A specialist energy consultancy

Technical Appendix 10.2

Operational Noise Report

Kellystown Wind Farm

Kellystown Wind Farm Limited

IE00125-012
28 August 2024

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Executive Summary

TNEI Ireland was commissioned by EDF Renewables Ireland ('the Applicant') on behalf of Kellystown Wind Farm Limited to undertake predictions of the wind turbine noise that would be emitted by the operation of the proposed Kellystown Wind Farm (hereinafter referred to as 'the Proposed Development'). The noise predictions were used to assess the potential impact of operational noise from the Proposed Development on the nearest Noise Sensitive Receptors (NSRs).

The Irish Government Department of Environment Heritage and Local Government document *'Wind Energy Development Guidelines, 2006*' (WEDG 2006, also referred to as DoEHLG 2006) are the current guidelines for setting noise limits for wind energy developments. The information relating to noise in the WEDG 2006, is very limited and it is widely agreed that the limits proposed in the WEDG 2006 were drafted to broadly align with the UK guidance ETSU-R-*97 'The Assessment and Rating of Noise from Wind Farms'*. In 2013, the UK guidance was supplemented by a document produced by the Institute of Acoustics *'A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise'* (IOA GPG). Reference has been made to guidance contained in ETSU-R-97 and the IOA GPG to supplement the WEDG 2006.

Background noise monitoring was undertaken at 7 noise sensitive receptors. The monitoring locations were selected to be representative of the noise sensitive receptors located closest to the Proposed Development.

There are 374 NSRs within the 2 km search area around the Proposed Development. Of the 374 identified NSRs a total of 14 NSRs were chosen as Noise Assessment Locations (NALs). The NALs were chosen to represent the noise sensitive receptors located closest to the Proposed Development. The modelling results for the NALs has been presented within the main body of this report whilst an assessment for all NSRs has been included within an Annex to the report. For the assessment locations where no background noise measurements were undertaken, noise data collected at proxy locations deemed representative of the expected background noise environment was used to assess the wind turbine noise impact at those receptors. For clarity all NSRs are labelled with the letter 'H', to ensure consistency with the labelling within the rest of the Environmental Impact Assessment Report (EIAR).

Wind speed was measured directly at the highest hub height being considered (105 m) using a LIDAR unit which was located within the proposed site. The data measured at 105 m (maximum hub height considered) were standardised to 10 m height, in accordance with current good practice Analysis of the measured data has been undertaken in accordance with the WEDG 2006, ETSU-R-97 and current good practice to determine the pre-existing background noise environment and to establish the daytime and night-time noise limits at each of the NALs.

Based on the guidance in the WEDG 2006 and recent planning permissions issued from An Bord Pleanála, the daytime WEDG Noise Limit was set at 40 dB(A) where background noise levels were <30 dB, and 45 dB(A) or background plus 5 dB whichever is the greater where background noise levels were >30 dB. The night-time WEDG Noise Limit has been set at 43 dB(A) or background plus 5 dB whichever is the greater.

Predictions of wind turbine noise for the Proposed Development were made, based upon the sound power level data for a candidate wind turbine, the Nordex N163 which has a 163 m rotor diameter, a maximum rated output capacity of 7 MW, serrated trailing edge blades and a hub height of 98.5 m. In order to consider the full design envelope for the site, additional modelling was undertaken using two other candidates; the Siemens-Gamesa SG 6.6-155 with a 155 m rotor diameter, a maximum rated output capacity of 6.6 MW and a hub height of 102.5 m and the Nordex N149 with a 149 m

rotor diameter with a maximum rated output capacity of 5.7 MW, serrated trailing edge blades and a hub height of 105 m. The Nordex N163 turbine has been chosen as the candidate for the main assessment as it resulted in the highest predicted levels of the candidates being considered and therefore provides a worst case. For completeness, predictions for the other two candidates at each NAL have been included within Annex 1 as Figures A1.3a-n. All candidates modelled are considered to be representative of the type of turbine that could be installed at the Site.

Modelling was undertaken using the ISO 9613: 1996 *'Acoustics – Attenuation of sound during propagation outdoors Part 2: General method of calculation'* noise prediction model which accords with current good practice and is considered to provide a realistic impact assessment.

There are no cumulative schemes (operational, consented, or proposed (planning application submitted) within 10 km of the Proposed Development and as such a cumulative assessment was not required.

Predicted noise levels indicate that at all NALs wind turbine noise immissions were below the WEDG Noise Limits.

Should planning permission be granted for the Proposed Development it would be appropriate to include a set of noise related planning conditions, which detail the noise limits applicable to the Proposed Development. A suggested planning condition has been included in Annex 8 of this report.

Should the Proposed Development receive planning permission the final choice of turbine would be subject to a competitive tendering process. As such, predictions of wind turbine noise are for the purposes of assessment only. The final choice of turbine would, however, need to meet the noise limits determined and contained within any planning permission condition imposed.

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ANNEXES

1 Introduction

1.1 Brief

1.1.1 TNEI Ireland Ltd was commissioned by EDF Renewables Ireland ('the Applicant') on behalf of Kellystown Wind Farm Limited ('the Developer') to undertake an operational noise assessment for the proposed Kellystown Wind Farm (hereinafter referred to as 'the Proposed Development'). The following steps summarise the noise assessment process:

- Measure and analyse existing background noise levels and present the measured noise data with reference to existing government guidance and the recommendations of the Department of Environment Heritage and Local Government (DoEHLG), which are contained in the '*Wind Energy Development Guidelines, 2006'* [(1)] (WEDG 2006), in conjunction with the guidance produced by the United Kingdom's Department of Trade and Industry Noise Working Group on Noise from Wind Turbines which are contained within ETSU-R-97 *'The Assessment and Rating of Noise from Wind Farms'* [(2)] and *'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'* [(3)] (IOA GPG) to supplement the WEDG 2006;
- Determine the WEDG 2006 Noise Limits applicable to the Proposed Development;
- Undertake modelling of the operational wind turbine noise immission from the Proposed Development that is predicted at neighbouring noise sensitive receptors;
- Compare the predictions of the operational wind turbine noise immission from the Proposed Development against the WEDG 2006 noise limits; and
- Assess the impact of noise from the Proposed Development with reference to existing government guidance and the recommendations of the DoEHLG, which are contained in the WEDG 2006.

1.2 Background

1.2.1 The Proposed Development is located approximately 30 km north of Drogheda town in County Louth. The approximate Irish Transverse Mercator (ITM) reference for the centre of the site is 708000, 783500 and the proposed layout is shown on Figure A1.1a in Annex 1.

1.2.2 In the absence of a confirmed turbine model, predictions of wind turbine noise for the Proposed Development were made based upon the sound power level data for a candidate wind turbine, the Nordex N163 which has a 163 m rotor diameter, a maximum rated output capacity of 7 MW, serrated trailing edge blades and a hub height of 98.5 m. In order to consider the full design envelope for the site, additional modelling was undertaken using two other candidates; the Siemens-Gamesa SG 6.6-155 with a 155 m rotor diameter, a maximum rated output capacity of 6.6 MW and a hub height of 102.5 m and the Nordex N149 with a 149 m rotor diameter with a maximum rated output capacity of 5.7 MW, serrated trailing edge blades and a hub height of 105 m. The Nordex N163 turbine has been chosen as the candidate for the main assessment as it resulted in the highest predicted levels of the candidates being considered and therefore provides a worst case. For completeness, predictions for the other two candidates have been included on Figures

A1.3a-n included within Annex 1. All candidates modelled are considered to be representative of the type of turbine that could be installed at the Site.

1.2.3 TNEI is not aware of any schemes that are operational, consented, or proposed (planning application submitted) within 10 km of the proposed development site, therefore, a cumulative noise impact assessment was not required for the operational phase of the Proposed Development.

1.2.4 Note that the term 'noise emission' relates to the sound power level *emitted* from each wind turbine, whereas the term 'noise immission' relates to the sound pressure level *received* at any receptor location, due to the operation of the wind turbines. All references to dB are dB(A) unless otherwise stated. Wind speeds are standardised to 10 m height and grid coordinates are in ITM unless otherwise stated. A full glossary of terms is provided in Section 8.

2 Noise Planning Policy and Guidance

2.1 Overview of Noise Planning Policy and Guidance

2.1.1 In assessing the potential noise impacts of the Proposed Development, the following guidance and policy documents have been considered:

- National Planning Policy;
- Regional Planning Policy;
- Local Policy;
- Department of Environment Heritage and Local Government (DoEHLG) '*Wind Energy Development Guidelines,'* 2006;
- ETSU-R-97 *'The Assessment and Rating of Noise from Wind Farms'*; and
- Institute of Acoustics *'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'* (IOA GPG) May 2013.

2.2 National Planning Policy

2.2.1 The National Planning Framework 'Project Ireland 2040' [4] was adopted on 29 May 2018. The document sets out a number of National Policy Objectives, of which number 65 relates to noise.

2.2.2 National Policy Objective 65 states:

'Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.'

2.2.3 The document does not contain specifics with regards to the assessment of noise. Rather, it states (page 5):

'The National Planning Framework, is a planning framework to guide development and investment over the coming years. It does not provide every detail for every part of the country; rather it empowers each region to lead in the planning and development of their communities, containing a set of national objectives and key principles from which more detailed and refined plans will follow.'

2.2.4 Accordingly, it is necessary to look at regional and local guidance and policy for further direction.

2.1 Regional Spatial and Economic Strategies (RSES) 2019-2031

2.1.1 The Eastern & Midlands RSES (applicable to Co. Louth) provides a high-level development framework for the Eastern and Midland Regional Assembly of Ireland, supporting the implementation of the National Planning Framework. In relation to renewable energy, it states (page 179):

'The Region will need to shift from its reliance on using fossil fuels and natural gas as its main energy source to a more diverse range of low and zero-carbon sources, including renewable energy.

The Strategy supports an increase in the amount of new renewable energy sources in the Region. This includes the use of wind energy……..'

2.1.2 The RSES does not include any information specific to wind turbine noise.

2.2 Local Policy

2.2.1 The Louth County Development Plan (2021-2027) was adopted in November 2021. Strategic Objective SO4 states that the local authorities Strategic Objectives include:

'Transition to a low carbon and climate resilient County supporting energy efficiency and reducing energy demand, through a combination of mitigation and adaptation responses to climate change. This includes for increased usage of renewable energy through developing indigenous energy resources, supporting the transition to a low carbon economy by 2050.'

2.2.2 Section 10.6 Wind Energy states that the Council will:

'continue to support and encourage the principle of wind energy development in accordance with Government policy and having regard to the Wind Energy Development Guidelines for Planning Authorities or any update made thereto during the lifetime of the Plan.'

2.2.3 *Section 13.18.1 states:*

'Any application for wind energy development shall be prepared in accordance with the requirements of the Wind Energy Guidelines 2006 and any subsequent Guidelines.'

2.2.4 Louth County Council do have a Noise Action Plan (2018-2023), however the only noise source to be considered by the plan is major roads.

2.3 Wind Energy Development Guidelines, 2006

2.3.1 The current guidelines for setting noise limits are detailed in the DoEHLG, WEDG 2006.

2.3.2 The information relating to noise in the WEDG is very limited (for example there is no guidance on where or how to measure background noise levels and how to correlate these with wind speed on the proposed wind farm site. There is also no mention of how to consider cumulative effects). The WEDG 2006 guidelines do, however, include guidance on how to derive limits for daytime and night-time periods.

2.3.3 The daytime limits take account of existing background noise levels and include a fixed limit of 45 dB or background + 5 dB, whichever is the greater, except in low background noise environments where a fixed minimum limit in the range 35-40 dB should be considered. TNEIs interpretation of these limits is that turbine noise should not exceed:

- 45 dB $L_{A90,\ 10\ min}$ or background noise + 5 dB, whichever is the greater, for daytime hours (applicable where background noise levels are greater than 30 dB L_{A90}); or,

- 35 to 40 dB $L_{A90,\ 10\ min}$ where background noise is less than 30 dB L_{A90}.

2.3.4 The WEDG states that a *'fixed limit of 43dB(A) will protect sleep inside properties during the night',* however, whilst it is not explicit within the WEDG guidance, the addition of a night-time 'background noise +5 dB' parameter is commonly applied in wind turbine noise assessments. On that basis, the night-time noise limits used in this assessment have been based on 43 dB or background noise + 5 dB, whichever is the greater.

2.3.5 It is widely agreed that the limits proposed in the WEDGs were drafted to broadly align with the UK guidance *ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms'*. In 2013 this UK guidance was supplemented by a document produced by the Institute of Acoustics' (IOA) *'A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise'* (IOA GPG). Given the lack of detail in parts of the WEDG, information contained in ETSU-R-97 and the IOA GPG is often used to supplement the WEDGs and to inform wind farm noise assessments in Ireland.

2.4 Draft 2019 WEDG

2.4.1 It is noted that the WEDG 2006 are currently under review and a set of 'Draft WEDG 2019' updated guidelines were issued for consultation in December 2019. Significant concerns were raised during the public consultation process on the Draft WEDG 2019 Guidelines, including concerns raised by a group of wind farm acousticians [(5)], regarding the noise section of the draft guidelines and how the authors had misinterpreted existing guidance and incorporated a number of errors within the technical approaches proposed. In light of these concerns, and the fact that significant changes would need to be made before they could be adopted, an assessment using the Draft WEDG 2019 Guidelines is not, in the professional opinion of TNEI, technically feasible or appropriate and has not therefore been undertaken.

2.4.2 Timelines for the conclusion of the Draft WEDG 2019 review are still unclear however the Government of Irelands Climate Action Plan 2024 [(6)] includes a 2024 Action (EL/24/5) to 'Publish the Revised Wind Energy Development Guidelines for onshore wind.' No timescales for completion are provided.

2.4.3 Therefore, at time of writing this Operational Noise Report, the DoEHLG 2006 Guidelines remain the relevant statutory guidelines and, as a result, they have been used for this assessment, appropriately supplemented by the guidance in ETSU-R-97 and the IOA GPG, which are considered by TNEI to represent current best practice. This report has been prepared by suitably qualified Acousticians, affiliated with the IOA. Based on the experience of TNEI of undertaking wind farms noise assessment projects with a combined rated capacity of >5 GW, considerate is considered that the use of these documents to represent best available evidence is the most robust approach.

2.5 ETSU-R-97 The Assessment and Rating of Noise from Wind Farms

2.5.1 As wind farms started to be developed in the UK in the early 1990's, it became apparent that existing noise standards did not fully address the issues associated with the unique characteristics of wind farm developments and there was a need for an agreed methodology for defining acceptable noise limits for wind farm developments. The

methodology was developed for the former Department of Trade and Industry (DTI) by the Working Group on Noise from Wind Turbines (WGNWT).

2.5.2 The WGNWT comprised a number of interested parties including, amongst others, Environmental Health Officers, wind farm operators, independent acoustic consultants and legal experts who:

'…between them have a breadth and depth of experience in assessing and controlling the environmental impact of noise from wind farms.'

2.5.3 In this way it represented the views of all the stakeholders that are involved in the assessment of noise impacts of wind farm developments. The recommendations of the WGNWT are presented in the DTI Report – ETSU-R-97 *'The Assessment and Rating of Noise from Wind Farms (1996).'*

2.5.4 The basic aim of the WGNWT in arriving at the recommendations was the intention to provide:

'Indicative noise levels thought to offer a reasonable degree of protection to wind farm neighbours, without placing unreasonable restrictions on wind farm development or adding to the costs and administrative burdens on wind farm developers or local authorities.'

