



Lal Lal Wind Farm

Noise Management Plan

Lal Lal Wind Farms Nom Co Pty Ltd

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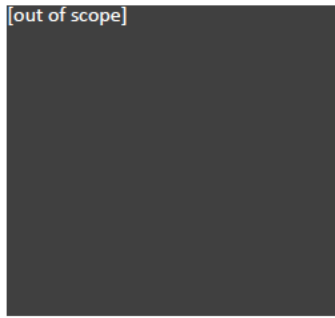
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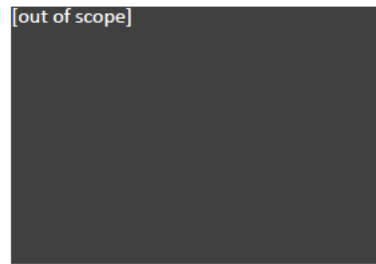
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1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (**ERM**) has been engaged by Lal Lal Wind Farms Nom Co Pty Ltd to prepare a Noise Management Plan (**NMP**) for the Lal Lal Wind Farm (**LLWF**). The NMP sits under the overarching LLWF Environmental Management Strategy (EMS) for the project and with the other project related Environmental Management Plans (**EMP**) and sub-plans (Jacobs, 2018a; Jacobs, 2018b) forms the basis for environmental management at LLWF.

LLWF is located in the Moorabool Shire, approximately 25km south of Ballarat, Victoria. It consists of 60 wind turbines generating a maximum of 228 MW.

Recent amendments to Victorian wind farm noise legislation requires a NMP to be submitted to the Environment Protection Authority (EPA) Victoria, upon request, from 1 July 2022. Regulation 131E (5) of the *Environment Protection Regulations 2021* sets out the requirements for the NMP.

The *Environment Protection Act 2017* introduces a 'general environmental duty' and 'unreasonable noise' provisions that apply to wind turbine noise emissions at wind energy facilities. The *Environment Protection Regulations 2021* also set specific requirements for compliance. These requirements address the general environmental duty to minimise harm to human health and the environment, which includes the implementation of this NMP.

Ongoing compliance with the general environmental duty (**GED**) will require that this NMP document is reviewed regularly to reflect changing operating and legal conditions. As a minimum it must be reviewed on a five-yearly basis and must also be reviewed in response to major changes with site conditions or relevant legislation. Five-yearly reviews may benefit from occurring in tandem with the mandatory five-yearly noise compliance testing.

1.1 Organisational Structure

Lal Lal Wind Farms is owned by experienced global infrastructure investors in Northleaf Capital Partners and InfraRed Capital Partners, each holding a 40 per cent interest, with Macquarie Capital having the remaining 20 per cent interest.

This ownership structure follows Macquarie Capital's purchase of Lal Lal Wind Farms from West Wind Energy in 2017.

The project is overseen by global renewable energy company RES, which has a five-year construction and asset management contract with the project, to oversee the works of contractors Zenviron and Vestas through the construction phase and manage the first few years of operations.

The above information is illustrated in the organisational chart below.

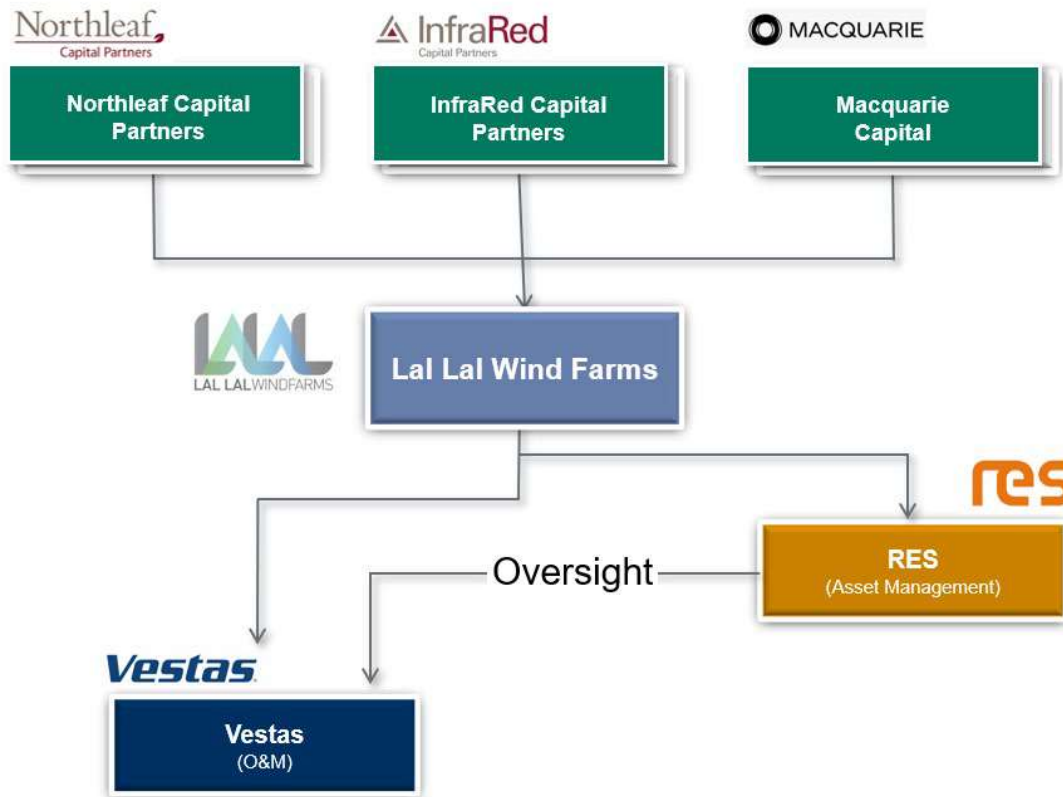


Figure 1: Organisational Chart

1.2 Purpose of the NMP

The purpose of this NMP is to demonstrate an understanding of the risks of noise related harm associated with the operation of LLWF, include procedures to control those risks, and rectify any non-compliance. The information and approach contained in this NMP are developed to be practical, cost effective and proportionate to the risk of harm.

1.3 Structure of the NMP

EPA Victoria provides guidance on the elements that may be useful to be included when developing a NMP in its Wind Energy Facility Turbine Noise Regulation Guidelines (EPA Victoria, 2022). These elements are mapped against the contents in this report in Table 1.

Table 1: NMP Elements

Element identified in the Wind Energy Facility Turbine Noise Regulation Guidelines	Description	Section in this NMP
Organisational environmental strategy (regulation 131 E(5)(a))	- Definition of organisational and other responsibilities in relation to the measurement, assessment and management of noise emissions from the WEF. - Requirements for reporting and record-keeping, including document control systems, incident reporting and tracking, and records to be retained.	Section 3.5

Element identified in the Wind Energy Facility Turbine Noise Regulation Guidelines	Description	Section in this NMP
Regulatory standards (regulation 131 E(5)(a))	■ Summary of legislative framework requirements. ■ Outline of site environmental noise objectives, including the relevant consent conditions.	Section 3.1
Noise sensitive locations (regulation 131 E(5)(b)(i) and (ii))	■ Identification of noise sensitive receiver locations, alternative measurement point locations, land use category and operational noise limits that apply at each of the locations. ■ Map of noise sensitive locations in relation to LLWF.	Section 3.2
Risk assessment and controls (regulation 131 E(5)(a))	■ Operational noise modelling, including method, input data and results. ■ Risk analysis and assessment, including the identification of major noise sources, evaluation and assessment of risks of harm to human health and the environment from wind turbine noise. ■ Evaluation of likelihood and consequence of risks, development of a risk matrix and risk management approach. ■ Consideration of control measures to address noise related hazards and determination of residual risks. <i>Assessing and Controlling Risk (EPA VIC publication 1695) provides a framework for risk assessment.</i>	Section 3.3
Operational performance (regulation 131 E(5)(b))	■ Details of noise measurement procedures, including equipment requirements, timing and duration. ■ Wind-speed measurement locations and analysis approach for wind speed data. ■ Noise level and wind-speed measurement data analysis approach, including for subjective and objective evaluation of Special Audible Characteristics (SACs), and procedures for data exclusion, where necessary. ■ Approach for attended subjective observations. ■ Summary of results of operational noise monitoring and compliance assessment. ■ Summary of baseline meteorological conditions (consistent with the compliance documentation required under section 8.3 of the 2010 Standard including atmospheric conditions (wind speed and direction, rainfall).	Section 3.3
Site inspection and maintenance (regulation 131 E(5)(a))	■ Details of maintenance plan and routine maintenance activities. ■ Requirements of ongoing condition monitoring and inspections that may influence noise emissions. ■ Procedures for unexpected (non-routine) maintenance activities. ■ Procedures for scheduled inspections and monitoring.	Section 6
Noise complaint management procedures (regulation 131 E(5)(d))	Reflecting good practices set out in AS/NZS 10002:2014 Guidelines for complaint management in organizations, complaint management procedures should include details of: ■ how the community can lodge a complaint, including contact details ■ a complaint register to record information for each report received, which may include: – the name and address of the person making the report – procedures on how complainants' details will be maintained, including any relevant privacy policy	Section 4.3

Element identified in the Wind Energy Facility Turbine Noise Regulation Guidelines	Description	Section in this NMP
	– a receipt number for each report which is to be communicated to the person making the report – any applicable property reference number (for example when connected to a background sound measurement location) – the time, prevailing conditions and a description of the concerns reported ■ investigation and response procedures which may include: – a proforma noise investigation report – procedures for the analysis of complaint data against environmental conditions and WEF operational data – procedures for communication, consultation, and engagement with any relevant stakeholders.	
Noise remediation procedures (regulation 131 E(5)(c))	For situations where a noncompliance has been detected (either as a result of investigating a complaint or through other routine monitoring procedures) the NMP must set out noise remediation procedures to address non-compliance and to reduce noise emissions	Section 5
Training (regulation 131 E(5)(a))	Develop and implement a training program, including the provision of information, instruction, supervision and training of employees engaged in the operation of the WEF, particularly in regard to their duties under the EP Act.	Section 6
Review (regulation 131 E(5)(a))	Program for review, including the development of the annual statement, five-yearly turbine monitoring and NMP review cycle.	Section 3.4
Alternative measurement points	The NMP may refer to the use of alternative measurement points defined in the EP Regulations as 'a location other than a location determined in accordance with the relevant noise standard, for the assessment of wind turbine noise'. This approach is commonly adopted in environmental noise assessment of industrial facilities, particularly where it is impracticable or impossible to undertake compliance measurements at a noise sensitive receiver itself. Where alternative measurement 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.	Section 3.3.4
Auditor review/verification requirements (regulation 131E (2) and (3))	The NMP must be reviewed by an EPA-appointed independent environmental auditor. Current EPA Auditor guidelines are available in Wind energy facility noise auditor guidelines (publication 1962). This review should present concise conclusions about the extent to which the NMP: ■ demonstrates an understanding of the risks of noise related harm associated with the operation of the WEF ■ includes procedures that would be effective in controlling those risks and ensuring compliance with the noise limits ■ includes procedures for noise remediation if noncompliance is identified ■ includes procedures for complaint investigation and resolution.	This NMP is to be reviewed by an independent environmental auditor

1.4 References

This NMP is developed and adapted based on existing published documents, as summarised below:

- A Noise Compliance Testing Plan (**NCTP**) (Marshall Day Acoustics, 2018) and a Noise Compliance Investigation and Response Plan (**NCIRP**) (Lal Lal Wind Farms Nom Co, 2019) have previously been developed for LLWF in accordance with existing Planning Permit No. PL-SP/05/0461-2 for LLWF (**Planning Permit**).

This NMP incorporates the information contained in the NCTP and NCIRP into a single document and addresses the requirements of Regulation 131E (5). This NMP consists of two components:

- a. Noise Compliance Test Plan : detailing how these will be prepared in accordance with the New Zealand Standard (**NZS**) 6808:2010, *Acoustics – Wind Farm Noise* (Standard), to assess the wind energy facility against the performance requirements specified in the Standard; and
 - b. Noise Complaint Management Plan (**NCMP**): detailing procedures for when complaints are received in accordance with the endorsed Complaints Investigation and Response Plan required by the Planning Permit or when potential non-compliance with the performance requirements in the Standard is otherwise detected.
- Site inspection and maintenance procedures (including inspection frequency) are provided in two documents:
 - For wind turbines: Lal Lal Wind Farm Operations and Maintenance Manual (Vestas, 2020); and
 - For Balance of Plant (BOP): Lal Lal Wind Farm Operations and Maintenance Manual (Zenviron, 2019).

2. REGULATORY STANDARDS

This chapter summarises the regulatory standards applicable to this NMP.

2.1 Environment Protection Act 2017

The Victorian *Environment Protection Act 2017* (**EP Act**) was brought into effect on 1 July 2021 and introduces a 'general environmental duty' (**GED**) and 'unreasonable noise' provisions.

The GED requires all industries in Victoria to proactively take reasonable steps to minimise risks of harm to human health and the environment. The GED exists in addition to other permissions, including those which contain limits or controls on emissions, and that emissions of 'unreasonable noise' may be considered a breach of the GED. The EPA has established the GED as a central component of the new EP Act and its consideration and compliance should be made a priority throughout all processes, even where specific permission exists and is complied with.

The *Environment Protection Regulations 2021 Authorised Version No. 006* (**EP Regulations**) sets out specific requirements for compliance against the EP Act. The EP Regulations further define 'unreasonable noise' emitted from wind turbines, being that which exceeds the noise limit of the relevant standard identified in Regulation 131H.

Under the framework of legislation described above, it is understood that LLWF will meet its GED through compliance with the standards set out in the Regulations and ensuring unreasonable noise is not emitted. This will be achieved through:

- compliance with the New Zealand Noise Standard;
- implementation of this NMP and complaints management plan;
- providing an annual statement with details of complaints, maintenance activities and noise remediation actions during the previous 12 months; and
- undertaking noise monitoring procedures every five years to ensure ongoing compliance with the relevant noise limits.

2.1.1 EP Regulations

Regulation 131E(5) of the EP Regulations requires a NMP to include procedures for:

- the identification, assessment and control of risks of harm to human health and the environment from wind turbine noise;
- assessing compliance with:
 - the noise limits set out in the relevant noise standard; or
 - the applicable alternative monitoring point criteria if the assessment of the wind turbine noise is conducted at an alternative monitoring point.
- reducing wind turbine noise in the event noncompliance with the noise limits set out in the relevant noise standard is detected;
- addressing any complaints about wind turbine noise received by the operator, including who will investigate the complaint and respond to the complainant.

LLWF is required to:

- engage an auditor to review the NMP;
- provide a copy of the NMP and auditor's report on request by the Authority; and
- amend the NMP if requested by the Authority.

2.2 Planning and Environment Act 1987

The *Planning and Environment Act 1987* (**P&E Act**) is the legislative framework that governs the use, development and protection of land in Victoria. The P&E Act sets out procedures for, among other matters, obtaining approvals for projects according to controls set out in the planning schemes. Approvals may be provided in the form of a planning permit.

2.2.1 Planning Permit No. PL-SP/05/0461-2

The amended Planning Permit for LLWF was issued in March 2017 (Planning Permit No. PL-SP/05/0461-2).

The key performance requirements for noise applicable to this NMP are Conditions 22 to 27 of the Planning Permit which refer to the control of noise during construction and operation of LLWF, as provided in Table 2. The conditions are reproduced in full in Appendix F.

Table 2: Summary of Planning Permit No. PL-SP/05/0461-2

Condition	Summary of key requirements
22	Defines noise limits which apply to noise associated with construction of the wind farm, based on EPA guidelines.
23	Defines operational noise limits based on the <i>New Zealand Standard NZS 6808:2010 Acoustics – Wind farm noise</i> (NZS 6808:2010) for noise sensitive locations existing as of 20 March 2017. Operational noise levels to be measured and assessed subject to the following project-specific definitions: ■ Noise limits are defined as 40 dB LA90 or the background noise level LA90 + 5dB, whichever is higher; ■ Noise limits and operational noise levels are to be determined separately for all-time periods (i.e. day and night combined) and night-time periods (10 pm to 7 am); and ■ A dwelling may be exempted from the noise limits if a suitable written agreement is established with the landowner of the dwelling (subject to evidence of the agreement being provided to the satisfaction of the responsible authority).
24	Specifies that a Noise Compliance Test Plan (NCTP) must be prepared prior to commencement of development of the wind farm.
25	Defines a requirement for the NCTP to be reviewed by an EPA accredited auditor, and their review findings must be included in the NCTP. The plan must be approved by the Minister for Planning and published on the wind farm operator's website. Also requires a compliance report to be submitted to the Minister for Planning within 12 months of the wind farm commencing full operation. The compliance report must be reviewed by an EPA accredited auditor and their findings must be submitted to the Minister for Planning in a separate report accompanying the compliance report.
26	Defines complaint evaluation requirements, including monitoring and response procedures.
27	Requires a Noise Complaint Investigation and Response Plan to be prepared before the first wind turbine is commissioned at the site. The plan must be approved by the Minister for Planning and published on the wind farm operator's website.

The previously endorsed Noise Compliance Test Plan (Condition 24) and the Noise Compliant Investigation and Response Plan (Condition 27) has been incorporated into this NMP.

3. NOISE COMPLIANCE TEST PLAN

This chapter summarises the procedures to determine compliance of LLWF against the noise limits in the Planning Permit. At the time of writing, Revision 5 of the NCTP has been released in Draft status (Marshall Day Acoustics, 2022). The contents of this chapter shall be superseded by any updated NCTP prepared to satisfy the noise conditions in the Planning Permit.

3.1 Operational Noise Limits

Operational noise limits are applicable to the identified Noise Sensitive Receiver Locations (**NSRLs**). The coordinates of the identified NSRLs are summarised in Appendix D.

The operational noise limits were previously derived by Marshall Day Acoustics and are documented in the following reports:

- Lal Lal Wind Farm Noise Compliance Test Plan (Marshall Day Acoustics, 2018); and
- Lal Lal Wind Farm Background Noise Monitoring Report (Marshall Day Acoustics, 2018).

The limits were determined in accordance with the Planning Permit (Condition 23) and NZS 6808:2010 and apply at the NSRLs in the vicinity of LLWF as of 20 March, 2017. The limits are presented in Table 3 and Table 4, noting that that transcription errors contained in the NCTP produced by Marshall Day Acoustics have been redressed. The limits are given here in summary, see the complete NCTP for the conditions that apply.

Table 3: All-time period (day and night combined) – non-stakeholder wind farm noise limits, dB L_{A90}

NSRL	Site wind speed (m/s) at 93 m AGL at reference mast locations									
	≤6	7	8	9	10	11	12	13	14	15
H18aa	40.0	40.0	40.9	43.4	46.0	48.6	51.2	53.6	55.9	57.9
K15aa	40.0	40.0	41.3	42.9	44.5	46.0	47.5	49.0	50.4	51.7
K34aa	40.0	40.0	40.0	40.0	41.7	44.1	46.5	48.9	51.1	53.2
L18aa	40.0	40.0	40.0	42.0	44.1	46.2	48.2	50.2	52.0	53.6
M29aa	40.0	40.0	40.0	40.0	40.9	42.9	44.9	47.0	49.1	51.1
N31ab	40.0	40.0	40.0	40.0	41.4	43.4	45.3	47.2	49.0	50.6
P30aa	40.0	40.0	40.0	41.7	44.2	46.7	49.2	51.6	53.9	56.1

Table 4: Night-time period - non-stakeholder wind farm noise limits, dB LA90

NSRL	Site wind speed (m/s) at 93 m AGL at reference mast locations									
	≤6	7	8	9	10	11	12	13	14	15
H18aa	40.0	40.0	40.0	40.3	43.4	46.6	49.7	52.7	55.4	57.9
K15aa	40.0	40.0	40.0	40.0	40.0	41.5	43.5	45.6	47.5	49.4
K34aa	40.0	40.0	40.0	40.0	40.0	42.0	44.9	47.6	50.1	52.3
L18aa	40.0	40.0	40.0	40.0	42.2	44.6	46.9	49.2	51.4	53.3
M29aa	40.0	40.0	40.0	40.0	40.0	40.2	42.5	44.9	47.4	49.8
N31ab	40.0	40.0	40.0	40.0	40.0	40.4	42.7	45.0	47.2	49.3
P30aa	40.0	40.0	40.0	40.0	40.7	43.5	46.4	49.2	51.9	54.5

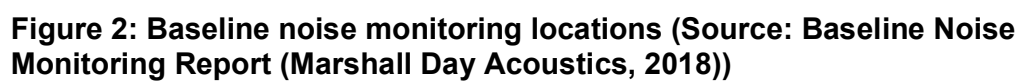
3.2 Operational Noise Testing Procedure

3.2.1 Measurement Locations

Operational noise measurements shall be carried out at the following three preferred noise sensitive receiver locations:

- K15aa (UTM Coordinates: 5815534 m S, 236990 m E)
- H18aa (UTM Coordinates: 5818510 m S, 233207 m E)
- L18aa (UTM Coordinates: 5818705 m S, 237913 m E)

These locations are identified in Figure 2.



3.2.1.1 Alternative Measurement Locations

To assess compliance, permission to access each property identified in Section 3.2.1 should be sought from the landowners. In the event that access is not granted, alternative locations should be considered for compliance noise measurements.

EPA Victoria requires that “where alternative measurement 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”.

At the time of writing, this NMP does not identify alternative measurement points. If alternative measurement points are later required due to a change in property access conditions, they should be selected and justified as per the EPA requirement quoted above.

3.2.2 Operational Noise Measurement Procedures

Section 5 of the NCTP gives the complete procedure for noise measurements to determine compliance with the noise limits. A selection of key points is reproduced below. Where a conflict exists, any information or requirement specified within the NCTP shall take precedence.

