

Prepared for  
MWPC and MW2PC  
ABN: N/A

**AECOM**

# Murra Warra Wind Farm

## Operational Noise Management Plan

22-Oct-2024  
Operational Noise Management Plan  
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Client: MWPC and MW2PC

ABN: N/A

### Prepared by

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## Nomenclature

| Term                            | Definition  |
|---------------------------------|---|
| AGL                             | Above (local) ground level. For example, in the immediate vicinity of the turbine base or directly below a measurement location   |
| Alternative assessment location | Alternative assessment location means a point used as a substitute measurement point for the assessment of noise, as determined in accordance with the Noise Protocol;  |
| Ambient sound                   | Total noise at a site comprising all sources such as industry, traffic, domestic, and natural noises  |
| Attended Measurement            | Measurements that are attended by a person and measured with a sound level meter  |
| 'A' Weighted                    | Frequency filter applied to measured noise levels to represent how humans hear sounds   |
| Background sound level          | The A-frequency-weighted L90 centile level measured prior to the installation of any wind turbines in an area   |
| CIRP                            | Complaint Investigation and Response Plan   |
| Cut-in wind speed               | The wind speed at which the turbine starts power production   |
| Decibel (dB)                    | The term used to identify 10 times the logarithm to the base 10 of the ratio of two like quantities proportional to intensity, power, or energy. Sound pressure levels and sound power levels are expressed in decibels |
| EPA Victoria                    | Environment Protection Authority Victoria.  |
| GED                             | General Environment Duty  |
| Hertz (Hz)                      | The unit for the frequency of a sound in cycles per second  |
| Hub-height                      | The height in metres AGL of the central point of the wind turbine rotor   |
| Impulsive sound                 | Transient sound having a peak level of short duration, typically less than 100 milliseconds   |
| $L_{Aeq}$                       | The 'A' Weighted energy-averaged noise level over the measurement period  |
| $L_{Aeq,10min}$                 | The energy-averaged level of the total noise measured without adjustment for the character of the noise (e.g. tonal or impulsive), over a period of 10 minutes  |
| $L_{A90,10minute}$              | Is the A-frequency sound level exceeded for 90% of the measurement time of 10 minutes.  |
| Low frequency sound             | Sound below about 200 Hz  |
| MW1                             | Murra Warra Wind Farm - Stage 1   |
| MW2                             | Murra Warra Wind Farm - Stage 2   |
| MWWF                            | Murra Warra Wind Farm incorporating MW1 and MW2   |

| Term            | Definition  |
|-----------------|---|
| MWPC            | Murra Warra Project Co Pty Ltd (ACN 616 990 731) as trustee for Murra Warra Project Trust   |
| MW2PC           | Murra Warra II Project Co Pty Ltd (ACN 626 141 704) as trustee for Murra Warra II Project Trust   |
| NMP             | Noise Management Plan   |
| NZS 6808:2010   | New Zealand Standard 6808:2010 <i>Acoustics – Wind farm noise</i>   |
| O&M             | Operation & Maintenance Contractor  |
| REZ             | Renewable Energy Zones  |
| SAC             | Special audible characteristics as defined in NZS 6808:2010. SACs include Tonality, Impulsiveness and Amplitude Modulation.   |
| Spectrum        | The distribution by frequency of the energy content in a sound  |
| The Act         | Environment Protection Act 2017   |
| The Regulations | Environment Protection Regulations 2021 (The Regulations) as amended by the Environment Protection Amendment (Wind Turbine Noise) Regulations 2022, which came into effect 18 October 2022. |
| The Standard    | New Zealand Standard 6808:2010 <i>Acoustics – Wind farm noise</i>   |
| Tonality        | A characteristic of noise, describing a sound that contains a perceptible pitch or tone.  |

\* Definitions of a number of terms have been adapted from New Zealand Standard NZS 6808:2010 “Acoustics – Wind farm noise”.

## 1.0 Introduction

### 1.1 Murra Warra Wind Farm Overview

The Murra Warra Wind Farm (MWWF) was developed and constructed in two stages - known as Murra Warra 1 (MW1) and Murra Warra 2 (MW2). The two stages are now in operation and are independent of each other in many respects. The Project's planning permits, however, were granted to the overall facility (MW1 and MW2); hence this Noise Management Plan (NMP) is applicable to both stages.

The Victorian Government has identified six areas within the State as Renewable Energy Zones (REZ). Murra Warra Wind Farm is located in the Western Victoria REZ in north-western Victoria, 28 kilometres north of Horsham between the Henty Highway and the Blue Ribbon Road. The project straddles both the Horsham and Yarriambiack councils. The site has been built on flat farmland where the main use is broadacre farming of wheats and pulses over an area of 4250 hectares.

AECOM Australia Pty Ltd (AECOM) was commissioned by:

- MW1 Primary Entity - Murra Warra Project Co Pty Ltd as trustee for Murra Warra Project Trust (MWPC) and
- MW2 Primary Entity - Murra Warra II Project Co Pty Ltd as trustee for Murra Warra II Project Trust (MW2PC)

to prepare this NMP for the MWWF which is approved and is currently in operation.

The NMP has been developed in accordance with Section 131E of the Regulations.

### 1.2 Objectives of the Noise Management Plan

This NMP has been prepared to satisfy the requirements of Section 131E of the Environment Protection Regulations 2021 (The Regulations) as amended by the Environment Protection Amendment (Wind Turbine Noise) Regulations 2022, which came into effect 18 October 2022.

MWPC and MW2PC are the primary entities responsible for implementing this NMP, and are responsible for the measurement, assessment and management of noise emissions from the MWWF.

Further objectives of the NMP include:

- Provide MWPC and MW2PC a framework of procedures for the MWWF to manage wind turbine noise emissions and also outlines applicable requirements and obligations relating to wind turbine noise which MWPC and MW2PC must implement.
- The NMP includes procedures to identify risks of harm from wind turbine noise, assessing compliance of the MWWF and the management of non-compliance and complaints about wind turbine noise. The NMP should be read in conjunction with the endorsed MWWF Environmental Management Plan (refer to Section 6.0) which provides an overarching reference document of which the NMP is intended to elaborate specifically on the management of wind turbine noise.
- Where noise compliance testing is required, the NMP references the MWWF Noise Compliance Test Plan (refer to Section 7.0) for use in verifying operational wind turbine noise levels.
- The NMP manages complaints and potential exceedances of the relevant noise limits through the MWWF Complaints Investigation and Response Plan (refer to Section 9.0).

The NMP is a working document for the operation of MWWF and is intended to be reviewed periodically and updated as required to ensure ongoing relevance to the MWWF operations. As required by the Regulations, the NMP may be amended upon request from the Environment Protection Authority (EPA) Victoria.

### 1.3 Environmental Auditor Peer Review

MWPC and MW2PC is to engage an environmental auditor to review this NMP and produce a report documenting the review of this NMP as required under Section 131E(3) of the Regulations.



## 1.4 Information Sharing - Access to this Plan

The following websites exist for the MWWF Project:

Murra Warra Wind Farm Stage 1: <https://www.squadronenergy.com/our-projects/murra-warra-i-wind-farm>.

Murra Warra Wind Farm Stage 2: <https://www.squadronenergy.com/our-projects/murra-warra-ii-wind-farm>.

The websites provide a project overview, key project information, location / map, project timeline, and project updates. Following endorsement of the NMP, the document will be made available on the MWWF Project websites.

## 2.0 Project Overview

### 2.1 Project Location and Site Description

The MWWF comprise 4,250 ha of land located within the Kewell, Blackheath and Murra Warra districts. The MWWF is located in the Wimmera region approximately 25 km north of Horsham and 15 km south of Warracknabeal. The entirety of the MWWF site is located on agricultural land which has been heavily cleared, and the predominant activity that remains are broad acre cropping and grazing. Figure 1 shows the MWWF site location.

### 2.2 Project Staging and Operating Structure

MWWF was constructed and is now operated in two stages – Murra Warra 1 (MW1), refer to Figure 2 and Murra Warra 2 (MW2), refer to Figure 3.

Table 1 provides current details about the development and operation of each stage, including the operating structure. The entities occasionally change due to commercial reasons.

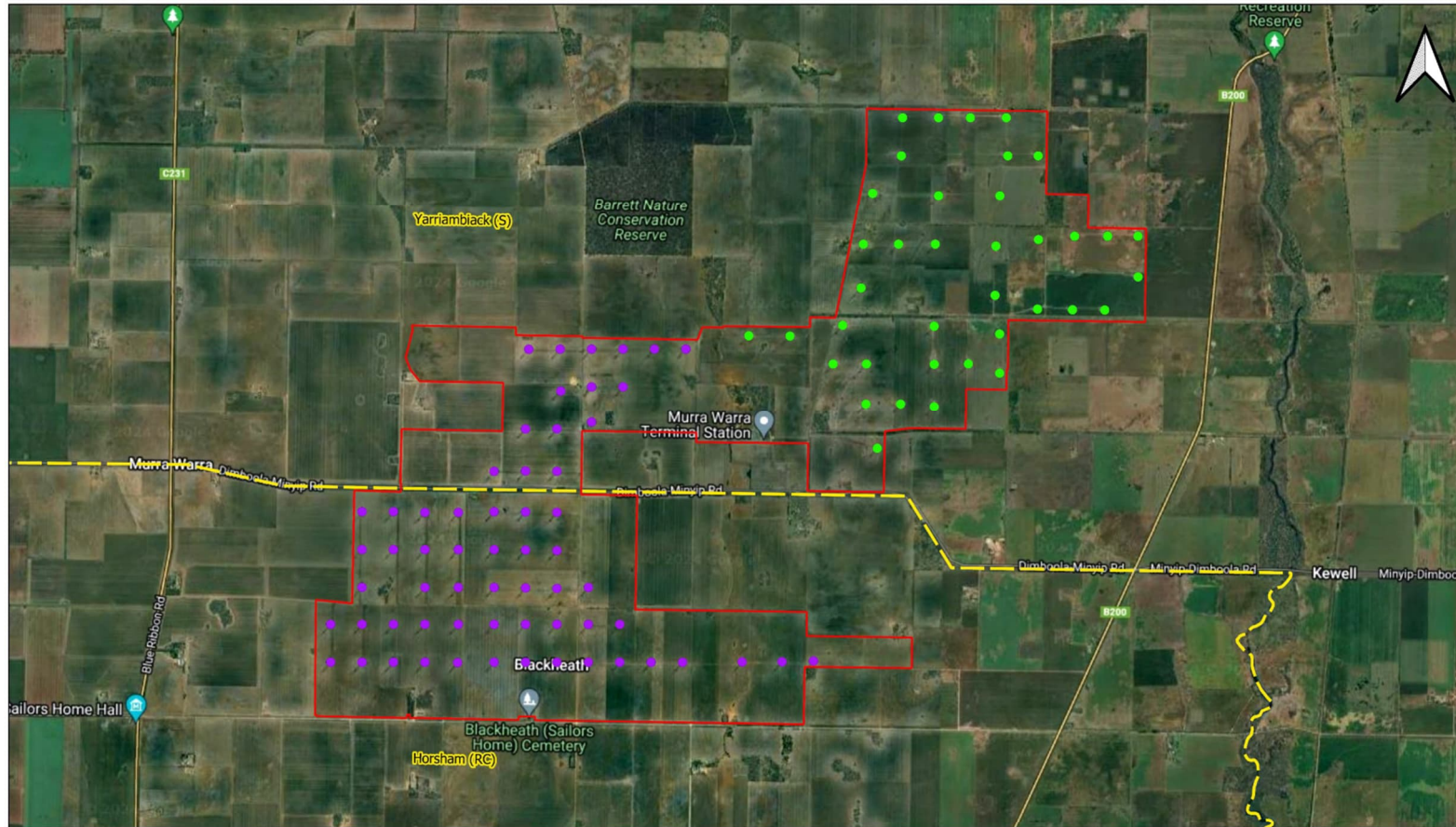
The Primary Entities have fundamental responsibility for compliance with legislative and permit requirements.

The Asset Manager and Operation & Maintenance (O&M) Contractor are contractually engaged by the Primary Entity. The O&M Contractor performs all onsite work associated with operation and maintenance of the wind turbines and other equipment. The Asset Manager oversees all aspects of the operation of the MWWF, including management of the O&M Contractor.

All entities are responsible for meeting the requirements of this Plan. The requirements are passed down from the Primary Entity via contract arrangements. The Asset Manager monitors the O&M Contractor's compliance with the requirements.