2.5.5 ETSU-R-97 makes it clear from the outset that any noise restrictions placed on a wind farm must balance the environmental impact of the wind farm against the national and global benefits that would arise through the development of renewable energy sources:

'The planning system must therefore seek to control the environmental impacts from a wind farm whilst at the same time recognising the national and global benefits that would arise through the development of renewable energy sources and not be so severe that wind farm development is unduly stifled.'

2.5.6 ETSU-R-97 states that noise limits should reflect the variation in both turbine source noise and background noise with wind speed. Absolute lower limits, different for daytime and night-time, are applied where low levels of background noise are measured. The wind speed range that should be considered ranges between the cut-in wind speed for the turbines (usually about 2 to 3 ms^{-1}) and up to 12 ms^{-1}, where all wind speeds are referenced to a 10 metre measurement height.

2.5.7 Separate noise limits apply for daytime and for night-time. Daytime limits are chosen to protect a property's external amenity, and night-time limits are chosen to prevent sleep disturbance indoors, with windows open.

2.5.8 The daytime noise limit is derived from background noise data measured during so-called 'quiet periods of the day', which comprise weekday evenings (18:00 to 23:00), Saturday afternoons and evenings (13:00 to 23:00) and all day and evening on Sundays (07:00 to 23:00). Multiple samples of 10 minute background noise levels using the $L_{A90,10min}$ measurement index are logged continuously over a range of wind speed conditions. These measured noise levels are then plotted against concurrent wind speed data and a 'best fit' curve is fitted to the data to establish the background noise level as a function of wind speed. The ETSU–R-97 daytime noise limit, sometimes referred to as a 'criterion curve', is

then set at a level 5 dB(A) above the best fit curve over the desired wind speed range; subject to an appropriate daytime fixed minimum limit.

2.5.9 The night-time noise limit is derived from background noise data measured during the night-time periods (23:00 to 07:00), with no differentiation being made between weekdays and weekends. The 10 minute L_{A90} noise levels measured over the night-time periods are plotted against concurrent wind speed data and a 'best fit' correlation is established. The night-time noise limit is also based on a level 5 dB(A) above the best fit curve over the 0 - 12 ms^{-1} wind speed range, with a fixed minimum limit of 43 dB L_{A90}.

2.5.10 The exception to the setting of both the daytime and night-time fixed minimum limits occurs where a property occupier has a financial involvement in the wind farm development. Paragraph 24 of ETSU-R-97 states:

'The Noise Working Group recommends that both day and night time lower fixed limits can be increased to 45 dB(A) and that consideration should be given to increasing the permissible margin above background where the occupier of the property has some financial involvement in the wind farm.'

2.5.11 ETSU-R-97 provides a robust basis for determining the noise limits for wind turbine(s) and since its introduction has become the accepted standard for such developments across the UK.

2.5.12 As detailed above, the ETSU-R-97 guidance has been used to supplement the guidance provided within the WEDG.

2.6 Current Good Practice

A Good Practice Guide on the Application of ETSU-R-97

2.6.1 In May 2013, the Institute of Acoustics issued *'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'* (IOA GPG). The document provides guidance on background noise data collection, data analysis and limit derivation, noise predictions, cumulative issues, reporting requirements and other matters such as noise related planning conditions.

2.6.2 The Authors of the IOA GPG sets out the scope of the document in Section 1.2:

'This guide presents current good practice in the application of the ETSU-R-97 assessment methodology for all wind turbine developments above 50 kW, reflecting the original principles within ETSU-R-97, and the results of research carried out and experience gained since ETSU-R-97 was published. The noise limits in ETSU-R-97 have not been examined as these are a matter for Government.'

2.6.3 The guidance document was endorsed by all Governments within the UK. As with ETSU-R-97, for this assessment the recommendations included in the IOA GPG have been used to supplement the guidance provided within the WEDG.

2.6.4 The IOA GPG refers to six Supplementary Guidance Notes and where applicable these have also been considered in this report.

2.6.5 To summarise, the assessment of operational noise from the Proposed Development has been undertaken in accordance with WEDG 2006, supplemented by the guidance presented in ETSU-R-97 and the IOA GPG where appropriate.

2.7 WSP BEIS Report

2.7.1 In February 2023, WSP (an independent consultancy) published 'A review of noise guidance for onshore wind turbines' ('WSP BEIS report' [7]). The WSP BEIS report, which was subsequently re-issued as version 4 in May 2023, was commissioned by (the former) UK Government Department for Business, Energy & Industrial Strategy (BEIS). The primary aim of the review was to make a recommendation on whether, in view of government policies on noise and Net Zero, and available evidence, the existing UK guidance requires updating.

2.7.2 The WSP BEIS report concluded that:

'the guidance would benefit from further review and updating of the aspects identified. This could be supported by currently available evidence, which is summarised in this report. However, the study has also highlighted gaps in the state of knowledge, which should be addressed by further research, to support any updates to the guidance.'

2.7.3 A series of recommendations are made regarding further research whilst some additional suggestions are included regarding the development of new or updated guidance. The following recommendation is included on page 26 of the WSP BEIS report:

'the separation of the 'policy position' (addressing the balance between controlling noise impact and enabling renewable energy development), 'technical guidance' (application of the assessment approach), and 'technical justification' (the supporting evidence) into discrete, linked documents'

2.7.4 The WSP BEIS report notes at the outset that 'Any views expressed within it do not necessarily represent the views of the UK government or the governments of any of the devolved administrations'. The report does state on page 25 that:

'Consideration should be given to including a clear position statement in guidance confirming the intended policy balance between protection from noise impact, and enabling of renewable energy development (to achieve Net Zero), linked with the wider policies that underpin the government approach to noise management.'

2.7.5 At time of writing this report, there has been no official response to the report from BEIS or any of the new UK Government departments which are being created to replace BEIS. In the event that a decision is made to follow up on the recommendations within the WSP BEIS report, it is unknown how new guidelines would account for the UK Governments' Net Zero targets nor is there any indication of timescales within which updated guidance would be produced.

2.7.6 The guidance contained within ETSU-R-97 and the IOA GPG has therefore been used to supplement the 2006 WEDGs6.

3 Potential Impacts

3.1 Operational Noise Sources

3.1.1 Wind turbines may emit two types of noise. Firstly, aerodynamic noise is a more natural sounding 'broad band' noise, albeit with a characteristic modulation, or 'swish', which is produced by the movement of the rotating blades through the air. Secondly, mechanical noise may emanate from components within the nacelle of a wind turbine. Potential sources of mechanical noise include gearboxes or generators.

3.1.2 Aerodynamic noise is usually perceived when the wind speeds are fairly low although at very low wind speeds the blades either do not rotate, or rotate very slowly, and so negligible aerodynamic noise is generated. In higher winds aerodynamic noise may be masked by the normal sound of wind blowing through the trees and around buildings. The level of this natural 'masking' noise relative to the level of wind turbine noise is one of the several factors that determine the subjective audibility of the wind turbines [8].

3.1.3 The potential impact assessed in this report considers the overall noise levels of wind farms inclusive of expected Normal Amplitude Modulation (NAM) and tonality, as described in ETSU-R-97. Other topics relating to operational wind farm noise characteristics, such as Low Frequency Noise (LFN) and Other Amplitude Modulation (OAM) are discussed below.

3.2 Infrasound, Low Frequency Noise and Vibration

3.2.1 The term infrasound can be defined as sound in the frequency range below 20 Hz, while low frequency noise (LFN) is typically in the frequency range 20 – 200 Hz [9]. An average young healthy adult has an audible range from 20 Hz to 20,000 Hz, although the sensitivity of the ear varies with frequency and is most sensitive to sounds with frequencies between 500 Hz and 4,000 Hz. Wind turbines do produce low frequency sounds [10], but our threshold of hearing at such low frequencies is relatively high and they therefore go unnoticed. Infrasound from wind turbines is often at levels below that of the noise generated by wind around buildings and other obstacles.

3.2.2 In 2004, the former DTI commissioned The Hayes McKenzie Partnership to report on claims that infrasound or LFN emitted by wind turbine generators (WTGs) were causing health effects. Of the 126 wind farms operating in the UK, five had reported LFN problems, therefore, such complaints are an exception, rather than a general problem that exists for all wind farms. Hayes McKenzie investigated the effects of infrasound and LFN at three wind farms for which complaints had been received and the results were reported in May 2006 [11]. The report concluded that:

- *'infrasound associated with modern wind turbines is not a source which will result in noise levels which may be injurious to the health of a wind farm neighbour;*
- *low frequency noise was measurable on a few occasions but below the existing permitted Night Time Noise Criterion. Wind turbine noise may result in internal noise levels within a dwelling that is just above the threshold of audibility, however at all sites it was always lower than that of local road traffic noise;*
- *that the common cause of complaint was not associated with LFN, but the occasional audible modulation of aerodynamic noise especially at night. Data collected showed*

that the internal noise levels were insufficient to wake up residents at these three sites. However once awoken, this noise can result in difficulties in returning to sleep.'

3.2.3 The Applied and Environmental Geophysics Research Group at Keele University was commissioned by the Ministry of Defence (MOD), the DTI and the British Wind Energy Association (BWEA) to undertake microseismic and infrasound monitoring of LFN and vibrations from wind farms for the purposes of siting wind farms in the vicinity of Eskdalemuir in Scotland. Whilst the testing showed that vibration can be detected several kilometres away from wind turbines, the levels of vibration from wind turbines were so small that only the most sophisticated instrumentation can reveal their presence and they are almost impossible to detect. Nevertheless, the Renewable Energy Foundation alleged potential adverse health effects and when that story was picked up in the popular press, notably the Scotsman, the report's authors expressed concern over the way in which their work had been misinterpreted and issued a rebuttal statement [12] in August 2005:

'Vibrations at this level and in this frequency range will be available from all kinds of sources such as traffic and background noise – they are not confined to wind turbines. To put the level of vibration into context, they are ground vibrations with amplitudes of about one millionth of a millimetre. There is no possibility of humans sensing the vibration and absolutely no risk to human health.'

3.2.4 In response to concerns that wind turbines emit infrasound and cause associated health problems, Dr Geoff Leventhall, Consultant in Noise Vibration and Acoustics and author of the Defra Report on Low Frequency Noise and its Effects, said in the article in the Scotsman ('Wind farm noise rules 'dated'- James Reynolds, 5 August 2005'):

'I can state quite categorically that there is no significant infrasound from current designs of wind turbines.'

3.2.5 An article [13] published in the IOA Bulletin (March/April 2009) concluded that there is no robust evidence that either low frequency noise (including 'infrasound') or ground-borne vibration from wind farms, has an adverse effect on wind farm neighbours.

3.2.6 Work [14] by Dr Leventhall looked at infrasound levels within the ear compared to external sources and concluded:

'The conclusion is that the continuous inner ear infrasound levels due to internal sources, which are in the same frequency range as wind turbine rotational frequencies, are higher than the levels produced in the inner ear by wind turbines, making it unlikely that the wind turbine noise will affect the vestibular systems, contrary to suggestions made following the measurements at Shirley. The masking effect is similar to that in the abdomen (Leventhall 2009). The body, and vestibular systems, appear to be built to avoid disturbance from the high levels of infrasound which are produced internally from the heartbeat and other processes. In fact, the hearing mechanisms and the balance mechanisms, although in close proximity, have developed to minimise interaction (Carey and Amin 2006).'

3.2.7 During a planning Appeal (PPA-310-2028, Clydeport Hunterston Terminal Facility, approximately 2.5 km south-west of Fairlie, 9 Jan 2018), the health impacts related to LFN associated with wind turbines were considered at length by the appointed Reporter (Mr M Croft). The Reporter considered evidence from Health Protection Scotland and the National Health Service. In addition, he also considered LFN surveys undertaken by the Appellant

and the Local Authority, both of which demonstrated compliance with planning conditions and did not identify any problems attributable to the turbine operations; some periods with highest levels of low frequency noise were in fact recorded when the turbines were not operating.

3.2.8 The Reporter concluded that:

- The literature reviews by bodies with very significant responsibilities for the health of local people found insufficient evidence to confirm a causal relationship between wind turbine noise and the type of health complaints cited by some local residents;
- The NHS's assessment is that concerns about health impact are not supported by good quality research; and
- Although given the opportunity, the Community Council failed to provide evidence that can properly be set against the general tenor of the scientific evidence.

3.2.9 The WSP BEIS Report notes on page 113 that:

'Several studies have investigated the claimed links between adverse health symptoms and infrasound emissions from wind turbines. Although some experimental studies have linked infrasonic signals with activation of physiological sensory processing, these have tended to be based on signals that are not representative of wind turbine infrasound. There remains no compelling evidence of adverse health effects associated with wind turbine infrasound exposure at sound frequencies and' levels expected to be present at noise-sensitive receptor locations in the vicinity of wind farms'

3.2.10 The WSP BEIS Report goes on to note on page 114 that:

'Overall, the findings from the existing evidence base indicate that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health, and reported symptoms of ill-health are more likely to be psychogenic in origin.'

3.2.11 It is noted that research into infrasound is ongoing but the WSP BEIS report concluded that:

'It is expected that further evidence from ongoing studies into wind turbine infrasound effects will emerge soon, in particular from the NHMRC studies in Australia. However, based on the existing scientific evidence, it does appear probable that the above findings will not be contradicted by newer evidence.'

3.2.12 Since the publication of the WSP BEIS report, the study that was granted funding by NHMRC (the National Health and Medical Research Council of Australia) was published in the Environmental Health Perspectives (EHP) journal which is published by the United States National Institute of Environmental Health. The study [(15)] aimed to test the effect of exposure to 72 hours of infrasound (designed to simulate a wind turbine infrasound signature) exposure on human physiology, particularly sleep. The study concluded that:

'Our findings did not support the idea that infrasound causes WTS[1]. High level, but inaudible, infrasound did not appear to perturb any physiological or psychological measure tested in these study participants.'

[1] WTS stands for Wind Turbine Syndrome which is a term for adverse human health effected related to the proximity of wind turbines.

3.2.13 It is therefore not considered necessary to carry out specific assessments of LFN and it has not been considered further in the noise assessment.

3.3 Amplitude Modulation of Aerodynamic Noise (AM)

3.3.1 In the context of wind turbine noise, amplitude modulation describes a variation in noise level over time; for example, observers may describe a 'whoosh whoosh' sound, which can be heard close to a wind turbine as the blades sweep past. Amplitude Modulation of aerodynamic noise is an inherent characteristic of wind turbine noise and was noted in ETSU-R-97, on page 68:

'The modulation or rhythmic swish emitted by wind turbines has been considered by some to have a characteristic that is irregular enough to attract attention. The level and depth of modulation of the blade noise is, to a degree, turbine-dependent and is dependent upon the position of the observer. Some wind turbines emit a greater level of modulation of the blade noise than others. Therefore, although some wind turbines might be considered to have a character that may attract one's attention, others have noise characteristics which are considerably less intrusive and unlikely to attract one's attention and be subject to any penalty.

This modulation of blade noise may result in a variation of the overall A-weighted noise level by as much as 3dBA (peak to trough) when measured close to a wind turbine. As distance from the wind turbine [or] wind farm increases, this depth of modulation would be expected to decrease as atmospheric absorption attenuates the high frequency energy radiated by the blade.'