3.2.2.1 Noise Data

The measurements shall be conducted in accordance with NZS 6808:2010, subject to the following project-specific procedural clarifications and requirements:

- The measurements shall comprise of unattended monitoring for the measurement durations defined in Section 3.2.3 of this report;
- The L_{A90} noise level shall be determined in consecutive ten-minute intervals synchronised with the interval commencing on the hour and each 10-minute increment following the start of each hour;
- All noise measurements shall be conducted using low noise floor (≤ 20 dB) instrumentation that is certified to Class 1 standards (highest standard of instrumentation for field measurements) in accordance with IEC 61672-1:2013 *Electroacoustics - Sound level meters - Part 1: Specifications*;
- The independent (laboratory) calibration date of the sound level measurement instrumentation must be within 2 years of the measurement period, as specified in Section 5.5 of Australian Standard AS 1055-1:1997 *Acoustics – Description and measurement of environmental noise – Part 1: General Procedures*;
- Microphones shall be fitted with enhanced wind shield systems (enlarged primary wind shields or secondary wind shields) designed on the basis of the guidance contained in the UK Institute of Acoustics publication *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*, dated May 2013 (the IOA GPG);
- Subject to the consent of the residents, two-minute uncompressed audio recordings shall be obtained for every ten-minute interval of the survey. The sampling rate for audio recordings shall be sufficient to allow assessment of tonality, if required, across the frequency range 10-5000 Hz;
- Instantaneous one-third octave band sound pressure levels (fast response) shall be recorded in 100 ms intervals to enable an analysis of amplitude modulation if required.

Further information about site observations is provided in Section 3.2.4.

3.2.2.2 Wind Data

Equipment to capture wind speed at the site should be selected to be configured as follows:

- Site wind speeds shall be collected in ten-minute intervals throughout the noise measurement period. The timing of each ten-minute interval shall be synchronised with the interval commencing on the hour and each 10-minute increment following the start of each hour;
- Measured site wind speeds shall be used to determine the wind speed at 93 m AGL¹ corresponding to free-field conditions (i.e. free from turbine wake effects) at the reference mast locations for each NSRLs (and any other reference mast locations used for additional background noise monitoring conducted prior to commencement of operation of the wind farm);
- Calculated wind speeds at 93 m AGL shall be determined using the procedures outlined in the IOA GPG *Supplementary Guidance Note 4: Wind Shear*, or an alternative method deemed appropriate by the wind engineer responsible for the supply of the data;
- Wind speeds may need to be measured at different locations for different wind directions in order to obtain data that is not influenced by the wake effects of upwind turbines (e.g. collection of wind data at upwind locations around the perimeter of the wind farm). Wind speeds measured at different locations will need to be translated to the wind speed at the reference mast locations (i.e. to determine the wind speed which would have been measured at the reference masts in the absence of the effect of the wind farm);
- All procedures used to determine 93 m AGL wind speeds at the reference mast locations shall be validated and documented by the wind engineer for the project

3.2.2.3 Other Data

The following additional data specifications are required:

- Local wind speeds: Wind speeds at 1.5 m AGL shall be measured in ten-minute intervals at a minimum of one measurement location during each stage of noise measurements. The use of enhanced wind shield systems shall be the primary method of addressing the potential for wind-induced extraneous noise across the measurement microphones. However, local wind speeds in the vicinity of the noise measurement systems shall be obtained to provide a secondary reference when reviewing the trends of the measured noise data;
- Rainfall: Rainfall shall be measured in ten-minute intervals at a minimum of one measurement location;
- Wind turbine operational data: The operational status of each turbine shall be recorded in ten-minute intervals and shall contain sufficient detail to differentiate whether a turbine was operating (including its mode of operation), available to operate, configured in an atypical mode of operation or shutdown; and
- Site records/observations: Site personnel shall be advised of the noise monitoring and shall be requested to record any observations with respect to atypical operations or noise levels (related to both the wind farm and ambient environment) which may influence the measurements. These observations, as well as any noise complaints independently recorded via the site's complaint handling and management system, shall be provided to the acoustic consultant. As a minimum, each record shall include details of the time, duration and location of the observation. The timing of each ten-minute interval for the above data shall be synchronised with the interval commencing on the hour and each 10-minute increment following the start of each hour.

¹ Reference wind speed height

3.2.3 Operational Noise Measurement Timing and Duration

Compliance measurements shall be conducted in two stages of monitoring for each measurement location. This requirement will reduce the risk of seasonal effects which can be present where monitoring occurs in a single measurement.

Each monitoring stage shall comprise a minimum of four weeks continuous noise logging, extended by up to four weeks if required to obtain sufficient data, accounting for the recommendations detailed in clauses 7.2.1 and 7.2.1 of NZS 6808:2010. Specifically, an extended monitoring period may be required to:

- Obtain data for wind speeds and conditions that are:
 - representative of the range generally expected at the wind farm site (long term wind speed and direction trends are provided in Appendix H for reference)
 - representative of the normal operating range of the turbines (the target minimum wind speed range is 3 m/s to 10 m/s at hub height, based on the notional wind speeds when the turbines commence operating and reach their maximum rated power)
- Address non-uniform distributions or a sparsity of noise measurement data in certain wind speeds or directions that may be consequential to the assessment outcome; and
- Address significant variations in measurement data which may be the result of seasonal factors or contaminating sounds, and which cannot be addressed with selective data filtering.

A preliminary analysis of the data may be required to assess the suitability of the collected data prior to completion of the monitoring.

3.2.3.1 Limitations

If significant data limitations remain evident after the surveys have been extended by four weeks, the merits of an additional survey extension shall be reviewed by the acoustic consultant responsible for conducting the testing. If further extensions are not considered to be warranted, the compliance assessment strategy for the location(s) in question shall be reviewed and the responsible authority consulted.

This program of monitoring has been selected to:

- Exceed the ten-day minimum survey duration stated in NZS 6808:2010;
- Enable data to be captured over a range of conditions during the first 12 months of the wind farm's operation; and
- Enable a final compliance report to be submitted to the Minister for Planning after a 12-month period following full operation of the facility, as required by Condition 25 of the Planning Permit.

Adhering to the program will be dependent on the consent of the landowners to access the noise measurement locations.

Details of the timing and scheduling of the attended observations that are to occur as part of the testing are provided in Section 3.2.4.

3.2.4 Special Audible Characteristics

The presence of Special Audible Characteristics (SACs) from wind farm noise emissions shall be reviewed. SACs include amplitude modulation, impulsiveness or tonality. If identified, an objective assessment of the sound's character shall be undertaken to determine suitable penalties applied to the measured noise levels.

3.2.4.1 Planning for Attended Observations

The identification of SACs shall be based on attended observations undertaken by a qualified acoustic engineer with experience in the assessment of wind farm.

Three sets of attended observations shall be undertaken during each stage of the monitoring as follows:

1. During deployment of the monitoring instrumentation;
2. During an interim visit to the site; and
3. During retrieval of the monitoring installation.

The following factors are to be considered in the planning for attended observations and site attendance:

- Locations: Observations are to be made at the compliance monitoring locations;
- Additional Locations: Observations shall also be undertaken at 100-300 metres away from the closest turbine to each compliance monitoring location;
- Access: Ensure access to the measurement locations/residential properties are granted;
- Operation: The wind farm must be operating at the time of the attended observations;
- Weather conditions: Site attendance must be made during suitable weather conditions for conducting wind farm observations. Suitable conditions are generally considered to be:
 - Winds between approximately 5 m/s and 10 m/s at the turbine hub-height;
 - Little or no rainfall;
 - Times when background noise levels are expected to be lower;
- Frequency: At least one set of attended observations per stage of monitoring shall be conducted during the night; and
- Duration: Each set of attended observations are to be conducted for at least ten minutes at a minimum of six locations around the wind farm, in the vicinity of the compliance monitoring locations. The minimum duration of the observations shall be increased to thirty minutes per observation location when the sound of the wind farm is clearly audible.

3.2.4.2 Subjective Assessment – Identification/Observation of SACs

Observations made near the turbines should primarily be used to identify tonal or impulsive sound emissions. This information will then guide the identification of potential SACs at the compliance monitoring locations.

Measured data and observations near the turbines shall not be used as the basis for applying SAC penalties. Observations shall also not be used as a reference for SACs specifically related to amplitude modulation. Amplitude modulation of audible sound near turbines generally relates to blade swish noise which is highly directional and therefore does not represent the type of sound which may be expected at compliance monitoring locations.

During each attended observation, and at all locations, audio samples shall be obtained to provide a record of the sound environment at the time of the inspection and provide a basis for further objective assessment if required.

3.2.4.3 Objective Assessment – Determination of Penalties

In accordance with NZS 6808:2010, the results of the subjective assessment made during the attended observations is the determining factor on whether to conduct an objective assessment.

Further, Appendix B1 of NZS 6808:2010 also states that subjective assessment can be sufficient in some circumstances to assess SACs.

If one or more SACs are identified during the attended observations, the identified SAC(s) shall be analysed using an objective assessment method.

Objective assessment methods may produce false positives and false negatives, particularly when large volumes of unattended measurement are analysed. This is expected as unattended measurements typically includes contribution from both related and unrelated wind farm sounds. It is important that the results of objective assessments are considered in conjunction with the findings of the subjective assessments. The results shall be used to assist the decision in applying penalties and their magnitude.

3.2.4.4 Assessment Procedure and Guidelines

The analysis procedures of the objective assessment for each identified SAC(s) area defined in Table 5

Table 5: SAC Objective Assessment Procedure Guidelines

SAC	Procedure Guidelines
Amplitude modulation ¹	UK Institute of Acoustics' Amplitude Modulation Working Group publication <i>Final Report - A Method for Rating Amplitude Modulation in Wind Turbine Noise Version 1</i> , dated 9 Aug 2016 (UK IOA AM procedure).
Impulsiveness ²	British Standard BS 4142:2014 <i>Methods for rating and assessing industrial and commercial sound</i> (BS 4142:2014).
Tonality ³	International Standard ISO 1996-2:2017 <i>Acoustics — Description, measurement and assessment of environmental noise — Part 2: Determination of sound pressure levels</i> (ISO 1996-2:2017) Narrow band method ⁴ : As defined in ISO 1996-2:2017 Annex J <i>Objective method for assessing the audibility of tones in noise — Engineering method</i> (Annex J).

Note 1: The procedure for amplitude modulation is specified in lieu of the interim procedure noted in Appendix B of NZS 6808:2010, consistent with the commentary in NZS 6808:2010 which indicates that more robust methods were expected to become available for amplitude modulation. Note that the UK IOA AM procedure does not define a method to determine the applicable penalty. Relevant guidance on determining the penalty in accordance with the UK IOA AM procedure is provided by the UK government commissioned research project "Review of the evidence on the response to amplitude modulation from wind turbines and the findings" documented in the report "Wind Turbine AM Review Phase 2 Report", dated August 2016 (the UK government AM review). The UK government AM review shall be referenced in determining the appropriate applicable penalty, unless updated more robust methods/research is published by the UK IOA.

Note 2: The procedure specified for impulsiveness has been selected in the absence of any defined procedure in either NZS 6808:2010 or ISO 1996-2:2017. The procedure documented in BS 142:2014 was derived from the NORDTEST publication "Acoustics: Prominence of impulsive sounds and for adjustment of L_{Aeq} " (NT ACOU 112).

Note 3: The procedure for tonality is based on Appendix B of NZS 6808:2010 which specifies narrow band tonality procedures as follows: "The reference method shall be that prescribed in Annex C to ISO 1996-2:2007 or an equivalent method."

Note 4: Given that ISO 1996-2:2007 was superseded, the narrow band tonality procedures documented in the updated version ISO 1996-2:2017 have been referenced as the appropriate "equivalent method" in accordance with NZS 6808:2010. Specifically, as per Annex J of ISO 1996-2:2017, tonal audibility levels are to be determined in accordance with ISO/PAS 20065:2016 "Acoustics - Objective method for assessing the audibility of tones in noise – Engineering Method" (ISO/PAS 20065:2016). The magnitude of the penalty, where applicable, are to be determined on the basis of Table J.1 in Annex J of ISO 1996-2:2017, using the tonal audibility level determined in accordance with ISO/PAS 20065:2017.

3.2.4.5 Assessment Application

The objective assessment shall be applied to the audio recording obtained during the attended observation in which one or more potential SACs were identified. The objective assessment shall be undertaken for the type of potential SAC which has been observed.

Additionally, if the observations/records provided by site personnel are indicative of potential SACs, an objective assessment shall be undertaken for the audio recording obtained during the corresponding period. The objective assessment shall be undertaken for the type of potential identified SAC as indicated by the records.

If the objective assessment indicates the presence of the SAC(s) at a level which warrants the application of a penalty, the objective assessment shall be carried out for the unattended audio records (where available) obtained from the unattended compliance monitoring.

If the objective assessment does not indicate the presence of the SAC(s) at a level which warrants the application of a penalty, the objective assessment may still need to be carried out for the unattended audio records (where available) to determine the potential for a penalty to be warranted at other times. In such instances, the acoustic engineer responsible for conducting the objective assessment shall determine the need for further investigation of the unattended audio records and shall document the determination in the reporting for the compliance assessment.

3.2.4.6 Assessment Limitations

Caution must be exercised when conducting objective assessment of unattended audio recordings.

Applying the objective assessment methods to the total sound of the wind farm and ambient environment will inevitably produce false-positives caused by sound sources that are unrelated to the operation of the wind farm (e.g. bird or insect noise).

Penalties shall only be applied when the wind farm is confirmed as the source of the identified character. Penalties are also strictly only applicable to the component of the sound that is solely attributable to the operation of the wind farm. The results of automated analysis of unattended audio recordings will therefore likely require the application of data filtering measures to remove false positives for periods with attributes that are most likely related to ambient sounds (e.g. tonality as a result of birds or insects).

In instances where there is uncertainty about whether penalties are warranted at the compliance monitoring locations, data or observations at intermediate locations, between the wind farm and the compliance monitoring locations, may be referenced, where available.

The absence of impulsiveness or tonality in the sound of the wind farm at intermediate locations is sufficient to conclude an absence of these SACs at receiver locations. However, due to the complex mechanisms associated with potential amplitude modulation, the assessment of amplitude modulation must always be undertaken at locations that are representative of the compliance monitoring locations.

3.3 Operational Noise Analysis

The analysis shall be conducted in accordance NZS 6808:2010, subject to the clarifications and project-specific requirements detailed in the following subsections.

3.3.1 Data Filtering

The measured noise data shall be reviewed to identify and filter periods of rainfall, extraneous noise and atypical wind farm operations.

3.3.1.1 Rainfall

Any ten-minute in which rainfall occurred shall be removed from the analysis. The measurement data shall also be reviewed to identify and filter periods following rainfall in which noise levels may be elevated as a result of wet roads or flow noise associated with local watercourses.

3.3.1.2 Extraneous Noise

The measured noise data shall be reviewed to identify and filter periods in which extraneous noise sources are identified. Extraneous noise sources include domestic machinery, agricultural operations, construction noise or elevated bird/frog/insect noise.

For each ten-minute sample, where high frequency extraneous noise is identified, the sample shall be filtered from the analysis when the following conditions² are satisfied³:

- The highest A-weighted one-third octave band noise level is greater than 1 kHz⁴; and
- The identified one-third octave band A-weighted noise level is greater than a level of 20 dB L_{A90} and is within 5 dB of the broadband A-weighted noise level.

² Griffin, D., Delaire, C., & Pischedda, P. (2013). Methods of identifying extraneous noise during unattended noise measurements. 20th International Congress of Sound & Vibration.

³ The same screening process was applied to the analysis of the background noise monitoring data for the LLWF.

⁴ The sound of a wind farm is unlikely to result in tones above 1 kHz (due to high levels of atmospheric sound absorption at frequencies above 1 kHz) and, in the unlikely event of such a tone occurring, is unlikely to dominate the level of a one-third octave band. However, the procedure shall not be used to remove any measurement sample where the identified one-third octave band corresponds to a frequency in which the attended observations have indicate the potential for tones related the operation of the wind farm.

3.3.1.3 Atypical Wind Farm Operation

The analysis shall be based on data obtained during periods that are representative of normal operating conditions of the wind farm.

The Supervisory Control and Data Acquisition (**SCADA**) power generation data records for each turbine for each ten-minute period shall be reviewed to identify any periods of atypical operation or shutdown and be excluded from the analysis.

A list of relevant turbines shall be established for each noise sensitive receiver location. For each noise sensitive receiver location, the noise contribution of each wind turbine shall be identified through the analysis of noise modelling results. Non-relevant wind turbines shall be identified where their collective predicted noise contribution at a noise sensitive receiver location is **10 dB** lower than the total predicted noise level from all wind turbines. As such, if any or all of the non-relevant turbines were to not operate during a given measurement period, the reduction in total noise generated from all wind turbines will be **0.5 dB** or less and would therefore be inconsequential to the assessment outcome.

As a minimum, any ten-minute period in which the relevant turbines are not available to generate power, or operate in an atypical mode of operation, shall be identified, and removed from the analysis.

It should be noted that the current NCTP stipulates that non-relevant wind turbines should be identified where their collective predicted noise contribution at a noise sensitive receiver location is **15 dB** lower than the total predicted noise level from all wind turbines. As such, if any or all of the non-relevant turbines were to not operate, the reduction in total noise generated from all wind turbines would be **0.1 dB** or less during a given measurement period. It has been challenging for LLWF to obtain the 1440 valid data points recommended by NZS 6808:2010 at some noise sensitive receiver locations under this methodology as almost all the turbines in LLWF are required to be operational during a given measurement period. A significant number of turbine outages for rectification and maintenance purposes are typically experienced during any measurement period. As such, the methodology in the NCTP is considered to be overly conservative and is superseded by the atypical wind farm operation assessment methodology provided in this NMP.

3.3.1.4 Review of Seasonal Variations

Seasonal variations can affect both the level of background noise and operational wind farm noise.

Any identified variations in the measured levels attributed to seasonal changes in background sound levels shall be filtered from the analysis, where possible. If the effect cannot be reliably filtered, and the effect is sufficient to preclude an assessment of the wind farm's compliance, supplementary procedures (see Section 3.3.4) or repeat measurements will be required.

Variations in Background Noise

The main potential sources of seasonal variations in background sound applicable to the area of influence are rainfall; insect and bird noise; local domestic plant such as air-condition or heating; and changes in domestic or agricultural activity in the vicinity of the monitoring location. Other sources of background sound variation may relate to changes in vegetation, wind direction and wind shear.

The data shall be reviewed to identify any anomalous trends indicative of significant seasonal variations. These types of effects may be identified as follows:

- Elevated noise levels at low wind speeds (0 to 3 m/s at hub height) relative to the data contained in the background noise report; or
- Striations in the data characterised by relatively constant levels across a range of wind speeds (e.g. domestic or agricultural machinery).

Variations in Wind Farm Noise

The main potential source of seasonal variation in wind farm noise levels is wind direction and speed.

The measured wind direction and speed shall be reviewed to determine whether the conditions were representative at the wind farm site, as presented from the long-term trend data provided in Appendix H. In particular, if upwind or crosswind conditions are identified not to be representative of the site, repeat measurements will generally be required.

In some cases, a sensitivity analysis or supplementary assessment may be sufficient to assess compliance without an extended survey. While NZS 6808:2010 is based on evaluating compliance for the aggregated measurement data for the range of conditions normally expected at the site, an analysis limited to data obtained under downwind conditions may be sufficient to demonstrate compliance. Additionally, the availability of limited data for high wind speeds may be addressed by referring to the wind turbine's manufacturer sound emission specifications in accordance with IEC 61400-11:2012 or measurement data at intermediation locations or alternate compliance monitoring locations.

Seasonal wind shear variations are a greater contribution to changes in background noise levels compared to wind farm noise levels. Wind shear should also be accounted for the assessment of SACs. Increased wind shear has the potential to lower background noise levels and to affect the sound characteristics of the wind farm. Therefore, attended observations must include periods when increased wind shear are expected.

3.3.2 Identification of Data Subsets

The measurement data shall be reviewed in accordance with NZS 6808:2010 to identify any distinctive trends or large variations in noise levels, described as data subsets. Subsets may be defined by wind direction, time of day or a combination of the two.

Identified subsets shall be assessed separately when comparing the measured noise levels with the compliance limits.

3.3.3 Adjustment for Background Noise Levels

The background noise levels documented in the background noise monitoring report (and any other background noise monitoring data obtained prior to commencement of operation of the wind farm) shall be used to adjust compliance monitoring results for the influence of background noise levels.

The adjustment shall be applied to the regression analysis of the compliance monitoring data, using the method described in clause 7.5.3 of NZS 6808:2010.

The tabulated background data to be used for this analysis is reproduced in Appendix I.

3.3.4 Supplementary Procedures

The data filtering and background noise adjustment procedures shall be used to reduce the influence of background noise levels. If the residual influence of background noise precludes a definitive assessment of compliance, supplementary procedures shall be used to reduce the uncertainty.

A supplementary analysis shall be undertaken by comparing data measured at the compliance monitoring locations during upwind and downwind conditions. Higher noise levels during downwind conditions are indicative of the results being influenced by the operation of the wind farm.

Conversely, comparable noise levels during upwind and downwind conditions are indicative of an environment dominated by the influence of sources not related to the operation of the wind farm.

If noise measurement data obtained at an intermediate location between the wind farm and the noise sensitive receptor is available, this may be used to inform an assessment of the wind farm at the compliance monitoring locations.

3.3.4.1 Intermediate Measurement Location

Intermediate locations shall generally be located:

- In the vicinity of the predicted 45 dB L_{A90} contour associated with the wind farm;
- At locations suitable for measuring conditions, representative of downwind propagation; and
- At locations accounting for all turbines that significantly contribute to the total wind farm noise levels at that noise sensitive receptor.