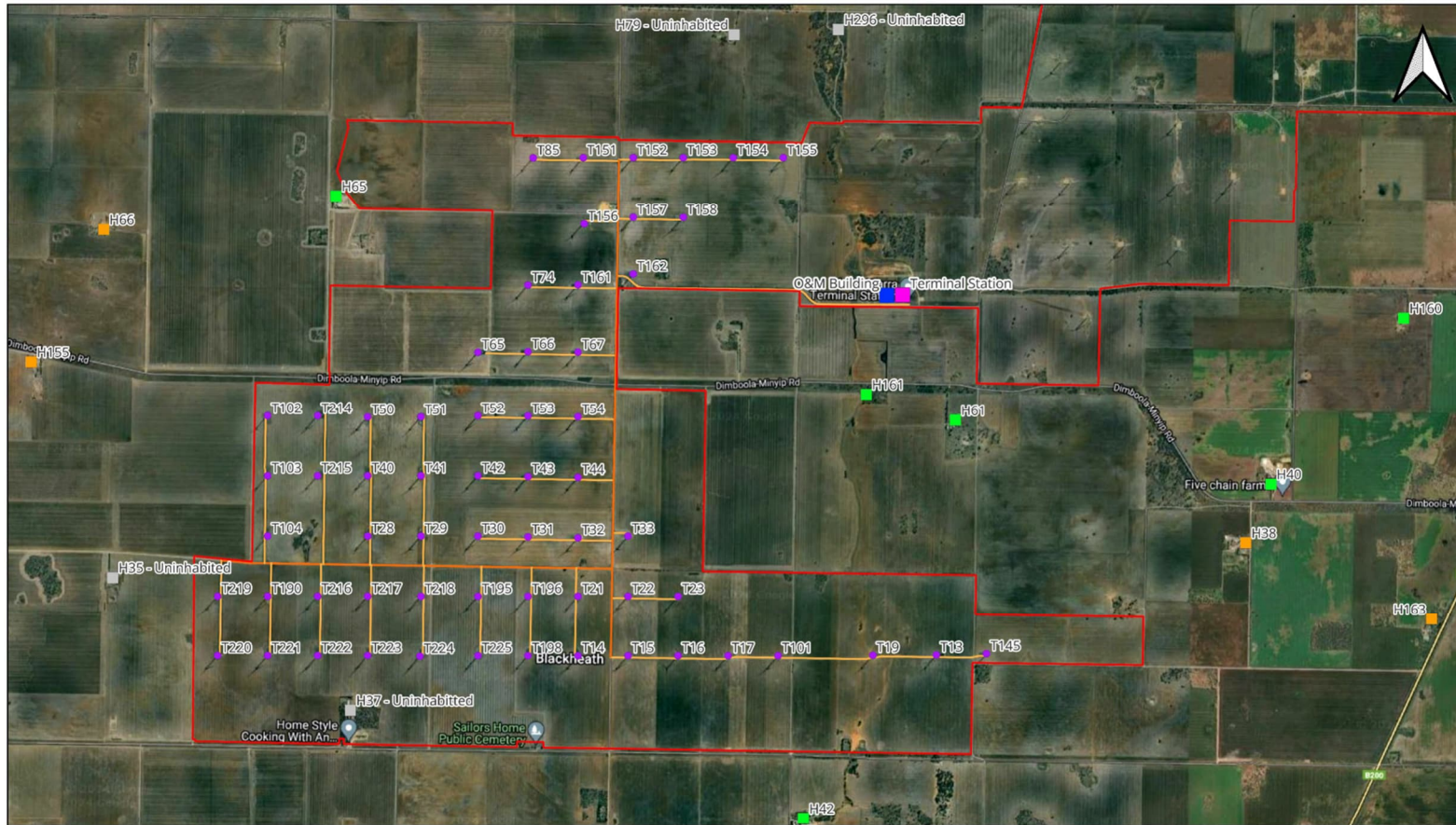
**Table 1 Staging and Operational Structure – MW1 & MW2**

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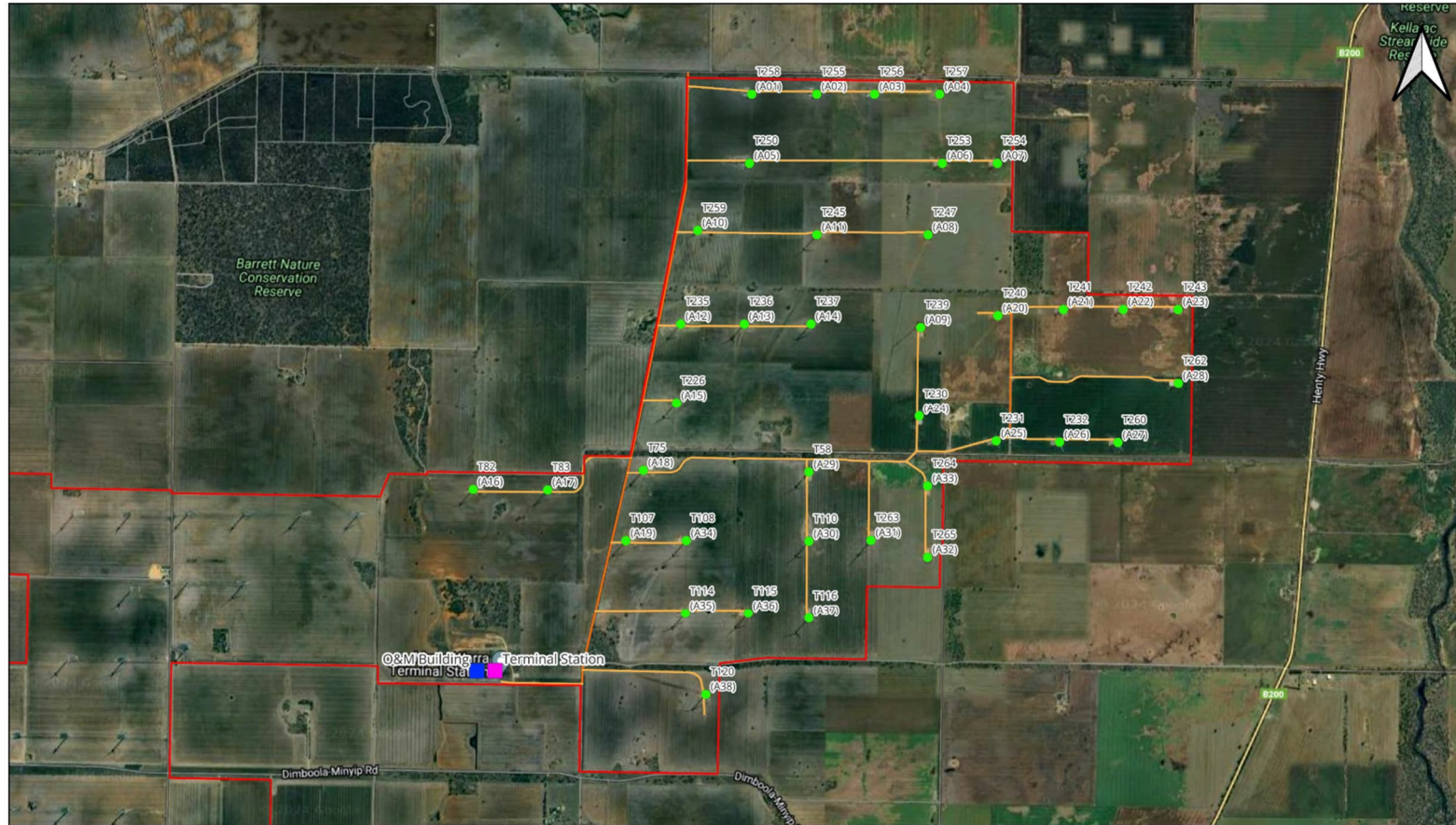
|   |                                |            |           |      |  |
|---|--------------------------------|------------|-----------|------|--|
| <b>Legend</b><br>[Red Outline] MWWF Site Boundary<br>[Purple Dot] MW1 Turbines<br>[Green Dot] MW2 Turbines<br>[Yellow Dashed Line] Local Government Area boundary | Company                        |            |           |      |  |
|   | Murra Warra Project Co Pty Ltd |            |           |      |  |
| Title   |                                |            |           |      |  |
| Site Location - Murra Warra Wind Farm   |                                |            |           |      |  |
| Date  | Projection                     | Drawing No | Rev       | Ver  |  |
| 15 FEB 2024   | GDA 94 Zone 54                 | MWWF-001   | A         | 1    |  |
| Drawn By  | Checked By                     | Sheet      | Proj Code | Size |  |
| A Gordijn   | C Gulvin                       | 1 OF 1     | MWWF      | A3   |  |

Figure 1 Murra Warra Wind Farm - Site Location



|  |             |   |              |            |          |
|--|-------------|---|--------------|------------|----------|
| <b>LEGEND</b><br>Site Boundary<br>MW1 Turbines<br>Access roads (existing)<br>Access roads (internal)<br>MWWF Operations & Maintenance Building<br>MWWF Terminal Station<br>Receiver - Associated<br>Receiver - Non-Associated<br>Receiver - Non-Associated (Uninhabited) |             | Company<br>Murra Warra Project Co Pty Ltd |              |            |          |
| Title<br>Murra Warra 1 Wind Farm - Site Layout   |             |   |              |            |          |
| Date   | 16 FEB 2024 | Projection                                | GDA94 Zone54 | Drawing No | MWWF-002 |
| Rev  | A           | Ver                                       | 1            | Proj Code  | MWWF     |
| Drawn By   | A Gordijn   | Checked By                                | C Gulvin     | Sheet      | 1 OF 1   |
| Scale: 0 1 2 3 4 km  |             |   |              |            |          |

Figure 2 Murra Warra 1 Wind Farm - Site Location




|  |  |                            |   |                        |   |                   |            |
|--|--|----------------------------|---|------------------------|---|-------------------|------------|
| <b>Legend</b><br><span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px; margin-right: 5px;"></span> Site Boundary<br><span style="color: green; font-weight: bold; margin-right: 5px;">●</span> MW2 Turbines<br><span style="border-bottom: 1px solid orange; width: 10px; display: inline-block; margin-right: 5px;"></span> Access roads (existing)<br><span style="border-bottom: 1px solid yellow; width: 10px; display: inline-block; margin-right: 5px;"></span> Access roads (internal)<br><span style="color: blue; font-weight: bold; margin-right: 5px;">■</span> MWWF Operations & Maintenance Building<br><span style="color: pink; font-weight: bold; margin-right: 5px;">■</span> MWWF Terminal Station<br><span style="color: green; font-weight: bold; margin-right: 5px;">■</span> Receiver - Associated<br><span style="color: orange; font-weight: bold; margin-right: 5px;">■</span> Receiver - Non-Associated<br><span style="color: grey; font-weight: bold; margin-right: 5px;">■</span> Receiver - Non-Associated (Uninhabited) |  |                            | Company<br>Murra Warra Project Co Pty Ltd |                        |  |                   |            |
| Title<br>Murra Warra 2 Wind Farm - Site Layout   |  |                            |   |                        |   |                   |            |
| Date<br>19 FEB 2024  |  | Projection<br>GDA94 Zone54 |   | Drawing No<br>MWWF-003 |   | Rev<br>A          | Ver<br>1   |
| Drawn By<br>A Gordijn  |  | Checked By<br>C Gulvin     |   | Sheet<br>1 OF 1        |   | Proj Code<br>MWWF | Size<br>A3 |

Figure 3 Murra Warra 2 Wind Farm - Site Location

## 3.0 Regulatory Standards and Guidelines

This NMP follows the noise related requirements as set out by the following documents:

- Environment Protection Act 2017 (the Act).
- Environment Protection Regulation 2021 (the Regulation) as amended by the Environment Protection Amendment (Wind Turbine Noise) Regulations 2022.
- New Zealand Standard NZS 6808:2010 *Acoustics – Wind farm noise*.
- Planning Guidelines for Development of Wind Energy Facilities, Department of Transport and Planning, September 2023.
- Minister for Planning, Planning Permit PA1600127B (Horsham Rural City Council), date issued 21 November 2016, Permit amended 15 February 2023.
- Minister for Planning, Planning Permit PA1600128C (Yarriambiack Shire Council), date issued 21 November 2016, Permit amended 15 February 2023.
- International Electrotechnical Commission IEC 61400-11:2012 Wind turbines – Part 11: Acoustic noise measurement techniques.
- EPA Victoria Wind Energy Facility Turbine Noise Regulation Guidelines, Publication 2061.

### 3.1 Environmental Protection Act 2017

The Environment Protection Act (the Act) 2017 aims to protect Victoria's air, water and land by adopting the 'general environment duty' (GED) which requires all individuals to take proactive steps to reduce the risk of harm to human health and the environment from pollution or waste. This includes taking reasonable steps to minimise the risks of harm to human health and the environment from wind turbine noise emissions from wind energy facilities.

Provisions under the Act 2017 include the GED and an obligation to not emit or permit to emit 'unreasonable noise'.

