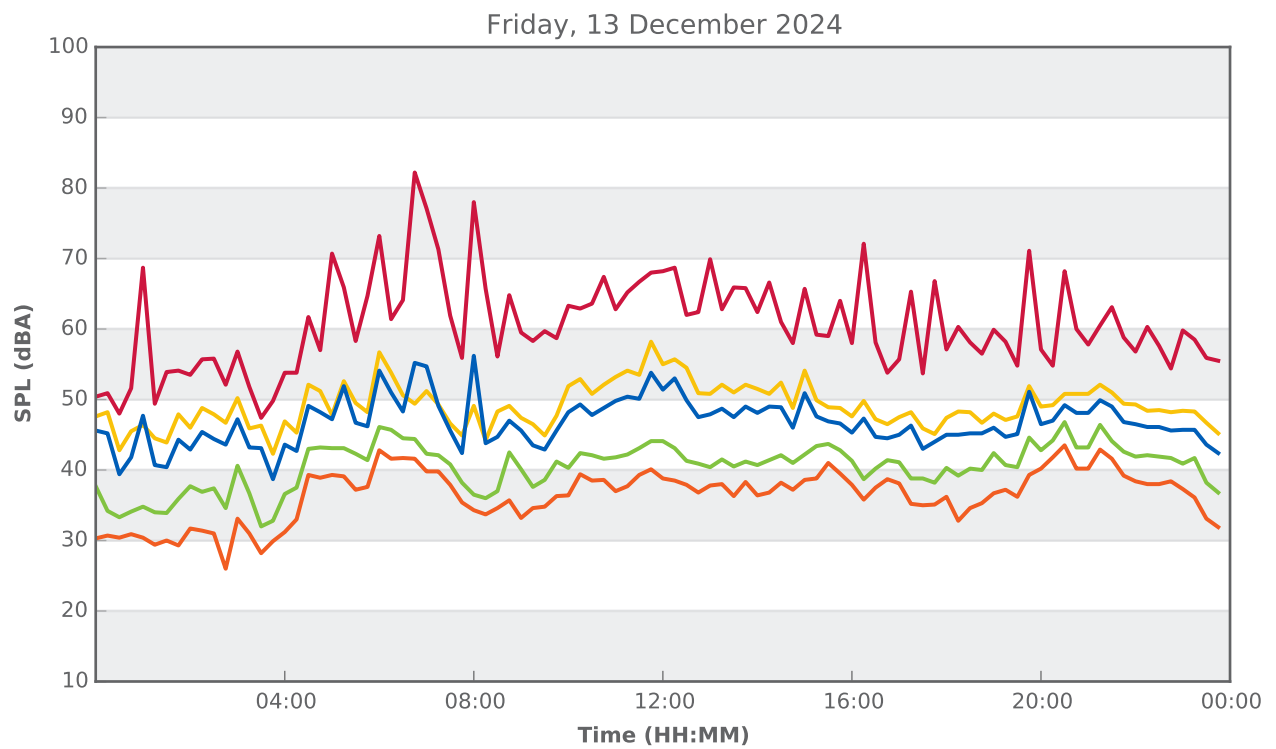
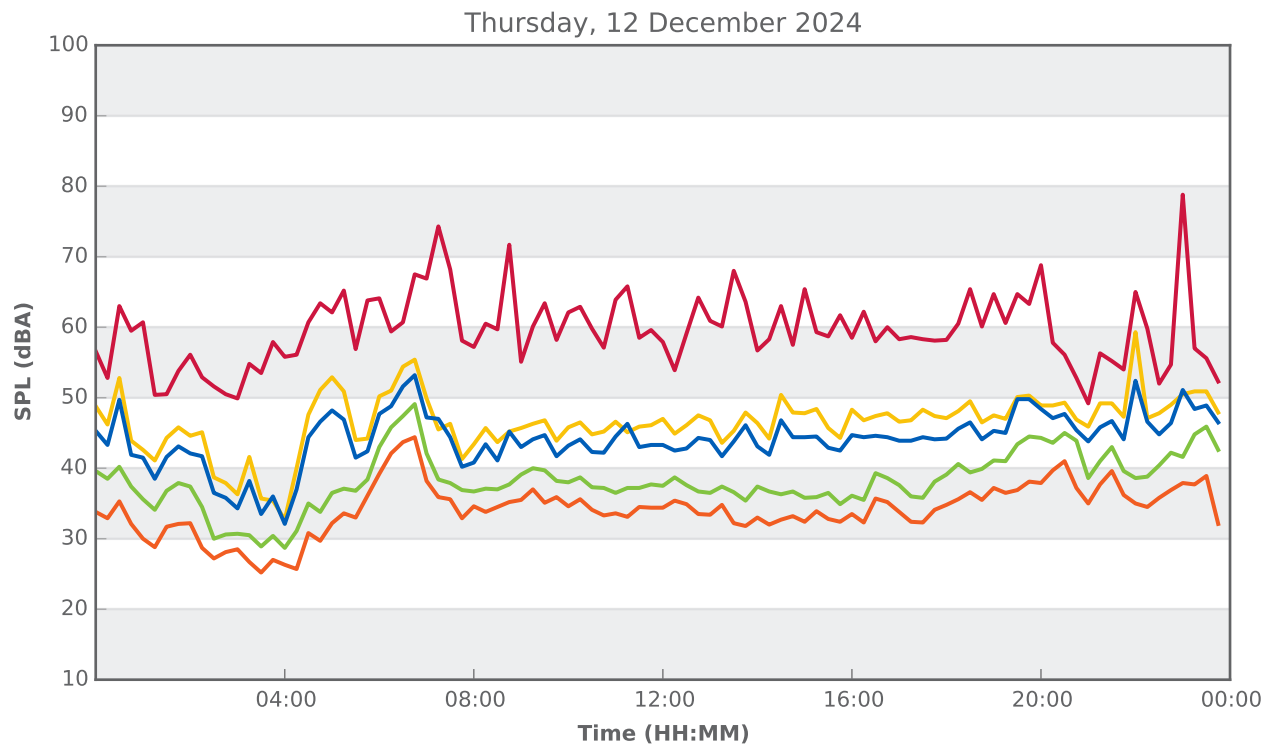
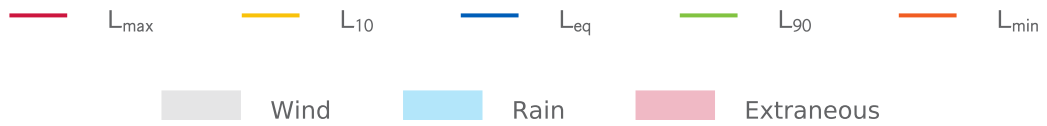