3.3.2 The Acoustics community has sought to make a distinction between the AM discussed within ETSU-R-97, which is expected at most wind farms and as such may be considered as 'Normal Amplitude Modulation' (NAM), compared to the unusual AM that has sometimes been heard at some wind farms, hereinafter referred to as 'Other Amplitude Modulation' (OAM). The term OAM is used to describe an unusual feature of aerodynamic noise from wind turbines, where a greater than normal degree of regular fluctuation in sound level occurs at blade passing frequency, typically once per second. In some appeal decisions it may also be referred to as 'Excess Amplitude Modulation' (EAM). It should be noted that the noise assessment and rating procedure detailed in ETSU-R-97 fully takes into account the presence of the intrinsic level of NAM when setting acceptable noise limits for wind farms.

3.3.3 On 16 December 2013, RenewableUK (RUK) released six technical papers [16] on OAM, which reflected the outcomes of research commissioned over the previous three years, together with a template planning condition. Whilst this research undoubtedly improved understanding of OAM and its effects, it should be noted that at the time of writing it has not been endorsed by any relevant body such as the Institute of Acoustics (IOA).

3.3.4 On 22 January 2014, the IOA released a statement regarding the RUK research and the proposed planning condition to deal with the issue of amplitude modulation from a wind turbine and stated:

'This research is a significant step forward in understanding what causes amplitude modulation from a wind turbine, and how people react to it. The proposed planning condition, though, needs a period of testing and validation before it can be considered to be

good practice. The IOA understands that RenewableUK will shortly be making the analysis tool publicly available on their website so that all interested parties can test the proposed condition, and the IOA will review the results later in the year. Until that time, the IOA cautions the use of the proposed planning condition.'

3.3.5 In April 2015, an Amplitude Modulation Working Group (AMWG) formed by the IOA issued a discussion document entitled 'Methods for Rating Amplitude Modulation in Wind Turbine Noise'. The document presented three methods that can be used to quantify the level of AM at a given measurement location. After extensive consultation a preferred method of measuring OAM was recommended by the IOA in a report called 'Final Report - A Method for Rating Amplitude Modulation in Wind Turbine Noise' dated 9th August 2016, which details a preferred method for practitioners to measure and rate AM near operational wind farms. The method calculates an amplitude modulation depth value in decibel (dB) for any given 10 minute period, and the executive summary states:

'The AMWG has not addressed the question of what level of AM in wind turbine noise (when measured by a specific metric) is likely to result in adverse community response or how that response should be evaluated. The psycho-acoustic aspects of AM are not within the scope of this study, but the proposed metric is intended to assist with such further research.'

3.3.6 On 3 August 2015, the UK Department for Energy and Climate Change (DECC), subsequently the Department for Business, Energy and Industrial Strategy (BEIS), commissioned independent consultants WSP Parsons Brinkerhoff to carry out a literature review on OAM (which they refer to simply as AM). The stated aims were as follows:

- *'To review the available evidence on Amplitude Modulation (AM) in relation to wind turbines, including but not limited to the research commissioned and published by RenewableUK in December 2013;*
- *To work closely with the Institute of Acoustics' AM working group, who are expected to recommend a preferred metric and methodology for quantifying and assessing the level of AM in a sample of wind turbine noise data;*
- *To review the robustness of relevant dose response relationships, including the one developed by the University of Salford as part of the RenewableUK study, on which the correction (or penalty) for amplitude modulation proposed as part of its template planning condition is based;*
- *To consider how, in a policy context, the level(s) of AM in a sample of noise data should be interpreted, in particular determining at what point it causes a significant adverse impact;*
- *To recommend how excessive AM might be controlled through the use of an appropriate planning condition; and*
- *To consider the engineering/cost trade-offs of possible mitigation measures.'*

3.3.7 Their report [17], 'Wind Turbine AM Review – Phase 2 Report' was published in August 2016 at the same time as the release of the IOA AMWG Final Report, and concluded that there is sufficient robust evidence that excessive AM leads to increased annoyance from wind turbine noise and recommended that excessive AM is controlled through a suitably worded planning condition, which will control it during periods of complaint. Those periods should

be identified by measurement using the metric proposed by the IOA, and enforcement action would rely upon professional judgement by Local Authority Environmental Health Officers, based on the duration and frequency of occurrence. It is not clear within the body of the report what evidence the authors relied upon to arrive at their conclusions, although the Executive Summary states (page 4):

'It is noted that none of the Category 1 or 2 papers have been designed to answer the main aim of the current review in its entirety. The Category 1 studies have limited representativeness due to sample constraints and the artificiality of laboratory environments, whereas the Category 2 studies generally do not directly address the issue of AM WTN exposure-response. A meta - analysis of the identified studies was not possible due to the incompatibility of the various methodologies employed. Notwithstanding the limitations in the evidence, it was agreed with DECC that the factors to be included in a planning condition should be recommended based on the available evidence, and supplemented with professional experience'.

3.3.8 The report [17] states that any planning condition must accord with existing planning guidance, and should be subject to legal advice on a case by case basis. Existing guidance would include compliance with the six tests of a planning condition, which in Ireland are embodied in Development Management Guidelines 2007 Chapter 7. The report's authors did not dictate a particular condition to be used but did suggest that any condition should include the following elements (p5):

- *'The AM condition should cover periods of complaints (due to unacceptable AM);*
- *The IoA-recommended metric should be used to quantify AM (being the most robust available objective metric);*
- *Analysis should be made using individual 10-minute periods, applying the appropriate decibel 'penalty' to each period, with subsequent analysis;*
- *The AM decibel penalty should be additional to any decibel penalty for tonality;* [tonality means mechanical sound already covered by ETSU noise limits]*; and*
- *An additional decibel penalty is proposed during the night time period to account for the current difference between the night and day limits on many sites to ensure the control method works during the most sensitive period of the day.'*

3.3.9 In 2017 a potential noise related planning condition which included consideration of OAM was published in the Acoustics Bulletin magazine (by the IOA) written by a number of acousticians working in the field of wind farm noise in the UK. The approach outlined in the document was not subject to any wider consultation nor has it been endorsed by the IOA, the UK Government or Scottish Government. The lack of robust information regarding the second element is highlighted in the article itself which notes:

'Whilst local authorities and developers have waited for a planning condition that could be applied to newly consented wind farms, or to those already consented but with a suspensive condition, the report Wind Turbine AM Review (WTAMR) by WSP/Parsons Brinckerhoff for DECC arguably did not provide that. In addition there have been a number of comments on WTAMR that we consider should be addressed. The introductory sections and the conditions text represent the broad consensus view of those whose names appear below, following a period of discussion, compromise and agreement. This approach is

proposed based on the current state of understanding, but may be subject to modification in light of new research and further robust information.'

'As various people before us have discovered, the derivation of a penalty is not easy. There is not sufficient reliable research to be confident that a penalty system would always provide a fair indication of the impact of AM.'

3.3.10 The article goes on to note that:

'However, to do nothing would be unfair on those wind farm neighbours adversely affected by AM and, in any case, there seems to be general agreement amongst many stakeholders on all sides of the debate that a robust condition including AM is required.'

3.3.11 The topic of AM from wind turbine noise was considered again in the UK in 2022, with a review of evidence commissioned by the UK Government published in the WSP BEIS report *'A review of Noise Guidance for Onshore Wind Turbines,' (*October 2022). The report notes that the IOA preferred metric provides a suitable approach to measure and quantify AM near operational wind farms (whilst noting that work is ongoing to refine the approach) but also highlights that further work is required to develop a robust mechanism for controlling AM that can be incorporated into a planning condition. In relation to the potential for a penalty scheme to control AM, the WSP BEIS report notes on page 208 that:

'In practice, the details of applying such a penalty scheme are complicated by the complexities of wind turbine sound measurements. These often involve a considerable amount of data filtering and data aggregation to address the practical difficulties of measuring a highly variable source, which is often also at a level that is relatively low compared with other, fluctuating residual sounds present in the acoustic environment. Such details will need to be carefully considered in further study, and the example planning condition proposed by a group of IOA members in 2017 should be considered as a starting point.'

3.3.12 Until such a 'further study' is completed, and additional guidance is published, the approach set out in the IOA GPG remains valid, the document states (paragraph 7.2.10):

'7.2.1 The evidence in relation to "Excess" or "Other" Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM.'

3.3.13 Persistent OAM can be a source of nuisance to wind farm neighbours. A recent decision of the Irish High Court on the 8th of March 2024 found that frequent and sustained periods of OAM arising from the operational Ballyduff Wind Farm, Co. Wexford, was an unreasonable interference with a neighbour's use and enjoyment of their property, which was located approximately 359 m from the nearest turbine. The issue of damages and/or an injunction were held over for later determination by the court but, in the meantime, the court directed all parties to engage in mediation with a view to devising 'appropriate mitigation measures and, if possible, to resolve all outstanding issues between them'. Therefore, for instances in which OAM arises, mitigation is possible and is the appropriate response.

3.3.14 As a summary, a significant amount of research has been undertaken in relation to OAM and key outcomes of the research are that:

- It is clear that OAM, if it occurs frequently and for sustained periods, it has the potential to result in adverse impacts for wind farm neighbours;
- It is not currently possible to predict if and when OAM will occur at a proposed wind farm site. On sites where OAM has been identified it occurs intermittently and varies in terms of severity;
- There are methodologies available that can be used to measure and quantify OAM, in particular the method produced by the Amplitude Modulation Working Group (AMWG), which was formed by the Institute of Acoustics. The methodology was presented in a report 'Methods for Rating Amplitude Modulation in Wind Turbine Noise' which was published in April 2015;
- Whilst it is possible to measure and quantify OAM using the AMWG methodology (which provides an AM rating for each 10 minute period), further study is still required to help quantify what level of OAM, if any, is acceptable. This is complicated by the fact that it is unclear whether a small amount of OAM that occurs regularly is likely to be more (or less) annoying than a large amount of OAM that occurs very infrequently; and
- Notwithstanding a lack of a defined threshold detailing what level of OAM is acceptable, there are measures available which have been shown to mitigate OAM should it occur. Measures can include:
    - Changes to the operation of the relevant wind turbine(s) by changing parameters such as blade pitch;
    - Addition of blade furniture (such has vortex generators) to alter the flow of air over the wind turbine blades; and, in extreme cases,
    - Targeted wind turbine shutdowns in specific conditions where OAM is found to occur.

  Where mitigation is required, it needs to be designed on a site-specific basis.

4 Methodology

4.1 Consultation

Scoping Opinion

4.1.1 A Scoping document was submitted to Louth County Council. No response was received in regard to the Operational Noise Assessment.

4.2 Assessing Operational Noise Impact

4.2.1 To undertake an assessment of the operational noise impact, the following steps are required:

- Specify the location of the wind turbines for the Proposed Development;
- Measure the background noise levels as a function of on-site wind speed at a selection of representative Noise Monitoring Locations (NML);
- Establish for each NML the 'WEDG Noise Limits' on analysis of the measured background noise levels;
- Identify the locations of all nearby noise sensitive receptors (NSRs) and select a sample of relevant Noise Assessment Locations (NAL). For each NSR, identify the most representative measured background noise dataset;
- Specify the likely noise emission characteristics of the wind turbines for the Proposed Development; and
- Calculate the likely noise immission levels due to the operation of the Proposed Development and compare it to the Proposed Development's 'WEDG Noise Limits'.

Wind Shear

4.2.2 Wind shear can be defined as *'the change in the relationship between wind speed at different heights'*. Due to wind shear, wind speeds recorded on one meteorological mast at different heights usually vary, generally the higher the anemometer the higher the wind speed recorded. For example, if a wind speed of 4 ms^{-1} is recorded at 80 m height, 3.5 ms^{-1} may be recorded at 40 m and 2.5 ms^{-1} may be recorded at 10 m.

4.2.3 Hub height wind speed is the key wind speed for a wind farm noise assessment, as it is the wind speed at hub height which will determine the noise emitted by the wind turbines and informs the turbine control system. Ideally, both wind turbine noise predictions and background noise level measurements should refer to hub height wind speed (or a representation thereof), ensuring that there is no discrepancy between the wind speed at which the noise is emitted and the wind speed at which the corresponding background noise is measured.

4.2.4 The IOA GPG states that one of three methods of wind speed measurement may be adopted. For this assessment wind speeds were recorded directly at the highest hub height being considered (105 m) in line with 'Method A' of Section 2.6.3 of the IOA GPG to fully take account of wind shear.

Noise Impact Criteria in the WEDG

4.2.5 Analysis of the measured data has been undertaken in accordance with the WEDG and current good practice to determine the pre-existing background noise environment and to establish the daytime and night-time WEDG Noise Limits for each NAL.

4.2.6 The WEDG Noise Limits for the daytime have been set at:

- 40 dB(A) where background noise levels are below 30 dB; and,
- 45 dB(A) or background noise plus 5 dB, whichever is the greater, where background noise levels are greater than 30 dB.

4.2.7 WEDG Noise Limits at night-time has been set at;

- 43 dB(A) or background plus 5 dB, whichever is the greater.

4.2.8 The acceptable limits for wind turbine operational noise are clearly defined for all time periods by the application of the WEDG methodology. Consequently, the test applied to operational noise is whether or not the predicted wind turbine noise immission levels at nearby noise sensitive properties lie below the WEDG Noise Limits. Depending on the levels of background noise, the satisfaction of the WEDG derived limits can lead to a situation whereby, at some locations under some wind conditions and for a certain proportion of the time, the wind turbine noise would be audible.

Noise Prediction / Propagation Model

4.2.9 The ISO 9613-2: 1996 *'Acoustics – Attenuation of sound during propagation outdoors Part 2: General method of calculation'* [18] model algorithm provides a robust prediction method for calculating the noise immission levels at the nearest receptors. A European Commission (EC) research project into wind farm noise propagation over large distances, published as 'Development of a Wind Farm Noise Prediction Model,' JOULE project JOR3-CT95-0051 in 1998, identified a simplified version of ISO 9613-2 as the most suitable at that time, but the full method has been used for this assessment.

4.2.10 Guidance on noise prediction and propagation modelling is not provided within the WEDG, however, the IOA GPG recognises the standard as appropriate for the prediction of wind turbine noise.

4.2.11 There is currently no standard approach to specifying error bands on noise predictions, however, Table 5 of ISO 9613-2 suggests, at best, an estimated of accuracy of ± 3 dB(A). The work undertaken as part of the EC research study concluded that the ISO 9613-2 algorithm reliably predicted noise levels that would generally occur under downwind propagation conditions. The error bands referenced in the ISO standard itself relate to the general application of the standard. Additional, wind farm specific studies, have also been undertaken to validate the use of the standard to predict wind farm noise and these are referenced in Section 4 of the IOA GPG, which goes on to conclude that:

'The outcome of this research has demonstrated that the ISO 9613-2 standard in particular, which is widely used in the UK, can be applied to obtain realistic predictions of noise from on-shore wind turbines during worst case propagation conditions (i.e. sound speed

gradients due to downwind conditions or temperature inversions), but only provided that the appropriate choice of input parameters and correction factors are made.'

4.2.12 TNEIs experience of undertaking compliance monitoring for operational wind farms indicates that the predictions undertaken using the guidance in the IOA GPG show a good correlation with measured levels.

4.2.13 The ISO 9613-2 model can take account of the following factors that influence sound propagation outdoors:

- Geometric divergence;
- Atmospheric absorption;
- Reflecting obstacles;
- Screening;
- Vegetation; and
- Ground attenuation.

4.2.14 The model uses as its acoustic input data the octave band sound power output of the turbine and calculates, on an octave band basis, attenuation due to the factors above, as appropriate.