The GED requires that:

*any person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.*

The GED applies at all times, during construction, operation and decommissioning of the MWVF, for any activities posing a risk of harm to human health and the environment. Meeting the regulatory noise limits does not mean the GED has been met. The GED requires all reasonably practicable steps be taken to eliminate or reduce the risk from noise from the construction, operation and commissioning of the MWVF.

Even if the GED is met, the noise may be unreasonable if it exceeds the noise limits or considering the factors in the definition of unreasonable noise in Section 3(1) the Act.

### 3.2 Environment Protection Regulation 2021

The Environment Protection Regulations 2021 (The Regulations) as amended by the Environment Protection Amendment (Wind Turbine Noise) Regulations 2022, have been made under Section 465 of the Act to include provisions specific to wind turbine noise. The Regulations stipulate several requirements in relation to wind turbine noise from wind energy facilities. The Regulations specify that it is the duty of an operator of a wind energy facility to ensure wind turbine noise complies with relevant noise limits and that the operator must take all applicable actions as stipulated in the Regulations to manage and review wind turbine noise from the facility. These requirements include:

- Ongoing compliance with the relevant noise standard - New Zealand Noise Standard NZS 6808 2010.
- Implementation of a NMP, including a complaints management plan.

- Providing an annual statement detailing the actions that have been taken to ensure compliance.
- Completing a post-construction noise assessment.
- Conducting noise monitoring every five years.

The Environment Protection Authority Victoria (EPA Victoria) provides an outline of the requirements that apply to noise from wind turbines under the Regulations, in the Wind Energy Facility Turbine Noise Regulation Guidelines (the EPA Guidelines), Publication 2061. It is noted that the guideline states that it does not impose compliance obligations and that it is designed to provide information to assist wind energy facility operators understand their obligations under the Act.

The EPA Guidelines also provides guidance considered 'current good industry practice' for developing a NMP. This NMP has been developed in general accordance with the EPA Guidelines.

The relevant NMP requirements under Section 131E of the Regulations and location of where these have been responded in this document are outlined in Table 2.

**Table 2 Noise management plan requirements (Section 131E) from the Regulations**

| Subsection | Requirement  | Section in this document          |
|------------|--|-----------------------------------|
| (1)        | <i>An operator of a wind energy facility must prepare and implement a noise management plan for the facility.</i>  | This entire Noise Management Plan |
| (2)        | <i>The noise management plan must include procedures for the following—</i>  | -                                 |
| (a)        | <i>the identification, assessment and control of risks of harm to human health and the environment from wind turbine noise;</i>  | 8.1                               |
| (b)        | <i>determining any alternative monitoring points and alternative monitoring point criteria for the wind energy facility;</i>   | 4.2, 4.3 and 5.3                  |
| (c)        | <i>assessing whether wind turbine noise from the facility complies with—</i><br><i>(i) the noise limit for that facility; or</i><br><i>(ii) if the wind turbine noise is assessed at an alternative monitoring point, the alternative monitoring point criterion for that alternative monitoring point;</i>                            | 5.0 and 7.0                       |
| (d)        | <i>reducing wind turbine noise from the facility in the event that non-compliance is detected with—</i><br><i>(i) the noise limit for that facility; or</i><br><i>(ii) if the wind turbine noise is assessed at an alternative monitoring point, the alternative monitoring point criterion for that alternative monitoring point.</i> | 10.0                              |
| (e)        | <i>addressing any complaints about wind turbine noise received by the operator, including who will investigate the complaint and respond to the complainant.</i>   | 9.0                               |
| (3)        | <i>As soon as reasonably practicable after the noise management plan has been prepared, the operator must engage an environmental auditor to prepare a report under regulation 164(ca)(ii) in relation to the noise management plan.</i>   | 1.3                               |
| (4)        | <i>The operator must provide a copy of the following to the Authority on request—</i>  | -                                 |

| Subsection | Requirement  | Section in this document |
|------------|--|--------------------------|
| (a)        | <i>the noise management plan;</i>  | N/A                      |
| (b)        | <i>the report referred to in subregulation (3).</i>  | N/A                      |
| (5)        | <i>The Authority may require the operator to make amendments to the noise management plan.</i> | 1.2                      |

### 3.3 NZS 6808:2010

Section 131B of The Regulations specifies New Zealand Standard 6808:2010 *Acoustics – Wind farm noise* (NZS 6808:2010) as the relevant noise standard to assess wind farm noise. NZS 6808:2010 specifies outdoor noise limits at noise sensitive locations. NZS 6808:2010 also provides a methodology for the measurement of wind turbine noise and specifies requirements such as:

- Measurement location.
- Instrumentation.
- Monitoring duration.
- Monitoring conditions including covering a range of representative wind speeds and directions which are generally expected at the wind farm.
- Processing of data including noise limits for the correlation of sound level measurements against corresponding wind data.
- Special audible characteristics test methods.

### 3.4 Planning Permit Conditions

The following planning permits apply to Murra Warra Wind Farm:

- PA1600127B – Horsham Rural City Council issued 21 November 2016 (Permit amended 15 February 2023).
- PA1600128C – Yarriambiack Shire Council issued 21 November 2016 (Permit amended 15 February 2023).

The two planning permits are identical in terms of conditions relating to noise emissions. These conditions are reproduced below:

#### **“NOISE**

##### **Pre-construction Assessment**

11. *Before development starts, a pre-construction noise assessment, including a tonal audibility assessment, must be undertaken to reflect the final turbine layout and turbine model chosen. The pre-construction noise assessment shall be prepared by a suitably qualified and experienced independent acoustic engineer to demonstrate that the wind energy facility will comply with the relevant noise limits specified in this permit, to the satisfaction of the responsible authority.*

##### **Performance Requirement**

- 12 *For the purposes of operational noise compliance, the following requirements apply, as defined by the New Zealand Standard 6808:2010, Acoustics - Wind Farm Noise (the Standard):*
- The operator must ensure that at any wind speed, wind farm sound levels at noise sensitive locations (as defined in the Standard) do not exceed a noise limit of 40dB L A90 (10 min), provided that where the circumstances specified in condition 12(b) apply, the noise limit of 40dB L A90 (10 min) will be modified as specified in condition 12(b).*
  - At the specified assessment positions referred to in condition 13(b), the noise limit of 40dB L A90 (10 min) referred to in condition 12(a) will be modified in the following way when the following circumstances exist:*

- i. *Where the background sound level is greater than 35 dB L A90 (10 min), the noise limit will be the background sound level L A90 (10 min) plus 5 dB;*
- ii. *Where special audible characteristics, including tonality, impulsive sound or enhanced amplitude modulation occur, the noise limit will be modified by applying a penalty of up to + 6 dB L90 in accordance with section 5.4 of the Standard;*
- iii. *Where a high amenity noise limit has been found to be justified, as defined by section 5.3 of the Standard, for specific location determined to be high amenity areas following procedures outlined in clause C5.3.1 of the Standard;*
- iv. *Where a higher base noise limit is agreed between the wind farm operator and the dwelling owner, a written agreement shall be obtained from the dwelling owner and evidence of the agreement must be provided to the satisfaction of the responsible authority.*

### **COMPLAINT INVESTIGATION AND RESPONSE PLAN**

16. *Before the development starts, the permit holder must prepare a Complaint Investigation and Response Plan to the satisfaction of the responsible authority. When approved, the plans will be endorsed by the responsible authority and will then form part of this permit. The complaint investigation and response plan will be designed to respond to all aspects of the wind farm including (but not limited to): operation noise, construction noise, construction impacts, traffic, quarry impacts, shadow flicker.*
17. *The endorsed complaints investigation and response plan must be publicly available on the wind farm operator's website.*
18. *The plan must be prepared in accordance with Australian/New Zealand Standard AS/NZS 10002:2014 — Guidelines for Complaint Management in Organisations and shall include:*
  - *A process of investigation to resolve a complaint*
  - *A requirement that all complaints will be recorded in an incidents register*
  - *How contact details will be communicated to the public*
  - *A toll-free telephone number and email contact for complaints and queries*
  - *Details of the appropriate council contact telephone number and email address (where available)*
  - *A table outlining complaint information for each complaint received, including:*
    - *The complainant's name*
    - *Any applicable property reference number if connected to a noise background testing location*
    - *The complainant's address*
    - *A receipt number for each complaint which is to be communicated to the complainant*
    - *The time, prevailing conditions and description of the complainant's concerns including the potential incidence of special audible characteristics (for a noise complaint)*
    - *The processes of investigation to resolve the complaint.*
19. *A report including a reference map of complaint locations, and outlining complaints, investigation and remediation actions is to be provided on an annual basis to the satisfaction of the responsible authority.*
20. *The register and complaints response process shall continue for the duration of the operation of the wind energy facility and must be made available to the responsible authority on request.*
21. *The owner of the wind energy facility must implement and comply with the approved Complaint Investigation and Response Plan for the duration of the operation of the wind energy facility.*



## 4.0 Project Site

### 4.1 Background

The MWWF is located on almost 4,250 hectares of land, approximately 25 kilometres due north of Horsham Victoria as shown in Figure 1. The wind farm is located in the Wimmera region of Victoria and is wholly within a Farming Zone (FZ1). The primary land use in the region is broad acre cropping (wheat, barley, pulses, canola, etc;) with some sheep grazing. The area is sparsely populated with 23 inhabited dwellings within 3km of the development.

### 4.2 Noise sensitive locations

Noise sensitive locations for the assessment of wind turbine noise have been previously identified for the MWWF in the following documents:

- “Murra Warra Wind Farm Background Noise Monitoring - Updated” (Marshall Day Acoustics Pty Ltd, Rp 003 R01 20200824, dated 21 July 2022), (MDA Background Noise Monitoring Report).
- “Murra Warra Wind Farm – Noise Compliance Test Plan” (Marshall Day Acoustics Pty Ltd, Rp 001 R03 20200824, dated 12 April 2023) (MDA Noise Compliance Test Plan).
- “Murra Warra Wind Farm – Post Construction Noise Assessment” (Marshall Day Acoustics Pty Ltd, Rp 005 03Draft 20200824, dated 23 July 2024) (MDA Post-construction Noise Assessment).

As required by NZS 6808:2010 and as per the MDA Noise Compliance Test Plan), noise monitoring compliance shall, where practical, be measured at the same locations where the background sound levels were determined. It is the intention of this NMP to continue to use the same identified locations and associated naming convention to maintain consistency between documents. The most recent set of background noise monitoring, as per the MDA Background Noise Monitoring Report, was carried out at a total of 11 locations which consisted of six noise sensitive locations and five intermediate locations. Table 1 of the MDA Background Noise Report which lists the monitoring locations is reproduced in Table 3.

Table 3 also includes two additional intermediate locations, Int7 and Int9, identified in the MDA Noise Compliance Test Plan.

**Table 3 Background noise monitoring locations (Table 1 from the MDA Background Noise Report)**

| Background noise monitoring locations <sup>1,2</sup> | Direction from wind farm                     |
|--|--|
| H41  | South of Stage 1                             |
| H46  | Southeast of Stage 2                         |
| H57  | Northwest of Stage 2                         |
| H155   | West of Stage 1                              |
| H160   | Southeast of Stage 2                         |
| H161   | Central location between Stage 1 and Stage 2 |
| Int1   | Northwest of Stage 2                         |
| Int2   | Southeast of Stage 2                         |
| Int4   | South of Stage 1                             |
| Int5   | West of Stage 1                              |
| Int6   | Northwest of Stage 1                         |
| Int7   | East of Stage 1                              |
| Int9   | Southwest of Stage 2                         |

**Table Notes:**

1. "H" designates receiver locations and "Int" designates intermediate locations
2. An optional location annotated "Int3" was considered during the survey planning but was not selected, hence its absence in the number sequence.

The post-construction noise assessment locations and intermediate locations identified in the MDA Noise Compliance Test Plan are shown in Figure 4.

The most recent set of noise compliance measurements undertaken for the MWWF is documented in the report titled "Murra Warra Wind Farm – Post Construction Noise Assessment" (Marshall Day Acoustics Pty Ltd, Rp 005 03Draft 20200824, dated 23 July 2024) (MDA Post-construction Noise Assessment). The report was in Draft format at the time of writing this NMP. Unattended long-term noise monitoring and assessment was carried out at a total of 11 locations which consisted of six noise sensitive locations and five intermediate locations.

### 4.3 Alternative monitoring points

Alternative monitoring points (i.e. intermediate locations) may be used for complaint response or to determine compliance in a MWWF wind turbine noise assessment. Section 131BB of the Regulations allows for alternative monitoring points where it may be impracticable or impossible to undertake compliance measurements at a noise sensitive location.