Noise measurement data obtained at intermediate locations shall be used as follows:

- Noise level versus wind speed profile: measured data shall be used to define the profile of the change in measured wind turbine noise levels with increasing wind speeds. This profile shall then be compared to the profile measured at the compliance monitoring location to determine if increasing noise levels at the receptor are attributable to the wind farm (i.e. the profiles at the intermediate and the compliance monitoring location are equivalent) or the influence of wind related background noise levels (i.e. the profiles at the intermediate and the compliance monitoring location are not equivalent);
- Data filtering: any ten-minute period in which the measured noise level at the noise sensitive receptor is higher than the simultaneously measured level at the intermediate location shall be considered background noise affected and may be removed from the analysis; and
- Extrapolation: measured data shall be extrapolated to the compliance monitoring location in accordance with the procedure documented in Section 11.2 of ISO 1996-2 *Acoustics — Description, measurement and assessment of environmental noise — Part 2: Determination of environmental noise levels* (ISO 1996-2:2017). The extrapolation shall be undertaken using the same prediction methodology for the pre-development noise report, subject to the addition of a 1 dB uncertainty margin to the predictions to account for variations in the tolerance of the calculations at intermediate and receptor distances.

The extrapolation of data measured at intermediate locations is consistent with current wind farm noise guidance in NSW⁵. The procedure may also be used to assess noise levels at other noise sensitive receptors where compliance monitoring has not been undertaken.

3.3.4.2 Limitations

If noise measurement data at an intermediate location is not available, an alternative assessment method will need to be defined. This may involve a targeted assessment of specific conditions (i.e. wind speeds and times of day) and consideration of additional measurements at a representative location where background noise levels are lower or on/off testing in accordance with the procedures defined in Section 7.7 of NZS 6808:2010. However, as noted in NZS 6808:2010, on/off testing of large wind farms introduces practical complications related to variations in power supply to the grid, and the problem of obtaining suitable wind conditions for noise assessment purposes at times when the power variation can be practically accommodated.

3.3.5 Application of SACs Penalty

If penalties for SACs are found to be warranted, the penalties shall be applied to the noise of the wind farm in accordance with NZS 6808:2010. The following aspects of the NZS 6808:2010 are clarified as follows:

- The penalties shall be applied to the individual ten-minute samples in which SAC(s) are identified, prior to conducting a regression analysis of the complete measurement data set;

⁵ NSW Government Planning & Environment Wind energy: Noise Assessment Bulletin For State significant wind energy development, dated December 2016

- A maximum penalty of +6 dB shall be applied for the presence of one or more SACs. The penalties do not apply cumulatively, consistent with *Clause 5.4.3 of NZS 6808:2010*;
- A fixed value penalty of +5 dB shall be added to the measured noise level when amplitude modulation and/or impulsivity are identified at levels that are sufficient to warrant the application of a penalty (consistent with *Appendix B4 of NZS 6808:2010*);
- A penalty of up to +6 dB shall be added to the measured noise level for tonality, the precise value being determined on the basis of *Table J.1 in Annex J of ISO 1996-2:2017*, using the tonal audibility level determined in accordance with *ISO/PAS 20065:2017*.

3.3.5.1 Identification of False Positives (Unattended Data)

If penalties are applied to the unattended noise measurement data based on analysis of audio recordings, caution must be applied to avoid the application of penalties as a result of false-positive results from objective assessment methods.

In instances where the objective assessment identified a potential SAC but was not observed, penalties are not applicable to that individual measurement sample. For example, tones may be identified in the data at frequencies which are not expected or observed from the normal operation of the wind farm. Data filtering and investigation are recommended to be conducted when applying SAC related penalties, typically for unattended noise measurement data.

The assessment method in NZS 6808 is primarily based on regression analysis of the relationship between noise levels and wind speeds. However, if SACs are identified at a specific range of wind speeds, a binned analysis of the penalty adjusted data for the relevant wind speeds shall be carried out for informative purposes only.

3.4 Operational Noise Reporting

Noise compliance reports shall be submitted to the EPA within six weeks of completing each stage of the compliance monitoring. The reporting shall adhere to the documentation requirements detailed in *Section 8.3 of NZS 6808:2010*, and shall include the following:

- Supporting documentation for the site wind speed data referenced in the compliance assessment;
- Charts illustrating the noise measurement results shall clearly identify all samples that have been filtered from the analysis due to rainfall or the identification of extraneous noise influences. The analysis shall be supplemented by a summary table for each noise monitoring location detailing the total number of measurements points, the number of points that have been removed, and the final number of valid analysis data points;
- Full details of all attended observations conducted for the purpose of identifying SACs; and
- Full details of any adopted supplementary procedures as part of conducting the compliance assessment.

As per the EP Regulations (131F), an annual statement must be prepared detailing actions to ensure compliance starting from 1st July 2022. This is to be delivered to the EPA within three months of the end of each financial year.

In addition, EP Regulations (131G) requires that noise monitoring must be conducted every five years, from 1st January 2024.

3.5 Organisational Environmental Strategy

The windfarm operator is responsible to ensure that the NMP is implemented by suitably qualified and experienced experts. The implementation of the operational noise compliance testing will involve a number of organisations with their roles and responsibilities summarised in Table 6.

Table 6: Organisations and Responsibilities

Organisation	Responsibility
Lal Lal Wind Farms Nom Co Pty Ltd	■ Commissioning the relevant organisations as follows: – Acoustic consultant; – Wind engineering consultant; and – EPA accredited auditor. ■ Liaising with residents to obtain permission to conduct the compliance monitoring; ■ Supply of the wind farm's operating records for the duration of the compliance surveys.
Acoustic consultant	■ Conducting testing, analysis and reporting in accordance with the planning permit and the EP Regulations; and ■ Preparing supplementary information for submission to the Minister for Planning in any instances where a deviation from the NCTP is found to be required (e.g. in relation to accessible survey locations or the survey duration).
Wind engineering consultant	■ Verify the sources of wind data to be referenced in the compliance monitoring, prior to the commencement of the noise surveys; ■ Supply of preliminary wind speed data sets prior to completion of each stage of measurements (primarily for assessing the adequacy of conditions during the survey period); ■ Supply of the assessment wind speed data sets, comprising hub height wind speed data that is representative of wake-free conditions at the reference mast locations; and ■ Supply of a statement for inclusion in the operational noise compliance reports detailing all measurement and analysis procedures used to synthesise the assessment wind speed data set.
EPA accredited auditor	■ Review of the NMP to determine whether it meets the requirements of the EP Act and EP Regulations; and ■ Review compliance reports to determine whether the testing, analysis and reporting was undertaken in accordance with planning permit and the endorsed NCTP.
Minister for Planning	■ Endorsement of the NCTP; ■ Determine whether the planning permit requirements have been addressed.
EPA Victoria	■ Review this NMP as required ■ Request amendments to the NMP if required ■ Review the annual statement described in Section 3.4 ■ Review five-yearly compliance and auditor's reports

4. COMPLAINT MANAGEMENT PLAN

4.1 Preamble

This chapter establishes the Complaint Management Plan (CMP) in accordance with the requirements of 131E(5)(d) of the EP Regulations. The CMP is designed in accordance with the Australian/New Zealand Standard AS/NZS 10002:2014 – *Guidelines for complaint management in organisations*.

This chapter is adapted from the NCIRP (Lal Lal Wind Farms Nom Co, 2019), which was prepared to the satisfaction of the Minister for Planning.

4.2 Noise Complaint Investigation and Response Plan Standard Reference

Complaints will be managed in accordance with the Australian/New Zealand Standard AS/NZ 10002:2014- Guidelines for complaint management in organisations. Lal Lal Wind Farms will implement and comply with the NCIRP for the duration of the operation of the wind energy facility.

4.3 Procedures for Receiving, Investigating and Responding to Complaints

A complaints process involves receiving, responding to, and addressing complaints received by the project stakeholders and the community. LLWF will receive and respond to noise complaints according to the procedures set out in Figure 3.

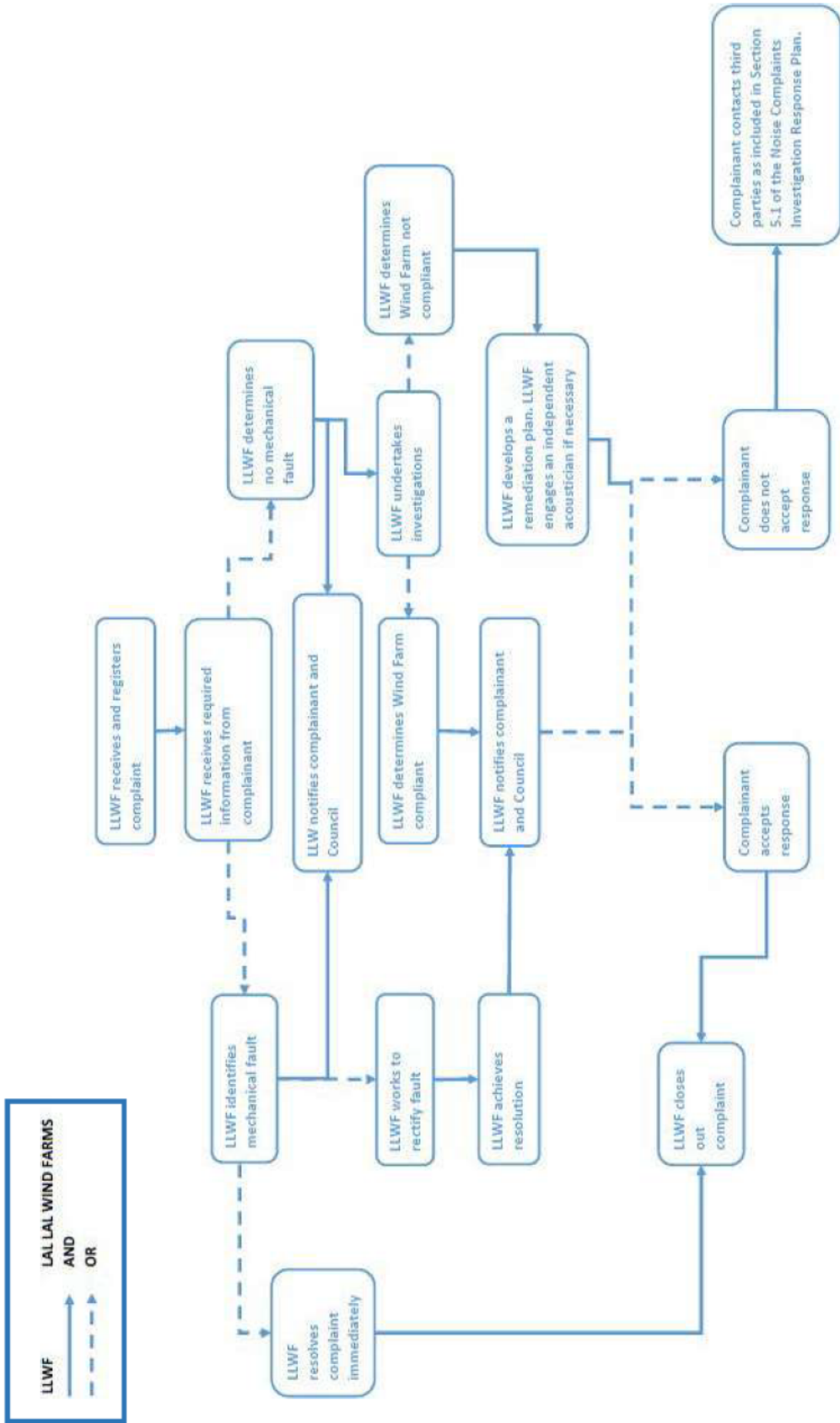


Figure 3: Complaints Investigation and Response Procedures

4.3.1 Receipt of Noise Complaints

4.3.1.1 Lodging a Complaint with Lal Lal Wind Farms

It is recommended that Lal Lal Wind Farms be contacted in the first instance to seek to resolve any noise issues. Noise complaints can be lodged by:

- Phone: by calling the freecall 24/7 community hotline on 1800 187 183
- Email: by contacting project staff on info@lallalwindfarms.com.au
- In person: by visiting the Buninyong Information Centre at 408 Warrenheip St, Buninyong VIC 3357 (Monday, Wednesday and Friday, 8.30am to 12.30pm)
- On the Lal Lal Wind Farms Website at www.lallalwindfarms.com.au/contact/

4.3.1.2 Escalating a Complaint Internally with Lal Lal Wind Farms

Complaints can be escalated internally to the Lal Lal Wind Farms Asset Manager. Contact details of the Asset Manager can be provided upon request. It is recommended that the complaint is escalated internally with Lal Lal Wind Farms prior to seeking a resolution from third parties.

4.3.1.3 Lodging a complaint with Moorabool Shire Council

Moorabool Shire Council is the responsible authority for administration and enforcement of the Planning Permit. Contact can be made through the following options:

- Website: www.moorabool.vic.gov.au/
- Phone: 5366 7100
- Email: info@moorabool.vic.gov.au

4.3.1.4 Lodging a complaint with other government departments

The following government departments can assist with noise complaint resolution:

- Environment Protection Authority
 - Website: <https://www.epa.vic.gov.au/get-involved/report-pollution>
 - Phone: 1300 372 842
 - Email: contact@epa.vic.gov.au
 - Post: GPO Box 4395 Melbourne Victoria 3001

EPA Victoria is the primary regulator for wind farm turbine noise, for both new and existing facilities.

- Australian Energy Infrastructure Commissioner
 - Website: <http://www.aeic.gov.au/>
 - Email: aeic@aeic.gov.au
 - Post: PO Box 24434 Melbourne VIC 3001
 - Phone: 1800 656 395
- Department of Environment Land Water and Planning (DEWLP)
 - Website: <https://www2.delwp.vic.gov.au/>
 - Phone: 136 186
 - Online: <https://www2.delwp.vic.gov.au/our-department/contact-us>
 - Post: P.O Box 500 East Melbourne VIC 8002

Pursuant to Condition 26 of the Planning Permit, the Minister for Planning may request an independent peer review and on/off shut down testing to resolve uncertainty if a complaint is not resolved.

4.3.1.5 Noise Complaints Received by Third Parties

If a complaint is received from Moorabool Shire Council, DELWP or the EPA or any other organisation or individual, Lal Lal Wind Farms will consult to obtain additional information regarding the noise complaint by liaising with the abovementioned third parties as required. If the noise complaint relates to the operations of Lal Lal Wind Farms and the complainant consents for Lal Lal Wind Farms to investigate, then the complaint will be registered and investigated in accordance with the procedure outlined in Figure 2. If the noise complaint does not relate to the operations of Lal Lal Wind Farms, then the complaint will not be registered by Lal Lal Wind Farms and will be referred back to the third party for resolution.

4.3.2 Timing of Responses to Complaints Received

Lal Lal Wind Farms will investigate noise enquiries and complaints in a timely manner. Noise complaints will be registered within 2 working days of receipt of all information necessary to commence an investigation, and contact will be made with the complainant during that time frame to organise a meeting. Complaints will not be progressed if a meeting at the noise receptor cannot be arranged. A complaints form can be found on the Lal Lal Wind Farms website.

Council will be notified of all investigation outcomes in relation to noise complaints.

If the noise issue is due to a mechanical fault, the Complainant will be notified and works will be undertaken to rectify the matter. The complainant will be updated daily on the progress of the works until a resolution is achieved.

Where the source of the complaint is not deemed to be a mechanical fault then a further investigation will be carried out in accordance with Section 5.5 below. If any of the turbines are found not to be operating in accordance with the operational modes under which Noise Compliance Testing was carried out, then a remediation plan will be implemented as soon as possible. The complainant will be updated on a daily basis until the plan has been implemented.

Investigations may require:

- Visits to the complainant's property.
- Consulting internal staff or contractors, including senior management when required.
- Examination of Wind Farm SCADA data to determine compliance with the operational noise limits or for evidence of any maintenance issue or mechanical defect.
- Further noise monitoring in some cases.
- Contacting external stakeholders.

Lal Lal Wind Farms will endeavour to investigate and close out a complaint after acknowledgement. However, when this is not possible, Lal Lal Wind Farms will notify the complainant that further time is required and provide the complainant with regular updates on progress to resolution.

4.3.3 Complaint Documentation Procedure

Details of the noise complaint will be recorded in the Incidents Register as shown in Table 7 below and in the stakeholder database Consultation Manager (or an equivalent), with each complaint being allocated an incident number. The complaints documentation procedure will include a set of standardised information to ensure an efficient and succinct process.

The following details will be recorded in the incidents register:

- Allocation of a unique reference number;

- Name(s) of person or people lodging the noise complaint (including contact details of any referral body);
- Address and location of the dwelling including property reference if applicable;
- Whether the noise complaint is under the jurisdiction of Lal Lal Wind Farms;
- Distance of the location of the dwelling from nearest turbine;
- Details of how best to contact the person lodging the complaint;
- The time and date of when the complaint was lodged;
- Whether the wind farm was operating at the time of the complaint;
- Noise complaint description;
- Times and dates of the noise;
- Description of the noise noting if special characteristics are involved (tones, impulses, grinds, bangs etc);
- Does the noise relate to the operations of the wind farm?
- Does the noise relate to the operation of the wind farm under certain weather conditions?
- Details of the investigation and outcome;
- Details of the response; and
- Name of person managing the investigation.

It is important to note that the personal details of complainants will only be made available to those involved in the resolution of the complaint in question.

Stakeholders will have the option to lodge an anonymous complaint. Complainants will be made aware that it will not be possible for Lal Lal Wind Farms to follow up on anonymous complaints. Anonymous complaints will be logged and reported with other complaints to understand potential issues and trends, and to facilitate continuous improvement.

A Formal Complaints Form has been developed to support the collection of complaints and is included in Appendix J.

4.3.4 Noise Complaint Incidents Register

Noise complaints will be documented in the Incidents Register and in Consultation Manager, as shown in Table 7. The incident register, which also captures the response process, will be made available to the Minister for Planning upon request.

Table 7: Incidents Register, Noise Complaints

Receipt number	Date and time	Name	Property reference	Property address	Contact details	Weather conditions, prevailing conditions including SACs	Complaint Description including audible characteristics)	Investigation Process and Outcomes	Response Action	Actioned by/ Date of Completion/ Complainant Satisfaction/ Link to associated docs

4.3.5 Noise Complaint Investigation Procedures

Lal Lal Wind Farms will investigate the noise complaint in the following manner:

- Determine whether the wind farm was operating at the time of the complaint. If the wind farm was not operating, the site will be visited to explore what the noise source is.
- Determine if the noise issue is related to a maintenance or mechanical fault.
- Proceed according to the timeframes provided in Section 4.3.2 and the grievance mechanism included in Table 7.

Where the noise complaint is not related to a maintenance issue or mechanical defect, Lal Lal Wind Farms will undertake the following investigations:

- Details of the complaint will be recorded in the complaints register. The details and outcomes of the below-mentioned investigations will be discussed with the complainant.
- The operational status of the turbines will be checked to ensure compliance with the Noise Management Strategy.
- The weather conditions at the time of the complaint will be recorded and if applicable so will any potential change in local conditions that may result in modified results such as changes in vegetation or installation of new noise sources such as pumps or air conditioners.
- Where the turbines are found to be operating in accordance with the Noise Management Strategy a summary of these investigations will be provided to the complainant and no further action will be taken.
- Where any turbines are found not to be operating in accordance with the Noise Management Strategy then, a remediation plan will be drawn up and operations shall be modified accordingly and a summary of the above investigations and actions shall be provided to the complainant.
- Where it is deemed that special audible characteristics are present (e.g. tones, impulsiveness, excessive modulation) and the predicted noise levels, including any penalty, would indicate that there is the potential for a breach of permitted noise levels then an investigation will be undertaken by a qualified independent acoustician. Where the investigation demonstrates a breach of permitted noise levels then a remediation plan will be produced and implemented in accordance with the timescales outlined in this plan and to the satisfaction of the Minister for Planning.

The applicable noise limits in accordance with NZD 6808:2010 are defined as 40 dB LA90 or the background noise level plus 5dB, whichever is greater. If special audible characteristics are shown to be present then a penalty of up to 6dB(A) may also be added.

4.3.6 Addressing Complex Complaints

Complex complaints are those that relate to the same issue and requires a lengthy investigation process to ascertain the noise and the source of the complaint.

All steps will be undertaken as detailed above to resolve the complaint and if necessary a case management approach will be adopted.

4.3.7 Informing the Community about the Noise Complaint and Investigation Response Plan

A variety of methods will be used to ensure that stakeholders are aware of the avenues for lodging a complaint. Details will be placed in the following locations throughout construction and operation:

- Local newspapers;
- Moorabool Shire Council office;

- Community bulletins;
- Signage at the main entrance to the project site which will be visible to the public; and
- Project website.

An outline of Lal Lal Wind Farm's general approach to management of noise complaints will be provided to the community and this will include information about:

- Where noise complaints can be lodged;
- How noise complaints can be made;
- When complaints can be made;
- Timeframes for acknowledgment and resolution of complaints;
- Information to be provided to the complainant;
- How the outcomes of investigations will be reported back to complainants; and
- The contact details of the relevant government agencies or authorities.

4.3.8 Roles and Responsibilities

Lal Lal Wind Farms Community Engagement Manager (LLWF CEM) is accountable for ensuring all complaints are managed in accordance with this Plan. LLWF CEM will be assisted by other nominated personnel as required.

The principal responsibilities of the LLWF CEM will be to:

- Inform stakeholders about the complaints process. It will be important that stakeholders are aware and can readily access the process;
- Record stakeholder complaints (both verbal and written) and seek resolution within the specified time periods;
- Maintain contact with the third parties receiving complaints to determine whether noise complaints have been lodged in relation to the operation of Lal Lal Wind Farms;
- Maintain regular contact with complainants and other stakeholders during the investigation process;
- From time to time, review the complaints received to assess any reoccurring issues to support continual improvement; and
- Prepare the compliance reports.

4.4 Annual Reporting to Minister

An annual report will be provided to both the Minister for Planning and the EPA Victoria including a reference map of complainant locations, investigation process and remediating actions.