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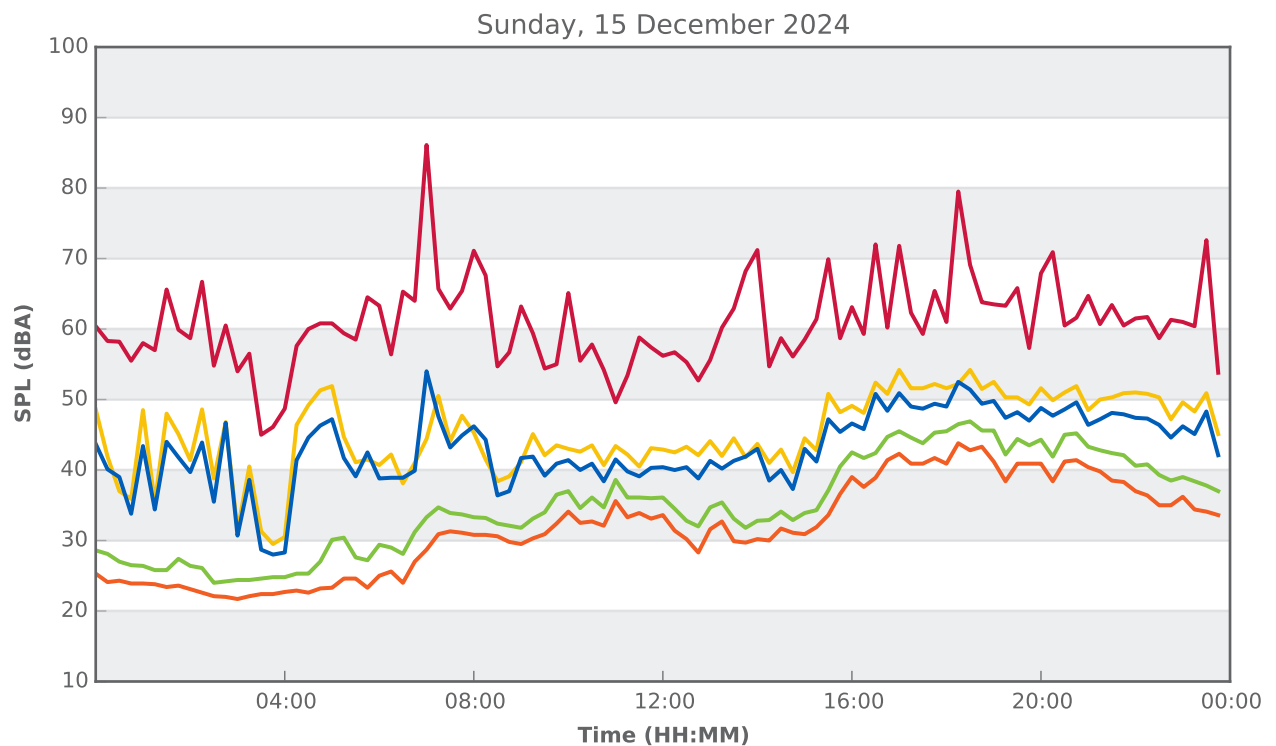
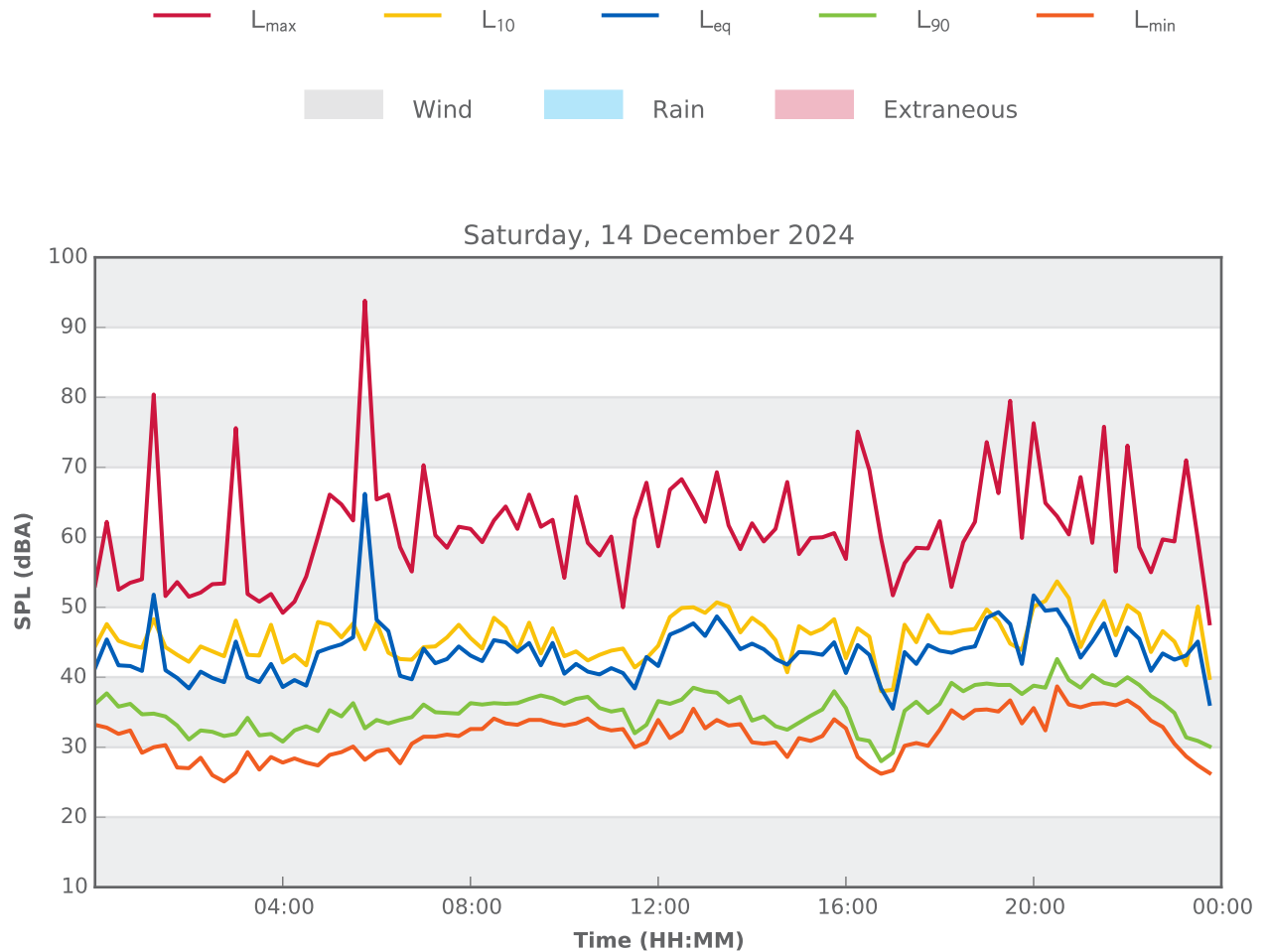