Section 131BB of The Regulations describes 'alternative monitoring point' as follows:

#### 131BB Alternative monitoring point

- (1) For the purposes of an assessment of wind turbine noise under this Division (other than a post-construction noise assessment under regulation 131D), an alternative monitoring point may be used for the assessment—
  - a. if a monitoring point for the wind energy facility is not readily accessible; or
  - b. if—
    - (i) an assessment of wind turbine noise at a monitoring point for the wind energy facility would be affected by extraneous noise to a greater extent than an assessment of wind turbine noise at the alternative monitoring point; and
    - (ii) the alternative monitoring point is closer to a wind turbine or group of wind turbines in the wind energy facility than that monitoring point.
- (2) An operator of a wind energy facility must ensure that an alternative monitoring point for that facility is determined by a suitably qualified and experienced acoustician.

The MDA Noise Compliance Test Plan identifies six alternative monitoring points (i.e. intermediate locations) that provide an alternative mean of assessing noise compliance with NZS 6808:2010. The alternative monitoring point locations are presented in Table 4 and shown in Figure 4.

**Table 4 Alternative monitoring point locations (MGA 94 Zone 54)**

| Alternative monitoring point | Easting | Northing  |
|------------------------------|---------|-----------|
| Int1                         | 619,803 | 5,971,302 |
| Int2                         | 622,415 | 5,968,275 |
| Int4                         | 614,047 | 5,963,392 |
| Int5                         | 612,074 | 5,965,363 |
| Int7                         | 616,059 | 5,966,386 |
| Int9                         | 619,485 | 5,967,240 |

As described in the MDA Noise Compliance Test Plan, the alternative monitoring points are generally located:

- In the vicinity of the predicted 45 dB  $L_{A90}$  contour associated with the wind turbines operating at rated power.
- At locations that are suitable for measuring conditions that are representative of downwind propagation from the wind farm to the assessment receivers, accounting for all wind turbines that significantly contribute to the total wind farm noise levels at the receiver.

Alternative monitoring point criteria, based on the noise limits predicted noise levels from MWWF are presented in Section 5.3.

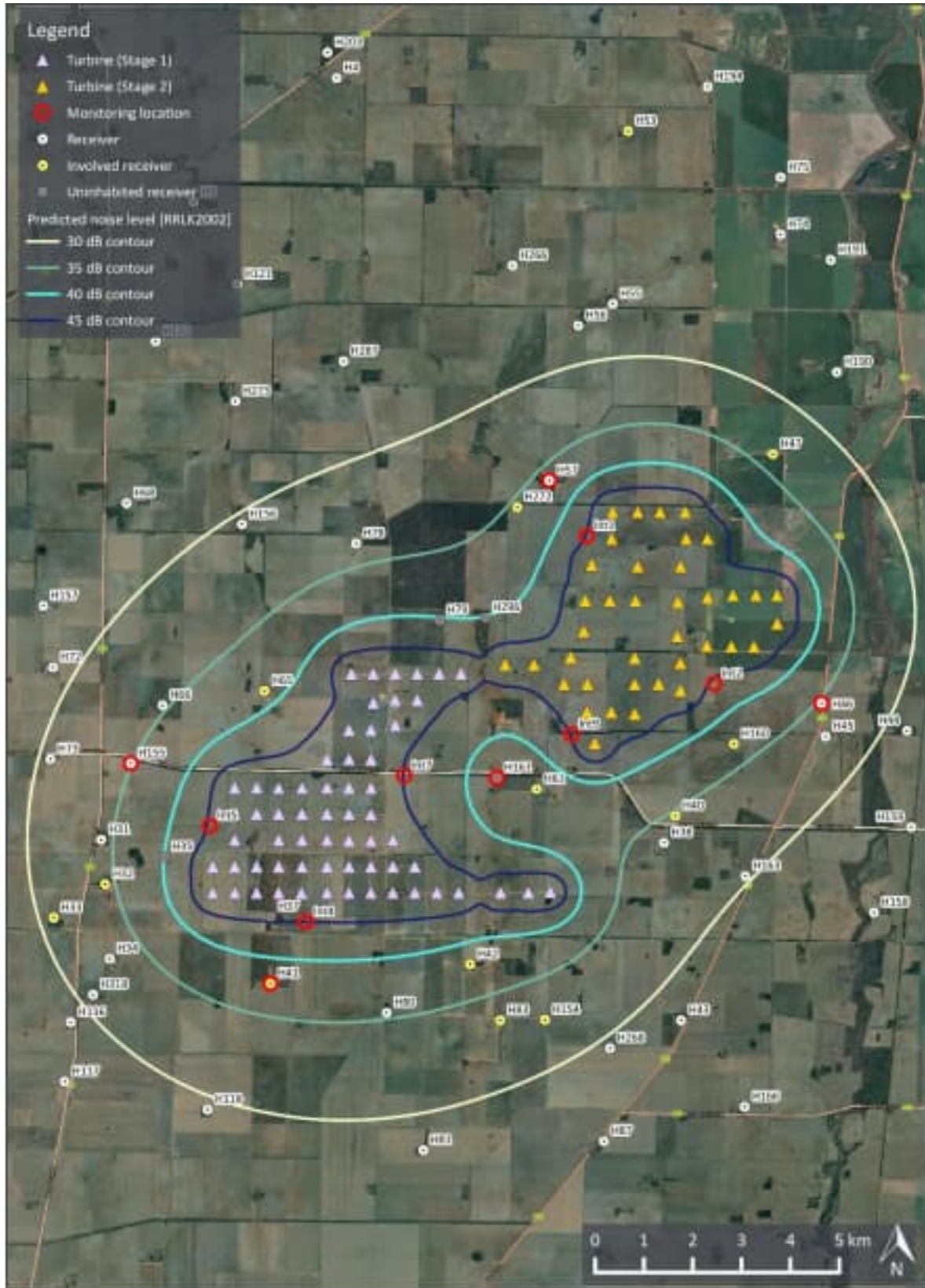


Figure 4 Noise sensitive locations and noise monitoring locations site map

#### 4.4 Background noise environment

Background noise levels measured and presented in the MDA Background Noise Monitoring Report are reproduced in Table 5 and Table 6. For further information on the background noise monitoring, including photos of the equipment and analysis procedure, refer to the MDA Background Noise Monitoring Report. The reference mast M220 was located at 612004 E. 5963654 N (MGA 94 Zone 54).

**Table 5 All-time period - background noise levels, dB L<sub>A90, 10minute</sub>**

| Location | Site wind speed (m/s) at 139 m AGL at reference mast M220 |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|---|------|------|------|------|------|------|------|------|------|------|------|------|
|          | 3   | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   |
| H41      | 21.4  | 21.5 | 21.8 | 22.3 | 23.1 | 24   | 25.2 | 26.6 | 28.2 | 29.9 | 31.9 | 34   | 36.2 |
| H46      | 21.9  | 23   | 24.2 | 25.5 | 27   | 28.5 | 30.1 | 31.7 | 33.4 | 35.1 | 36.8 | 38.5 | 40.1 |
| H57      | 24  | 24.4 | 24.9 | 25.6 | 26.5 | 27.4 | 28.5 | 29.7 | 31   | 32.3 | 33.7 | 35.2 | 36.7 |
| H155     | 20.7  | 20.7 | 21.1 | 21.8 | 22.8 | 24.1 | 25.7 | 27.4 | 29.4 | 31.5 | 33.7 | 36   | 38.3 |
| H160     | 19.8  | 20.1 | 20.7 | 21.5 | 22.5 | 23.7 | 25   | 26.3 | 27.7 | 29.1 | 30.3 | 31.5 | 32.5 |
| H161     | 21.2  | 22.3 | 23.4 | 24.6 | 25.8 | 27   | 28.3 | 29.6 | 31   | 32.5 | 34   | 35.7 | 37.5 |
| Int1     | 20.2  | 21.2 | 22.1 | 22.9 | 23.6 | 24.2 | 24.9 | 25.7 | 26.5 | 27.5 | 28.6 | 29.9 | 31.5 |
| Int2     | 17.5  | 18.1 | 18.8 | 19.5 | 20.2 | 21   | 21.8 | 22.8 | 23.7 | 24.8 | 26   | 27.2 | 28.6 |
| Int4     | 18.7  | 19   | 19.3 | 19.7 | 20.3 | 20.9 | 21.7 | 22.6 | 23.7 | 24.9 | 26.3 | 28   | 29.8 |
| Int5     | 17.1  | 17.3 | 17.6 | 18.1 | 18.8 | 19.6 | 20.6 | 21.7 | 23   | 24.5 | 26.1 | 27.9 | 29.9 |
| Int6     | 20.1  | 21.8 | 23.2 | 24.4 | 25.5 | 26.4 | 27.2 | 27.9 | 28.7 | 29.5 | 30.5 | 31.5 | 32.8 |

**Table 6** Night-time period - background noise levels, dB LA90, 10minute

| Location | Site wind speed (m/s) at 139 m AGL at reference mast M220 |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|---|------|------|------|------|------|------|------|------|------|------|------|------|
|          | 3   | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   |
| H41      | 18.3  | 18.4 | 18.8 | 19.3 | 20   | 21   | 22.1 | 23.5 | 25.1 | 27   | 29.1 | 31.4 | 34   |
| H46      | 19.2  | 20.5 | 21.8 | 23.2 | 24.6 | 26   | 27.5 | 29.1 | 30.7 | 32.4 | 34.2 | 36   | 38   |
| H57      | 22.1  | 22.7 | 23.3 | 24   | 24.8 | 25.7 | 26.7 | 27.8 | 29   | 30.2 | 31.6 | 33.1 | 34.7 |
| H155     | 17.8  | 17.8 | 18.1 | 18.8 | 19.8 | 21   | 22.6 | 24.4 | 26.4 | 28.6 | 31   | 33.6 | 36.3 |
| H160     | 18.2  | 18.6 | 19.1 | 19.9 | 20.8 | 21.8 | 23   | 24.2 | 25.6 | 27   | 28.6 | 30.1 | 31.8 |
| H161     | 20.7  | 21.6 | 22.5 | 23.3 | 24.2 | 25.2 | 26.2 | 27.3 | 28.6 | 30   | 31.6 | 33.4 | 35.4 |
| Int1     | 20.1  | 20.8 | 21.4 | 22   | 22.5 | 23   | 23.6 | 24.3 | 25   | 26   | 27.2 | 28.6 | 30.3 |
| Int2     | 16.2  | 16.9 | 17.6 | 18.2 | 18.9 | 19.6 | 20.4 | 21.2 | 22.1 | 23   | 24.1 | 25.3 | 26.7 |
| Int4     | 17.5  | 17.8 | 18.1 | 18.4 | 18.8 | 19.2 | 19.9 | 20.6 | 21.6 | 22.7 | 24.1 | 25.7 | 27.6 |
| Int5     | -1  | -1   | 16.8 | 17.1 | 17.6 | 18.4 | 19.3 | 20.5 | 21.9 | 23.6 | 25.4 | 27.5 | 29.7 |
| Int6     | 19.6  | 21.6 | 23.2 | 24.3 | 25.2 | 25.8 | 26.3 | 26.7 | 27.1 | 27.7 | 28.5 | 29.5 | 30.9 |

**Table Notes:**

1. Outside of valid wind speed range for line of best fit.

## 5.0 Noise Limits

Under Condition 12 of the Planning Permit and the Regulations, operational wind turbine noise must comply with NZS 6808:2010, except for the modifications allowed for under Planning Permit condition 12b(iv). The MWWF noise limits have recently been updated in the MDA Noise Compliance Test Plan. The MDA Noise Compliance Test Plan presents noise limits for a range of hub height wind speeds for the specific locations.

### 5.1 High Amenity Areas

NZS 6808:2010 contains provisions for residences situated in high amenity areas, deemed applicable when “a plan promotes a higher degree of protection of amenity related to the sound environment of a particular area”. In high amenity areas, the noise limit becomes the background noise level plus 5 dB(A), or a level of 35 dB(A), whichever is greater. Dwellings within the vicinity of the MWWF are located within a “Farming Zone” (FZ1) of the Yarriambiack, Horsham and Hindmarsh councils.

The previously endorsed pre-construction noise assessment report titled “*Murra Warra Wind Farm – Pre-construction Noise Assessment*” (Sonus, S4453C29 dated December 2019), (Sonus Pre-construction Noise Assessment Report), concluded that no high amenity areas were identified and therefore the high amenity noise limits in NZS 6808:2010 have not been applied. This is consistent with the land zoning surrounding the MWWF as Farming (FZ1) and the permits.

Therefore, the applicable noise limits at noise sensitive locations for the MWWF are:

- $L_{A90,10\text{minute}}$  40 dB(A) or
- Background noise level  $L_{A90,10\text{minute}}$  + 5 dB,

whichever is higher.

### 5.2 Landowners with commercial agreements

REDACTED

### 5.3 Alternative monitoring point criteria

The alternative monitoring points (i.e. intermediate monitoring locations) identified in the MDA Compliance Test Plan, refer to Section 4.3, shall be used in addition to the noise sensitive locations for the purpose of assisting with the evaluation of wind turbine noise levels directly attributable to the operation of the MWWF. The alternative monitoring points provide data for reference locations where alternative monitoring point criteria (noise limits) has been established and noise measurements can be repeated for future compliance assessments if required.