This annual report will include the following information:

- An outline of noise complaints received during the 12 month period;
- Complainant locations outlined on a map;
- Investigative actions undertaken to resolve the noise complaint;
- The remediating actions undertaken in response to the complaint investigation; and
- Any additional information relating to the complaint investigation and response process.

5. NOISE REMEDIATION PLAN

There is an on-going requirement for to comply with the noise limits provided in Section 3.1. If non-compliance of the noise limits is detected, or if an acoustic investigation is required, the Planning Permit requires that a noise assessment report shall be prepared by an independent acoustic engineer. In addition, a Noise Remediation Plan (**NRP**) must be prepared to rectify the non-compliance.

The NRP must be prepared to the satisfaction of the Victorian Department of Land, Water and Planning (**DELWP**). If a complaint or non-compliance is not resolved, DELWP may request for an independent peer review and/or an independent assessment at any time where complaints are received and are considered to warrant investigation.

There shall be annual reporting of a reference map of compliant locations, investigations, and remediation actions. There shall be a commitment to keep a register of complaints and responses for the duration of the wind farm's operating life and this register must be made available to DELWP on request.

6. SITE INSPECTION, MAINTENANCE AND TRAINING

Site inspection and maintenance procedures (including inspection frequency) are provided in two documents:

- For wind turbines: Lal Lal Wind Farm Operations and Maintenance Manual (Vestas, 2020); and
- For Balance of Plant (BOP): Lal Lal Wind Farm Operations and Maintenance Manual (Zenvion, 2019).

Inadequate maintenance of turbines may produce unreasonable levels of noise. Where normal maintenance of wind turbines and BOP does not rectify a noise issue, the noise issue will be identified in accordance with Section 3 and Section 4 of this NMP. If an investigation is required, a NRP should be produced as per Section 5.

Training for technicians working on-site includes extensive training in the above-mentioned Operations and Maintenance Manuals. While the training is not noise-specific, rectification of any mechanical problems affecting the normal operation of the turbines may also result in the rectification of noise issues, as mechanical deterioration is the most likely reason for existing turbines to produce increased noise.

The general site induction for Lal Lal Wind Farm (Vestas, 2019) includes training for all staff in their environmental duty of care.

7. RISK ANALYSIS

A risk analysis for noise is included in Appendix B, Section 5.2 of the EMP, and is included as Appendix J to this NMP.

The analysis is based on a likelihood/consequence matrix. It concludes that the residual risk for noise is 'Medium', and for vibration is 'Low'.

As no significant changes to the Project have been identified since the risk analysis was conducted previously, it is expected that the current level of risk is unchanged.

8. REFERENCES

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- Jacobs. (2018a). *Yendon Wind Farm Environmental Management Plan (IS211300_RPT_EMP_Y | E)*. Melbourne: Jacobs.
- Jacobs. (2018b). *Elaine Wind Farm Environmental Management Plan (IS211300_RPT_EMP_E | E)*. Melbourne: Jacobs.
- Lal Lal Wind Farms Nom Co. (2019). *Noise Complaint Investigation and Response Plan*.
- Marshall Day Acoustics. (2018). *Lal Lal Wind Farm Background Noise Monitoring - Report No.001 R01 20170649*.
- Marshall Day Acoustics. (2018). *Lal Lal Wind Farm Noise Compliance Test Plan - Report No: 003 R03 20170649*.
- Marshall Day Acoustics. (2022). *Lal Lal Wind Farm Noise Compliance Test Plan - Report No: 003 R05 01Draft 20170649*.
- Vestas. (2019). *ANZ General Site Induction Lal Lal Wind Farm (T03 0051-8450 Ver 03)*.
- Vestas. (2020). *Operations and Maintenance Manual - Document No. SP-45906-PM-LIST-0013 Rev - V01*.
- Victorian Legislation. (2021). *Environment Protection Amendment (Interim) Regulations 2021*.
- Victorian Legislation. (2022). *Exposure Draft - Environment Protection Amendment Regulations 2022*.
- Victorian Legislation. (n.d.). *Environment Protection Act 2017*. Retrieved from <https://www.legislation.vic.gov.au/in-force/acts/environment-protection-act-2017/004>
- Zenviron. (2019). *Lal Lal Wind Farm Operations and Maintenance Manual - Zenviron Document: ZX 104-10m-0001(0)*.

APPENDIX A GLOSSARY

Term	Definition
CMP	Complaints Management Plan
dB	Decibel, a derived unit used to express values on a logarithmic scale. In acoustics, the dB scale is used to measure sound pressure and sound power levels, each of which are related to a standard reference point to allow comparison between measurements.
DELWP	Department of Environment, Land, Water and Planning
EP Act	Environment Protection Act 2017 (as amended by the EP Amendment Act 2018 – commenced on 1 July 2021)
EP Regulations	Environment Protection Regulations 2021, Authorised Version No. 006 (S.R. No. 47/2021). Authorised Version incorporating amendments as at 10 November 2021
L ₉₀	The noise level exceeded for 90% of the monitoring time period and indicates the average minimum noise level. The L ₉₀ is referred to as the background noise level.
L _% ,T	The noise level exceeded for a specified % of the time period T.
NCIRP	Noise Complaint Investigation and Response Plan
NCMP	Noise Complaint Management Plan
NCTP	Noise Compliance Test Plan
NMP	Noise Management Plan
NRP	Noise Remediation Plan
NSRL	Noise Sensitive Receiver Locations
NZ Standard (2010)	NZ Standard (2010) New Zealand Standard Acoustics – Wind farm noise, NZS6808:2010
Original Regulations	Environment Protection Amendment (Wind Turbine Noise) Regulations 2021
SAC	Special Audible Characteristics - These characteristics include tonality, amplitude modulation, and impulsivity and generally make noise more noticeable and/or annoying.
WEF	Wind Energy Facility
VPP	Victoria Planning Provisions

APPENDIX B LAL LAL WIND FARM DESCRIPTION

B1 Overview

The Lal Lal Wind Farm is a consented project located in the Moorabool Shire, approximately 17 km southeast of Ballarat, Victoria.

Planning Permit No. PL-SP/05/0461-2 as amended 27 September 2018 allows for the use and development of a wind energy facility comprising a maximum of sixty (60) wind turbines, subject to a set of conditions relating to matters including environmental noise levels.

The Lal Lal Wind Farm turbine layout extends over an area spanning approximately 19 km from north to south and 7 km east to west.

B2 Wind turbine model

Table 7: Proposed wind turbines

Detail	Turbine model
Rotor diameter	136 m
Hub height	93 m
Blade orientation	Upwind
Turbine regulation method	Variable blade pitch
Maximum rated power generating capacity	3.6 MW
Cut-in wind speed (hub height)	3 m/s
Rated power wind speed (hub height)	12 m/s
Cut-out wind speed (hub height)	22.5 m/s

APPENDIX C TURBINE COORDINATES

The following table sets out the coordinates of the sixty (60) turbine layout of the Lal Lal Wind Farm (Rev. 11 layout supplied by Lal Lal Wind Farms Pty Ltd on 17 January 2018).

Table 8: Lal Lal Wind Farm turbine coordinates – MGA 94 zone 55

Turbine	Easting	Northing		Turbine	Easting	Northing
ESWT01	233512	5817821		YSWT10	236427	5832689
ESWT02	233856	5818204		YSWT11	236867	5832295
ESWT03	234084	5817161		YSWT12	237362	5832449
ESWT04	234368	5817513		YSWT13	237778	5832435
ESWT05	234648	5817731		YSWT14	237721	5831776
ESWT06	235028	5817842		YSWT15	237577	5831353
ESWT07	236515	5818378		YSWT16	238475	5832492
ESWT08	236876	5818621		YSWT17	238318	5832069
ESWT10	234101	5815965		YSWT18	238663	5831739
ESWT11	234393	5816255		YSWT19	238151	5831503
ESWT12	234695	5816555		YSWT20	237011	5830822
ESWT13	234979	5816876		YSWT21	236257	5830315
ESWT14	234744	5815988		YSWT22	236743	5830314
ESWT15	235337	5816007		YSWT23	236485	5829872
ESWT16	236922	5817477		YSWT24	236209	5829620
ESWT17	236699	5816524		YSWT25	237009	5829643
ESWT18	236972	5816736		YSWT26	235970	5829179
ESWT19	237212	5817071		YSWT27	236860	5829275
ESWT20	237353	5817401		YSWT28	235952	5828802
ESWT21	237536	5817719		YSWT29	236579	5828800
ESWT23	233785	5815068		YSWT30	237553	5830953
ESWT24	233928	5815408		YSWT31	237935	5831086
YSWT01	235749	5834082		YSWT32	239245	5831116
YSWT02	236335	5834001		YSWT33	237473	5830494
YSWT03	237895	5834026		YSWT34	238063	5830698
YSWT05	237479	5833611		YSWT35	238489	5830840
YSWT06	237758	5833776		YSWT36	239624	5830764
YSWT07	236374	5833239		YSWT38	239378	5830392
YSWT08	236947	5833151		YSWT39	240083	5830399
YSWT09	237383	5833222		YSWT40	239743	5830020

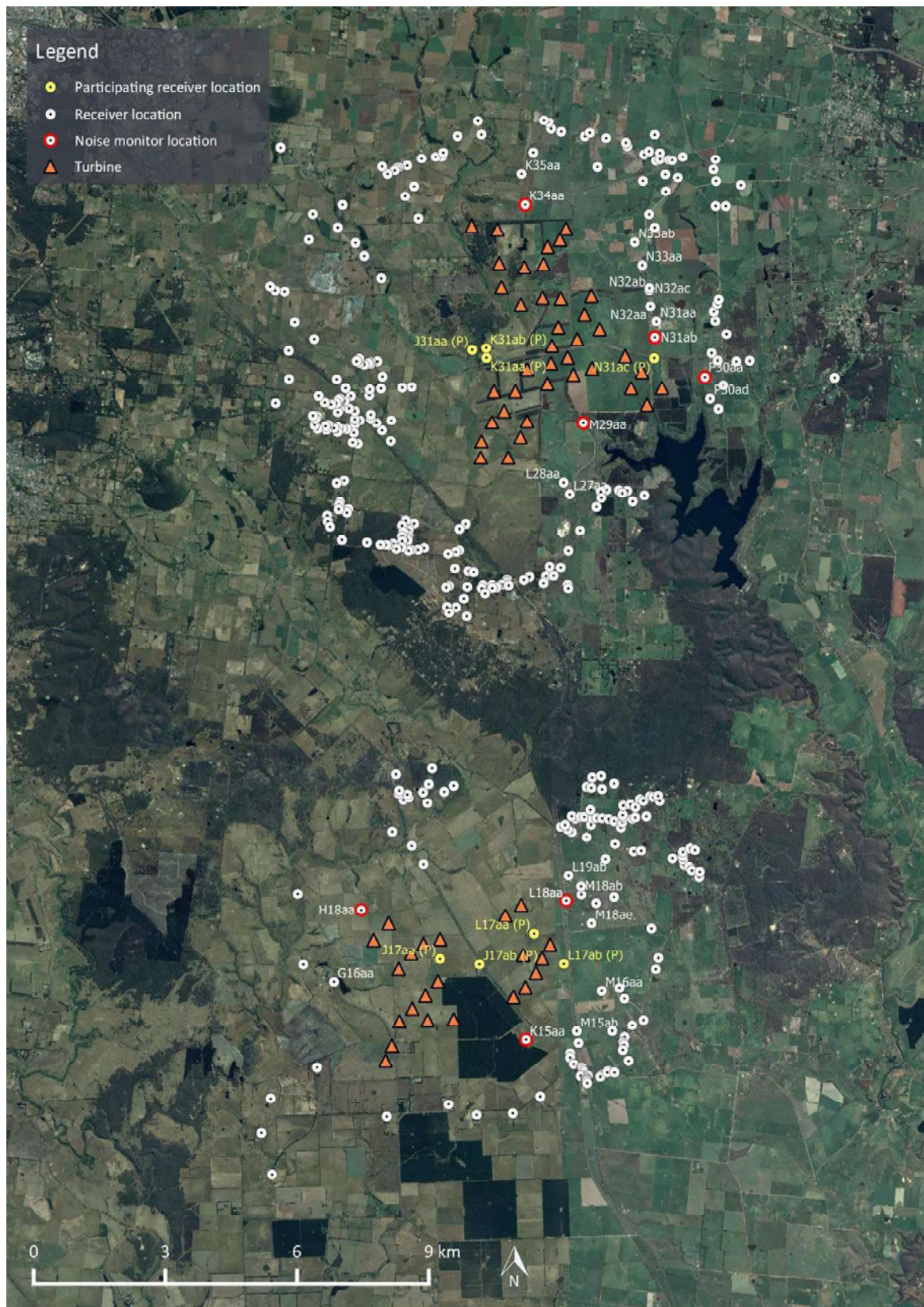
APPENDIX D RECEIVER COORDINATES

The following table sets out the coordinates of the noise sensitive receiver locations considered in the preparation of the Lal Lal Wind Farm NCTP, where wind farm noise levels have been predicted at or above 35 dB LA90.

Table 9: Lal Lal Wind Farm – noise sensitive receiver locations – MGA 94 zone 55

Receiver ID	Easting	Northing	Distance to the nearest turbine (m)
G16aa	232610	5816865	1,318
H18aa	233207	5818510	723
J17aa (P)	235026	5817386	465
J17ab (P)	235924	5817263	1,025
J31aa (P)	235760	5831259	1,071
K15aa	236990	5815534	1,036
K31aa (P)	236084	5831076	786
K31ab (P)	236079	5831300	1,005
K34aa	236976	5834575	865
K35aa	236884	5835273	1,388
L17aa (P)	237170	5817965	450
L17ab (P)	237848	5817275	519
L18aa	237913	5818705	1,044
L19ab	237955	5819290	1,273
L27aa	237982	5827972	1,632
L28aa	237842	5828237	1,386
M15ab	238142	5815735	1,542
M16aa	238711	5816662	1,549
M18ab	238248	5818860	1,348
M18ae	238478	5818196	1,060
M29aa	238304	5829565	1,162
N31aa	239957	5831913	1,073
N31ab	239934	5831553	821
N31ac (P)	239908	5831068	426
N32aa	239820	5832252	1,269
N32ab	239795	5832616	1,329
N32ac	239798	5832667	1,338
N33aa	239635	5833198	1,361
N33ab	239461	5833716	1,574
P30aa	241059	5830668	1,016
P30ad	241181	5830156	1,128

APPENDIX E SITE LAYOUT PLAN



APPENDIX F PLANNING PERMIT – NOISE CONDITIONS

The following noise related conditions are defined in Planning Permit No. PL-SP/05/0461-2 as amended 27 September 2018.

PLANNING PERMIT

Permit No.: PL-SP/05/0461-2

Moorabool Planning Scheme

**Responsible Authority for Administration and
Enforcement of this permit: Moorabool Shire
Council**

ADDRESS OF THE LAND:

Land in Yendon, described as:

Volume 3393 Folio 558 - Lots 1,2,3,4,5 and 6 on title plan 899344L
(formerly known as part of Crown Allotment 15, part of Crown
Allotment 16, part of Crown Allotment 17, part of Crown Allotment 43,
Crown Allotments 44 and 47, Parish of Buninyong);
Volume 4801 Folio 184 – Crown Allotment 16A Parish of Buninyong;
Volume 10242 Folio 563 Crown Allotment 1 Section 9 Parish of Lal Lal;
Volume 10242 Folio 564 Crown Allotment 2 Section 9 Parish of Lal Lal;
Volume 10242 Folio 565 Crown Allotment 3 Section 9 Parish of Lal Lal;
Volume 10242 Folio 566 Crown Allotment 1 Section 6 Parish of Lal Lal;
Volume 10242 Folio 567 Crown Allotment 2 Section 6 Parish of Lal Lal;
Volume 10242 Folio 568 Section 3 Parish of Lal Lal;
Volume 10242 Folio 569 Portion 7 Parish of Lal Lal;
Volume 10514 Folio 926 Lot 1 on title plan 017451J (formerly known as
Section 5 Parish of Kerrit Bareet);
Volume 10514 Folio 927 Section 6 Parish of Kerrit Bareet;
Volume 10514 Folio 928 Section 41 Parish of Kerrit Bareet;
Volume 10514 Folio 929 Section 42 Parish of Kerrit Bareet;
Volume 10514 Folio 930 Section 43 Parish of Kerrit Bareet;
Volume 10514 Folio 931 Crown Allotment 1 Section 2 Parish of Lal Lal;
Volume 10514 Folio 932 Crown Allotment 2 Section 2 Parish of Lal Lal;
Volume 10514 Folio 933 Crown Allotment 3 Section 2 Parish of Lal Lal;
Volume 10514 Folio 934 Crown Allotment 4 Section 2 Parish of Lal Lal;
Volume 10514 Folio 935 Crown Allotment 1 Section 4 Parish of Lal Lal;
Volume 10514 Folio 936 Crown Allotment 2 Section 4 Parish of Lal Lal;
Volume 10514 Folio 937 Crown Allotment 3 Section 4 Parish of Lal Lal;
Volume 10514 Folio 938 Crown Allotment 1 Section 5 Parish of Lal Lal;
Volume 10514 Folio 939 Crown Allotment 2 Section 5 Parish of Lal Lal;
Volume 10537 Folio 552 Crown Allotment 8 Parish of Kerrit Bareet;
Volume 10537 Folio 553 Crown Allotment 7 Parish of Kerrit Bareet;
Volume 10537 Folio 554 Crown Allotment 8A Parish of Kerrit Bareet;
Volume 06772 Folio 368 Crown Allotments 48A, 48B, 49A, and 49B
Parish of Kerrit Bareet;
Volume 09739 Folio 012 Crown Allotments 48A, 48B, 49A, and 49B
Parish of Kerrit Bareet;
Crown Allotment 24B Section 6A Parish of Buninyong;
Crown Allotment 43A Section 6A Parish of Buninyong;
Closed road between Powerline Lane and Yendon-Egerton Road
(granted in lieu of land acquired from [out of scope] for new
road);
Crown land vested in Council for Harris Road, Spreadeagle Road,
Duggans Lane, McIntoshs Road and Portland Flat Road;
Crown Land vested in Council for Yendon-Egerton Road.

Land in Elaine, described as:

Volume 01705 Folio 980 Crown Allotments 45 and 45A Parish of Narmbool;
Volume 07646 Folio 037 Crown Allotments 46 and 48 Parish of Narmbool;
Volume 01030 Folio 934 Crown Allotment 47 Parish of Narmbool;
Volume 05217 Folio 381 Crown Allotments 15A and 16A Parish of Narmbool;
Volume 00998 Folio 594 Crown Allotment 1A Parish of Narmbool;
Volume 01342 Folio 274 Crown Allotment 1B Parish of Narmbool;
Volume 00424 Folio 612 Crown Allotment 41A Parish of Narmbool;
Volume 01522 Folio 355 Crown Allotment 41H Parish of Narmbool;
Volume 08530 Folio 949 Crown Allotment 11B Parish of Narmbool;
Volume 08955 Folio 515 Lot 1 Title Plan TP439919D;
Volume 08774 Folio 991 Crown Allotments 2A, 2B, 3A and 3B Parish of Narmbool;
Volume 04214 Folio 731 Crown Allotments 41, 42, 42A, 53, 41A1, and 41A2 Parish of Narmbool;
Volume 00191 Folio 169 Lot 1 on Title Plan 669519L (formerly known as part of Crown Allotment 4A Parish of Narmbool);
Volume 00191 Folio 168 Lot 1 on Title Plan 631629R (formerly known as part Crown Allotment 4A Parish of Narmbool);
Volume 01710 Folio 926 Crown Allotment 4B Parish of Narmbool);
Volume 01710 Folio 877 Crown Allotment 4C Parish of Narmbool);
Volume 10905 Folio 576 Land in Plan of Consolidation 368001J;
Volume 09389 Folio 491 Crown Allotments 16 and 19 Parish of Narmbool;
Volume 06636 Folio 129 Crown Allotment 78 and 19 Parish of Cargerie;
Volume 06001 Folio 029 Crown Allotments 13A, 14A and 14B Parish of Narmbool;
Volume 07443 Folio 503 Crown Allotment 15 Parish of Narmbool;
Crown Allotment 14C Parish of Narmbool;
Crown Allotment 14D Parish of Narmbool;
Crown Land vested in Council for Fords Lane, Murphys Road, Horsehill Road and Elaine-Blue Bridge Road.

THE PERMIT ALLOWS:

Use and development of the land for a Wind Energy Facility comprising a maximum of 60 wind turbines and their associated infrastructure and other works including: the construction of access tracks; underground cabling; two permanent amenities buildings; two electrical substations; two permanent meteorological monitoring facilities and associated equipment; car parking and bicycle facilities, temporary construction facilities (including an ancillary concrete batching plant), business identification signs and alterations to access points to roads in a Road Zone.

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT

DEVELOPMENT PLANS TO BE ENDORSED

1. Before the development starts, development plans must be prepared to the satisfaction of the Minister for Planning. The plans must be drawn to scale with dimensions and three copies must be provided. The plans may be submitted for approval in stages or for a particular grouping of wind turbines within the subject land. When approved, the plans will be endorsed by the Minister for Planning and will then form part of this permit.

The plans must show the location and layout of the wind turbines and all on-site buildings and works generally in accordance with the application plans *Section Layout - Topographic (Yendon Section) LL SM[YJ 03 Version 3 dated 20081014* and *Section Layout - Topographic (Elaine Section) LL SM[RJ 0032 Version 4 dated 20081014*.