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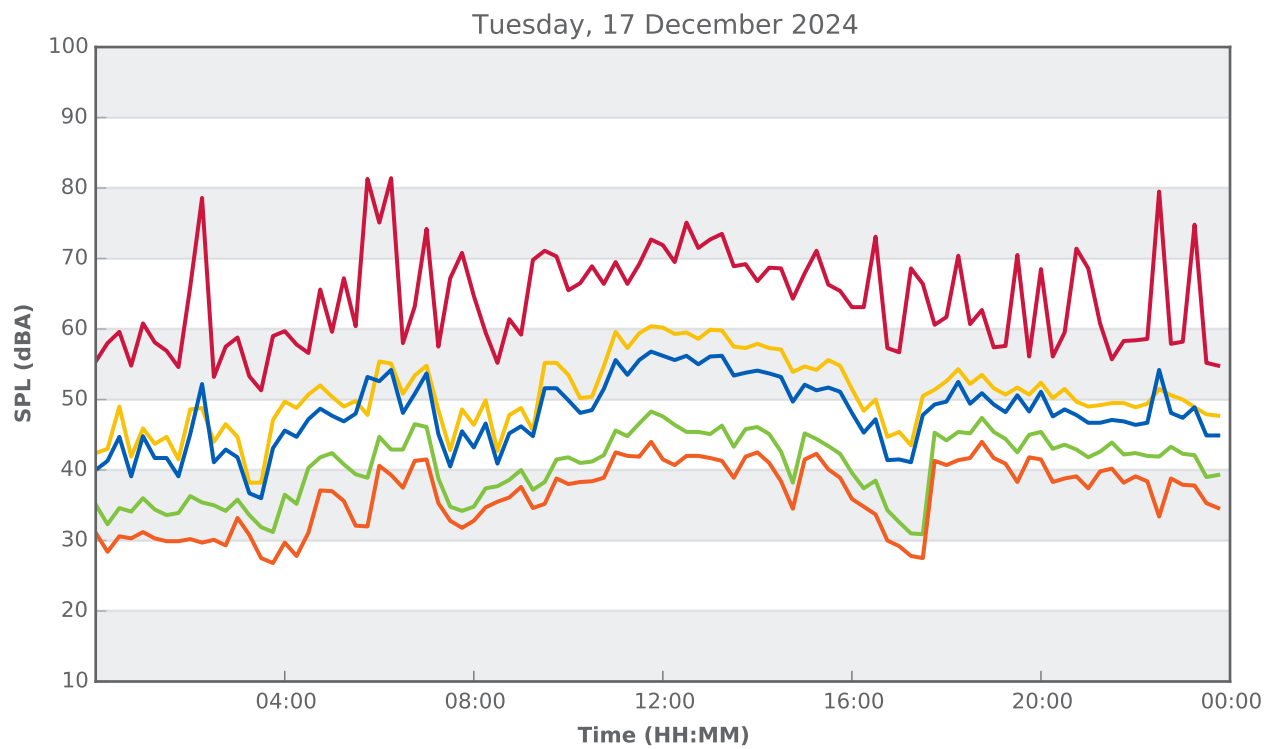