EPA Publication 2061 specifies that, where alternative monitoring points are used, “a well-established theoretical or empirical relationship between the noise levels at the alternative measurement point and the receiver location should be used and appropriately justified in the NMP”.

For the MWWF, a theoretical relationship for the nearest receivers is suitable, on account of the clear margin of compliance between wind turbine noise levels and the noise limits at the receivers (as demonstrated by noise modelling and post-construction noise monitoring for the wind farm).

To determine the alternative monitoring point noise limits, the predicted noise levels at the alternative monitoring points (intermediate locations) and their corresponding receivers were calculated using the ISO 9613-2 procedure and sound power level data for the Senvion and Siemens turbines installed at the site. The difference between the predicted noise levels was then applied to the receiver noise limits detailed in Section 4.0 of the MDA Post-construction Noise Assessment, subject to a  $\pm 1$  dB uncertainty margin to account for variations in the tolerance of the calculations at intermediate and receiver distances.

Based on the above approach, the alternative monitoring noise limits are presented in Table 10 and Table 11 for the all-time and night-time periods respectively. Therefore, if compliance is achieved with the criteria at the alternative monitoring points, compliance will also be achieved with the noise limits at the noise sensitive locations, as required under the Regulations.

Additionally, alternative monitoring point data may be referenced where there is uncertainty of the presence of special audible characteristics (SACs) such as tonality and amplitude modulation at noise sensitive locations.

The noise prediction procedures used for establishing the alternative monitoring point criteria was conducted using the propagation algorithm ISO 9613-2:1996 “Acoustics – Attenuation of sound during propagation outdoors” (ISO 9613). Other model inputs were taken from the UK IOA Good Practice Guide<sup>1</sup>, including:

- Wind turbine generator warranted sound power level data provided by Senvion and GE
- Wind turbines modelled as point sources at the nominated wind turbine hub height
- Use wind turbine octave band sound power levels with sound power levels at integer hub height for wind speeds from cut-in to rated power
- 10°C temperature
- 70% relative humidity
- 50% acoustically hard ground and 50% acoustically soft ground ( $G = 0.5$ )
- Barrier attenuation of no greater than 2 dB
- 4 m receiver height
- Application of a 3 dB correction where a “concave” ground profile exists as defined by the UK IOA Good Practice Guide.

## 5.4 Summary of noise limits

MWWF operational noise limits are presented in Table 8 and Table 9 are based on the background noise levels presented in Section 4.4 and the minimum applicable limit for each receiver. The minimum limit is set to 40 dB  $L_{A90,10\text{minute}}$  in accordance with the Regulations, the planning permit and NZS 6808:2010 for all receivers where a noise agreement has not been established. Locations that have noise limit exceptions are listed in Table 7. Where this level is exceeded, further investigation into background noise levels and weather conditions will be carried out to determine noise compliance. The noise limits outlined in the MDA Noise Compliance Test Plan are reproduced in Table 8 and Table 9 with some changes added to reflect the most up to date noise limits. It is noted that location H161 is no longer a dwelling as it has since been demolished, however it could still be used in the assessment of

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<sup>1</sup> Institute of Acoustics, A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, May 2013.



wind turbine noise compliance if required using the previously established noise limits. Alternative measurement point criteria are presented in . The reference mast M220 was located at 612004 E. 5963654 N (MGA 94 Zone 54).

**Table 7 Noise sensitive location exceptions**

REDACTED

**Table 8 All-time period - operational wind farm noise limits, dB L<sub>A90</sub>**

| Location | Site wind speed (m/s) at 139 m AGL at reference mast M220 |    |    |    |    |    |    |    |    |      |      |      |      |
|----------|---|----|----|----|----|----|----|----|----|------|------|------|------|
|          | 3   | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12   | 13   | 14   | 15   |
| H41      | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40   | 40   | 40   | 41.2 |
| H46      | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40.1 | 41.8 | 43.5 | 45.1 |
| H57      | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40   | 40   | 40.2 | 41.7 |
| H155     | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40   | 40   | 41   | 43.3 |
| H160     | 43  | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43   | 43   | 43   | 43   |
| H161     | 45  | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45   | 45   | 45   | 45   |

**Table 9 Night-time period - operational wind farm noise limits, dB L<sub>A90</sub>**

| Location | Site wind speed (m/s) at 139 m AGL at reference mast M220 |    |    |    |    |    |    |    |    |    |    |    |      |
|----------|---|----|----|----|----|----|----|----|----|----|----|----|------|
|          | 3   | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15   |
| H41      | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40   |
| H46      | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 41 | 43   |
| H57      | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40   |
| H155     | 40  | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 41.3 |
| H160     | 43  | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43   |
| H161     | 45  | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45   |

**Table 10 Alternative monitoring point criteria – Fully operational wind farm – all-time period dB LA90**

| Location | Site wind speed (m/s) at 139 m AGL at reference mast M220 |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|---|------|------|------|------|------|------|------|------|------|------|------|------|
|          | 3   | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   |
| Int1     | 47.7  | 47.7 | 47.7 | 47.7 | 47.7 | 47.7 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.2 | 49.7 |
| Int2     | 48.4  | 48.4 | 48.4 | 48.4 | 48.4 | 48.5 | 48.6 | 48.7 | 48.7 | 48.8 | 49.4 | 49.4 | 49.4 |
| Int4     | 46.5  | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 47.7 |
| Int5     | 49.6  | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 50.6 | 52.9 |
| Int7     | 50.0  | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| Int9     | 47.5  | 47.5 | 47.5 | 47.5 | 47.7 | 47.8 | 48.7 | 49.1 | 49.1 | 49.1 | 49.1 | 49.1 | 49.1 |

**Table 11 Alternative monitoring point criteria – Fully operational wind farm – night-time period dB LA90**

| Location | Site wind speed (m/s) at 139 m AGL at reference mast M220 |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|---|------|------|------|------|------|------|------|------|------|------|------|------|
|          | 3   | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   |
| Int1     | 47.7  | 47.7 | 47.7 | 47.7 | 47.7 | 47.7 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 |
| Int2     | 48.4  | 48.4 | 48.4 | 48.4 | 48.4 | 48.5 | 48.6 | 48.7 | 48.7 | 48.7 | 48.7 | 49.4 | 49.4 |
| Int4     | 46.5  | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 | 46.5 |
| Int5     | 49.6  | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 | 50.9 |
| Int7     | 50.0  | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| Int9     | 47.5  | 47.5 | 47.5 | 47.5 | 47.7 | 47.8 | 48.7 | 49.1 | 49.1 | 49.1 | 49.1 | 49.1 | 49.1 |

## 6.0 Organisational Environmental Strategy

This NMP should be read in conjunction with the endorsed “*Murra Warra Wind Farm Operational Environmental Management Plan*” (Squadron Energy, dated 13 March 2024) (OEMP) which was prepared as part of the permit conditions and also required under the Regulations.

### 6.1 Roles and responsibilities

Under the Act all individuals are responsible for environmental management as required by the GED. A number of key personnel required for the operation of the MWWF have specific roles in relation to the management of wind turbine noise. This section outlines the roles and responsibilities of these personnel under this NMP.

Table 1 provides current details about the MWWF development and operation of each stage, including the operating structure. The entities occasionally change due to commercial reasons.

Figure 5 and Figure 6 presents organisational chart for MW1 and MW2 respectively.

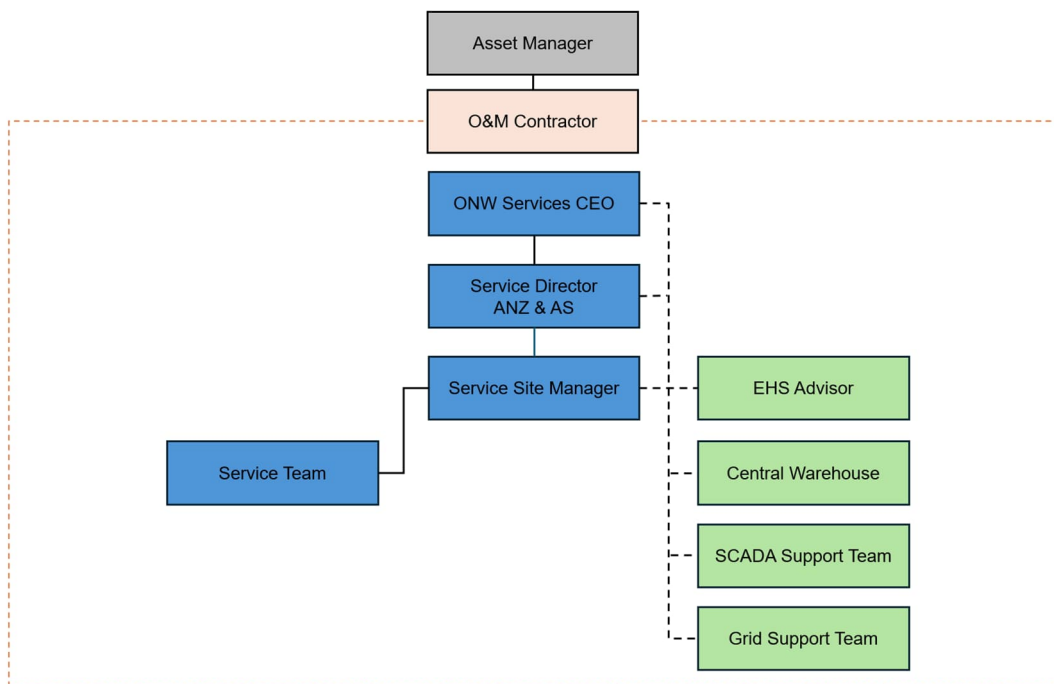


Figure 5 Murra Warra 1 Organisational Chart

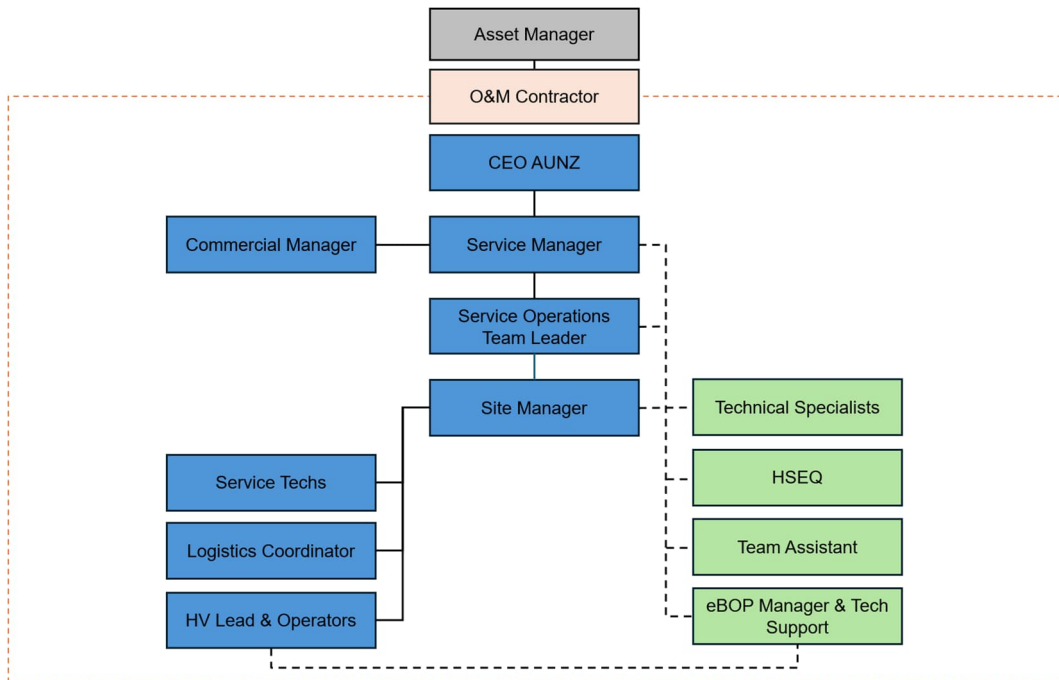


Figure 6 Murra Warra 2 Organisational Chart

### Asset Manager

The Asset Manager is the party responsible for asset management of the entire MWWF (stages 1 and 2). The Asset Manager oversees all aspects of the operation of the MWWF, including management of the O&M Contractor.