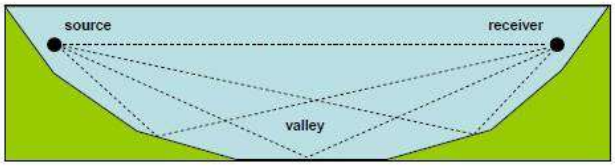
4.2.15 The IOA GPG quotes a comparative study undertaken in Australia that indicated ISO 9613-2 can, in some conditions, under-predict ground attenuation effects and the potential for additional reflection paths 'across a valley', whilst slightly over-predicting on flat terrain. It should be noted, however, that the wind farm layouts studied were untypical for the UK, with rows of turbines spreading over 10 km on an elevated ridge. It also should be noted that no correction for background contribution was undertaken and the monitoring locations were located as far as 1.7 km from the nearest turbine, where turbine noise may be at similar levels to background noise and therefore difficult to differentiate. For the study's modelling work topographic height data was included as an input, which is consistent with ISO 9613-2 methodology generally, but not with the requirements of the IOA GPG.

4.2.16 The model used in this assessment does not model barrier attenuation using the method in ISO 9613-2, but instead uses the guidance in the IOA GPG to consider whether any topographical corrections are required as set out below in Sections 4.2.23to 4.2.24. Any differences in ground height between the receptors and the turbines are considered when calculating the propagation distance between each source and receiver.

4.2.17 The IOA GPG discusses the potential for topographical screening effects of the terrain surrounding a wind farm and the nearby noise sensitive receptors. Although barrier screening effects in ISO 9613-2 can make corrections of up to 15 dB, the IOA GPG states that where there is no line of sight between the highest point on the rotor and the receiver location a reduction of no more than 2 dB may be applied.

4.2.18 The IOA GPG also states that a *'further correction of +3 dB should be added to the calculated overall A-weighted level for propagation 'across a valley', i.e. a concave ground profile or where the ground falls away significantly between a turbine and the receiver location.'* The potential reflection paths are illustrated in Schematic 4.1 below.

Schematic 4.1: Multiple reflection paths for sound propagation across concave ground



Source: IOA GPG, page 21, Figure 5

4.2.19 A formula from the JOULE Project JOR3-CT95-0051 dated 1998 is suggested for determining whether a correction is required.

$$h_m \geq 1.5 \times (abs\ (h_s - h_r) / 2)$$

where h_m is the mean height above the ground of the direct line of sight from the receiver to the source (as defined in ISO 9613-2, Figure 3), and h_s and h_r are the heights above local ground level of the source and receiver respectively).

4.2.20 The calculation of h_m requires consideration of the digital terrain model and needs to be performed for each path between every turbine and every receiver. Interpretation of the results of the calculation above and the subsequent inclusion of a concave ground profile correction requires careful consideration with any topographical variation considered in the context of a site. The requirements for topographical corrections are detailed within Sections 4.2.23 and 4.2.24 below.

Noise Propagation Parameters

4.2.21 The noise immission levels have been calculated using the full ISO 9613-2 model with a receiver height of 4.0 m above local ground level, mixed ground (G=0.5) and air absorption based on a temperature of 10 °C and 70 % relative humidity. The modelling parameters reflect current good practice as detailed within the IOA GPG.

4.2.22 The wind turbine noise immission levels are based on the $L_{A90,10\ minute}$ noise indicator in accordance with the recommendations in the WEDG, which were obtained by subtracting 2dB(A) from the turbine sound power level data (L_{Aeq} indicator).

4.2.23 A topographical assessment has been undertaken between each NSR and wind turbine location to determine whether any concave ground profiles exist between the source and receiver. Analysis undertaken using a combination of CadnaA [(19)] and an Excel model found that if the formula in the IOA GPG is applied directly, no corrections were required for any turbines at any receptor, as summarised in Annex 6.

4.2.24 In addition, an assessment has been undertaken to determine whether any topographical screening effects of the terrain occur where there is no direct line of sight between the highest point on the turbine rotor and the receiver location. Upon analysis of each NSRs it was found that no barrier correction could be applied to any turbines at any of the receptors as detailed in Annex 6.

4.2.25 The need to include a concave ground/screening correction may change depending on the final location of the turbines (following micrositing) and the final turbine hub height. Nevertheless, turbine noise levels will have to meet the noise limits detailed in planning conditions regardless of any difference in noise propagation caused by topography. Should planning permission be granted, the need to apply a concave slope correction will need to

be considered by the Applicant prior to the final selection of a turbine model for the Proposed Development.

5 Baseline

5.1 Identification of Potential Noise Receptors

5.1.1 The WEDG 2006 state that *'a noise sensitive location includes any occupied dwelling house, hostel, health building or place of worship and may include areas of particular scenic quality or special recreational amenity importance.'* Following a review of NSRs surrounding the Proposed Development, the closest receptors were found all to be residential properties.

5.1.2 Of the identified receptors, a total of seven Noise Monitoring Locations (NMLs) were selected as being appropriate locations to determine a representative baseline for all of the identified NSRs. The NMLs were located in all directions of the Proposed Development.

5.1.3 The NMLs were selected following a detailed review of the area using aerial photography. Where possible, locations were selected that were subject to minimal influence from other noise sources, such as local watercourses and vegetation.

5.2 Background Noise Survey

5.2.1 Background noise monitoring was undertaken for the purposes of setting the WEDG Noise Limits. Data was recorded over the period 8 February - 21 April 2023 at seven noise sensitive receptors.

5.2.2 Details of the exact monitoring periods, the rationale behind the exact kit location and the dominant noise sources observed at each of the NMLs are detailed in the Field Data Sheets (FDS) and installation report included in Annex 2.

5.2.3 The NML is the position that the sound level meter was sited at each property, as shown on Figure A1.1a-d (Annex 1) and summarised in Table 5.1 below.

Table 5.1 Noise Monitoring Locations

NML/ Receptor Name	X (ITM)	Y (ITM)
NML1 (H115)	709238	783878
NML2 (H110)	709252	783061
NML3 (H374)	708771	782517
NML4 (H226)	707615	782310
NML5 (H66)	706345	783944
NML6 (H306)	706401	784583
NML7 (H71)	708661	784724

5.3 Noise Monitoring Equipment

5.3.1 Section 2.4 of the IOA GPG includes information on the type and specification of noise monitoring equipment that should be used for background noise surveys and states:

'Noise measurement equipment and calibrators used on site should comply with Class 1/Type 1 of the relevant standard(s). Enhanced microphone windscreens should be used. Standard windshields of a diameter of less than 100 mm cannot be relied upon to provide sufficient reduction of wind noise in most circumstances.'

5.3.2 The noise monitoring equipment used for the background noise survey meets with the requirements of the IOA GPG. Details of the noise monitoring equipment used, the calibration drift recorded and photographs at each NML are detailed in the FDS included in Annex 2. The IOA GPG states that for calibration drift greater than 1 dB the measurements should be discarded. The maximum calibration drift recorded during the noise survey was 0.2 dB as detailed in the FDS (included in Annex 2) therefore no correction has been applied to the noise data.

5.3.3 Copies of the calibration/conformance certificates for the sound level meters and sound level calibrator used for the noise survey are included in Annex 3. All sound level meters conform to Class 1/ Type 1.

5.3.4 The microphones were all mounted between 1.2 m and 1.5 m above local ground level, situated between 3.5 m and 20 m from the dwelling and were located *'in an area frequently used for rest and relaxation'* (Section 2.5.1 of IOA GPG), and away from obvious local sources of noise such as boiler flues, fans and running water. The sound level meters were situated as far away from hard reflective surfaces such as fences and walls as practicable.

5.3.5 All measurement systems were set to log the L_{A90} and L_{Aeq} noise levels in ten minute intervals continuously over the deployment period.

5.4 Meteorological Data

5.4.1 The WEDG state on Page 29 that:

'Noise limits should be applied to external locations, and should reflect the variation in both turbine source noise and background noise with wind speed.'

5.4.2 ETSU-R-97 states on Page 84 that:

'background noise measurements should be correlated with wind speed measurements performed at the proposed site, such that the actual operating noise levels from the turbines may be compared with the noise levels that would otherwise be experienced at a dwelling.'

5.4.3 The preferred methodologies for measuring or calculating wind shear are detailed in Section 4.2.2.

5.4.4 For the Proposed Development, concurrent wind speed and direction were recorded at the height of the largest hub height being considered (105 m) using a LIDAR unit which was

located within the site (grid reference 708670, 783382). The meteorological data was collected and provided by the Applicant. The installation report and calibration information for the LIDAR can be provided upon request.

5.4.5 A tipping bucket rain gauge was installed at NML1 and NML5 for the duration of the noise survey to record periods of rainfall, time synchronised to the sound measurements. Rain data were collected by TNEI. As per the recommendations in Section 3.1.9 of the IOA GPG, the rain data were analysed by TNEI and the 10 minute periods that contained a registered rainfall event and the preceding 10 minute periods have been excluded. All excluded rainfall periods are shown on Figures A1.2a-A1.2g (Annex 1) as blue squares.

5.4.6 Wind speed and direction data were collected over the same time-scale, and averaged over the same ten minute periods as the noise data to provide the analysis of the measured background noise as a function of wind speed and direction.

5.4.7 In accordance with the IOA GPG, methodology A, has been adopted for this assessment which involved using data collected directly at the highest hub height being considered (105 m) which, in turn, were standardised to a height of 10 m above ground.

5.4.8 Whilst the hub height of the turbine could be less than 105 m, using this value to standardise to 10 m is considered conservative as the higher the hub height assumed the higher the wind speed and the further the shift of the wind speed data over to the right of the wind speed axis. This has the overall effect of lowering limits over the wind speed range necessary to be assessed in accordance with ETSU-R-97.

5.5 Filtering of Background Noise

5.5.1 In Section 3.1.22 of the IOA GPG the need to directionally filter background noise data is discussed. Where a receiver is located upwind of a dominant local noise source whilst also being systematically downwind of the turbines then it may be necessary to filter background noise data particularly when this corresponds to the prevailing wind direction.

5.5.2 It was noted by onsite subjective observations that the dominant noise source at both NML5 and 6 was road traffic noise coming from the M1 Motorway and the R132, both of which run north to south directly to the west of NML5 and 6 at distances of approximately 1 km and 500 m, respectively. Since downwind conditions from the Proposed Development will be directly from the east at these receptors – the opposing wind direction to the road traffic noise, directional filtering of the recorded dataset at these monitoring locations was undertaken. The filter angle selected was 270 degrees to ensure that any influence of the M1 and R132 was minimised and to only capture the background noise in easterly conditions, which will be the downwind conditions of the Proposed Development.

5.5.3 In addition to directional filtering, due to the operational Kilsaran Quarry having permitted operating hours of 07:00 to 20:00 Monday - Friday, and 07:00 to 14:00 Saturday, there is a crossover between the quarry operating hours and the quiet daytime periods. Therefore, any background noise data measured between 19:00 – 20:00 Monday to Friday, and 13:00 to 14:00 Saturday, has not been considered when undertaking the background noise regression analysis for the quiet daytime period. This approach was applied to all NMLs.

5.6 Analysis of Measured Data

5.6.1 Analysis of the measured data has been undertaken in accordance with the recommendations in WEDG, ETSU-R-97 and the IOA GPG.

5.6.2 Meteorological data was screened upon receipt by TNEI and where rainfall occurred, the noise and wind speed data has been excluded from the assessment as detailed in Section 5.4 above.

5.6.3 Time series graphs are provided in Annex 4, which show the variation in measured wind speed/direction and noise level over the monitoring period. These graphs also show where data was excluded, either due to rainfall, birdsong (dawn chorus) or manual exclusions due to atypical data.

5.7 Prevailing Background Noise Level

5.7.1 Table 5.2 and Table 5.3 summarise the derived prevailing background noise levels from the baseline survey.

Table 5.2 Summary of Prevailing Background Noise Levels during Quiet Daytime Periods (dB(A))

NML	Prevailing Background Noise Level $L_{A90,10\ min}$											
	1	2	3	4	5	6	7	8	9	10	11	12
NML1 (H115)	30.4*	30.4	30.8	31.6	32.8	34.3	36.2	38.4	40.8	43.5	46.4	46.4*
NML2 (H110)	34.3*	34.3*	34.3*	34.3	35.0	36.1	37.7	39.5	41.4	43.3	45.0	45.0*
NML3 (H374)	31.0*	31.0*	31.0	31.8	33.2	35.1	37.2	39.5	41.7	43.7	45.3	45.3*
NML4 (H226)	32.1*	32.1*	32.1	32.4	33.4	34.8	36.7	38.8	41.0	43.1	45.1	45.1*
NML5 (H66)	38.7*	38.7*	38.7*	38.7*	38.7*	38.7	39.1	39.7	40.7	42.1	42.1*	42.1*
NML6 (H306)	33.5*	33.5*	33.5*	33.5*	33.5*	33.5	33.9	34.9	36.5	38.6	38.6*	38.6*
NML7 (H71)	34.6*	34.6*	34.6	35.1	36.1	37.4	39.0	40.7	42.5	44.3	46.0	46.0*

**restricted where derived minimum occurs at lower wind speeds and derived maximum occurs at higher wind speeds, see Section 5.7.7.*

Table 5.3 Summary of Prevailing Background Noise Levels during Night-time Periods (dB(A))

NML	Prevailing Background Noise Level $L_{A90,10\ min}$											
	1	2	3	4	5	6	7	8	9	10	11	12
NML1 (H115)	21.4	22.0	23.1	24.9	27.0	29.6	32.5	35.7	39.0	42.4	45.9	49.3
NML2 (H110)	27.2	27.4	28.1	29.2	30.7	32.5	34.6	36.9	39.5	42.1	44.9	47.7
NML3 (H374)	20.0	20.9	22.5	24.7	27.3	30.3	33.4	36.6	39.7	42.7	45.3	47.6
NML4 (H226)	23.1	24.0	25.3	26.9	28.8	30.9	33.2	35.6	38.0	40.5	42.9	45.2
NML5 (H66)	38.6*	38.6*	38.6*	38.6*	38.6	38.8	39.2	39.9	40.4	40.7	40.7*	40.7*
NML6 (H306)	24.4*	24.4*	24.4	25.1	26.4	28.2	30.6	33.4	36.9	40.8	40.8*	40.8*
NML7 (H71)	31.0*	31.0*	31.0	31.4	32.5	34.1	36.2	38.5	40.9	43.3	45.6	47.6

**restricted where derived minimum occurs at lower wind speeds and derived maximum occurs at higher wind speeds, see Section 5.7.7*

5.7.2 A series of graphs are presented for each of the NMLs to illustrate the data collected, these are included as Figures A1.2a - A1.2g (Annex 1). There is a set of graphs for each NML, which show the range of wind speeds and directions recorded during the survey, the 10 minute average wind speed plotted against the recorded $L_{A90,\ 10min}$ noise level, and a calculated 'best fit' polynomial regression line for both quiet daytime and night-time periods. Each Figure also includes a table with the number of measured data points per integer wind speed bin and the prevailing measured background noise level. An additional set of graphs showing the excluded data have been included within Annex 4.

5.7.3 The background noise levels have been calculated using a best fit polynomial regression line of no more than a fourth order through the measured $L_{A90,\ 10min}$ noise data, as required by ETSU-R-97 and the IOA GPG.

5.7.4 In line with the recommendations included in Section 3.1.21 of the IOA GPG, where relevant, the polynomial background curve for the low speed conditions has been flatlined at the lower wind speeds where the derived minimum occurs. This is presented on the Figures, the final regression analysis curve is shown as a continuous black line and the original polynomial line of best fit through the data is shown as a dashed black line.