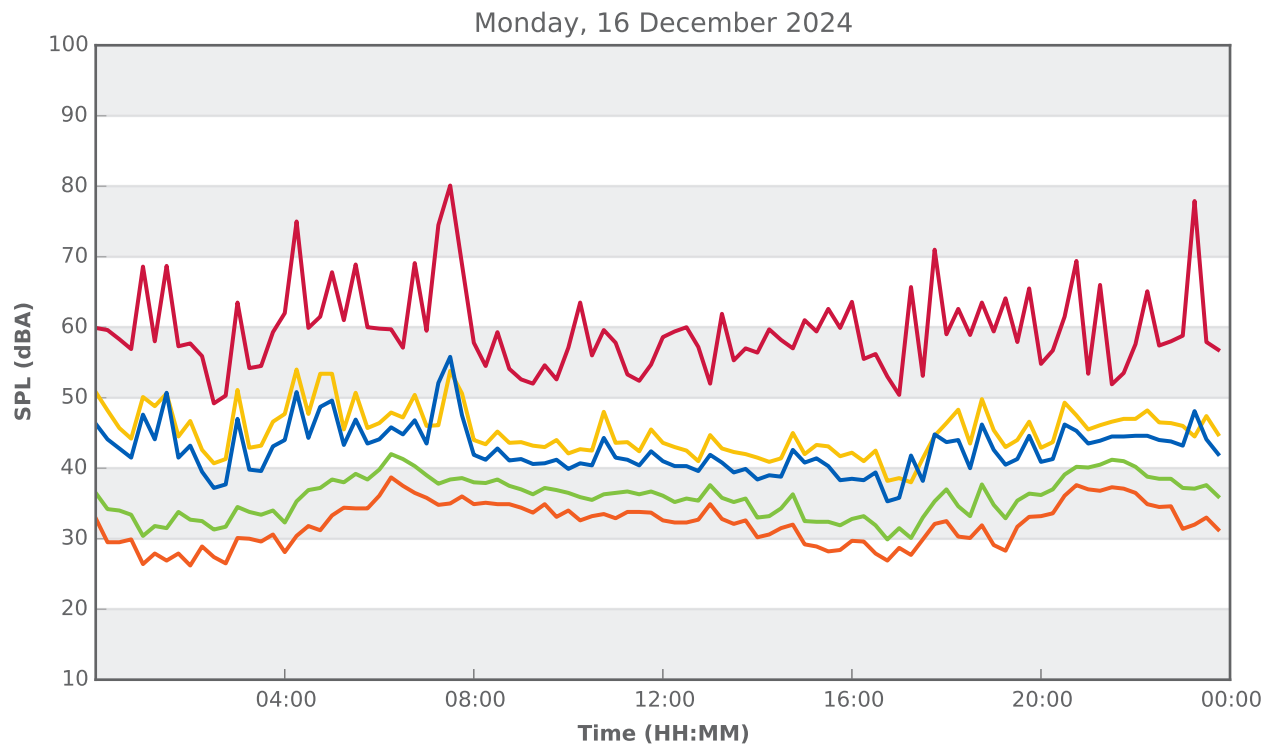
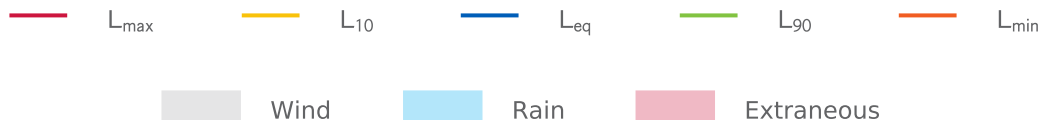
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## L02 - 88 Murrays Flat Road, Towrang



## L02 - 88 Murrays Flat Road, Towrang



## L02 - 88 Murrays Flat Road, Towrang