The plans must also include:

- a) A list of map coordinates for each wind turbine;
- b) The distance of each wind turbine from the nearest point on the boundary of the subject land;
- c) Details of the model and rated capacity of the wind turbines to be installed;
- d) Elevation drawings, showing dimensions, of the wind turbines and other permanent on-site buildings (e.g. substation facilities);
- e) Drawings, showing the key physical dimensions, of all on-site buildings and works including:
 - (i) Wind turbines;
 - (ii) Access tracks;
 - (iii) Internal collector network trenches;
 - (iv) Any temporary concrete batching plant(s);
 - (v) The substation (including designated car parking areas, signage and landscaping); and
 - (vi) Any ancillary works (e.g. construction compounds and water tanks).
- f) A description of the materials and finishes of the wind turbines and other permanent on-site buildings;
- g) A description of the location, type and intensity of any aviation obstacle lighting to be installed;
- h) The locations of scattered native trees and the boundaries of any patches of native vegetation, in relation to all buildings and works, in all cases where such trees and patches are within 25 metres of the buildings or works;
- i) A report by a suitably qualified ecological specialist after the completion of a targeted spring survey of vegetation in the vicinity of access gates YJ0, YI 1, EI, ES, and E3 to demonstrate that adverse impact on vegetation listed under the *Flora and Fauna Guarantee Act 1988* and the *Environment Protection and Biodiversity Conservation Act 1999* are avoided;
- j) Turbine exclusion zones centred on the transmission vectors for fixed licences of point to point transmissions to which there is a possibility of electromagnetic interference with a width equal or greater than twice the sum of the blade length and 60% of the radius of the first Fresnel zone of any licensed link. The transmission vectors and the widths of the first Fresnel zones will be determined by a suitably qualified telecommunications expert;

- k) The deletion of wind turbines YSWT 04 and YSWT-37 from the Yendon Section and wind turbines ESWT-09 and ESWT-22 from the Elaine Section;
- l) The re-positioning of wind turbine ESWT02 150 metres to the south of its approved location ; and
- m) m) The final location of the electrical substation at the Elaine Section (generally in accordance with the amended application plans Permit Amendment Layout + 1km Distance Contour - Elaine Version 2 date 20150917).

SPECIFICATIONS

2. The wind energy facility must meet the following requirements:

- a) The wind energy facility must comprise no more than 60 wind turbines with no more than:
 - (i) 38 wind turbine s on the land at Yendon; and
 - (ii) 22 wind turbines on the land at Elaine.
- b) The overall maximum height of the wind turbines (to the zenith of the sweep of the rotor blade tip) must not exceed 161 metres above foundation level and must not be altered or modified without the written consent of the Minister for Planning.
- c) The wind turbines must be mounted on tubular steel and/or concrete towers .
- d) The lo west point of the sweep of the rotor blade tip must not be less than 20 metres above ground level at the turbine base and must not be altered or modified without the written consent of the Minister for Planning.
- e) The rotor of the wind turbines must have only three rotor blades.
- f) The wind turbine towers, nacelles and rotor blades must be of a non-reflective finish and colour that blends with the landscape to the satisfaction of the Minister for Planning.
- g) The colours and finishes of all other buildings and ancillary equipment on-site must be non-reflective to minimise the impact of the development on the landscape to the satisfaction of the Minister for Planning.
- h) Access tracks within the subject land must, to the satisfaction of the Minister for Planning:
 - (i) have a surface material that will not unduly contrast with the landscape, and
 - (ii) be designed to minimise impact on the fam1ing activities on the land, and
 - (iii) have an effective trafficable width of not less than 4 metres.
- i) The transformer associated with each wind turbine must be enclosed within the tower or located on the ground beside the tower and be of a non-reflective finish and colour that blends with the landscape, to the satisfaction of the Minister for Planning.
- j) All new electricity cabling associated with the internal collector network within the wind energy facility must be placed under the ground except with the further written consent of the Minister for Planning.
- k) All wind turbines must be set back at least 50 metres from the boundary of the subject land and public roads. This does not apply to the road denoted as 'GovT Road' shown on certificate of titles VOLUME 10537 FOLIO 554 and VOLUME 10514 FOLIO 928.
- l) l) All wind turbines must be located such that the distance between turbines and transmission vectors for fixed licences of point to point transmissions is equal to or

greater than the sum of the blade length and 60% of the radius of the first Fresnel zone of any licensed link.

- m) Except in the case of an emergency, no external lighting of infrastructure associated with the wind energy facility, other than low level security lighting and/or an aviation detection lighting system (as required by condition 2(p)) may be installed or operated without the further written consent of the Minister for Planning.
- n) All spare parts and other equipment and materials associated with the use of the wind energy facility must be located in screened, locked storage areas that are inaccessible to the public to the satisfaction of the Minister for Planning.
- o) All turbines must be located outside the turbine exclusion zones shown on the endorsed development plan(s).
- p) Deleted.

STAGING

- 3. The use and development authorised by this permit may be completed in stages as shown on the endorsed development plan(s) to the satisfaction of the Minister for Planning. Any corresponding obligation arising under this permit (including the preparation and approval of plans) may be similarly completed in stages or parts.

LAYOUT NOT ALTERED

- 4. The use and development as shown on the endorsed development plan(s) or other plans to the satisfaction of the responsible authority must not be altered or modified without the written consent of the Minister for Planning save that the micro-siting of turbines and the related tracks and reticulation lines will be regarded as generally in accordance with the endorsed development plan(s) if the Minister for Planning is satisfied that it will not give rise to any material adverse change in landscape, vegetation, cultural, visual, shadow or noise impacts compared to the endorsed development plan(s) and:
 - i. A turbine within 1 kilometre of any non-host dwelling is not moved closer to that dwelling;
 - ii. The turbine location is altered by no more than 100 metres; and
 - iii. No turbine is located within 50 metres of a non-host title boundary or a road or within a turbine exclusion zone. This does not apply to the road denoted as 'GovT Road' shown on certificate of titles VOLUME 10537 FOLIO 554 and VOLUME 10514 FOLIO 928.

PRELIMINARY INVESTIGATIVE WORKS

- 5. For the purposes of this permit, the carrying out of preliminary investigative works, including geotechnical investigations, for the purposes of gathering data or making other assessments necessary or desirable in order to prepare the development plan or other plans specified in this permit, is not considered to be commencement of the development.

UPDATE OF AERONAUTICAL CHARTS

- 6. Not less than thirty days before the construction of any of the wind turbines starts, copies of the endorsed development plan(s) must be provided to the Royal Australian Air Force's Aeronautical Information Service to enable details of the wind energy facility to be shown on aeronautical charts of the area.

ENVIRONMENTAL MANAGEMENT PLAN

7. Before the development starts, an environmental management plan must be prepared to the satisfaction of the Minister for Planning by the wind energy facility operator in consultation with the relevant authorities including at least EPA, DELWP, DEDJTR, Corangamite CMA, Central Highlands Water, Barwon Water, Moorabool Shire Council, and the relevant waste management authority.

The environmental management plan should be based on the approach outlined in Chapter Nine of the exhibited planning application report dated March 2008.

The environmental management plan may be prepared in sections or stages.

The environmental management plan must include a copy of the development layout plans as endorsed by the Minister for Planning.

When approved, the environmental management plan will be endorsed by the Minister for Planning and will then form part of this permit.

The environmental management plan must consider and generally be in accordance with:

- EPA Publication 480: *Environmental Guidelines for Major Construction Sites*
- EPA Publication 275: *Construction Techniques for Sediment Pollution Control*
- EPA Publication 891.1: *Code of Practice, Onsite Wastewater Management*
- EPA Publication 628: *Environmental Guidelines for the Concrete Batching Industry*
- EPA Publication 347: *Bunding Guidelines*
- Australian/New Zealand Standard AS/NZS 10002:2014 - Guidelines for complaint management in organisations, and
- Australian Standards Handbook HB 229 2006 *The Why and How of Complaints Handling*.

The environmental management plan must, where appropriate, address and include:

a) Hazardous materials

- (i) The identification of all hazardous materials used and or stored on-site in connection with the development and use;
- (ii) Procedures for the proper handling and storage of hazardous materials on-site;
- (iii) Design criteria for any hazardous materials storage facilities on-site; and
- (iv) Contingency measures to ensure that any spills or leaks of hazardous materials are contained on-site and cleaned up in accordance with Environment Protection Authority requirements.

b) Water contamination, sediment and erosion control

- (i) The identification of all construction and operational processes that could potentially lead to water contamination;
- (ii) The identification of appropriate storage, construction and operational methods to control any identified contamination risks;
- (iii) Procedures for the management of contaminated waste water;
- (iv) Procedures for the discharge of collected runoff;

- (v) Procedures to ensure that silt from batters, cut-off drains, table drains and road works is retained on the site during and after the construction stage of the project. To this end:
 - All land disturbances must be confined to a minimum practical working area and to the vicinity of the identified works areas;
 - Soil to be removed must be stockpiled and separate soil horizons must be retained in separate stockpiles and not mixed; and
 - Stockpiles must be located away from drainage lines.
- (vi) The installation of geotextile silt fences (with sedimentation basins where appropriate) on all drainage lines from the site which are likely to receive runoff from disturbed areas;
- (vii) Procedures to ensure that steep batters are treated appropriately for sediment pollution control;
- (viii) A process for overland flow management to prevent the concentration and diversion of waters onto steep or erosion prone slopes; and
- (ix) A requirement for immediate remediation of localised erosion (specifying a response time).

c) Waste control

- (i) The identification of waste reuse, recycling and disposal procedures; and
- (ii) Pollution management measures for stored and stockpiled materials including waste materials, litter and any other potential source of water pollution.

d) Sanitation and wastewater

- (i) Appropriate sanitary facilities and management of the wastewater at the temporary construction compound and permanent facilities for construction works, maintenance staff, operations personnel and visitors is required.

e) Construction practices

- (i) Procedures, where practical, to construct wind turbine bases, access tracks and power cabling during warmer months to minimise impacts on ephemeral wetlands, local fauna and sediment mobilization;
- (ii) Procedures to protect, as far as practicable, native fauna and domestic stock from being injured by or entrapped in excavations or trenches and to fill trenches as soon as practical after excavation; and
- (iii) Procedures for the removal of works, buildings and staging areas on completion of construction of the development.

f) Concrete batching plants

- (i) Criteria for the design of the temporary concrete batching plants;
- (ii) Management procedures to prevent pollution of the local waterways, particularly from wash water and waste concrete materials; and
- (iii) Procedures for the operation and removal of any temporary concrete batching plants and for the reinstatement of the site once its use finishes.

g) Dust

Procedures to suppress dust from construction related activities.

h) Native flora and fauna protection

- (i) Surveys by an appropriately qualified ecological specialist at an appropriate time of the year before development starts to confirm that construction footprint does not have an adverse impact on native vegetation;
- (ii) Before any works start in the vicinity of access points gates Y10, Y11, E1, E8 and E3:
 - a survey, conducted in the Spring, of vegetation in those locations must be undertaken by a suitably qualified ecological specialist;
 - a report by a suitably qualified ecological specialist must be submitted to the Minister and the Department of Environment, Land, Water and Planning that sets out the findings of the spring survey and, if vegetation listed under the *Flora and Fauna Guarantee Act 1988* of the *Environment Protection and Biodiversity Conservation Act 1999* is identified, measures to avoid or minimise adverse impacts on that vegetation must be set out;
- (iii) Require fauna habitat to be considered if there are any changes to the location of wind energy facility infrastructure;
- (iv) Measures to ensure the wind energy facility infrastructure does not have an adverse impact on potential habitat for the Growling Grass Frog;
- (v) A pest animal and carrion management plan to be prepared in consultation with the Department of Environment, Land, Water and Planning and the Department of Economic Development, Jobs, Transport and Resources.

This plan must include:

- procedures for the ongoing management of pest animal populations (e.g. rabbits) and carrion (including livestock, native animals and pest animals), to lessen the availability of potential prey for raptors within the wind energy facility site; and
- a program of early identification and eradication of pest animal populations and carrion.

i) Pest management

A pest management plan developed in consultation with the owners of the relevant land that includes:

- (i) procedures to prevent the spread of weeds and pathogens from earth moving equipment and associated machinery including the cleaning of all plant and equipment before transport to the site and the use of road making material comprising clean fill that is free of weeds;
- (ii) sowing of disturbed areas with perennial grasses or returned to cropping;
- (iii) a protocol to ensure follow up weed control is undertaken on all areas disturbed through construction of the wind energy facility for a minimum period of 2 years following completion of the works; and
- (iv) procedures for the ongoing management of pest animal populations including a programme of early identification and eradication.

j) Training

A training program for construction workers, permanent employees and contractors at the wind energy facility site including a site induction program relating to the range of issues addressed by the environmental management plan.

k) Complaints management

A complaints management plan designed in accordance with Australian/New Zealand Standard AS/NZS 10002:2014 - Guidelines for complaint management in organisations having regard to the guidance provided in *The why and how of complaints handling* HB 229-2006

The complaints management plan will include procedures for:

- (i) Readily accessible information on how complaints can be made free of cost to complainants;
- (ii) Immediate acknowledgement of complaints and regular and comprehensive feedback to complainants on actions proposed, their implementation and success or otherwise;
- (iii) Closure of complaints by agreement with complainants;
- (iv) Establishment and maintenance of a complaint register for the recording of receipt and acknowledgement of complaints, actions taken, success or otherwise of actions and complaint closure and for the register to be available to the public during normal working hours;
- (v) Reporting of the contents of the complaint register to the Minister for Planning as required;
- (vi) Regular, at least annual, auditing of the implementation of the complaints management plan with audit results being reported to the Minister for Planning and the responsible authority; and
- (vii) The complaints management plan must be published on the wind farm operator's website

l) Incident management

- (i) A procedure for the establishment and maintenance of an incident register for the recording of:
 - Environmental incidents;
 - Non-conformances; and
 - Corrective actions.
- (ii) The register must be available for inspection by the public during normal working hours and its contents should be reported to the Minister for Planning and the responsible authority as required.

REVIEW OF THE ENVIRONMENTAL MANAGEMENT PLAN

8. The environmental management plan must be reviewed at least once every 5 years, and if necessary amended, in consultation with the Minister for Planning, to reflect operational experience and changes in environmental management standards and techniques. Any amendment of the environmental management plan must be submitted to the Minister for Planning for re-endorsement.

COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN

9. The use and development must be carried out in accordance with the endorsed environmental management plan described in condition 7 above to the satisfaction of the Minister for Planning.

COMPLAINTS MADE TO THE RESPONSIBLE AUTHORITY

10. If a complaint is received by the responsible authority in regard to the wind energy facility the responsible authority will:
- a) After consideration of the views of the complainant and the wind energy facility operator, determine if a dispute exists with a dispute being defined as a matter remaining unresolved after application of the complaints management plan;
 - b) If a dispute is not identified, advise the complainant and the wind energy facility operator that the provisions of the complaint management plan should be utilized; and
 - c) If it is determined that a dispute exists, determine if there is a breach of the permit and if such a breach exists take action to enforce compliance with the permit. In determining whether a breach exists the responsible authority may require the wind energy facility operator to:
 - (i) Commission a suitably qualified expert to provide an opinion as to whether a breach exists; and/or
 - (ii) Conduct compliance testing.

ON-SITE LANDSCAPING PLAN

11. Within six months of the endorsement of the development plan referred to in Condition 1 and before the development starts, an on-site landscaping plan must be prepared and approved by the Minister for Planning. When approved, the on-site landscaping plan will be endorsed and will then form part of this permit.

The on-site landscaping plan must:

- a) Include plans drawn to scale showing the extent and layout of any landscape plantings to be used to visually screen or otherwise beautify any on-site buildings or works other than the wind turbines;
- b) Provide details of plant species proposed to be used in the landscape plantings, including height and spread at maturity;
- c) Provide a timetable for implementation of all landscape plantings; and
- d) Provide for maintenance and monitoring program.

OFF-SITE LANDSCAPING PLAN

12. Within 6 months of development commencing on site, an Off-site Landscaping Program must be submitted to the responsible authority. When endorsed, the Program will form part of this permit.

The Off-site Landscaping Program must:

- a) Provide for off-site landscaping or other treatments to reduce the visual impact of the turbines to be made to the following parties as existing at 20 March 2017:
 - (i) The owners of all dwellings within 4km of a turbine where a turbine is visible;
 - (ii) The Shire of Moorabool as Committee or Management for Lal Lal Reserve;

- (iii) The Sovereign Hill Museums Association in relation to the property known as Nannbool; and
 - (iv) St Sava Orthodox Monastery.
- b) Require for offers referred in (a) to be made available up until 12 months after the commissioning of the last turbine of the development or relevant stage.
- c) Include a methodology for determining:
 - (i) The type of landscaping treatments to be proposed; and
 - (ii) A timetable for establishing and maintaining the landscaping for at least two years.
- d) Include a process for making offers to affected landowners to undertake landscaping on the land owner's land;
- e) Include a process for recording:
 - (i) Offers that have been made to landowners;
 - (ii) Whether or not the offers are accepted; and
 - (iii) When and how offers are actioned following acceptance.

The endorsed Off-site Landscaping Program must be implemented to the satisfaction of the responsible authority. The endorsed off-site Landscaping Program must not be altered or modified without the written consent of the responsible authority.

13. Progress reports regarding the implementation of the endorsed Off-site Landscaping Program must be provided to the responsible authority on each anniversary of the date of this permit and at other times on request.

TRAFFIC MANAGEMENT PLAN

14. Before the development starts a traffic management plan must be prepared, in consultation with Moorabool Shire Council and VicRoads, to the satisfaction of the Minister for Planning. When approved, the plan will form part of this permit.

The traffic management plan must:

- a) Consider the use of Woolshed Road rather than Fords Lane as an access to the eastern part of the Elaine site;
- b) Identify all public roads and access points that will be used in the construction and operation of the wind energy facility;
- c) Provide for an existing conditions survey of public roads that will be used in the construction and operation of the wind energy facility including details of the suitability, design, construction standards and condition of the roads to enable, for sealed roads, the calculation of Total ESA (Equivalent Standard Axles) loading for comparison with the appropriate Austroads pavement design guide;
- d) Establish the appropriate existing equivalent renewal pavement design and associated costs in conjunction with Moorabool Shire Council and VicRoads and establish the calculated damage (if any) directly attributable to the wind energy facility and the amount (if any) to be reimbursed to Moorabool Shire Council;
- e) Include the designation of routes, operating hours and speed limits for oversize vehicles and other heavy vehicles on routes accessing the site so as to avoid interference with the passage of school buses, and to provide for resident safety and the safe management of stock;

- f) Provide details of any large over dimensional vehicles to be used (such as those used for the transport of the nacelles, blades and tower sections) and details of the routes to be taken, the proposed escort arrangements and requirements for over dimensional permits from VicRoads;
- g) Specify the need for road and intersection upgrades to accommodate any additional traffic or site access requirements, whether temporary or ongoing, and the timing of when these upgrades are to be undertaken;
- h) Include measures to be used to manage traffic impacts associated with the ongoing operation of the wind energy facility on the traffic volumes and flows on surrounding roads;
- i) Identify any areas of roadside native vegetation which need removal or pruning and the pruning practices to be followed;
- j) Include identification and timing of any pre-construction works;
- k) Include a program of regular inspections, to be carried out during the construction period, to identify the need for maintenance works necessary as a result of construction traffic;
- l) Include agreed criteria that will trigger repair and maintenance works; and
- m) Include a program to rehabilitate roads to the pre-existing condition identified by the above surveys.

COMPLIANCE WITH TRAFFIC MANAGEMENT PLAN

- 15. The traffic management and road upgrade and maintenance works associated with the wind energy facility must be carried out in accordance with the traffic management plan to the satisfaction of the Minister for Planning and the cost of any works including maintenance are to be at the expense of the wind energy facility operator.

EMERGENCY RESPONSE PLAN

- 16. Before the development starts an emergency response plan must be prepared and approved by the Minister for Planning. When approved the emergency response plan will be endorsed and will then form part of this pem1it.

The emergency response plan must be generally in accordance with *"Emergency Management Guidelines for Wind Farms"* (Country Fire Authority April 2007).

The emergency response plan must be prepared in consultation with:

- Country Fire Authority
- Victoria Police
- Rural Ambulance Victoria
- State Emergency Service, and
- Any other relevant members of the Moorabool Shire's Municipal Emergency Response Management Committee.

The emergency response plan should generally conform to *"AS 3745-2002 Emergency control organization and procedures for buildings, structures and workplaces"*, or any subsequent replacement or amendment.

The emergency response plan must include:

- a) Criteria for the provision of static water supply tanks, solely for firefighting purposes, including minimum capacities, appropriate connections and signage;
- b) Procedures for vegetation management, fuel control and the provision of firefighting equipment during declared fire danger periods;
- c) Minimum standards for access roads and tracks, to allow access for fire fighting vehicles, including access to static water supply tanks;
- d) The facilitation by the wind energy facility operator, before or within 3 months after the commencement of operation, of a familiarisation visit to the site and explanation of emergency services procedures for the relevant members of the Country Fire Authority, Rural Ambulance Victoria, Victoria Police, State Emergency Service and Moorabool Shire's Emergency Response Management Committee;
- e) Subsequent familiarisation sessions for new personnel of those organisations as required; and
- f) If requested, training of Country Fire Authority personnel in relation to suppression of wind energy facility fires.

BAT AND BIRD MANAGEMENT PLAN

17. Before the development starts a bat and bird management plan (BBMP) to the satisfaction of the Minister for Planning must be prepared in consultation with the Department of Environment, Land, Water and Planning. When approved, the plan will be endorsed and form part of the permit.