5.7.5 Section 2.9.5 of the IOA GPG recommends that no fewer than 200 valid data points should be recorded in each of the quiet daytime and night-time periods, with no fewer than 5

valid data points in any 1 ms^{-1} wind speed bin. Where the background noise data has been filtered by wind direction the IOA GPG (Section 2.9.6) recommends that 100 data points and 3 per wind speed bin may be appropriate. Where the minimum number of data points in a wind speed bin was not achieved, data in that bin has been manually excluded from the assessment.

5.7.6 ETSU-R-97 states (Page 101) that data may not be extrapolated beyond the measured range of wind speeds. It is however reasonable to assume that background noise levels will not decrease at higher wind speeds. As such, in the interest of protecting residential amenity, the noise levels for higher wind speeds where data has not been collected have been set equal to those derived for lower wind speeds as set out below (as per Section 3.1.20 of the IOA GPG).

5.7.7 A summary of the analysis applied to the individual datasets as recommended by the IOA GPG is included in Table 5.4 below.

Table 5.4 Analysis of Measured Datasets

NML	Quiet Daytime	Night-time
NML1 (H115)	Flatlined beyond 11 ms^{-1} (insufficient datapoints in the 12ms^{-1} bin).	-
NML2 (H110)	Flatlined below 4 ms^{-1} (minimum level recorded) and flatlined beyond 11 ms^{-1} (insufficient datapoints in the 12ms^{-1} bin).	-
NML3 (H374)	Flatlined below 3 ms^{-1} (minimum level recorded) and flatlined beyond 11 ms^{-1} (insufficient datapoints in the 12ms^{-1} bin).	-
NML4 (H226)	Flatlined below 3 ms^{-1} (minimum level recorded) and flatlined beyond 11 ms^{-1} (insufficient datapoints in the 12ms^{-1} bin).	-
NML5 (H66)	Flatlined below 6 ms^{-1} (minimum level recorded) and flatlined beyond 10 ms^{-1} (insufficient datapoints in the 11-12ms^{-1} bin).	Flatlined below 5 ms^{-1} (minimum level recorded) and flatlined beyond 10 ms^{-1} (insufficient datapoints in the 11-12ms^{-1} bin).
NML6 (H306)	Flatlined below 6 ms^{-1} (minimum level recorded) and flatlined beyond 10 ms^{-1} (insufficient datapoints in the 11-12ms^{-1} bin).	Flatlined below 3 ms^{-1} (minimum level recorded) and flatlined beyond 10 ms^{-1} (insufficient datapoints in the 10-12ms^{-1} bin).
NML7 (H71)	Flatlined below 3 ms^{-1} (minimum level recorded) and Flatlined beyond 11 ms^{-1} (insufficient datapoints in the 12ms^{-1} bin).	Flatlined below 3 ms^{-1} (minimum level recorded).

5.7.8 The number of data points measured in each wind speed bin for each receptor, once exclusions were applied, are summarised in Figures A1.2a - A1.2g (Annex 1). The Figures

also show the final prevailing background noise levels which have been determined following the analysis detailed above.

6 Noise Assessment Results

6.1 Noise Sensitive Receptors and Noise Assessment Locations

6.1.1 As part of the initial noise modelling work all noise sensitive receptors (NSR) in proximity to the Proposed Development were identified. A total of 14 NSRs were chosen as representative Noise Assessment Locations (NAL). The NALs were chosen to represent the noise sensitive receptors located closest to the Proposed Development. The modelling results for the NALs have been presented within the main body of this report whilst an assessment for all other NSRs has been included within Annex 5 of this report for completeness.

6.1.2 Each NAL and NSR are shown on Figures A1.1a-d (Annex 1). All NALs and NSRs are labelled with the letter 'H', to ensure consistency with the labelling of the receptors within the rest of the Environmental Impact Assessment Report (EIAR).

6.1.3 Predictions of noise at the NALs ensures that the assessment reports the worst case (loudest) noise immission level expected at each group of NSRs. Table 6.1 details which NML has been used to set noise limits for each NAL and a similar table detailing which NML has been used to set limits at each NSR has also been included within Annex 5.

Table 6.1 Noise Assessment Locations

Noise Assessment Location (NAL)	Easting (m)	Northing (m)	Elevation (m AOD)	Approximate Distance to Nearest Kellystown Turbine* (m)	Background Noise Data Used
NAL1 (H62)	706620	783942	101	724 (T4)	NML5
NAL2 (H233)	706708	784461	95	760 (T4)	NML6
NAL3 (H158)	707198	784739	101	717 (T4)	NML7
NAL4 (H187)	707878	784833	90	875 (T5)	NML7
NAL5 (H71)	708655	784720	81	596 (T5)	NML7
NAL6 (H181)	709261	784688	80	973 (T5)	NML1
NAL7 (H179)	709203	784231	98	764 (T5)	NML1
NAL8 (H115)	709235	783884	100	701 (T2)	NML1
NAL9 (H14)	709600	783414	82	915 (T2)	NML1
NAL10 (H109)	709198	783016	92	669 (T2)	NML2

Noise Assessment Location (NAL)	Easting (m)	Northing (m)	Elevation (m AOD)	Approximate Distance to Nearest Kellystown Turbine* (m)	Background Noise Data Used
NAL11 (H374)	708769	782531	110	543 (T3)	NML3
NAL12 (H265)	708257	782112	120	725 (T3)	NML4
NAL13 (H226)	707618	782312	127	874 (T3)	NML4
NAL14 (H46)	707377	782884	130	944 (T3)	NML4

** Please note the distances to nearest turbines quoted above may differ from those reported elsewhere. Distances for the noise assessment are taken from the nearest turbine to the closest edge of the amenity area (usually the garden) and not the house.*

6.2 Noise Emission Characteristics of the Wind Turbines

6.2.1 There are a range of wind turbine models which may be suitable for installation at the Proposed Development. This assessment considers the Nordex N163 which has a 163 m rotor diameter, a maximum rated output capacity of 7 MW, serrated trailing edge blades and a hub height of 98.5 m. In order to consider the full design envelope for the site, additional modelling was undertaken using two other candidates; the Siemens-Gamesa SG 6.6-155 with a 155 m rotor diameter, a maximum rated output capacity of 6.6 MW and a hub height of 102.5 m and the Nordex N149 with a 149 m rotor diameter with a maximum rated output capacity of 5.7 MW, serrated trailing edge blades and a hub height of 105 m.

6.2.2 Due to the differences in the way in which levels are provided by the different manufacturers, TNEI has accounted for uncertainty using the guidance contained within Section 4.2 of the IOA GPG (2013). A 2 dB uncertainty was added to the manufacturers turbine noise data. Details of the sound power level and octave data used for each of the turbine types considered in this assessment have not been included within this report due to commercial sensitivities. The data can be made available following the signing of a non-disclosure agreement.

6.2.3 Manufacturer noise level data is usually supplied based on a turbine of a specific hub height although the noise levels are presented as standardised to 10 m height. Accordingly, the noise data used in this assessment corrects the published turbine noise data following the guidance detailed in Section 4.3 of IOA GPG Supplementary Guidance Note 4, where applicable.

6.2.4 The location of the wind turbines are shown on Figure A1.1a and grid references are included in Annex 6.

6.3 WEDG Noise Limits

6.3.1 The WEDG Noise Limits have been established for each of the NALs as detailed in Table 6.2 and Table 6.3 below, based on a daytime fixed minimum level of 40 dB(A) when

background noise levels are less than 30 dB(A) or 45 dB(A) when background noise levels are greater than 30 dB(A), and a night-time fixed minimum level of 43 dB(A).

Table 6.2 WEDG Noise Limits Daytime

Location	Wind Speed (ms^{-1}) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
NAL1 (H62)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
NAL2 (H233)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
NAL3 (H158)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
NAL4 (H187)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
NAL5 (H71)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
NAL6 (H181)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
NAL7 (H179)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
NAL8 (H115)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
NAL9 (H14)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
NAL10 (H109)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
NAL11 (H374)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
NAL12 (H265)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
NAL13 (H226)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
NAL14 (H46)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1

Table 6.3 WEDG Noise Limits Night-time

Location	Wind Speed (ms^{-1}) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
NAL1 (H62)	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
NAL2 (H233)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
NAL3 (H158)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
NAL4 (H187)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
NAL5 (H71)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
NAL6 (H181)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
NAL7 (H179)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
NAL8 (H115)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
NAL9 (H14)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
NAL10 (H109)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
NAL11 (H374)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
NAL12 (H265)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
NAL13 (H226)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
NAL14 (H46)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2

6.3.2 Figures A1.3a-n (Annex 1) show predictions at each NAL from the Proposed Development against the WEDG Noise Limits.

6.3.1 Table 6.4 and Table 6.5 show the daytime and night-time WEDG Noise Limits, noise predictions for the Proposed Development and the exceedance level. A negative exceedence demonstrates compliance with the WEDG Noise Limits.

Table 6.4 WEDG Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1 (H62)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.9	33.2	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.8	-7.4	-6.1	-6.0	-6.7	-8.1	-8.1	-8.1
NAL2 (H233)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.3	32.7	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.7	-12.3	-7.9	-6.6	-6.5	-6.5	-6.5	-6.5	-6.5
NAL3 (H158)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.3	33.7	38.0	39.3	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-15.7	-11.3	-7.0	-5.7	-6.3	-8.1	-9.9	-11.6	-11.6
NAL4 (H187)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.4	33.8	38.2	39.4	39.6	39.6	39.6	39.6	39.6
	Exceedance Level	-	-	-	-15.6	-11.2	-6.8	-5.6	-6.1	-7.9	-9.7	-11.4	-11.4
NAL5 (H71)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise L_{A90}	-	-	-	31.0	35.4	39.7	41.0	41.1	41.1	41.1	41.1	41.1
	Exceedance Level	-	-	-	-14.0	-9.6	-5.3	-4.0	-4.6	-6.4	-8.2	-9.9	-9.9
NAL6 (H181)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise L_{A90}	-	-	-	27.3	31.7	36.0	37.3	37.5	37.5	37.5	37.5	37.5
	Exceedance Level	-	-	-	-17.7	-13.3	-9.0	-7.7	-7.5	-8.3	-11.0	-13.9	-13.9

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL7 (H179)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise L_{A90}	-	-	-	30.1	34.5	38.8	40.1	40.2	40.2	40.2	40.2	40.2
	Exceedance Level	-	-	-	-14.9	-10.5	-6.2	-4.9	-4.8	-5.6	-8.3	-11.2	-11.2
NAL8 (H115)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise L_{A90}	-	-	-	31.1	35.5	39.8	41.1	41.2	41.2	41.2	41.2	41.2
	Exceedance Level	-	-	-	-13.9	-9.5	-5.2	-3.9	-3.8	-4.6	-7.3	-10.2	-10.2
NAL9 (H14)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.1	32.5	36.8	38.1	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.9	-12.5	-8.2	-6.9	-6.7	-7.5	-10.2	-13.1	-13.1
NAL10 (H109)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise L_{A90}	-	-	-	31.1	35.4	39.8	41.1	41.2	41.2	41.2	41.2	41.2
	Exceedance Level	-	-	-	-13.9	-9.6	-5.2	-3.9	-3.8	-5.2	-7.1	-8.8	-8.8
NAL11 (H374)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise L_{A90}	-	-	-	32.1	36.5	40.8	42.1	42.2	42.2	42.2	42.2	42.2
	Exceedance Level	-	-	-	-12.9	-8.5	-4.2	-2.9	-2.8	-4.5	-6.5	-8.1	-8.1
NAL12 (H265)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.2	33.6	37.9	39.2	39.3	39.3	39.3	39.3	39.3
	Exceedance Level	-	-	-	-15.8	-11.4	-7.1	-5.8	-5.7	-6.7	-8.8	-10.8	-10.8

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL13 (H226)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.2	32.6	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-16.8	-12.4	-8.0	-6.7	-6.6	-7.6	-9.7	-11.7	-11.7
NAL14 (H46)	Noise Limit: WEDG L_{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.7	34.1	38.4	39.7	39.8	39.8	39.8	39.8	39.8
	Exceedance Level	-	-	-	-15.3	-10.9	-6.6	-5.3	-5.2	-6.2	-8.3	-10.3	-10.3

Table 6.5 WEDG Compliance Table – Night-time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1 (H62)	Noise Limit: WEDG L_{A90}	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.9	33.2	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.7	-10.4	-6.2	-5.3	-5.9	-6.4	-6.7	-6.7	-6.7
NAL2 (H233)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.3	32.7	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.7	-10.3	-5.9	-4.6	-4.5	-4.5	-7.3	-7.3	-7.3
NAL3 (H158)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.3	33.7	38.0	39.3	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-13.7	-9.3	-5.0	-3.7	-4.1	-6.5	-8.9	-11.2	-13.2
NAL4 (H187)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.4	33.8	38.2	39.4	39.6	39.6	39.6	39.6	39.6
	Exceedance Level	-	-	-	-13.6	-9.2	-4.8	-3.6	-3.9	-6.3	-8.7	-11.0	-13.0
NAL5 (H71)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise L_{A90}	-	-	-	31.0	35.4	39.7	41.0	41.1	41.1	41.1	41.1	41.1
	Exceedance Level	-	-	-	-12.0	-7.6	-3.3	-2.0	-2.4	-4.8	-7.2	-9.5	-11.5
NAL6 (H181)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise L_{A90}	-	-	-	27.3	31.7	36.0	37.3	37.5	37.5	37.5	37.5	37.5
	Exceedance Level	-	-	-	-15.7	-11.3	-7.0	-5.7	-5.5	-6.5	-9.9	-13.4	-16.8

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL7 (H179)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise L_{A90}	-	-	-	30.1	34.5	38.8	40.1	40.2	40.2	40.2	40.2	40.2
	Exceedance Level	-	-	-	-12.9	-8.5	-4.2	-2.9	-2.8	-3.8	-7.2	-10.7	-14.1
NAL8 (H115)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise L_{A90}	-	-	-	31.1	35.5	39.8	41.1	41.2	41.2	41.2	41.2	41.2
	Exceedance Level	-	-	-	-11.9	-7.5	-3.2	-1.9	-1.8	-2.8	-6.2	-9.7	-13.1
NAL9 (H14)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.1	32.5	36.8	38.1	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.9	-10.5	-6.2	-4.9	-4.7	-5.7	-9.1	-12.6	-16.0
NAL10 (H109)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise L_{A90}	-	-	-	31.1	35.4	39.8	41.1	41.2	41.2	41.2	41.2	41.2
	Exceedance Level	-	-	-	-11.9	-7.6	-3.2	-1.9	-1.8	-3.3	-5.9	-8.7	-11.5
NAL11 (H374)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise L_{A90}	-	-	-	32.1	36.5	40.8	42.1	42.2	42.2	42.2	42.2	42.2
	Exceedance Level	-	-	-	-10.9	-6.5	-2.2	-0.9	-0.8	-2.5	-5.5	-8.1	-10.4
NAL12 (H265)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.2	33.6	37.9	39.2	39.3	39.3	39.3	39.3	39.3
	Exceedance Level	-	-	-	-13.8	-9.4	-5.1	-3.8	-3.7	-3.7	-6.2	-8.6	-10.9

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL13 (H226)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise L_{A90}	-	-	-	28.2	32.6	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-14.8	-10.4	-6.0	-4.7	-4.6	-4.6	-7.1	-9.5	-11.8
NAL14 (H46)	Noise Limit: WEDG L_{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise L_{A90}	-	-	-	29.7	34.1	38.4	39.7	39.8	39.8	39.8	39.8	39.8
	Exceedance Level	-	-	-	-13.3	-8.9	-4.6	-3.3	-3.2	-3.2	-5.7	-8.1	-10.4

6.3.2 Table 6.4 and Table 6.5 show that the predicted wind turbine noise immission levels meet the WEDG Noise Limits under all conditions and at all locations for both the daytime and night-time periods.