The Asset Manager has the following responsibilities:

- Assist with the development, implementation, and monitoring under this NMP.
- Liaise with relevant agencies, authorities, and noise sensitive locations in regard to wind turbine noise emissions from the entire MWWF.
- Establish and maintain this NMP in accordance with the requirements of relevant regulations/legislation and planning permits including any updates to existing regulations/legislation.
- Ensuring required periodic reporting on noise emission from the MWWF are prepared and submitted to relevant authorities as required.
- Resolve incidents promptly and with transparency.
- Ensuring records of all noise related reporting and complaints are maintained in accordance with this NMP.
- Ensure that the requirements of this NMP are fully implemented.
- Regularly review reports about complaint trends and issues arising from complaints.
- Manage the resolution of complaints and liaise directly with the complainants.
- Management of O&M Contractor.

### Site Manager (O&M Contractor)

The Site Manager is the party responsible for operation and maintenance of the MWWF.

The Site Manager has the following responsibilities:

- Responsible for all site activities.
- Responsible for communicating and reporting all incidents to Service Operations Team Leader and HSEQ in an appropriate time.
- Ensure that the Site HSE Plan is implemented and compliant.
- Ensure that health, safety, and environmental standards are enforced and maintained.
- Participates in project inspection, review and audits.
- Communicate clear expectations to staff for the handling of noise complaints.
- Empower staff to be proactive with concerns relating to wind turbine noise emissions and to report this to relevant staff for investigation.
- Ensure that the requirements of this NMP within the O&M scope are fully implemented.
- Record any noise complaints and communicate them to the Asset Manager.
- Overall coordination and responsibility of dealing with abnormal wind turbine noise issues.

#### **Service Operations Team Leader / Service Director (O&M Contractor)**

The Operations Team Leader / Service Director has the following responsibilities:

- Manage the total scope of work, including maintenance provisions that relate to the noise impact of the wind turbines.
- Ensure that the necessary resources are provided to ensure the project goals are met.
- Compliance with MWWF's Compliance and Governance Systems.
- Manage the preparation, release, and implementation of the site HSE Plan.
- Overall responsibility for health, safety and environmental issues within the scope of the O&M agreement.
- The raising and monitoring of project related non-conformances.

#### **HSQE Specialist and EHS Advisor (O&M Contractor)**

The HSQE and EHS Advisor has the following responsibilities:

- Preparation, implementation and updating of the MWWF EHS Management Plan – Operation and Maintenance.
- Analyse and follow up on incidents.
- EHS related assessment of Work Instructions.

#### **Service Technicians (O&M) Team and other Personnel**

O&M team and other personnel including sub consultants and subcontractors have the following responsibilities:

- Ensure wind turbine componentry are maintained in accordance with manufacturers specifications and frequency.
- Compliance with site induction requirements for wind turbine noise emissions.
- Report any incidences and possible incidences of excessive wind turbine noise from the MWWF to the Site Manager.
- Be aware of their General Environmental Duty.
- Understand and comply with the requirements of this NMP and complaints handling policies and procedures.

## 6.2 Document control – Record keeping

Requirements for reporting and record-keeping, including document control systems, incident reporting and tracking, and records to be retained.

Records of all documentation pertaining to noise emissions will be maintained to provide evidence of the effective operation of this NMP. The MWWF OEMP identifies project records, including pertinent subcontractor records, that will be maintained to provide evidence of the effective operation of the environmental management system. Such records include, but are not limited to:

- Correspondence to/from interested parties
- Permits, licenses and approvals
- Induction registers and induction training records
- Environmental incidents, non-conformances and complaints
- Inspection checklists, diary entries
- Monitoring results
- Internal and external inspections and audits
- Any other record identified within the OEMP or this NMP.

## 6.3 Incident handling

An incident relating to noise emission could be defined as an unwanted event which has an adverse effect on the noise emission levels of the MWWF. For the purposes of this NMP, an incident could arise from:

- Receipt of a noise complaint which is addressed in Section 9.0.
- Periodic or non-period noise monitoring indicating an exceedance of the applicable wind turbine noise limits which is addressed in Section 10.0.

## 6.4 Noise Management Plan review

This NMP will be reviewed on a yearly basis to incorporate the findings of the annual statements which are required under the EPA Guidelines. Every five years a major review of the NMP will be carried out in conjunction with the five yearly turbine noise monitoring. Any changes to Planning Permit conditions which have an impact of the operation of the MWWF will also require a review of the NMP to ensure its relevance.

## 7.0 Noise Monitoring and Assessment Procedures

Noise monitoring and assessment will be carried out as per MWWF document titled “*Murra Warra Wind Farm Noise Compliance Test Plan*” (*Marshall Day Acoustics Pty Ltd, Rp 001 R03 20200824, dated 12 April 2023*) (MDA Noise Compliance Test Plan).

The MDA Noise Compliance Test Plan was developed to clarify the procedures for conducting a post-construction noise assessment in accordance with Section 131D of the Regulations for the completed MWWF (i.e. comprising both Stage 1 and Stage 2).

The procedures in the MDA Noise Compliance Test Plan also applies when repeat noise compliance monitoring is required in addition to the five-yearly wind turbine noise monitoring as required in Section 131G of the Regulations.

The MDA Noise Compliance Test Plan specifies:

- Operational wind farm noise limits
- Operational wind farm noise testing procedures
- Operational wind farm noise analysis procedures
- Post-construction noise assessment requirements.

The following sections provide an overview of the noise monitoring and assessment requirements, however all noise monitoring and assessment associated with MWWF turbine noise must be conducted in strict accordance with the MDA Noise Compliance Test Plan.

### 7.1 Noise monitoring procedures

#### 7.1.1 Noise monitoring locations

Operational noise measurements for the post-construction noise assessment are to be carried out at the five preferred compliance monitoring locations listed in Table 4, and shown in Figure 1, subject to permission being granted by the landowners.

**Table 12 Preferred noise compliance monitoring locations**

| Receiver | Direction from wind farm                 |
|----------|--|
| H41      | South of Stage 1                         |
| H46      | Southeast of Stage 2                     |
| H57      | Northwest of Stage 2                     |
| H155     | West of Stage 1                          |
| H161     | East of Stage 1 and southwest of Stage 2 |

Should any of these preferred locations be unavailable for monitoring, alternative monitoring points may be selected in consultation with MWWF. Noise monitoring at the alternative monitoring points provide a secondary reference for assessing noise levels at the noise sensitive locations in the event that the results at the noise sensitive locations are inconclusive as a result of extraneous background noise levels. Additionally, as stated in the MDA Noise Compliance Test Plan, the intermediate monitoring locations provide a reference point for repeat compliance testing in the future.

For further information on these locations, refer to the MDA Noise Compliance Test Plan.

During the preparation period prior to installation of the noise monitoring equipment, personnel will undertake the following:

- Consult with MWWF and any other stakeholders to establish the final monitoring locations.



- Review any communication protocols and liaise with appropriate MWWF personnel to arrange site visits.
- Install two portable weather stations at two representative noise monitoring locations to:
  - Determine the rainfall during the noise monitoring period so that rain affected noise samples are discarded from the noise data set.
  - Provide supporting ground level wind speed data which may be correlated with the hub height wind speed for the noise monitoring period to provide an indication of the comparison between the site hub height and ground level wind speeds at particular monitoring locations.
    - The hub height wind speeds will be measured directly rather than correlating via wind shear relationships to reduce the potential for error.
  - A single portable weather station may be sufficient if it can be shown that the rainfall and wind speeds do not vary across the site.

### 7.1.2 Instrumentation

All noise monitoring equipment shall comply with the requirements of NZS 6808:2010 and have a current certificate of calibration (within two years). The loggers must be suitably calibrated before and after measurements and if the difference is greater than 1 dB, then the data will be discarded. Additionally, equipment used to collect weather data shall also be in calibration in accordance with manufacturers specifications.

### 7.1.3 Methodology

All noise monitoring shall be carried out in accordance with the procedures detailed in NZS 6808:2010. Ambient and background noise levels shall be measured at outdoor locations with the microphone at a height of 1.2 to 1.5 metres above ground level, within 20 metres of the receptor dwelling and at least 5 metres from any significant reflecting surfaces. The monitoring locations should be on the wind farm side of a dwelling and as far as practicable from extraneous sources of noise (e.g., air conditioners, pumps, etc.) and a similar distance from vegetation noise sources (trees) as the façade is from those sources.

The noise loggers will be set to record noise at 10-minute intervals.

The monitoring location must not be screened from the MWWF by existing structures, such as sheds, tanks, or other potential barrier structures.

Monitoring locations shall be described by:

- Location co-ordinates (GPS Latitude/Longitude).
- Photographic images of the location and the surroundings in multiple directions.

Attended noise measurements will also be carried out to identify whether extraneous noise contributions are dominant in the noise samples.

### 7.1.4 Duration

The duration of the monitoring will be such that there is adequate number of integer hub-height wind speed data points after the exclusion of data from cut-in to rated power wind speed for a good correlation during regression analysis. The noise monitoring will be a minimum of four weeks.

### 7.1.5 Weather monitoring locations

Wind measurements shall be conducted at the same time as noise monitoring. The wind measurements will be taken at the wind turbine hub-height above ground level (AGL) over 10-minute intervals and synchronised with the noise monitoring. Otherwise, the hub-height windspeeds will need to be predicted using wind-shear relationships. Weather monitoring shall be made at the same mast location (mast reference M220) which was previously used in the previous sets of noise compliance monitoring, located at 612004 E 5963654 N (MGA 94 Zone 54). Mast M220 no longer exists and is planned to be replaced with LiDAR (Light Detection and Ranging) remote sensing devices at the same locations. Additionally, as required by NZS 6808:2010 the wind speed measured shall not be affected by the operation of the wind turbines, i.e., free from wake effects from wind turbines.

### 7.1.6 Data analysis

The wind and noise data shall be processed in accordance with NZS 6808:2010. Data affected by rainfall and other extraneous noise shall be excluded before scatter plots are drawn and regression curves obtained. As noted in NZS 6808:2010, to assess the wind farm noise levels alone, the background noise shall be removed from the regression curve of measured noise levels with a simple energy subtraction of background and operational levels. Assessment of special audible characteristics is then undertaken as per NZS 6808:2010 requirements.

### 7.1.7 Special audible characteristics

NZS 6808:2010 requires that, where Special Audible Characteristics (SACS) are detected at noise-sensitive locations as a result of wind farm noise, then a penalty shall be applied to the measured wind farm noise level for the purposes of assessing compliance with the noise limits.

As defined by NZS 6808:2010, potential Special Audible Characteristics of wind farm noise that require assessment are tonality, impulsiveness and clearly audible amplitude modulation. Where one or more Special Audible Characteristics is present in the wind farm noise at a dwelling being considered, then a penalty of up to 6 dB shall be added to the measured wind farm noise level as determined in accordance with MDA Noise Compliance Test Plan. The correction shall only apply at those wind speeds where the SACs has been found to be present.

SACs must be assessed during post-construction noise monitoring as per the MDA Noise Compliance Test Plan.

### 7.1.8 Results

Initially, the measured noise results will be assessed against the minimum noise limit,  $L_{A90,10\text{minute}}$  40 dB(A), for all noise sensitive locations with the exception for noise sensitive locations with exceptions or agreements in place. Where this level is exceeded, further investigation into background noise levels and weather conditions will be carried out to determine noise compliance. As a minimum the following will be included where further investigation is carried out:

- Linear regression graph plotted along with a scatter graph and number of valid data points used.
- Overall measured noise levels for each monitoring location shall be presented for each integer hub-height windspeed from cut-in to rated power.
- Summary of baseline meteorological conditions.
- Where special audible characteristics penalties were applied.
- Subjective observations (special audible characteristics, audibility, etc).

## 8.0 Risk Assessment and Controls

An environmental risk assessment has been completed to identify risk of harm from wind turbine noise associated with the operation of the MWWF.

The following risk assessment has been carried out for wind turbine noise from the MWWF in accordance with EPA Victoria Publication 1695.1 *Assessing and controlling risk: A guide for business*.

Risk can be defined as a combination of:

- The potential consequence of an event occurring.
- The likelihood of the consequence occurring.

The risk assessment process adopted is consistent with AS/NZS ISO 31000:2018 Risk Management Process. The following tasks were undertaken to identify, analyse and evaluate risks:

- Develop likelihood and consequence criteria and a risk matrix.
- Use existing environmental conditions and identify applicable legislation and policy to establish the context for the risk assessment.
- Consider operational activities in the context of the existing environment to determine risk pathways.
- Identify standard controls and requirements to mitigate identified risks.
- Assign likelihood and consequence ratings for each risk to determine risk ratings considering design, proposed activities and standard mitigation.

### 8.1 Risk assessment

#### 8.1.1 Steps in controlling hazards and risks

Table 13 Steps in controlling hazards and risks

| Step | Action             | Description  |
|------|--------------------|--|
| 1    | Identify hazards   | What hazards are present that might cause harm   |
| 2    | Assess risks       | What is the level or severity of risk, based on likelihood and consequence             |
| 3    | Implement controls | What measures are suitable and available to the business to eliminate or reduce a risk |
| 4    | Check controls     | Review controls to ensure they are effective   |

#### 8.1.2 Assigning a likelihood level

Likelihood is the combination of the chance of an event and the chance of the identified consequence occurring. The likelihood criteria range from 'rare' where the event and consequence may occur only in exceptional circumstances to 'almost certain' where the event and consequence is expected to occur in most circumstances.