The BBMP must include:

- a) A statement of the objectives and overall strategy for managing and mitigating any significant bird and bat strike arising from the wind energy facility operations;
- b) A monitoring program of at least two years duration from the commissioning of the last turbine including surveys during the breeding and migratory seasons to ascertain:
 - (i) The presence, behaviour and movements of any Wedge-tailed Eagles, Brown Falcons or Swamp Harriers, especially breeding pairs in the vicinity of the wind energy facility;
 - (ii) The species, number, age, sex (if possible) and date of bird and bat strikes;
 - (iii) Procedures for the reporting of any bird or bat strikes to the Department of Environment, Land, Water and Planning. Any bird strikes affecting the priority species named in condition 19(b)(i) must be reported to the Department of Environment, Land, Water and Planning within 7 days of becoming aware of any strike;
 - (iv) Seasonal and yearly variation in the number of bird and bat strikes; and
 - (v) The efficacy of searches for carcasses of birds and bats, and where practical, information on the rate of removal of carcasses by scavengers, so that correction factors can be determined to enable calculations of the total number of mortalities.
- c) Procedures for the regular removal of carrion (including livestock, native animals and pest animals) likely to attract raptors to areas near wind turbines;

- d) Requirements for periodic reporting, within agreed timeframes of the findings of the monitoring to the Department of Environment, Land, Water and Planning;
 - e) Recommendations in relation to a mortality rate for specified species which would trigger the requirement for responsive mitigation measures to be undertaken by the proponent to the satisfaction of the Minister for Planning; and
 - f) Details of any responsive mitigation measures which may be implemented if the trigger mortality rate for a specified species is exceeded.
18. Following the completion of the monitoring program in accordance with the BBMP, a bat and avifauna monitoring report must be prepared by the applicant setting out the findings of the monitoring program to the satisfaction of the Minister for Planning.

STRATEGY FOR MONITORING AND MITIGATION MEASURES FOR IMPACTS ON ECOLOGICALLY SIGNIFICANT BATS AND BIRDS

19. In the event that impacts detected during the BBMP's monitoring program are considered by the Minister for Planning to be ecologically significant; a monitoring and mitigation measures strategy must be prepared in consultation with the Department of Environment, Land, Water and Planning to the satisfaction of the Minister for Planning. When approved the monitoring and mitigation measures strategy will be endorsed and will then form part of this permit.

The monitoring and mitigation measures strategy must include, for each species for which ecologically significant impacts have been detected:

- a) Further monitoring of the 'targeted' species; and
- b) Mitigation measures for 'targeted' species.

all to be implemented to the satisfaction of the Minister for Planning.

TELEVISION AND RADIO RECEPTION AND INTERFERENCE

20. Before the development starts a television and radio reception plan must be prepared to the satisfaction of the Minister for Planning. When approved, the plan will be endorsed and form part of the permit.

The television, radio and telephone reception plan must include:

- a) A definition of the area to be covered by the television and radio reception plan (the defined area) based on the recommendations of a suitably qualified expert;
- b) A pre-construction survey to determine television and radio reception strength at locations within the defined area, completed prior to the commissioning of any turbine. The location of such monitoring is to be determined by an independent television and radio monitoring specialist appointed by the wind energy facility operator;
- c) A procedure for post-construction survey at any dwelling in the defined area that existed at the date of the pre-construction survey in response to any complaint received regarding the wind energy facility having an adverse effect on television or radio reception; and
- d) A procedure for the implementation of mitigation measures at any dwelling in the defined area that existed at the date of the pre-construction survey if the post-

construction survey establishes any increase in interference to reception as a result of the wind energy facility operations. The mitigation measures shall return the affected reception to pre-construction quality and be undertaken at the cost of the wind energy facility operator, all to the satisfaction of the Minister for Planning.

BLADE SHADOW FLICKER

21. Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling that existed at 30 April 2009, unless the operator has entered into an agreement with the relevant landowner waiving this requirement. Evidence of the agreement must be provided to the satisfaction of the responsible authority upon request, and be in a form that applies to the land for the life of the wind energy facility. The agreement must be to the satisfaction of the responsible authority.

NOISE LIMITS

22. Construction of the wind energy facility must comply with noise criteria specified in the EPA *Noise Control Guidelines, Construction and Demolition Site Noise*, Publication 1254, October 2008 at any dwelling existing on land in the vicinity of the proposed wind energy facility as at the date of the issue of this permit to the satisfaction of the Minister for Planning.
23. Except as provided below in this condition, the operation of the wind energy facility must comply with New Zealand Standard 6808:2010, Acoustics - Wind Farm Noise (the Standard) at any noise sensitive location existing as at 20 March 2017 to the satisfaction of the Minister for Planning.

In determining compliance, the following requirements apply:

- a) The operator must ensure that at any wind speed, wind farm sound levels, determined in accordance with the Standard at noise sensitive locations (as defined in the Standard) do not exceed a noise limit of 40dB LA90, 10min or background (LA90, 10 min) plus 5dB, whichever is greater;
- b) Compliance must be assessed separately for all-time and nighttime. For the purpose of this requirement, nighttime is defined as 10.00pm to 7.00am; and
- c) Where special audible characteristics, including tonality, impulsive sound or excessive amplitude modulation occur, the measured noise level with the identified special audible characteristics will be modified by applying a penalty of up to + 6 dB L90 in accordance with section 5.4 of the Standard.

The limits specified in this condition do not apply if an agreement has been entered into with any landowner waiving the limits. Evidence of the agreement must be provided to the satisfaction of the responsible authority upon request, and be in a form that applies to the land for the life of the wind energy facility.

NOISE COMPLIANCE ASSESSMENT

24. Before the development starts, a noise compliance testing plan must be prepared by a suitably qualified acoustics expert to the satisfaction of the Minister for Planning.
25. The noise compliance testing plan must be accompanied by a report from an auditor accredited under the *Environment Protection Act 1970* with the auditor's opinion on the methodology contained in the noise compliance testing plan.

When approved, the noise compliance testing plan will be endorsed by the Minister for Planning and will then form part of this permit.

The use must be carried out in accordance with the noise compliance testing plan to the satisfaction of the Minister for Planning.

For the purposes of determining compliance, the following requirements apply:

- a) Acoustic compliance reports shall be prepared by a suitably qualified and experienced independent acoustic engineer to demonstrate compliance with the noise limits specified in the Standard.
- b) Noise assessment positions must be located according to the Standard, and shown on a map.
- c) A final compliance report must be submitted to the Minister for Planning after a 12-month period following full operation of the facility.
- d) The final compliance report must be accompanied by a report from an auditor accredited under the *Environment Protection Act 1970* with the auditor's opinion on the methodology and results contained in the noise compliance testing plan.
- e) Compliance reports must be publicly available and published on the wind farm operator's website.
- f) Following facility commissioning, all complaints shall be managed following procedures set out in the noise complaints management plan.

NOISE COMPLIANCE ENFORCEMENT

26. For the purposes of complaints evaluation, the following requirements apply:

- a) Post installation sound levels shall, where practical, be measured at the same locations where the background sound levels were determined (GPS coordinates and a map showing these locations are to be provided).
- b) If a non-compliance with condition 23 is detected, or an acoustic investigation is required under the noise complaint investigation and response plan endorsed under condition 26, an independent assessment report must be prepared by a suitably qualified and experienced independent acoustic engineer to:
 - identify the weather or operational conditions associated with the complaint / breach.
 - analyse the uncertainty and confidence levels in the monitoring, and the steps taken to reduce uncertainty.
 - target assessment to identify the cause and remediation actions.
 - submit a remediation plan to the satisfaction of the Minister for Planning outlining the investigation process, complainant communications, actions and timelines to resolve the complaint/breach.
 - if the complaint is not resolved through the processes outlined above, the Minister for Planning may request an independent peer review at the cost of the permit holder and on/off shut down testing to resolve uncertainty.

- c) Following the initial post-construction reporting process, additional independent assessment may be requested by the Minister for Planning at any time, where complaints are received and are considered to reasonably warrant investigation.
 - d) If investigations indicate special audible characteristics are potentially occurring, procedures outlined in Appendix B of the Standard should be applied.
27. Before the first wind turbine is commissioned, the permit holder must prepare a Noise Complaint Investigation and Response Plan to the satisfaction of the Minister for Planning. The approved plan must be published on the wind farm operator's website.

The plan shall be designed in accordance with the Australian/New Zealand Standard AS/NZS 10002:2014 - *Guidelines/or complaint management in organisations* and 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.
- 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 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.
 - the processes of investigation to resolve the complaint.

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 Minister for Planning.

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 Minister for Planning on request.

The wind energy facility operator must implement and comply with the Approved Noise Complaint, Investigation and Response Plan for the duration of the operation of the wind energy facility.

DECOMMISSIONING

28. The wind energy facility operator must, no later than one month after all wind turbines have permanently ceased to generate electricity, notify the Minister for Planning in writing of the cessation of the use. Within a further six months of this date, the wind energy facility operator, or in the absence of the operator, the owner of the land on which the relevant turbines(s) is/are located, must prepare a decommissioning plan to the satisfaction of the

Minister for Planning. When approved, the decommissioning plan will become part of this permit.

29. The decommissioning plan must provide for the following:
- a) The removal of all above ground operational equipment;
 - b) The removal and cleanup of any residual spills or contamination;
 - c) The rehabilitation of all storage, construction, access tracks and other areas affected by the project closure or decommissioning, if not otherwise useful to the on-going management of the subject land;
 - d) A decommissioning traffic management plan; and
 - e) A post decommissioning revegetation management plan.

The decommissioning plan must be implemented to the satisfaction of the Minister for Planning within 24 months of approval of the plan or within such other timeframe as may be specified by the Minister.

BUSINESS IDENTIFICATION SIGNS

30. The total advertisement area to each business identification sign must not exceed 3 square metres.

SUBSTATION

31. Prior to the commencement of works for the substation at Elaine, if the plans submitted under condition 1m) show the location of the substation being located adjacent to Ausnet Transmission Group's 220 kv transmission line, then detailed plans of the substation must be submitted to Ausnet Transmission Group for approved in writing.

EXPIRY

32. This permit will expire if one of the following circumstances applies:
- (i) the development is not started within 4 years of the date of this permit;
 - (ii) the development is not completed within 8 years of the date of this permit.

The Minister for Planning, as responsible authority, may extend the periods referred to if a request is made in writing before the permit expires, or within three months afterwards.

DATE OF ISSUE: 30 APRIL 2009

[out of scope]

Signature of [out of scope],
Development Approvals and Design, as
delegate for the Minister for Planning

THIS PERMIT HAS BEEN AMENDED AS FOLLOWS:

Date of amendment	Brief description of amendment	Responsible Authority
20 March 2017	Permit amended under section 97J of the <i>Planning and Environment Act 1987</i> – to increase turbine size, reduce the number of turbines, require compliance with the 2010 version of the New Zealand Noise Standard, change transformer and substation locations, revise landholder agreement conditions, and other changes.	Minister for Planning
27 September 2018	Permit amended under section 97J of the <i>Planning and Environment Act 1987</i> – in terms of conditions relating to proximity of turbines to roads (specifically ‘GovT Road’ shown on certificate of titles VOLUME 10537 FOLIO 554 and VOLUME 10514 FOLIO 928) as well as noise and shadow flicker (to ensure consistency with example conditions in the updated <i>Policy and Planning Guidelines: Development of Wind Energy Facilities in Victoria</i> (November 2017))	Minister for Planning
12 April 2022	Permit amended under section 97J of the <i>Planning and Environment Act 1987</i> to delete condition 2(p) which relates to aviation detection lighting.	Minister for Planning

Notes:

- For the purpose of this permit, a host means the land holder of a property with a contract in respect of the installation of associated wind turbines on that person’s property.

IMPORTANT INFORMATION ABOUT THIS PERMIT

WHAT HAS BEEN DECIDED?

The Minister has granted and issued a permit under Division 6 of Part 4 of the **Planning and Environment Act 1987**.

WHEN DOES A PERMIT BEGIN?

A permit operates—

- from the date specified in the permit; or
 - if no date is specified, from the date on which it was issued.
-

WHEN DOES A PERMIT EXPIRE?

1. A permit for the development of land expires if—
 - the development or any stage of it does not start within the time specified in the permit; or
 - the development requires the certification of a plan of subdivision or consolidation under the **Subdivision Act 1988** and the plan is not certified within two years of the issue of the permit, unless the permit contains a different provision; or
 - the development or any stage is not completed within the time specified in the permit, or, if no time is specified, within two years after the issue of the permit or in the case of a subdivision or consolidation within five years of the certification of the plan of subdivision or consolidation under the **Subdivision Act 1988**.
 2. A permit for the use of land expires if—
 - the use does not start within the time specified in the permit, or if no time is specified, within two years after the issue of the permit; or
 - the use is discontinued for a period of two years.
 3. A permit for the development and use of land expires if—
 - the development or any stage of it does not start within the time specified in the permit; or
 - the development or any stage of it is not completed within the time specified in the permit, or, if no time is specified, within two years after the issue of the permit; or
 - the use does not start within the time specified in the permit, or, if no time is specified, within two years after the completion of the development; or
 - the use is discontinued for a period of two years.
 4. If a permit for the use of land or the development and use of land or relating to any of the circumstances mentioned in section 6A(2) of the **Planning and Environment Act 1987**, or to any combination of use, development or any of those circumstances requires the certification of a plan under the **Subdivision Act 1988**, unless the permit contains a different provision—
 - the use or development of any stage is to be taken to have started when the plan is certified; and
 - the permit expires if the plan is not certified within two years of the issue of the permit.
 5. The expiry of a permit does not affect the validity of anything done under that permit before the expiry.
 6. In accordance with section 97H of the **Planning and Environment Act 1987**, the responsible authority specified in the planning scheme is the responsible authority for the administration and enforcement of the **Planning and Environment Act 1987** and the relevant planning scheme in respect of this permit (whether or not the permit is amended) except that the Minister remains the responsible authority in respect of—
 - any matters which the permit specifies to be done by, approved by or done to the satisfaction of the Minister; and
 - any extension of time under section 69 in relation to the permit; and
 - the correction of the permit under section 71(1); and
 - the amendment of the permit under section 97J.
-

WHAT ABOUT REVIEWS?

In accordance with section 97M of the **Planning and Environment Act 1987**, the applicant may not apply to the Victorian Civil and Administrative Tribunal for a review of any condition in this permit.

Table 10: Relevant turbines for each receiver location

Turbine	H18aa	K15aa	K34aa	L18aa	M29aa	N31ab
ESWT01	Yes	Yes	No	Yes	No	No
ESWT02	Yes	No	No	Yes	No	No
ESWT03	Yes	Yes	No	Yes	No	No
ESWT04	Yes	Yes	No	Yes	No	No
ESWT05	Yes	Yes	No	Yes	No	No
ESWT06	Yes	Yes	No	Yes	Yes	No
ESWT07	Yes	Yes	No	Yes	Yes	No
ESWT08	Yes	Yes	No	Yes	Yes	No
ESWT10	Yes	Yes	No	Yes	No	No
ESWT11	Yes	Yes	No	Yes	No	No
ESWT12	Yes	Yes	No	Yes	No	No
ESWT13	Yes	Yes	No	Yes	No	No
ESWT14	Yes	Yes	No	Yes	No	No
ESWT15	Yes	Yes	No	Yes	No	No
ESWT16	Yes	Yes	No	Yes	Yes	No
ESWT17	Yes	Yes	No	Yes	No	No
ESWT18	Yes	Yes	No	Yes	No	No
ESWT19	Yes	Yes	No	Yes	No	No
ESWT20	Yes	Yes	No	Yes	No	No
ESWT21	No	Yes	No	Yes	Yes	No
ESWT23	Yes	Yes	No	Yes	No	No
ESWT24	Yes	Yes	No	Yes	No	No
YSWT01	No	No	Yes	No	Yes	Yes
YSWT02	No	No	Yes	No	Yes	No
YSWT03	No	No	Yes	No	Yes	Yes
YSWT05	No	No	Yes	No	Yes	Yes
YSWT06	No	No	Yes	No	Yes	Yes
YSWT07	No	No	Yes	No	Yes	Yes
YSWT08	No	No	Yes	No	Yes	Yes
YSWT09	No	No	Yes	No	Yes	Yes
YSWT10	No	No	Yes	No	Yes	Yes
YSWT11	No	No	Yes	No	Yes	Yes
YSWT12	No	No	Yes	No	Yes	Yes
YSWT13	No	No	Yes	No	Yes	Yes
YSWT14	No	No	Yes	No	Yes	Yes
YSWT15	No	No	Yes	No	Yes	Yes
YSWT16	No	No	Yes	No	Yes	Yes

Turbine	H18aa	K15aa	K34aa	L18aa	M29aa	N31ab
YSWT17	No	No	Yes	No	Yes	Yes
YSWT18	No	No	Yes	No	Yes	Yes
YSWT19	No	No	Yes	No	Yes	Yes
YSWT20	No	No	Yes	No	Yes	Yes
YSWT21	No	No	Yes	No	Yes	Yes
YSWT22	No	No	Yes	No	Yes	Yes
YSWT23	No	No	Yes	No	Yes	Yes
YSWT24	No	No	Yes	No	Yes	Yes
YSWT25	No	No	Yes	No	Yes	Yes
YSWT26	No	No	Yes	No	Yes	Yes
YSWT27	No	No	Yes	No	Yes	Yes
YSWT28	No	No	No	No	Yes	Yes
YSWT29	No	No	Yes	No	Yes	Yes
YSWT30	No	No	Yes	No	Yes	Yes
YSWT31	No	No	Yes	No	Yes	Yes
YSWT32	No	No	Yes	No	Yes	Yes
YSWT33	No	No	Yes	No	Yes	Yes
YSWT34	No	No	Yes	No	Yes	Yes
YSWT35	No	No	Yes	No	Yes	Yes
YSWT36	No	No	Yes	No	Yes	Yes
YSWT38	No	No	Yes	No	Yes	Yes
YSWT39	No	No	No	No	Yes	Yes
YSWT40	No	No	Yes	No	Yes	Yes

APPENDIX G SITE WIND SPEED AND DIRECTION TRENDS

Long term wind trend data for the Lal Lal Wind Farm was provided by Aurecon on 24 October 2017 and is reproduced within this Appendix.

H1 Elaine meteorological mast

Figure 2: Elaine – annual average data

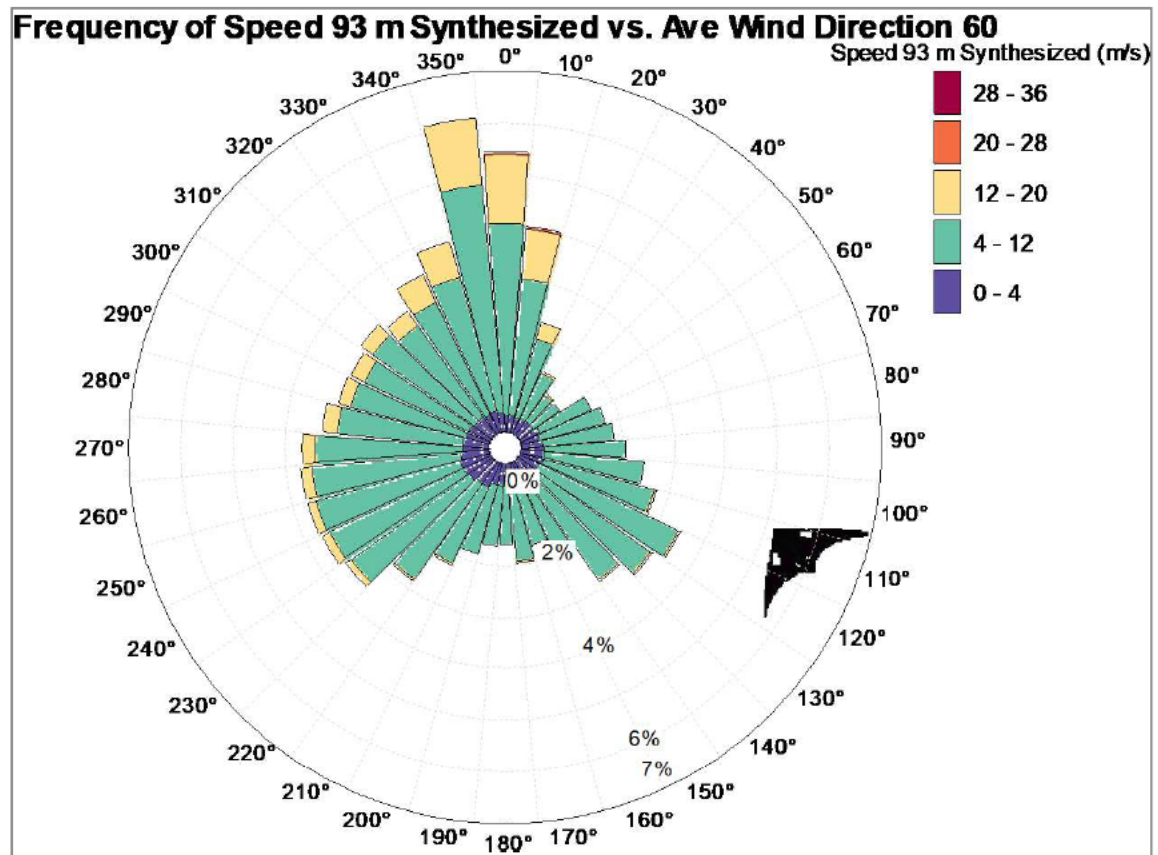
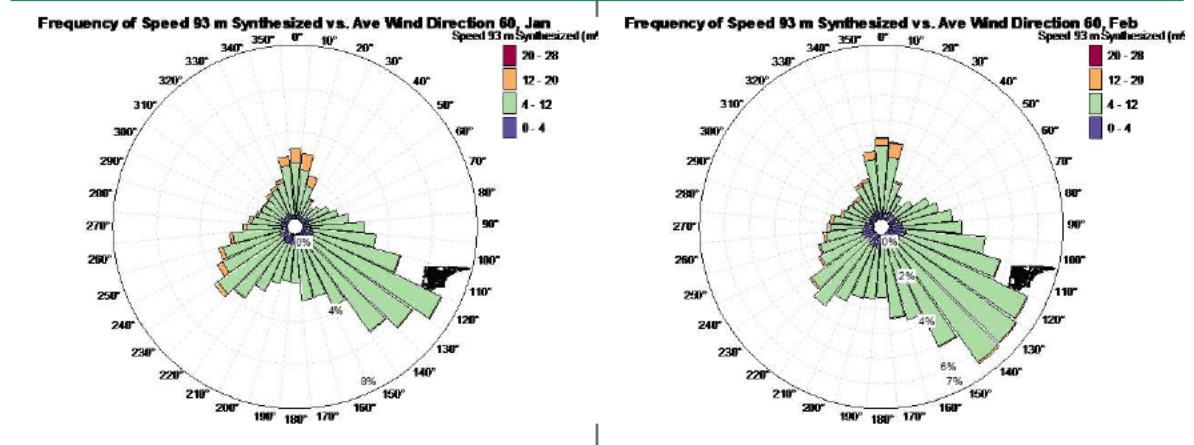