6.3.3 The predictions and assessment of noise for all identified NSRs are included in Annex 5. Predicted noise immission levels meet the WEDG Noise Limits under all conditions at all NSRs for both the daytime and night-time periods.

6.3.4 A series of graphs to show the predicted wind turbine noise from the Proposed Development compared to WEDG Noise Limits are included as Figures A1.3a - A1.3n (Annex 1).

7 Summary and Conclusions

7.1.1 This report has assessed the potential impact of operational noise from the Proposed Development on the residents of nearby receptors. The guidance contained within the WEDG 2006 in conjunction with ETSU-R-97 and current good practice (IOA GPG) has been used to assess the potential noise impact of the Proposed Development.

7.1.2 Background noise monitoring was undertaken by TNEI at 7 NSRs neighbouring the Proposed Development. A total of 14 NSRs were chosen as NALs. The NALs were chosen to represent the NSRs located closest to the Proposed Development. For the NALs where no background noise measurements were undertaken, noise data collected at proxy locations considered representative of the expected background noise environment was used to assess the noise impact at those receptors.

7.1.3 Wind speed data was collected using a LIDAR unit located within the wind farm site. The data collected at the highest considered hub height (105 m) were then standardised to 10 m height, in accordance with current good practice.

7.1.4 Analysis of the measured data was undertaken to determine the pre-existing background noise environment and to establish the daytime and night-time noise limits for each of the NALs. A WEDG Noise Limit of 40 dB(A), where background noise levels are below 30 dB, and 45 dB or background noise plus 5 dB, whichever is the greater, where background noise levels are above 30 dB was set for the daytime. A limit of 43 dB(A) or background noise plus 5 dB, whichever is the greater, was used for night-time.

7.1.5 An assessment was undertaken to determine whether the Proposed Development could operate within the WEDG Noise Limits and it was found that noise immission predicted at all identified NSRs were below the WEDG Noise Limits. Predictions of wind turbine noise for the Proposed Development were made based upon the sound power level data for a candidate wind turbine, the Nordex N163, which has a 163 m rotor diameter, a maximum rated output capacity of 7 MW, serrated trailing edge blades and a hub height of 98.5 m. In order to consider the full design envelope for the site, additional modelling was undertaken using two other candidates; the Siemens-Gamesa SG 6.6-155 with a 155 m rotor diameter, a maximum rated output capacity of 6.6 MW and a hub height of 102.5 m and the Nordex N149 with a 149 m rotor diameter with a maximum rated output capacity of 5.7 MW, serrated trailing edge blades and a hub height of 105 m. The Nordex N163 turbine has been chosen as the candidate for the main assessment as it resulted in the highest predicted levels of the candidates being considered and therefore provides a worst case. For completeness, predictions for the other two candidates have been included when assessing the Proposed Development against the WEDG Noise Limits. All candidates modelled are considered to be representative of the type of turbine that could be installed at the Site.

7.1.6 Should the proposal receive planning permission, the final choice of turbine would be subject to a competitive tendering process. The final choice of turbine would, however, have to meet the derived WEDG 2006 noise limits and/or noise limits determined and contained within any planning permission condition imposed. A set of suggested noise conditions are included within Annex 7.

8 Glossary of Terms

AOD: Above Ordnance Datum is the height above sea level.

Amplitude Modulation: a variation in noise level over time; for example observers may describe a 'whoosh whoosh' sound, which can be heard close to a wind turbine as the blades sweep past.

Attenuation: the reduction in level of a sound between the source and a receiver due to any combination of effects including: distance, atmospheric absorption, acoustic screening, the presence of a building façade, etc.

Background Noise: the noise level rarely fallen below in any given location over any given time period, often classed according to daytime, evening or night-time periods. The L_{A90} indices (see below) is often used to represent the background noise level.

Bin: subset or group into which data can be sorted; in the case of wind speeds, bins are often centred on integer wind speeds with a width of 1 m/s. For example the 4 m/s bin would include all data with wind speeds of 3.5 to 4.5 m/s.

Dawn Chorus: noise due to birds which can occur at sunrise.

Broadband Noise: noise with components over a wide range of frequencies.

Decibel (dB): the ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. A logarithmic scale is used in noise level measurements because of this wide range. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound level.

dB(A): the ear has the ability to recognise a particular sound depending on its pitch or frequency. Microphones cannot differentiate noise in the same way as the ear, and to counter this weakness the noise measuring instrument applies a correction to correspond more closely to the frequency response of the human ear. The correction factor is called 'A Weighting' and the resulting measurements are written as dB(A). The dB(A) is internationally accepted and has been found to correspond well with people's subjective reaction to noise. Some typical subjective changes in noise levels are:

- a change of 3 dB(A) is just perceptible;
- a change of 5 dB(A) is clearly perceptible;
- a change of 10 dB(A) is twice (or half) as loud.

Directivity: the property of a sound source that causes more sound to be radiated in one direction than another.

Frequency: the pitch of a sound in Hz or kHz. See Hertz.

Ground Effects: the modification of sound at a receiver location due to the interaction of the sound wave with the ground along its propagation path from source to receiver. Described using the term 'G', and ranges between 0 (hard), 0.5 (mixed) and 1 (soft).

Hertz (Hz): sound frequency refers to how quickly the air vibrates, or how close the sound waves are to each other (in cycles per second, or Hertz (Hz)).

L_w: is the sound power level. It is a measure of the total noise energy radiated by a source of noise, and is used to calculate noise levels at a distant location. The L_{WA} is the A-weighted sound power level.

L_{eq}: is the equivalent continuous sound level, and is the sound level of a steady sound with the same energy as a fluctuating sound over the same period. It is possible to consider this level as the ambient noise encompassing all noise at a given time. The $LA_{eq,T}$ is the A-weighted equivalent continuous sound level over a given time period (T).

L_{90}: index represents the noise level exceeded for 90 percent of the measurement period and is used to indicate quieter times during the measurement period. It is often used to measure the background noise level. The $L_{A90,10min}$ is the A-weighted background noise level over a ten minute measurement sample.

Noise emission: the noise energy emitted by a source (e.g. a wind turbine).

Noise immission: the sound pressure level detected at a given location (e.g. the nearest dwelling).

Night-time Hours: ETSU-R-97 defines the night-time hours as 23.00 to 07.00 every day.

Quiet Daytime Hours: ETSU-R-97 defines the amenity hours as 18.00 to 23.00 Monday to Friday, 13.00 to 23.00 on Saturdays and 07.00 to 23.00 on Sundays.

Sound Level Meter: an instrument for measuring sound pressure level.

Sound Power Level: the total sound power radiated by a source, in decibels.

Sound Pressure Level: a measure of the sound pressure at a point, in decibels**.**

Standardised Wind Speed: a wind speed measured at a height different than 10 m (generally measured at the turbine hub height) which is expressed to a reference height of 10 m using a roughness length of 0.05 for standardisation purpose (in accordance with the IEC 61400-11 standard).

Tonal Noise: noise which covers a very restricted range of frequencies (e.g. a range of ≤20 Hz). This noise can be more annoying than broadband noise.

Wind Shear: the increase of wind speed with height above the ground.

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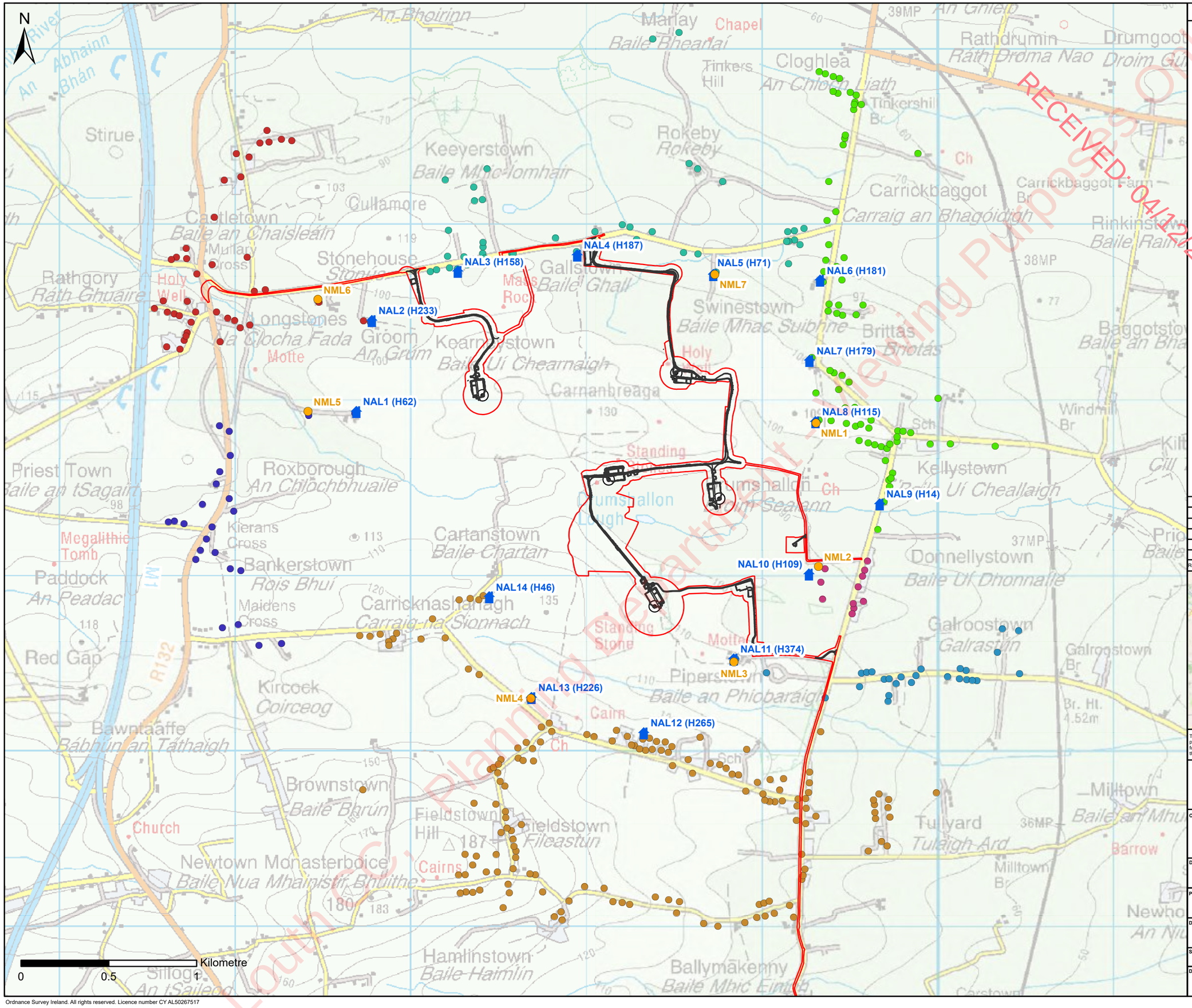
Annex 1 – Figures



LEGEND

- Proposed Project Redline
- Proposed Turbine Locations
- Proposed Infrastructure Layout
- Noise Assessment Locations (NAL)
- Noise Monitoring Locations (NML)

Noise Sensitive Receptors (NSR)

- Represented by NML1
- Represented by NML2
- Represented by NML3
- Represented by NML4
- Represented by NML5
- Represented by NML6
- Represented by NML7

Rev.	Date	Amendment Details	Drawn	Approved
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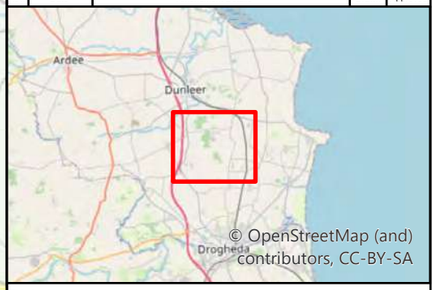
0	12/09/2024	FIRST ISSUE	JCM	GC



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Drawing Status: FOR PLANNING

Project Title: KELLYSTOWN WIND FARM

Drawing Title: FIGURE A1.1A - NOISE MONITORING AND ASSESSMENT LOCATIONS

Scale:	Original Size:	Spatial Reference:
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Drawing Number: IE00125-008

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NML6
NAL3 (H158)
NAL4 (H187)
NML7
NAL6 (H181)
NAL2 (H233)
NAL5 (H71)
NAL7 (H179)
NML5
NAL1 (H62)
NML1
NAL8 (H115)
NAL9 (H14)
NAL10 (H109)
NML2
NAL14 (H46)
NML3
NAL11 (H374)
NAL13 (H226)
NML4
NAL12 (H265)

Roxborough
An Chlochbhuaile
Kierans Cross
Bankerstown
Rois Bhui
Maidens Cross
Cartanstown
Baile Chartan
Carricknashanagh
Carraig na Sionnach
Carnanbrea
Standi Stone
Lough
130
113
110
120
135

Keeverstown
Baile Mhic Iomhair
Cullamore
103
119
Castletown
Baile an Chaisleáin
Mullary Cross
Holy Well
Stonehouse
Stóinse
Mass Rock
Gallstown
Baile Ghall
Longstones
Na Clocha Fada
Groom
An Grúm
Kearneystown
Rokeb
70
90
100
NML6
NAL2 (H233)
NAL3 (H158)
NAL4 (H187)

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LEGEND

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- Represented by NML3
- Represented by NML4
- Represented by NML5
- Represented by NML6
- Represented by NML7

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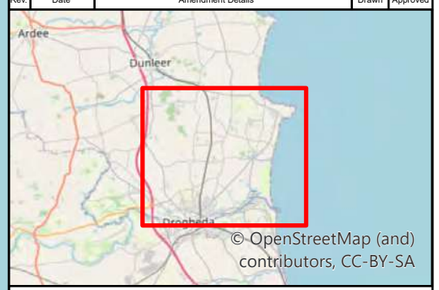
0	12/09/2024	FIRST ISSUE	JCM	GC



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Drawing Status: FOR PLANNING