Likelihoods are assigned for the maximum credible consequence according to the levels presented in Table 14.

**Table 14 Guide to likelihood levels**

| Level          | Description   |
|----------------|---|
| Rare           | The consequence may occur only in exceptional circumstances |
| Unlikely       | The consequence could occur but is not expected             |
| Possible       | The consequence could occur                                 |
| Likely         | The consequence would probably occur in most circumstances  |
| Almost certain | The consequence is expected to occur in most circumstances  |

### 8.1.3 Assigning a consequence level

Consequence refers to the outcome of an event affecting an asset, value or use. Table 15 presents the consequence framework describing the consequence levels from 'insignificant' to 'severe'. effects.

Consequence criteria is assigned based on the maximum credible consequence of the risk pathway occurring. Where uncertainty regarding consequences existed, a conservative approach to assessing risk has been adopted.

Consequence criteria considered the following characteristics:

- Spatial extent of impact
- Duration and reversibility of potential impacts
- Sensitivity and significance of the receiving environment
- Magnitude, or severity of potential impact.

Each risk pathway has been assigned a level of consequence considering the guidance in Table 15. That consequence level, together with the likelihood level has been used to determine a risk rating in accordance with the risk matrix presented in Section 8.1.4.

**Table 15 Guide to consequence levels**

| Impact   | Qualitative description  |
|----------|--|
|          | Description  |
| Low      | No increase in noise levels from background levels previously measured; MWWF noise emission is generally inaudible.            |
| Minor    | Noise levels increase but comply with noise limits; MWWF noise emission is barely audible.                                     |
| Moderate | Noise levels are greater than noise limits; MWWF noise emission is just audible.   |
| Major    | Noise levels are significantly greater than noise limits; MWWF noise emission is clearly audible.                              |
| Severe   | Noise levels are significantly greater than noise limits for extended periods of time; MWWF noise emission is clearly audible. |

### 8.1.4 Risk matrix

Risk is defined as combination of the likelihood of an event occurring and the consequence of that event occurring. A risk rating matrix in accordance with the EPA Victoria Publication is presented in Table 16 and the description of the risk rating is presented in Table 17.

**Table 16 Risk matrix**

|   |                    |                 |                                      |  |                         |                                 |   |
|---|--------------------|-----------------|--------------------------------------|--|-------------------------|---------------------------------|---|
| Permanent or long-term serious environmental harm / life threatening or long-term harm to health and wellbeing.<br><br>Serious environment harm / high-level harm to health and wellbeing.<br><br>Medium level of harm to health and wellbeing or the environment over an extended period of time.<br><br>Low environmental impact / low potential for health and wellbeing impacts.<br><br>No or minimal environmental impact, or no health and wellbeing impacts. | <b>Consequence</b> | <b>Severe</b>   | <b>Medium</b>                        | <b>High</b>                                  | <b>High</b>             | <b>Extreme</b>                  | <b>Extreme</b>  |
|   |                    | <b>Major</b>    | <b>Medium</b>                        | <b>Medium</b>                                | <b>High</b>             | <b>High</b>                     | <b>Extreme</b>  |
|   |                    | <b>Moderate</b> | <b>Low</b>                           | <b>Medium</b>                                | <b>Medium</b>           | <b>High</b>                     | <b>High</b>   |
|   |                    | <b>Minor</b>    | <b>Low</b>                           | <b>Low</b>                                   | <b>Medium</b>           | <b>Medium</b>                   | <b>High</b>   |
|   |                    | <b>Low</b>      | <b>Low</b>                           | <b>Low</b>                                   | <b>Low</b>              | <b>Medium</b>                   | <b>Medium</b>   |
|   |                    |                 | <b>Rare</b>                          | <b>Unlikely</b>                              | <b>Possible</b>         | <b>Likely</b>                   | <b>Certain</b>  |
|   |                    |                 | <b>Likelihood</b>                    |  |                         |                                 |   |
|   |                    |                 | Could happen but probably never will | Not likely to happen in normal circumstances | May happen at some time | Expected to happen at some time | Expected to happen regularly under normal circumstances |

**Table 17 Description of risk ratings**

| Risk level     | Description   |
|----------------|---|
| <b>Extreme</b> | Totally unacceptable level of risk. Stop work and/or take action immediately.             |
| <b>High</b>    | Unacceptable level of risk. Controls must be put in place to reduce to lower levels.      |
| <b>Medium</b>  | Can be acceptable if controls are in place. Attempt to reduce to low.                     |
| <b>Low</b>     | Acceptable level or risk. Attempt to eliminate risk but higher risk levels take priority. |

When risks were rated as medium or above, the impacts associated with the risk pathway were assessed in an increasing level of detail and prompted further exploration of potential mitigation and management actions to reduce the overall impact.

#### **8.1.5 Risk assessment**

A risk assessment of MWWF activities was performed as a screening tool to prioritise the focus of the impact assessments and development of mitigation measures. The risk pathways link MWWF activities (causes) to their potential effects on the environmental assets, values or uses that are considered in more detail in the impact assessment. Risks were assessed for only the wind turbine noise component of the operation of the MWWF.

The identified risks and risk ratings are listed in Table 18. The likelihood and consequence ratings determined during the risk assessment process with and without the proposed mitigation measures are presented in Table 18.

Table 18 Wind turbine noise operational risk assessment matrix

| Activity                 | Risk  | Pre-control risk rating |             |               | Controls   | Post-control risk rating |             |                      |
|--------------------------|---|-------------------------|-------------|---------------|--|--------------------------|-------------|----------------------|
|                          |   | Likelihood              | Consequence | Risk rating   |  | Likelihood               | Consequence | Residual risk rating |
| Normal operation of MWVF | Non-compliance with Noise Limits including special audible characteristics (SACs). The potential consequence of non-compliance with Noise Limits and SACs being identified at sensitive receiver(s) (subject to the level) could potentially result in curtailment or decommissioning of one or more WTGs | Possible                | Moderate    | <b>Medium</b> | <ul style="list-style-type: none"> <li>Implementation of this NMP</li> <li>Post-construction noise monitoring</li> <li>Regular scheduled maintenance</li> <li>Implementation of Condition Monitoring Systems (CMSs)</li> <li>Implementation of the Complaints Investigation and Response Plan</li> <li>Workforce training</li> </ul> | Unlikely                 | Moderate    | <b>Low</b>           |
|                          | Damage to, or wear and tear of, components may lead to emission of elevated level of noise which has potential to exceed the  | Possible                | Moderate    | <b>Medium</b> | <ul style="list-style-type: none"> <li>Implementation of this NMP</li> <li>Post-construction noise monitoring</li> <li>Regular scheduled maintenance</li> <li>Implementation of Condition Monitoring Systems (CMSs)</li> </ul>   | Rare                     | Moderate    | <b>Low</b>           |

| Activity | Risk   | Pre-control risk rating |             |                 | Controls   | Post-control risk rating |             |                      |
|----------|--|-------------------------|-------------|-----------------|--|--------------------------|-------------|----------------------|
|          |  | Likelihood              | Consequence | Risk rating     |  | Likelihood               | Consequence | Residual risk rating |
|          | noise limits, including special audible characteristics. This could lead to non-compliance with regulatory requirements, community noise complaints and EPA intervention |                         |             |                 | <ul style="list-style-type: none"> <li>Implementation of the Complaints Investigation and Response Plan</li> <li>Workforce training</li> </ul>   |                          |             |                      |
|          | Inappropriate response to a community noise complaint, whether justified or not, could impact the operation of the Wind Farm. This could lead to EPA intervention.       | Possible                | Moderate    | <b>Moderate</b> | <ul style="list-style-type: none"> <li>Active involvement of the Asset Manager in prompt response to community issues</li> <li>Staff and contractors induction/training on Complaint Investigation and Response Procedure</li> <li>Implementation of the Complaint Investigation and Response Procedure</li> <li>Follow up contact with complainant to ensure their concerns issues have been responded to.</li> </ul> | Rare                     | Moderate    | <b>Low</b>           |
|          | Inadequate implementation  | Possible                | Moderate    | <b>Moderate</b> | <ul style="list-style-type: none"> <li>Ensure wind turbine components are</li> </ul>   | Rare                     | Moderate    | <b>Low</b>           |



| Activity | Risk   | Pre-control risk rating |             |             | Controls  | Post-control risk rating |             |                      |
|----------|--|-------------------------|-------------|-------------|---|--------------------------|-------------|----------------------|
|          |  | Likelihood              | Consequence | Risk rating |   | Likelihood               | Consequence | Residual risk rating |
|          | of relevant aspects of noise control under the O&M Program, leading to complaints and/or EPA intervention) |                         |             |             | maintained in accordance with manufacturers specifications and frequency. <ul style="list-style-type: none"> <li>• Asset Manager to monitor O&amp;M Contractor's maintenance activities, records, unscheduled servicing events and any noise remediation actions.</li> <li>• Condition Monitoring Systems (CMSs) are in place to detect abnormal operation of wind turbine components, which could be an indicator of wear and tear.</li> <li>• CMS alarms must be investigated promptly and implement corrective actions as required.</li> </ul> |                          |             |                      |

The resulting 'risk rating' and 'residual risk rating' derived in Table 18 considered the findings from MWWF pre-construction noise assessment and the post-construction noise assessment (in draft format) as described below:

### **Pre-construction Noise Assessment**

The previously endorsed MWWF pre-construction noise assessment report, Sonus Pre-construction Noise Assessment Report, was prepared to consider the cumulative environmental noise impact from the MW1 and MW2 wind turbine layout and model. The noise from both stages of the project were predicted and compared against the requirements of the Project's Planning Permits.

This pre-construction noise assessment was based on the final wind farm layout (turbines of MW1 and MW2 combined) and the final turbine model. The assessment demonstrated that the MWWF can comply with the relevant noise limits outlined in this NMP.

### **Post-construction Noise Assessment**

In addition to the Planning Permits pre-construction noise assessment, the Regulations requires post construction compliance testing to demonstrate compliance with the wind turbine noise limits outlined in this NMP, determined in accordance with New Zealand Standard 6808:2010.

The MWWF document titled "*Murra Warra Wind Farm – Post Construction Noise Assessment*" (Marshall Day Acoustics Pty Ltd, Rp 005 03Draft 20200824, dated 23 July 2024) (MDA Post-construction Noise Assessment), was prepared to address wind turbine noise compliance from the entire MWWF. The report was in Draft format at the time of writing this NMP. The MDA Post-construction Noise Assessment was conducted in accordance with this NMP, the report concluded that the "*results of the monitoring and analysis demonstrate that the noise levels associated with the Murra Warra Wind Farm complied with the applicable noise limits during the noise monitoring period*".

## **8.2 Site inspection and maintenance**

Regular scheduled maintenance in accordance with the wind turbine's manufacturers' specifications is essential for the optimal operation of the MWWF, to reduce downtime due to equipment failure and to prevent excessive noise emissions. The wind turbine maintenance is undertaken according to the manufacturer's recommended schedule of maintenance. The O&M Contractors prepare plans for the execution of the scheduled maintenance works, and report monthly on progress. Scheduled maintenance activities include specific requirements to check unusual noise emissions from the turbine in general, and also from a range of specific components within the wind turbine. Any such unusual noises are required to be investigated and resolved.

Wind turbine components occasionally experience a fault, whereby a component is damaged or fails prematurely. Such a fault may lead to increased noise emissions from that turbine. Un-scheduled maintenance work is triggered by any faults arising during the operation of the wind turbines. Such faults are generally detected by the wind farm control system, and alarms are raised to the O&M Contractor. In some cases, the wind turbines are automatically shut down until the fault can be investigated. The O&M Contractor responds to the faults by investigating the cause of the fault and then implementing corrective actions. The O&M Contractors report on the unscheduled maintenance activities on a monthly basis.

Wear and tear of turbine components may not immediately result in a fault, but may contribute to increased noise emissions. Condition Monitoring Systems (CMSs) are in place to detect abnormal operation of a range of wind turbine components, which is an indicator of wear and tear. The CMSs raise alarms to the O&M Contractors. The CMSs receive information from every turbine at MWWF. Following receipt of CMS alarms the O&M Contractors will investigate the specific component and implement corrective actions as required. The CMSs are a means to detect potential damage or premature wear which, if not rectified, may lead to the emission of excessive noise from the wind turbines.

If any complaints or concerns about noise are received from the community, which have been attributed to specific wind turbines and/or wind turbine componentry, this information will be conveyed to the

relevant O&M Contractor, and the O&M Contractor requested to investigate and report on those specific turbines.