Figure 3: Elaine – monthly average data – January to June



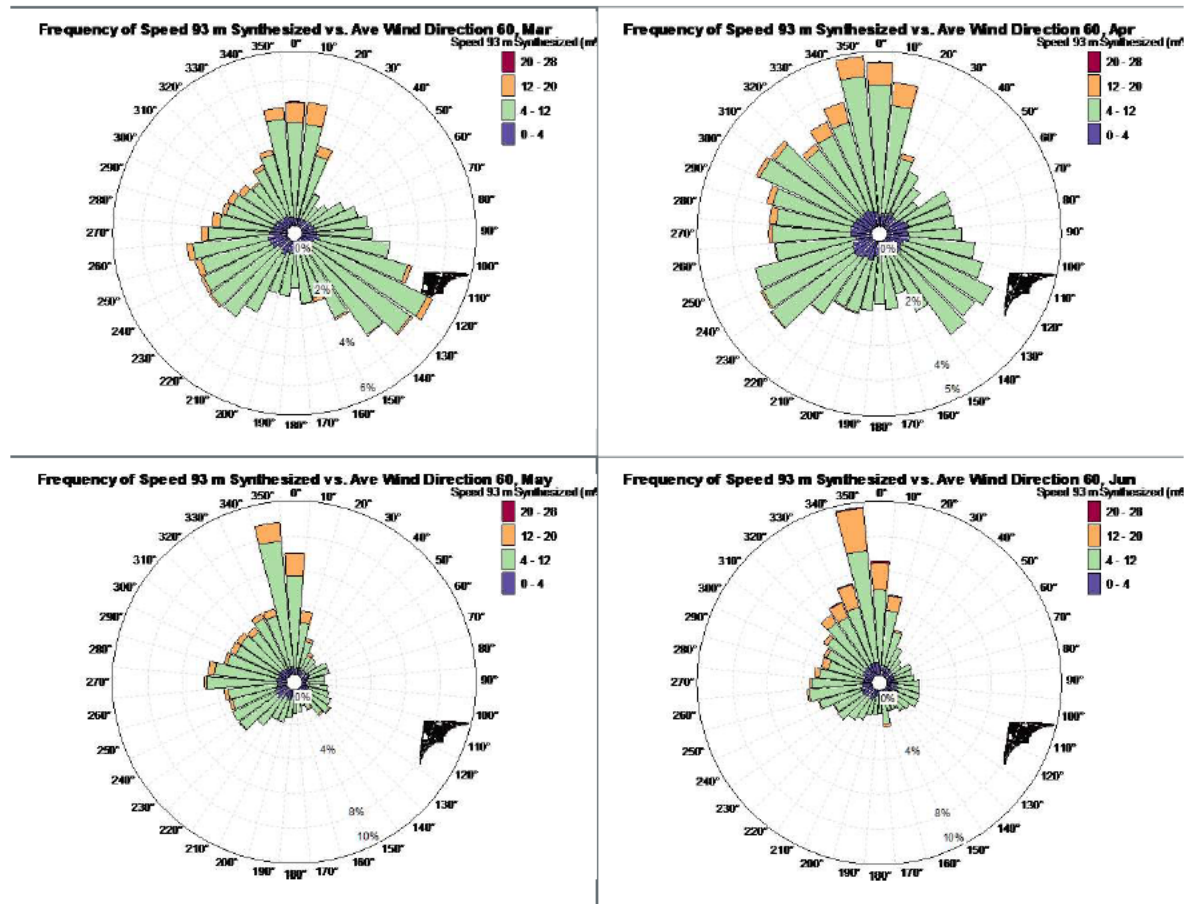
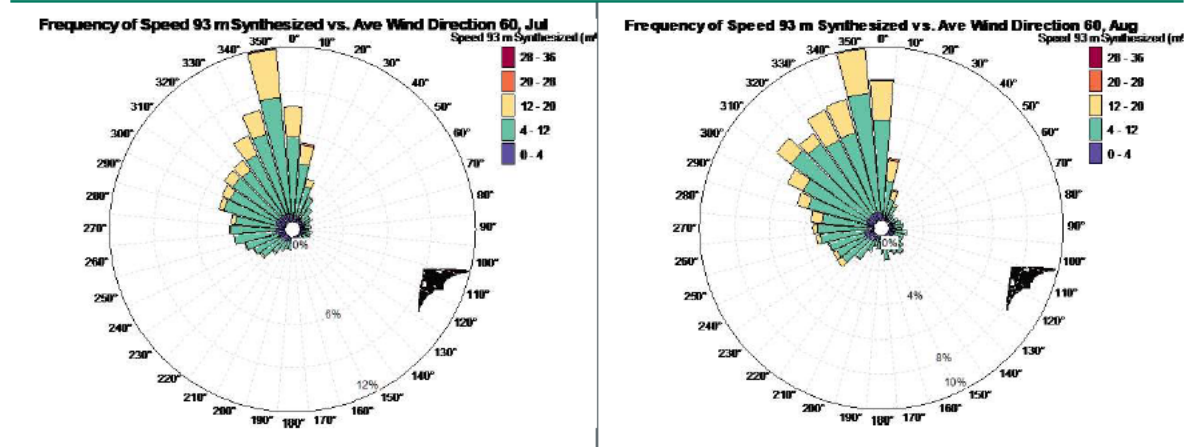
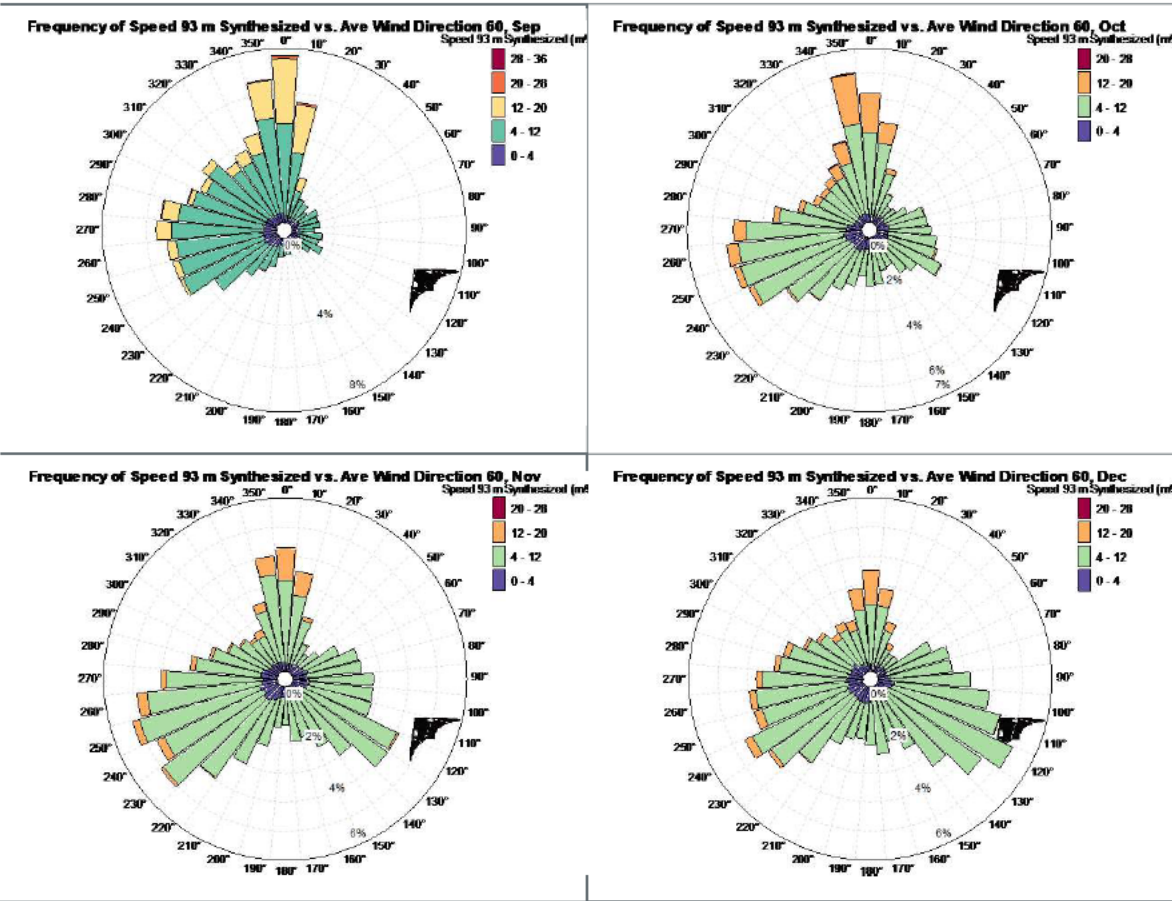


Figure 4: Elaine – monthly average data – July to December





H2 Yendon meteorological mast

Figure 5: Elaine – annual average data

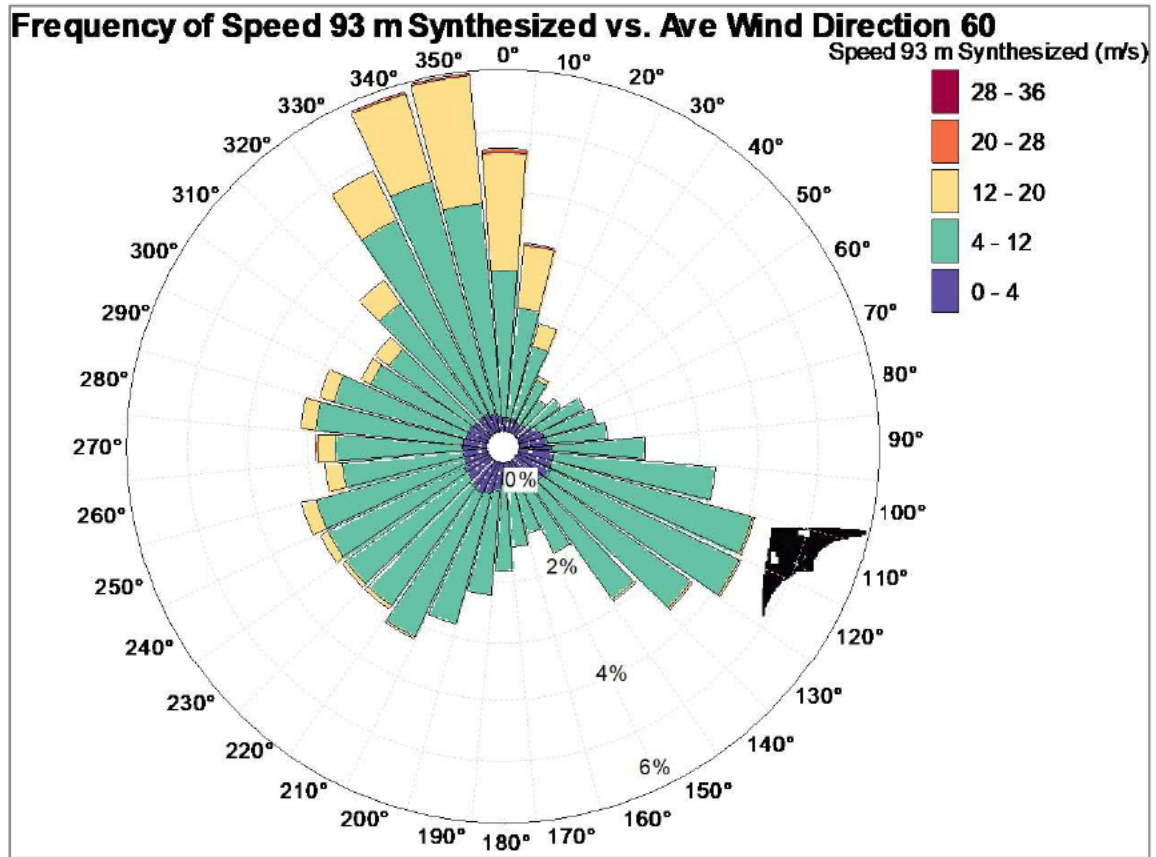
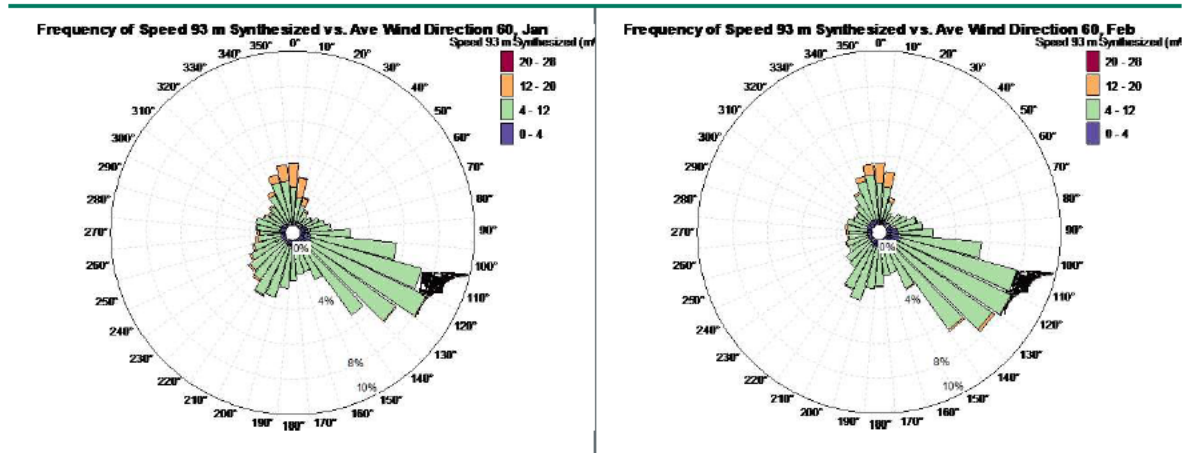


Figure 6: Yendon – monthly average data – January to June



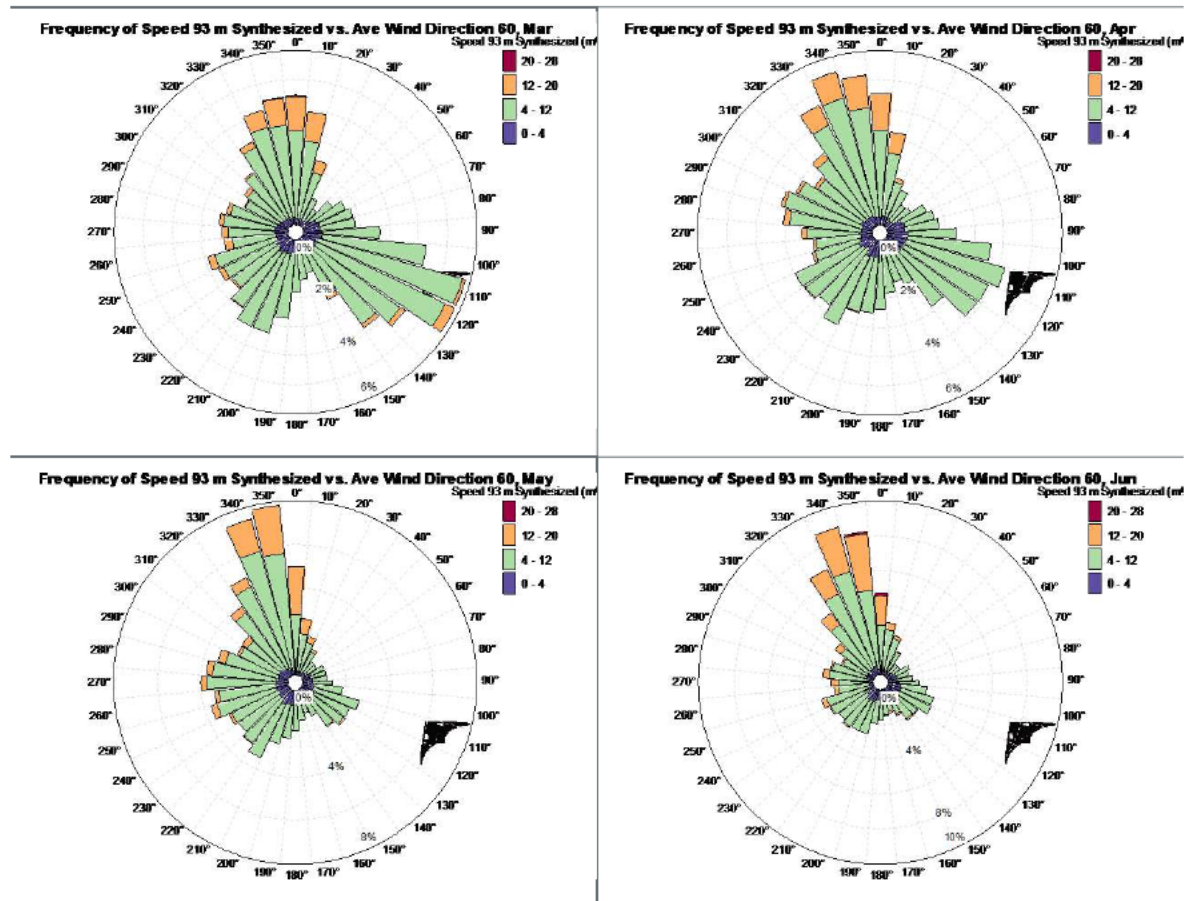
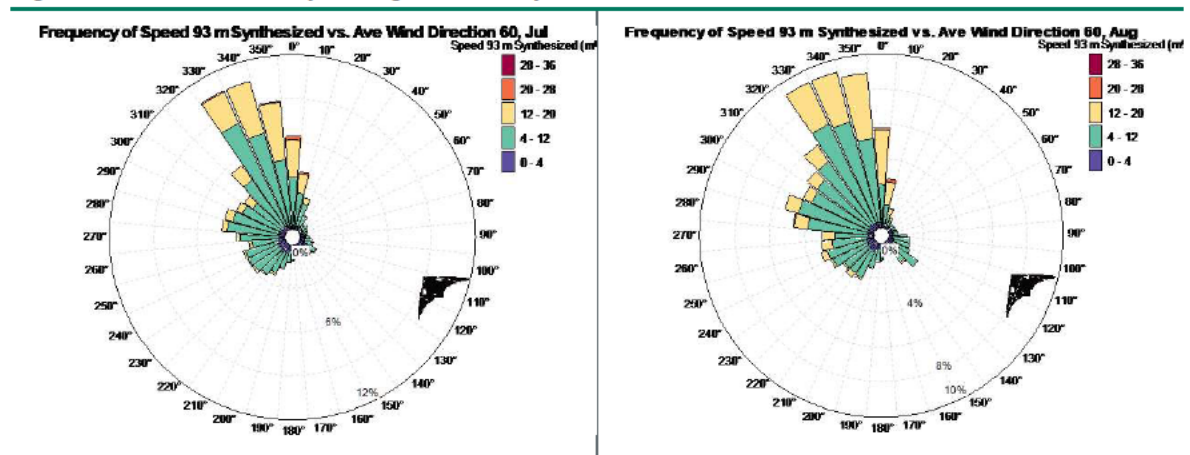
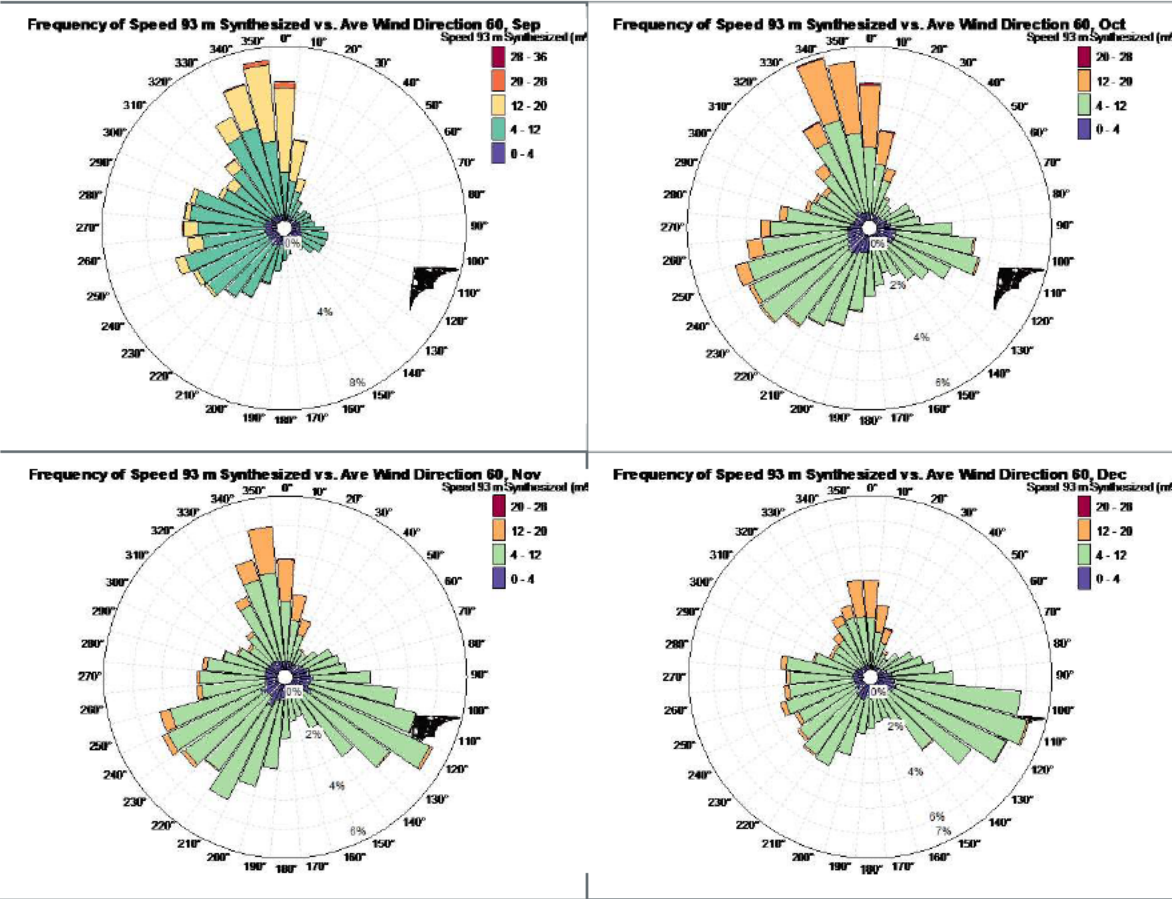


Figure 7: Yendon – monthly average data – July to December





APPENDIX H BACKGROUND NOISE DATA

The following background noise data shall be referenced for adjusting compliance monitoring results for the potential influence of background noise levels. This data is reproduced from Appendix H of the background noise monitoring report.