Project Title: KELLYSTOWN WIND FARM

Drawing Title: FIGURE A1.1b - NOISE SENSITIVE RECEPTORS

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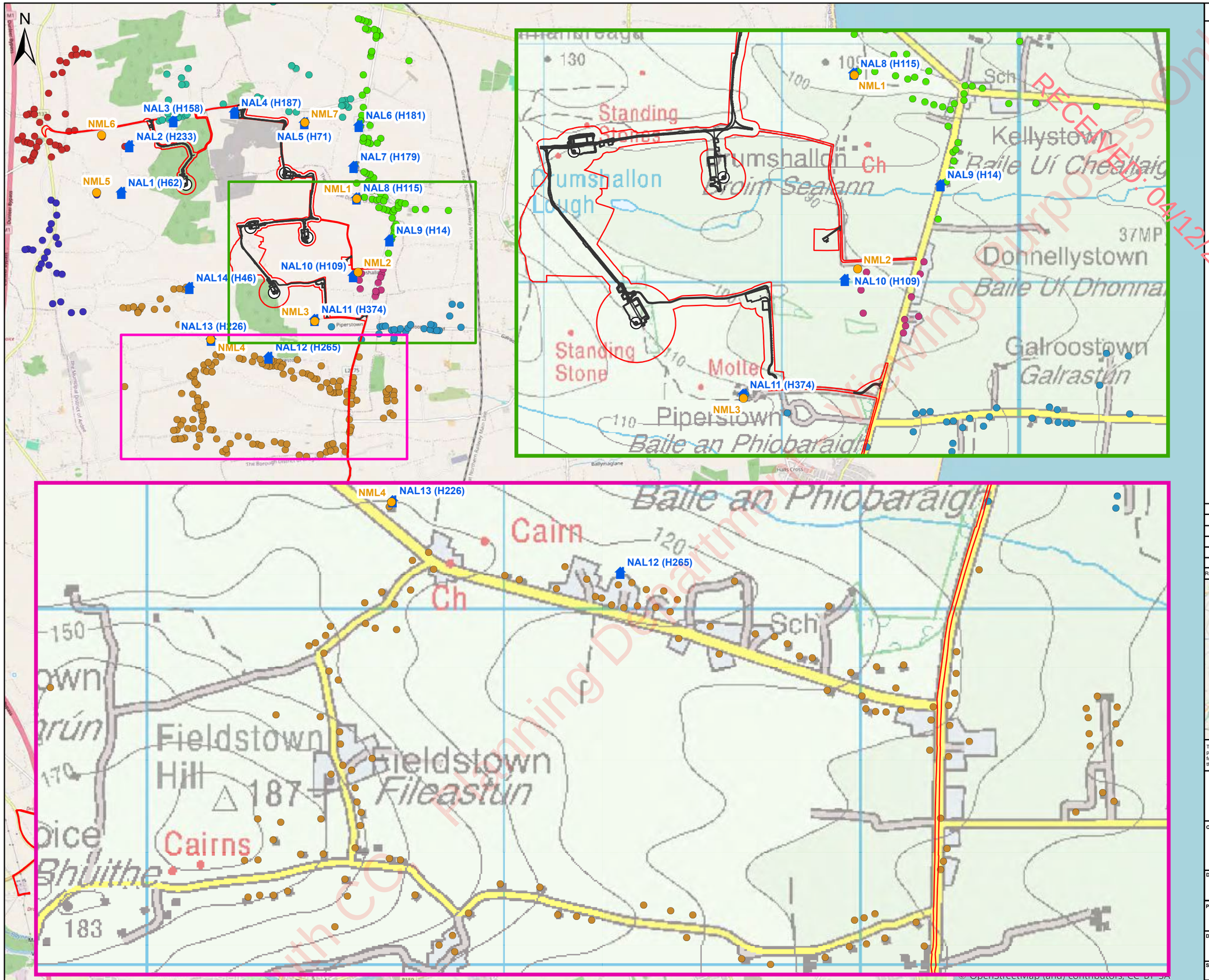

LEGEND

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- Represented by NML7

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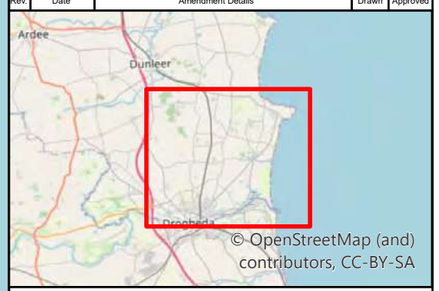
1	24/09/2024	UPDATED RLB	JCM	GC
0	12/09/2024	FIRST ISSUE	JCM	GC



tnei

Client: EDF renewables

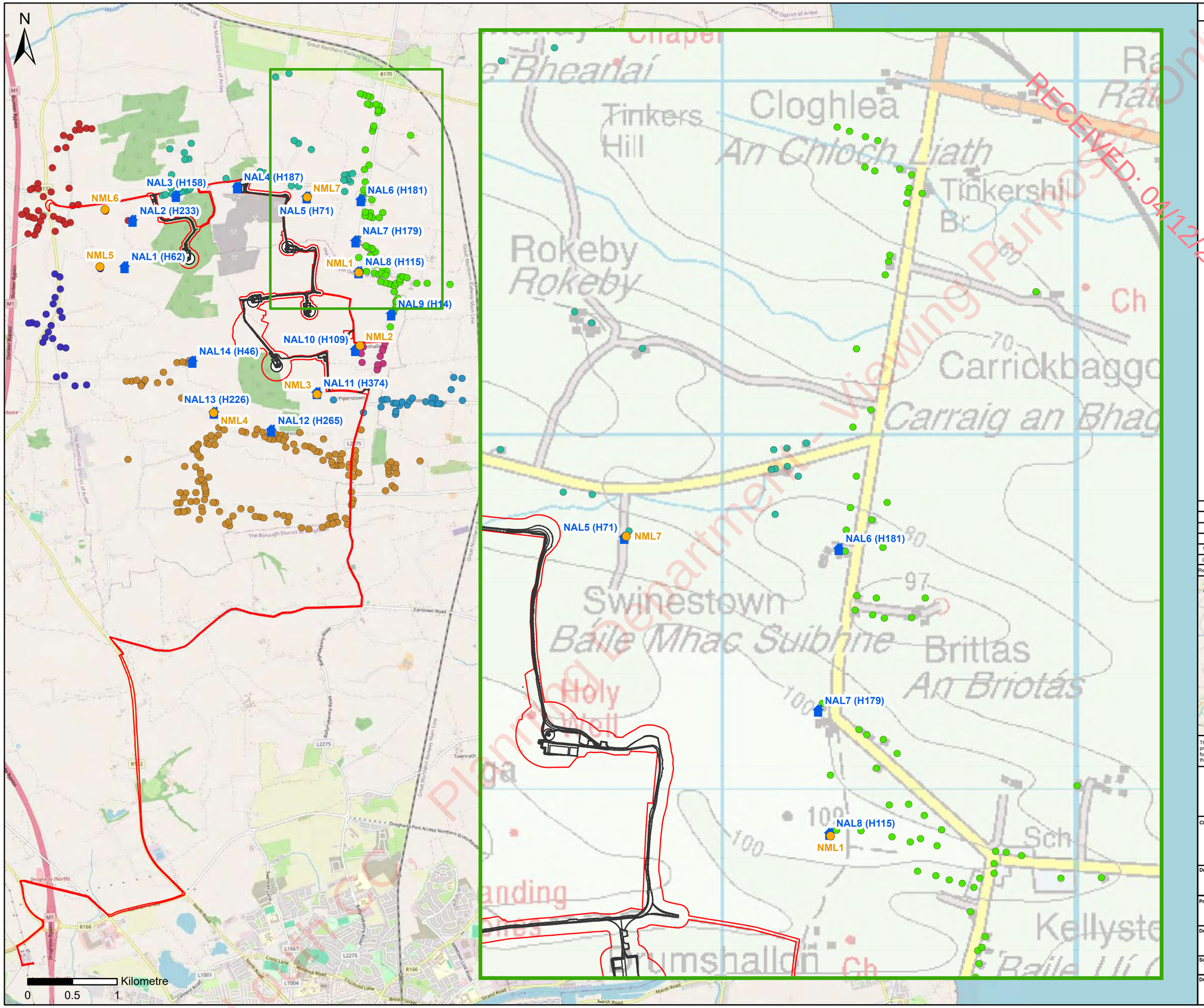
Drawing Status: FOR PLANNING

Project Title: KELLYSTOWN WIND FARM

Drawing Title: FIGURE A1.1c - NOISE SENSITIVE RECEPTORS

Scale:	Original Size:	Spatial Reference:
1:39,601	A3	IRENET95 Irish Transverse Mercator

Drawing Number: IE00125-010



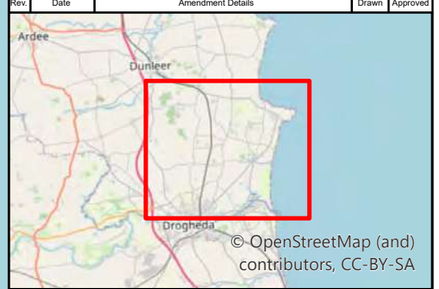
LEGEND

- Proposed Project Redline
- Proposed Turbine Locations
- Proposed Infrastructure Layout
- Noise Assessment Locations (NAL)
- Noise Monitoring Locations (NML)

Noise Sensitive Receptors (NSR)

- Represented by NML1
- Represented by NML2
- Represented by NML3
- Represented by NML4
- Represented by NML5
- Represented by NML6
- Represented by NML7

Rev.	Date	Amendment Details	Drawn	Approved
1	24/09/2024	UPDATED RLB	JCM	GC
0	12/09/2024	FIRST ISSUE	JCM	GC



tnei

Client: EDF renewables

Drawing Status: FOR PLANNING

Project Title: KELLYSTOWN WIND FARM

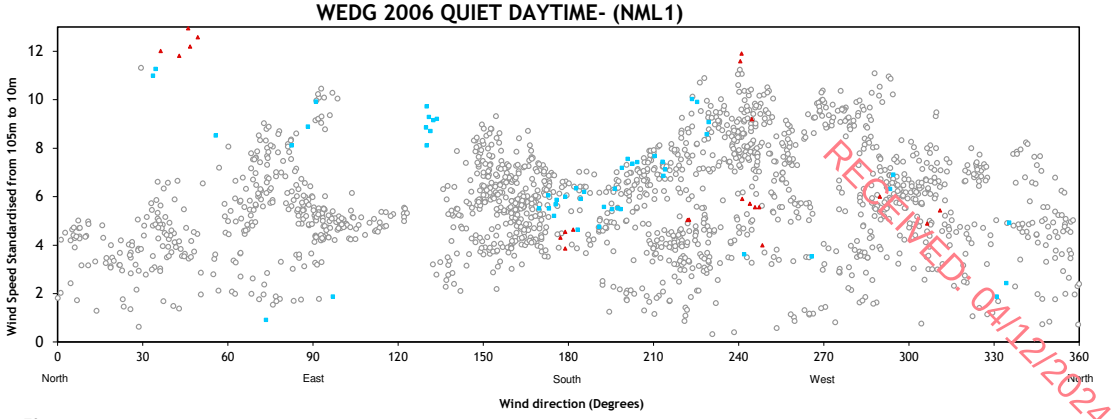
Drawing Title: FIGURE A1.1d - NOISE SENSITIVE RECEPTORS

Scale:	Original Size:	Spatial Reference:
1:39,601	A3	IRENET95 Irish Transverse Mercator

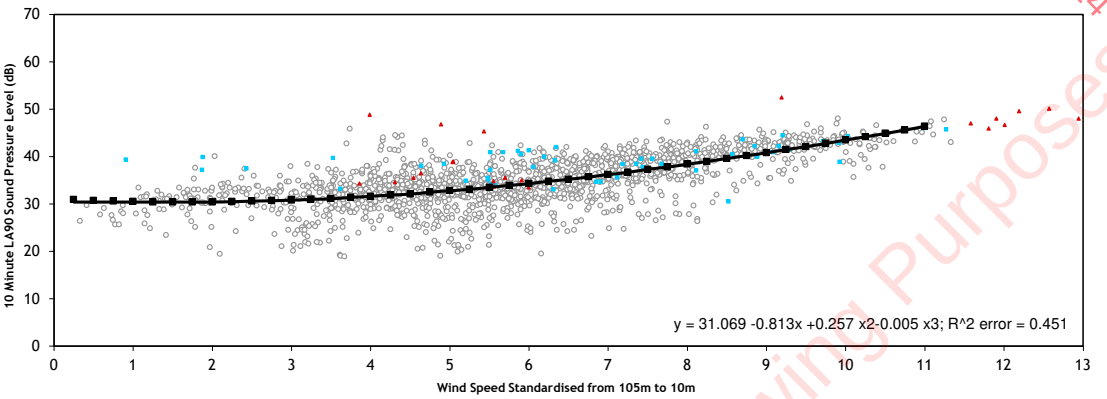
Drawing Number: IE00125-011

WEDG 2006 QUIET DAYTIME- (NML1)

Wind Conditions Quiet Daytime



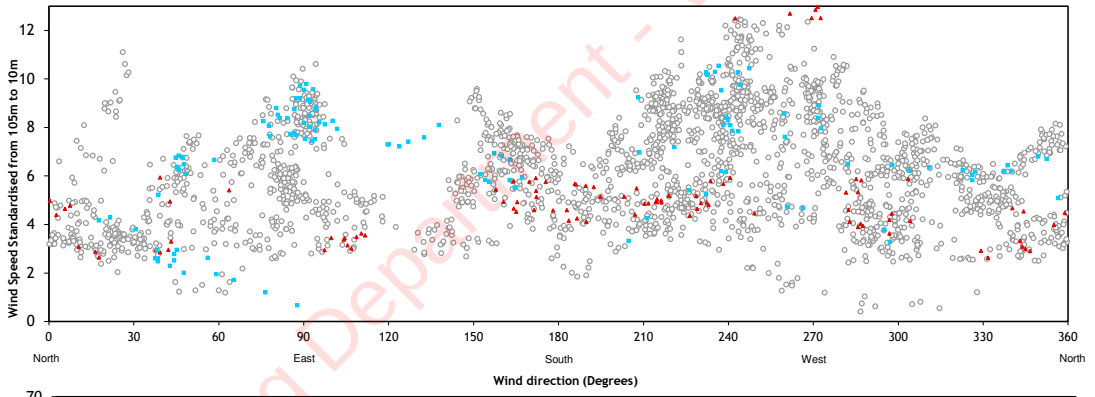
Regression Analysis Quiet Daytime



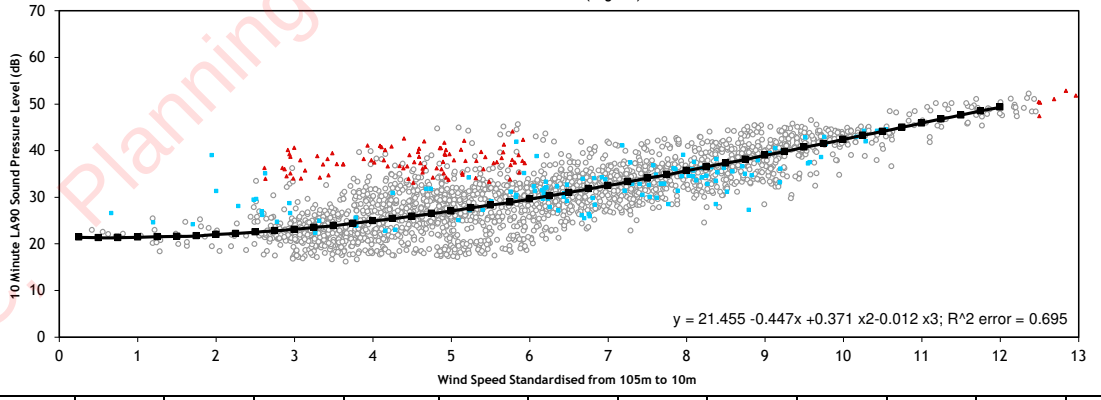
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	67	119	242	318	288	254	178	111	65	12	0	1654
Prevailing Background	30.4	30.8	31.6	32.8	34.3	36.2	38.4	40.8	43.5	46.4	-	

WEDG 2006 NIGHT-TIME - (NML1)

Wind Conditions Night-Time



Regression Analysis Night-Time



Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	25	242	310	367	323	306	260	271	103	34	30	2271
Prevailing Background	22	23.1	24.9	27	29.6	32.5	35.7	39	42.4	45.9	49.3	