### **8.3 Workforce training**

All site personnel and visitors must undertake a MWWF site induction. The induction will cover environmental awareness topics, including a requirement to report to the Site Manager any concerns regarding excessive noise emissions from a wind turbine, The induction will also include a requirement to pass on to the Site Manager any complaints received from the community.

Service Technicians will be specifically made aware of the content of Sections 8.2 and 9 of this NMP, and of the general content of the CIRP.

Site Managers will be trained in the broader content of this NMP and the CIRP.

## 9.0 Noise Complaint Management Procedure

Noise complaints are managed in accordance with the existing MWWF document titled “*Murra Warra Complaints Investigation and Response Plan Final*” (RES, Ref: 02418-006367, dated 30 March 2017) (CIRP) which has been endorsed to comply with condition 16 and 18 of the Planning Permits. Attached to the CIRP in Appendix 4 is the document titled “*Murra Warra Wind Farm Noise Complaint Investigation and Response Plan*” (Sonus, S4453C19, dated March 2017) (Sonus NCIRP), which must be followed when investigating noise complaints relating to wind turbine noise.

### 9.1 Ongoing contact with landowners

MWWF is located on agricultural land, approximately 20 km distant from the nearest town. MWWF's immediate neighbours are approximately 20 landowners upon whose land the facility is located. The Asset Manager and the O&M Contractors are in regular communication with these landowners (via telephone and email) regarding coordination of day-to-day matters, such as crop spraying and machinery movements. This regular contact will facilitate expression of any concerns about noise by landowners.

### 9.2 Contact details

The MW1 and MW2 websites present a toll-free number and e-mail address for MWWF; the website information is updated as required. Contact details for the appropriate local councils (contact telephone and e-mail address) are included in Appendix 1 of the CIRP. Appendix 1 is reproduced in Figure 7.

|                                 |  |  |
|---------------------------------|--|--|
| Horsham Rural City Council      | Civic Centre<br>18 Roberts Ave<br>PO Box 511<br>Horsham<br>VIC<br>3402         | Tel: 03 5382 9777<br><br>e-mail:<br><a href="mailto:council@hrcc.vic.gov.au">council@hrcc.vic.gov.au</a><br><br>Web site:<br><a href="https://www.hrcc.vic.gov.au">https://www.hrcc.vic.gov.au</a>                     |
| Yarriambiack Shire Council      | 34 Lyle Street<br>PO Box 243<br>Warracknabeal<br>VIC<br>3393                   | Tel: 03 5398 0100<br><br>e-mail:<br><a href="mailto:info@yarriambiack.vic.gov.au">info@yarriambiack.vic.gov.au</a><br><br>Web site:<br><a href="https://yarriambiack.vic.gov.au/">https://yarriambiack.vic.gov.au/</a> |
| National Wind Farm Commissioner | National Wind Farm<br>Commissioner<br>PO Box 24434<br>Melbourne<br>VIC<br>3001 | Tel 1800 656 395<br><br>e-mail:<br><a href="mailto:nwfc@environment.gov.au">nwfc@environment.gov.au</a><br><br>Web site:<br><a href="https://www.nwfc.gov.au/">https://www.nwfc.gov.au/</a>                            |

Figure 7 Contact details

## 10.0 Noise Remediation Procedure

In the event that a noncompliance of the applicable noise limits presented in this NMP is identified been identified as a result of:

- Post-construction noise assessment reporting
- Noise investigation in response to a noise complaint
- In response to any other justifiable requirements from regulatory agencies.

a noise remediation plan shall be prepared by a suitably qualified and experienced independent acoustic engineer. The noise remediation plan shall at a minimum include the following:

- How the non-compliance was identified
  - If it was the result of investigating a complaint, who the complainant was and their contact details (refer to Section 9.0 Noise Complaint Management Procedure and the MWWF Noise Complaint Investigation and Response Plan).
- Who first reported the non-compliance.
- Date and time at which MWPC/MW2PC was made aware.
- Level of non-compliance and the operating conditions and length and time at which it occurred.
- At what locations where the non-compliance has been identified.
- Investigation to identify the cause of the non-compliance and how it differs from the normal operating conditions.
- Review of maintenance activities, noise remediation actions and records associated with offending wind turbine(s).

The methodology detailed from page 8 of the Sonus Noise Complaint Investigation and Response Plan can be used to develop a noise remediation plan.

## 11.0 Annual Statement

An annual statement must be provided to EPA Victoria by 31 October every year (within four months of the end of the financial year) as required by Section 131F(2) of the Regulations. The statement must include at a minimum for the previous financial year:

- Details of complaints concerning wind turbine noise received by MWPC and MW2PC.
  - This will include a summary of the complaints register for that year and include a reference map of complaint locations, nature of the complaint and the investigation and remediation actions taken by MWPC/MW2PC.
- Details of any noise remediation actions undertaken and if applicable, the noise remediation plan to be attached.
- Summary of maintenance activities undertaken including any unscheduled servicing events.
  - A Statement of completion of scheduled maintenance shall be provided. Where deviations from the maintenance schedule have occurred, these will be noted in the statement with the reason of deviation and how it was/will be rectified.
- Complaints register, if any for the year.
  - Details of complaints received as per the Noise Complaint Investigation and Response Plan.

Operating conditions of the wind turbines shall be presented and include power generation and percent of time at which turbines are operating curtailed or not curtailed. The operating conditions shall demonstrate overall power generation of the MWWF compared to the operating conditions of individual wind turbines, i.e., if the wind turbine operations are curtailed, but the MWWF is generating the maximum power level as restricted by the Australian Energy Market Operator (AEMO) then the noise emission of the MWWF could be considered “typical”.

The Annual Statement must demonstrate that the wind turbine noise from the MWWF complied with applicable noise limits and including the methodology of how compliance was demonstrated such as:

- Noise monitoring at noise sensitive locations, if applicable.
- Noise monitoring at alternative/intermediate monitoring locations, if applicable.
- Showing that the MWWF has been operating with no material change from the last time operational wind turbine noise monitoring has demonstrated compliance and that the wind turbines have been maintained in accordance with manufacturer recommended maintenance schedule.

## 12.0 Periodic Wind Turbine Noise Monitoring

Within three months of the fifth anniversary of the MWWF commencing operation, and every subsequent five years, MWPC and MW2PC will engage a suitably qualified and experienced acoustician to conduct noise monitoring to ensure that wind turbine noise from the MWWF complies with the noise limits set out in NZS 6808:2010, as outlined in Section 5.0 or the applicable alternative monitoring point noise limits if the assessment of the wind turbine noise is conducted at an alternative monitoring point.

The findings are to be documented in a Periodic Wind Turbine Noise Monitoring Report and reviewed by an environmental auditor engaged by MWPC and MW2PC. The Periodic Wind Turbine Noise Monitoring Report and associated auditors report shall be provided to EPA Victoria.

The noise monitoring shall be conducted in accordance with NZS 6808:2010 and the procedures documented in Section 7.1 of this NMP.

# Appendix A

## Receiver Locations



## Appendix A Receiver Locations

| Receiver | Note | Easting | Northing | Ground height, m | Nearest turbine | Distance, m |
|----------|------|---------|----------|------------------|-----------------|-------------|
| H2       |      | 619984  | 5984233  | 120              | T258            | 12441       |
| H3       |      | 619286  | 5982878  | 120              | T258            | 11130       |
| H4       |      | 614676  | 5980689  | 120              | T258            | 10536       |
| H5       |      | 611745  | 5978144  | 120              | T85             | 10187       |
| H30      |      | 607000  | 5964781  | 130              | T219            | 5140        |
| H31      |      | 609849  | 5965075  | 130              | T219            | 2348        |
| H32      |      | 609929  | 5964165  | 130              | T220            | 2212        |
| H33      |      | 608876  | 5963475  | 130              | T220            | 3299        |
| H34      |      | 610022  | 5962639  | 130              | T220            | 2509        |
| H35      |      | 611145  | 5964724  | 130              | T219            | 1007        |
| H37      |      | 613325  | 5963497  | 130              | T223            | 521         |
| H38      |      | 621382  | 5965014  | 130              | T120            | 2485        |
| H40      |      | 621613  | 5965564  | 130              | T120            | 2223        |
| H41      |      | 613316  | 5962130  | 133              | T223            | 1871        |
| H42      |      | 617405  | 5962523  | 135              | T101            | 1487        |
| H43      |      | 621731  | 5961377  | 138              | T145            | 3757        |
| H44      |      | 626360  | 5967309  | 130              | T262            | 3454        |
| H45      |      | 624691  | 5967192  | 130              | T260            | 2360        |
| H46      |      | 624607  | 5967875  | 129              | T260            | 1809        |
| H47      |      | 623616  | 5972980  | 120              | T257            | 2156        |
| H52      |      | 623067  | 5984353  | 114              | T257            | 12618       |
| H53      |      | 620647  | 5979599  | 120              | T255            | 7804        |
| H55      |      | 620332  | 5976059  | 123              | T258            | 4262        |
| H56      |      | 619624  | 5975615  | 125              | T258            | 3882        |
| H57      |      | 619031  | 5972440  | 127              | T258            | 1448        |
| H61      |      | 618770  | 5966114  | 130              | T120            | 1522        |
| H65      |      | 613196  | 5968127  | 130              | T85             | 1812        |
| H66      |      | 611106  | 5967832  | 129              | T102            | 2238        |
| H68      |      | 610368  | 5971974  | 125              | T85             | 5779        |

| Receiver | Note | Easting | Northing | Ground height, m | Nearest turbine | Distance, m |
|----------|------|---------|----------|------------------|-----------------|-------------|
| H72      |      | 608860  | 5968610  | 126              | T102            | 4462        |
| H73      |      | 608806  | 5966730  | 129              | T102            | 3822        |
| H74      |      | 623770  | 5977483  | 120              | T257            | 6013        |
| H75      |      | 623772  | 5978652  | 120              | T257            | 7129        |
| H78      |      | 615072  | 5971149  | 130              | T85             | 2669        |
| H79      |      | 616784  | 5969580  | 130              | T154            | 1096        |
| H80      |      | 615698  | 5961530  | 136              | T15             | 2465        |
| H81      |      | 616449  | 5958713  | 140              | T16             | 5282        |
| H83(A)   |      | 618025  | 5961376  | 137              | T19             | 2620        |
| H87      |      | 620148  | 5958897  | 140              | T145            | 5229        |
| H116     |      | 609224  | 5961337  | 130              | T220            | 3940        |
| H117     |      | 609101  | 5960120  | 131              | T220            | 4919        |
| H118     |      | 612028  | 5959547  | 134              | T220            | 4447        |
| H121     |      | 612635  | 5976459  | 122              | T85             | 8313        |
| H122     |      | 610964  | 5975292  | 123              | T85             | 7902        |
| H154     |      | 618942  | 5961384  | 137              | T145            | 2628        |
| H155     |      | 610457  | 5966643  | 130              | T102            | 2183        |
| H156     |      | 612731  | 5971540  | 129              | T85             | 3792        |
| H157     |      | 608662  | 5969870  | 123              | T102            | 5404        |
| H158     |      | 625683  | 5963584  | 130              | T260            | 5985        |
| H159     |      | 626447  | 5965333  | 130              | T260            | 4913        |
| H160     |      | 622812  | 5967041  | 130              | T265            | 1551        |
| H161     |      | 617959  | 5966346  | 130              | T120            | 2128        |
| H163     |      | 623051  | 5964331  | 136              | T145            | 4013        |
| H166     |      | 623033  | 5959601  | 139              | T145            | 5941        |
| H190     |      | 624924  | 5974660  | 120              | T257            | 4228        |
| H191     |      | 624797  | 5976958  | 120              | T257            | 5962        |
| H194     |      | 622274  | 5980510  | 120              | T257            | 8725        |
| H203     |      | 614487  | 5981211  | 120              | T258            | 11079       |
| H207     |      | 615863  | 5984288  | 120              | T258            | 13265       |
| H266     |      | 618278  | 5976845  | 123              | T258            | 5448        |
| H268     |      | 620273  | 5960803  | 138              | T145            | 3432        |
| H272     |      | 618372  | 5971895  | 128              | T259            | 1929        |
| H273     |      | 612597  | 5974065  | 125              | T85             | 6068        |
| H278     |      | 619049  | 5983525  | 120              | T258            | 11798       |

| Receiver | Note     | Easting | Northing | Ground height, m | Nearest turbine | Distance, m |
|----------|----------|---------|----------|------------------|-----------------|-------------|
| H287     | REDACTED | 614813  | 5974884  | 127              | T258            | 6320        |
| H296     | REDACTED | 617718  | 5969630  | 130              | T82             | 1040        |
| H318     | REDACTED | 609682  | 5961902  | 130              | T220            | 3223        |