Table 11: All-time periods (i.e. day and night periods combined) background noise levels (dB LA90)

Location	Hub height wind speed (m/s)											
	4	5	6	7	8	9	10	11	12	13	14	15
H18aa ^[1]	28.3	29.7	31.5	33.6	35.9	38.4	41.0	43.6	46.2	48.6	50.9	52.9
K34aa ^[2]	24.3	25.9	27.7	29.8	32.0	34.3	36.7	39.1	41.5	43.9	46.1	48.2
L18aa ^[1]	28.0	29.4	31.1	32.9	34.9	37.0	39.1	41.2	43.2	45.2	47.0	48.6
M29aa ^[2]	27.1	28.0	29.2	30.6	32.2	34.0	35.9	37.9	39.9	42.0	44.1	46.1
N31ab ^[2]	26.3	27.6	29.1	30.8	32.6	34.5	36.4	38.4	40.3	42.2	44.0	45.6
P30aa ^[2]	26.7	28.2	30.0	32.1	34.3	36.7	39.2	41.7	44.2	46.6	48.9	51.1

Note 1: Elaine meteorological mast - 93 m above ground level at 234574 E, 5817575 N (MGA 94 Zone 55H)

Note 2: Yendon meteorological mast - 93 m above ground level at 238268 E, 5830852 N (MGA 94 Zone 55H)

Table 12: Night period background noise levels (dB LA90)

Location	Hub height wind speed (m/s)											
	4	5	6	7	8	9	10	11	12	13	14	15
H18aa ^[1]	24.1	25.5	27.4	29.7	32.4	35.3	38.4	41.6	44.7	47.7	50.4	52.9
K34aa ^[2]	20.7	22.0	23.8	26.0	28.5	31.2	34.1	37.0	39.9	42.6	45.1	47.3
L18aa ^[1]	25.2	26.6	28.4	30.3	32.5	34.8	37.2	39.6	41.9	44.2	46.4	48.3
M29aa ^[2]	26.1	26.2	26.8	27.8	29.2	31.0	33.0	35.2	37.5	39.9	42.4	44.8
N31ab ^[2]	22.5	23.6	25.1	26.8	28.8	30.9	33.1	35.4	37.7	40.0	42.2	44.3
P30aa ^[2]	23.2	24.4	26.0	28.1	30.4	32.9	35.7	38.5	41.4	44.2	46.9	49.5

Note 1: Elaine meteorological mast - 93 m above ground level at 234574 E, 5817575 N (MGA 94 Zone 55H)

Note 2: Yendon meteorological mast - 93 m above ground level at 238268 E, 5830852 N (MGA 94 Zone 55H)

Table 13: Dwelling and noise monitor coordinates for each receiver – MGA 94 Zone 55

Receiver	Dwelling		Background noise monitoring location	
	Easting	Northing	Easting	Northing
H18aa	233207	5818510	233231	5818507
K34aa	236976	5834575	236968	5834563
L18aa	237913	5818705	237902	5818722
M29aa	238304	5829565	238292	5829603
N31ab	239934	5831553	239917	5831551
P30aa	241059	5830668	241062	5830640

APPENDIX I NOISE COMPLAINT FORM

Lal Lal Wind Farms
Noise Complaint Form



Name:

Time and Date:

Postal Address:

Phone:

Email:

LLWF Representative:

Location of the Dwelling

Description of the noise (including the time, frequency, prevailing conditions and description of concerns)

Does the noise relate to the operations of the wind farm?

Does the noise relate to the operation of the wind farm under certain weather conditions eg windy, frost conditions?

Where can the noise relating the complaint be heard from eg from the dwelling, from the nearest turbine?

APPENDIX J

NOISE RISK EXCERPT FROM LLWF ENVIRONMENTAL MANAGEMENT PLAN

5 ENVIRONMENTAL MITIGATION MEASURES

This chapter describes the range of environmental mitigation measures that are to be employed for the *Project*. The overall objective of these measures is to mitigate the effects on the environment by the *Project*, in relation to the key environmental issues of noise, dust, sediment and erosion, waste, hazardous materials, flora & fauna, cultural heritage, electromagnetic interference and significant geology and geomorphology.

A series of Management Plans were prepared as part of the development of this *EMP* to address specific environmental issues associated with the *Project*.

The Management Plans prepared for the project include the following:

- ▲ Cultural Heritage Management Plan
- ▲ Pest Management Plan
- ▲ Bat and Avifauna Management Plan
- ▲ Onsite Landscape Plan
- ▲ Offsite Landscape Programme
- ▲ Complaints Management Plan

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The recommendations, management techniques and monitoring requirements have been incorporated into this *EMP*. A complete copy of each Management Plan is contained Volume 2 of this *EMP*.

5.1 PROJECT ENVIRONMENTAL ISSUES

Significant environmental issues for the *Project* are as follows:

- ▲ Generation of Noise / Vibration
- ▲ Emission of Dust or other Air Emissions
- ▲ Water Contamination, Erosion and Sedimentation
- ▲ Material Usage and Generation of Waste
- ▲ Use of Hazardous Materials
- ▲ Flora and Fauna including Pest Plants & Animals
- ▲ Cultural Heritage Management
- ▲ Electromagnetic Interference
- ▲ Visual Amenity & Landscaping (including Shadow Flicker & Blade Glint)

5.1.1 RISK ASSESSMENT METHODOLOGY

In order to determine the environmental mitigation measures to be employed for each identified environmental aspect of the *Project*, a risk assessment has been undertaken. This risk assessment has been based upon the methodology of:

- ▲ Identify the environmental aspects relevant to the Project;
- ▲ Document the items that influence the assignment of the level of risk for each aspect;
- ▲ Based upon the issues, document the likelihood and consequence of an aspect occurring;
- ▲ Determining the likelihood that the aspect identified will have an impact on the environment; and
- ▲ Determining how severe the potential impact will be on the environment, community and persons.

5.1.2 LIKELIHOOD OF AN EVENT

The likelihood of a potential impact is qualified according to the scale described below:

- ▲ Almost Certain
- ▲ Likely
- ▲ Unlikely
- ▲ Rare
- ▲ Almost Incredible

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ALMOST CERTAIN

The event will occur at a frequency greater than every week if preventative measures are not applied.

LIKELY

The event will occur more than once or twice but less than weekly if preventative measures are not applied.

UNLIKELY

The event may occur once or twice during the project if preventative measures are not applied.

RARE

The event is unlikely to occur during a project even if controls are missing.

ALMOST INCREDIBLE

The event is theoretically possible but not expected to ever occur even if controls are missing.

5.1.3 CONSEQUENCES OF AN EVENT

The severity of the consequences to a potential impact is qualified according to the scale described below:

- ▲ Catastrophic
- ▲ Major
- ▲ Moderate
- ▲ Minor

Each is described in more detail in the following sub-sections.

CATASTROPHIC CONSEQUENCE

The consequences include significant damage or impact on the environment, community or persons. For example:

- ▲ severe and/or persistent waterway/stormwater quality pollution
- ▲ human death or permanent debilitating injury to a person
- ▲ biologically significant deaths of fauna/flora
- ▲ widespread and/or significant changes to ecosystems
- ▲ soil contamination over an area > 10 m², contamination of offsite soil or contamination of soil with prescribed or hazardous materials
- ▲ widespread community impact resulting in illness, injury or inconvenience
- ▲ loss or destruction of archaeological/heritage places, sites or objects
- ▲ receiving a fine/s is a certainty or works will be halted

MAJOR CONSEQUENCE

The consequences include major adverse environmental or social impacts. For example:

- ▲ medium-term, noticeable/measurable change in waterway/stormwater quality
- ▲ noticeable, localised changes to ecosystems
- ▲ isolated deaths of non-vulnerable fauna/flora species
- ▲ minor, temporary injury to a person
- ▲ soil contamination over an area 1 m² – 10 m² (excluding contamination of offsite soil or contamination of soil with prescribed or hazardous materials)
- ▲ annoyance or nuisance to community
- ▲ frequent, partial damage or off site movement of archaeological/heritage places, sites or objects
- ▲ fining likely or works may be halted

MODERATE CONSEQUENCE

The consequences include moderate undesirable environmental or social impacts. For example:

- ▲ localised, short term noticeable/measurable change in waterway/stormwater quality
- ▲ short term, minor changes to ecosystems
- ▲ soil contamination over an area <1m² (excluding contamination of offsite soil or contamination of soil with prescribed or hazardous materials)
- ▲ some annoyance or nuisance to community
- ▲ isolated, partial disturbance or movement of archaeological/heritage places, sites or objects
- ▲ fines unlikely

MINOR CONSEQUENCE

The consequences include no or minimal adverse environmental or social impacts. For example:

- ▲ no measurable/unlikely effect on waterway/stormwater quality and ecosystems
- ▲ no or isolated community complaints
- ▲ no or isolated events where areas of soil <1m² is contaminated (excluding contamination of offsite soil or contamination of soil with prescribed or hazardous materials)
- ▲ no or unlikely impact on archaeological/heritage places, sites or objects
- ▲ no likelihood of being fined

5.1.4 RISK MATRIX

Table 5.1 below the level of risk can be determined based on the likelihood of the occurrence and the potential consequences.

Table 5.1 Risk Level Matrix

Risk Level	Likelihood				
Consequence	Almost Incredible	Rare	Unlikely	Likely	Certain
Catastrophic	Low to Medium	Medium	Significant	Significant	Significant
Major	Low	Medium	Significant	Significant	Significant
Moderate	Low	Low	Medium	Significant	Significant
Minor	Low	Low	Low	Medium	Medium

The level of risk determines the type and level of environmental mitigation measures that will be required on the *Site*. Where a significant risk to the environment has been identified, environmental mitigation measures must be introduced to reduce the risk to an acceptable level. Aspects with a medium or low risk also have practicable management measures implemented to further reduce the risk.

The environmental mitigation measures selected to minimise risk are outlined in this Chapter of the EMP for each environmental aspect identified.

5.1.5 RISK ASSESSMENT

Using the methodology outlined above the risk assessment for the *Project* have been determined and are shown in Table 5.2 below.

Table 5.2 Environmental Risk Assessment Results

Environmental Aspect	Risk
Cultural Heritage	Low
Dust & Air Emissions	Medium
Electromagnetic Interference	Low
Erosion & Sedimentation	Medium
Hazardous Materials	Medium
Native Flora & Fauna	Low
Noise	Medium
Pest Animal	Low
Pest Plants	Medium
Shadow Flicker and Blade Glint	Low
Vibration	Low
Visual Amenity & Landscaping	Low to Medium
Waste Generation	Medium

5.2 GENERATION OF NOISE/VIBRATION

5.2.1 ISSUES

The Project has the potential to impact on the amenity of the surrounding land and its occupants through the generation of noise and vibration.

The mismanagement of noise and vibration on the Site has the potential to result in detrimental effects on the health and amenity of neighbours and Site personnel and cause complaints from neighbours. The environmental mitigation measures outlined below will be employed to mitigate these effects.

Rock hammering may be used during excavation works undertaken to establish wind turbine foundations. These operations can give rise to ground vibrations and noise. The magnitude of the nuisance created by vibrations depends on the nature of soils transmitting the vibration and the distance to the nearest building. Studies have found that nuisance from ground vibration and building damage is unlikely to occur if the operation is conducted at separation distances greater than 50 metres. The closest dwelling is located more than 1km from any wind turbine foundation location and therefore the issues associated with vibration are negligible.

Noise may also arise from the operation and movement of vehicles, plant and equipment during construction as well as from the wind turbines themselves during operations.

5.2.2 RISK ASSESSMENT

The risk for noise has been identified as MEDIUM

The risk for vibration has been identified as LOW

5.2.3 ENVIRONMENTAL PERFORMANCE OBJECTIVES

The objective of this EMP is to ensure that the Project will:

- ▲ not cause nuisance from noise and vibration;
- ▲ minimise noise and vibration impacts to site employees, nearby residents, livestock and native fauna; and
- ▲ ensure all noise emissions generated by the Project activities shall comply with the relevant EPA guidelines and not be of an unreasonable level.

REGULATORY AND OTHER REQUIREMENTS

- ▲ Environment Protection Act 1970 (Vic)
- ▲ NZS6808:1998 (or its successor) = the "Victorian Noise Standard"
- ▲ Interim guidelines for Control of Noise from Industry in Country Victoria, EPA Publication N3-89
- ▲ EPA Publication 480 Best Practice Environmental Management – Environmental Guidelines for Major Construction Sites
- ▲ Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (May 2009)
- ▲ Planning Permit PL-SP/05/0461 (APRIL 2009)

5.2.4 ENVIRONMENTAL MITIGATION MEASURES

5.2.4.1 DESIGN

Access routes and access track layouts shall be selected so as to minimise noise impacts:

- ▲ incorporate existing main roads wherever possible; and
- ▲ locate access tracks and gates away from dwellings wherever possible to minimise vehicular noise.

Site infrastructure shall be sited so as to minimise noise and vibration impacts:

- ▲ locate temporary construction compounds and batching plants away from dwellings wherever possible to minimise vehicular and plant and equipment noise impacts; and
- ▲ locate switchyard facility away from dwellings to avoid high voltage corona noise impacts.

Wind turbine layout shall be designed so as to minimise operational impacts:

- ▲ locate wind turbines away from dwellings as far as is required to comply with residential amenity as set out in the Victorian Noise Standard.

5.2.4.2 CONSTRUCTION

During Site Induction training all personnel shall be briefed on the requirements to manage noise on the *Site*. The risks of noise and vibration from construction activities shall be managed by implementing the following mitigation measures:

- ▲ Hours of operation on and around the *Site* shall be restricted to assist in mitigation of noise. In accordance with EPA guidelines work shall only be planned to take place within the following hours:
 -Monday – Friday 7.00 am – 6.00 pm
 -Saturday 7.00 am – 1.00 pm
- ▲ Unplanned work outside of the restricted hours shall only be undertaken;
 - When there would otherwise be significant delays and/or hazardous conditions on the public roads; and
 - Where plant breakdown or extenuating circumstances have delayed an activity that cannot be stopped.
- ▲ In circumstances when unplanned work outside the restricted hours has occurred (or is about to occur):
 - The EPA will immediately be notified;
 - Dwellings or properties that will be affected shall be advised of the problem and be kept informed of progress toward resolution of the problem;
 - Appropriate documentation justifying out of hours work shall be prepared by team leaders and authorised by the Project Manager; and
 - Any adverse noise and/or vibration impact caused will be monitored by auditory observation.
- ▲ Noisy activities will, where appropriate, be scheduled for the least sensitive times of the day (i.e. mid-morning to mid-afternoon).
- ▲ Noise from machinery shall be reduced as far as is practicable by implementation of the following mitigation measures:
 - Vehicular traffic shall be restricted to:
 - constructed access tracks;
 - designated site entry and exit points; and
 - designated site access routes.
 - The use of horns & engine brakes will be avoided when approaching or departing *Site*.
 - Deliveries will be scheduled for arrival at or departure from the *Site* such that disruption to local amenity is minimised.
 - Delivery trucks will be able to wait on the *Site* rather than on surrounding roads, thereby minimising any noise nuisance to residents.
 - If it is necessary for trucks to wait near dwellings, this will only occur within the times specified and the driver will be directed to turn the engine off until the truck can move onto the *Site*.
 - Noise from vehicles and powered machinery and equipment on the *Site* shall not exceed the manufacturer's specifications, based on the installation of a silencer.
 - All machinery utilised on *Site* shall be appropriately maintained and serviced to minimise noise emissions – with particular attention to muffler maintenance and enclosure of noisy equipment.
 - Noise abatement devices shall be maintained such that they operate efficiently.
 - Access tracks shall be kept in good condition and speed limits within the *Site* selected so as to minimise noise impacts on residential amenity (especially for empty bulk trailers departing the *Site*).
- ▲ Neighbours shall be kept informed of potential noise impacts:
 - Residents in the vicinity of works (1 km to 3 km radius as is appropriate) shall be advised regarding the nature of works and work hours prior to works on the *Site* commencing.
 - Appropriate community consultation shall be undertaken should noisy work activities be planned outside of normal hours.
 - Specific additional notification will be given for any unusually noisy activities.

5.2.4.3 OPERATION

The risks of noise and vibration from operational activities shall be managed by implementing the following mitigation measures:

- ▲ Noisy activities will, where appropriate, be scheduled for the least sensitive times of the day (i.e. mid-morning to mid-afternoon).
- ▲ Noise from machinery shall be reduced as far as is practicable by implementation of the following mitigation measures:
 - Vehicular traffic shall be restricted to:
 - constructed access tracks;
 - designated site entry and exit points; and
 - designated site access routes.
 - The use of horns & engine brakes will be avoided when approaching or departing *Site*.
 - Deliveries will be scheduled for arrival at or departure from the *Site* such that disruption to local amenity is minimised.
 - Delivery trucks will be able to wait on the *Site* rather than on surrounding roads, thereby minimising any noise nuisance to residents.
 - If it is necessary for trucks to wait near dwellings, this will only occur within the times specified and the driver will be directed to turn the engine off until the truck can move onto the *Site*.
 - Noise from vehicles and powered machinery and equipment on the *Site* shall not exceed the manufacturer's specifications, based on the installation of a silencer.
 - All machinery utilised on *Site* shall be appropriately maintained and serviced to minimise noise emissions – with particular attention to muffler maintenance and enclosure of noisy equipment.
 - Noise abatement devices shall be maintained such that they operate efficiently.
 - Access tracks shall be kept in good condition and speed limits within the *Site* selected so as to minimise noise impacts on residential amenity (especially for empty bulk trailers departing the *Site*).
- ▲ Neighbours shall be kept informed of potential noise impacts:
 - Residents in the vicinity of works (1 km to 3 km radius as is appropriate) shall be advised regarding the nature of works and work hours prior to works on the *Site* commencing.
 - Appropriate community consultation shall be undertaken should noisy work activities be planned outside of normal hours.
 - Specific additional notification will be given for any unusually noisy activities.
- ▲ Wind Turbine Operational Noise is controlled to acceptable limits mainly through design (i.e. by maintaining sufficient separation between wind turbines and neighbouring dwellings so as to comply with the residential amenity noise limits imposed by the Planning Permit). The satisfaction of this criterion during the design of the *Project* was determined using predictive modelling that relies on the input of the sound power level emitted by each wind turbine and parameters that are assumed in determining the attenuation of sound over distance. The modelling is conservative in nature (i.e. the model should overestimate the sound received at dwellings) however it is still conceivable that the sound received at neighbouring dwellings may exceed the noise limits. As a contingency for this unlikely scenario occurring the following mitigation measures shall be implemented:
 - A noise monitoring programme shall be implemented after commissioning of the *Project's* wind turbines in accordance with the Post-Construction Noise Monitoring Programme.
 - All complaints regarding operational noise from the wind farm shall be investigated in accordance with the Post-Construction Noise Monitoring Programme.
 - If necessary remediation shall be undertaken, in a timely fashion, as set out in the Post-Construction Noise Monitoring Programme under the advice of the suitably qualified Acoustic Expert. Remediation measures to be considered shall include;
 - noise optimisation of the relevant wind turbine(s) under the same meteorological circumstances as occurred at the time of the complaint, and
 - selective shut down of the relevant wind turbine(s) in the same meteorological circumstances, and
 - the decommissioning of the relevant wind turbine(s).

5.2.5 COMPLAINTS

Any complaints, regardless of their origin, shall be promptly investigated and responded to in accordance with the Complaints and Comments Management Procedure Plan. Non-Conformances shall be reported and appropriate Corrective Actions and/or Preventative Actions initiated.

Complaints relating to the operational noise from wind turbines need some special information to be collected to assist in its investigation. The following is an indicative list of items to consider when recording a noise complaint. It is not exhaustive.

Who is making the complaint and how do we get in contact with them?

The acoustic expert may need further information directly from the complainant.

When was the complaint made?

This allows management to determine how quickly and effectively the complaint is being dealt with.

Who recorded the complaint?

This allows management to obtain more detail from the person receiving the complaint if clarification is required.

Is it a complaint or just a comment?

Sometimes people will report noise from the wind farm simply because it is out of the ordinary or different to usual and they wish to alert us to a potential fault – the response may be quite different in this circumstance to a complaint.

When did the noise occur?

Sound levels from the wind turbines vary according to the weather conditions so it is important to gather as much information as possible.

Where were you when you heard the noise?

Sound levels from the wind turbines vary according to where it is received so it is important to gather as much information as possible.

What was the nature of the noise?

A description of the noise can help the acoustic expert determine if the sound is from the wind turbines or some other source or the cause of the sound.

Have you heard or had problems with similar noise before?

This may be a recurring problem or a worsening situation that has not previously warranted a complaint.

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