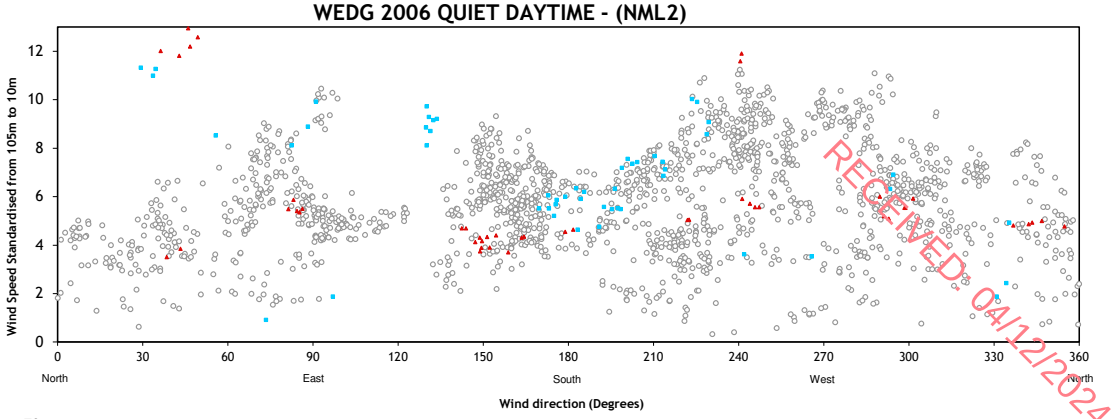
Legend:

- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

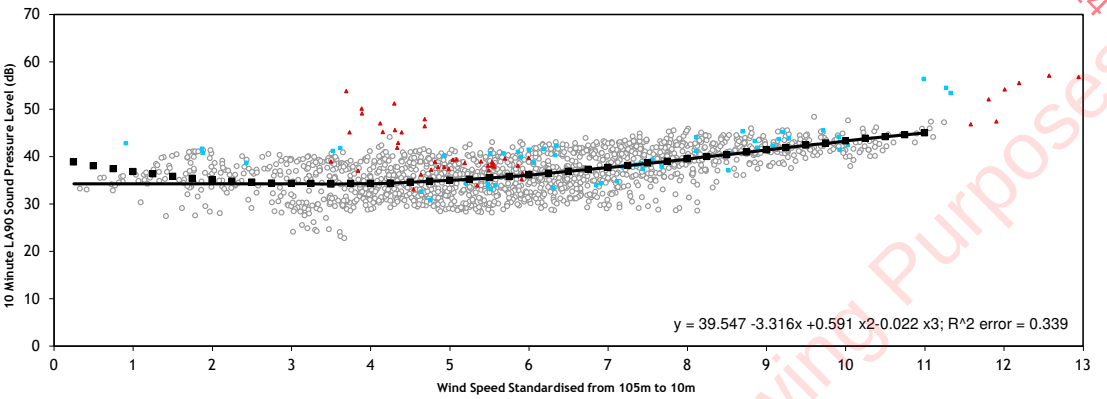
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2a
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125 - models

WEDG 2006 QUIET DAYTIME - (NML2)

Wind Conditions Quiet Daytime



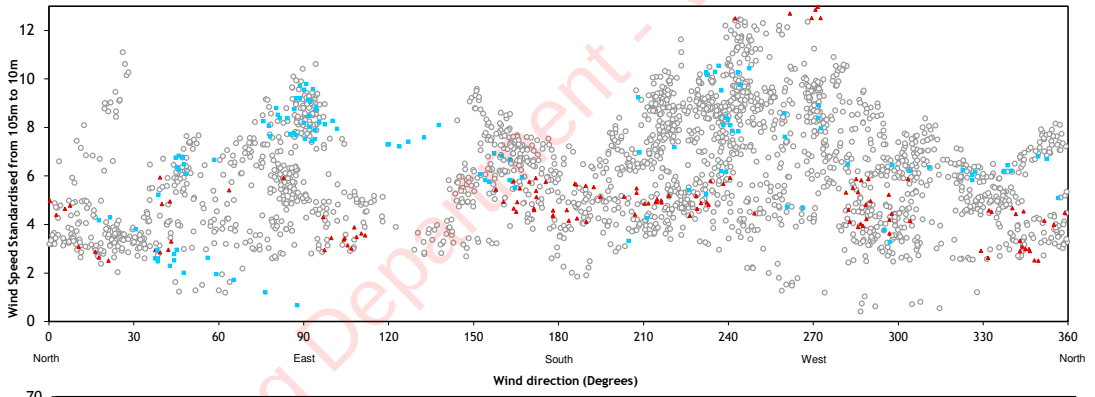
Regression Analysis Quiet Daytime



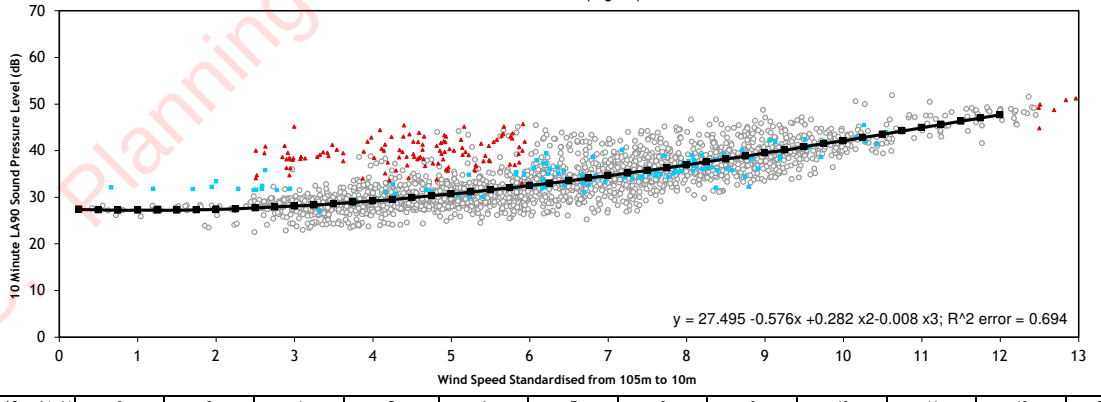
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	67	118	233	307	284	254	178	112	65	11	0	1629
Prevailing Background	34.3	34.3	34.3	35	36.1	37.7	39.5	41.4	43.3	45	-	

WEDG 2006 NIGHT-TIME - (NML2)

Wind Conditions Night-Time



Regression Analysis Night-Time



Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	25	236	303	357	321	306	260	271	103	34	30	2246
Prevailing Background	27.4	28.1	29.2	30.7	32.5	34.6	36.9	39.5	42.1	44.9	47.7	

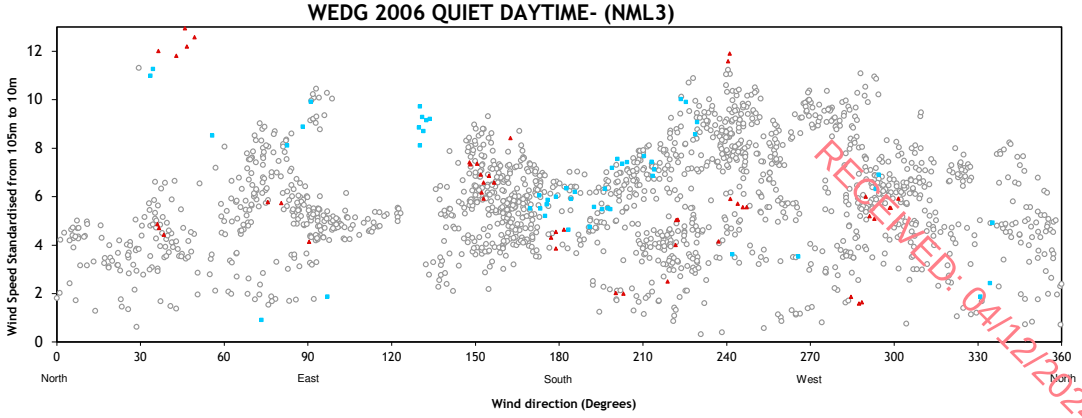
Legend:

- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

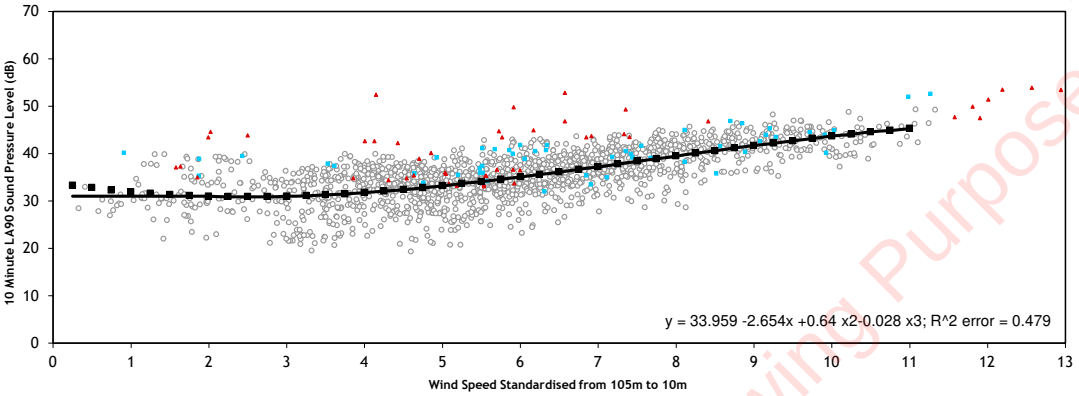
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2b
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125 - models

WEDG 2006 QUIET DAYTIME- (NML3)

Wind Conditions Quiet Daytime



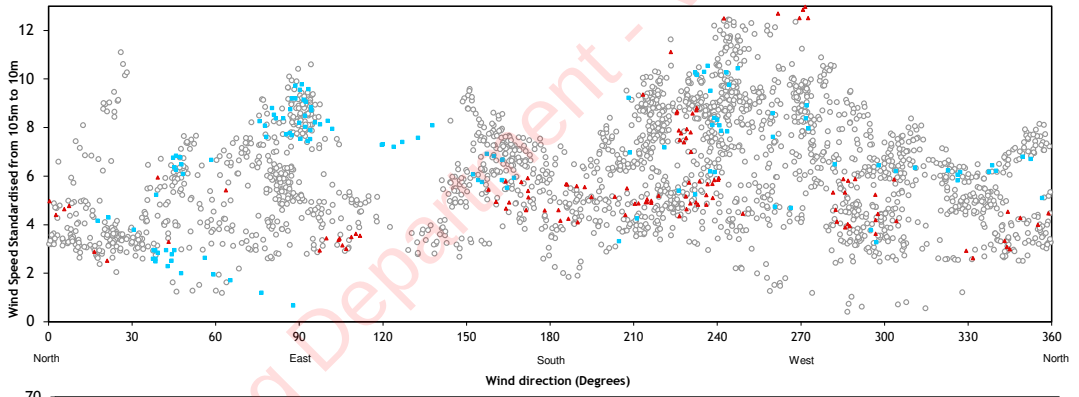
Regression Analysis Quiet Daytime



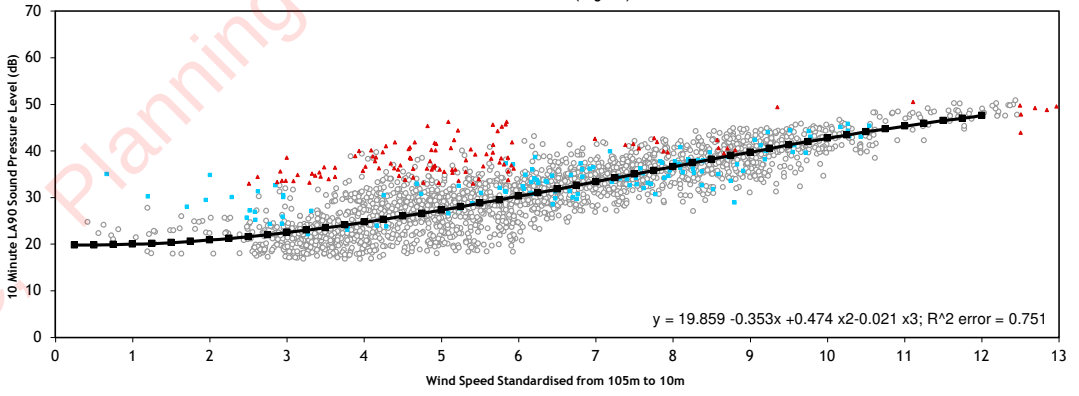
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	62	118	239	316	281	247	177	112	65	12	0	1629
Prevailing Background	31	31	31.8	33.2	35.1	37.2	39.5	41.7	43.7	45.3	-	

WEDG 2006 NIGHT-TIME- (NML3)

Wind Conditions Night-Time



Regression Analysis Night-Time



Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	25	244	309	366	319	303	255	265	103	33	30	2252
Prevailing Background	20.9	22.5	24.7	27.3	30.3	33.4	36.6	39.7	42.7	45.3	47.6	

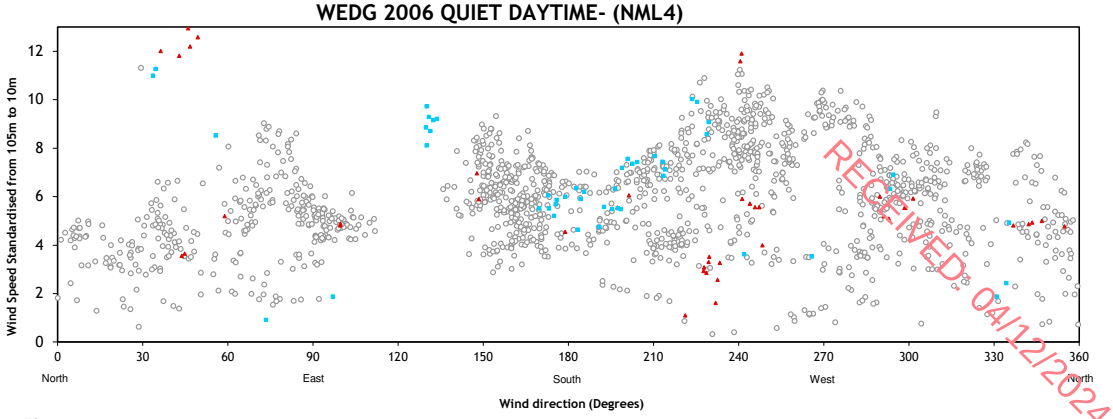
Legend:

- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

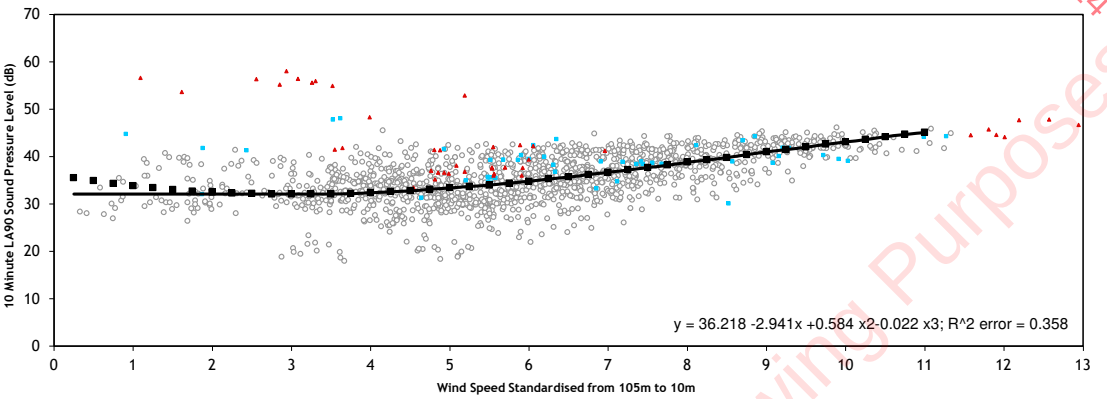
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2c
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125

WEDG 2006 QUIET DAYTIME- (NML4)

Wind Conditions Quiet Daytime



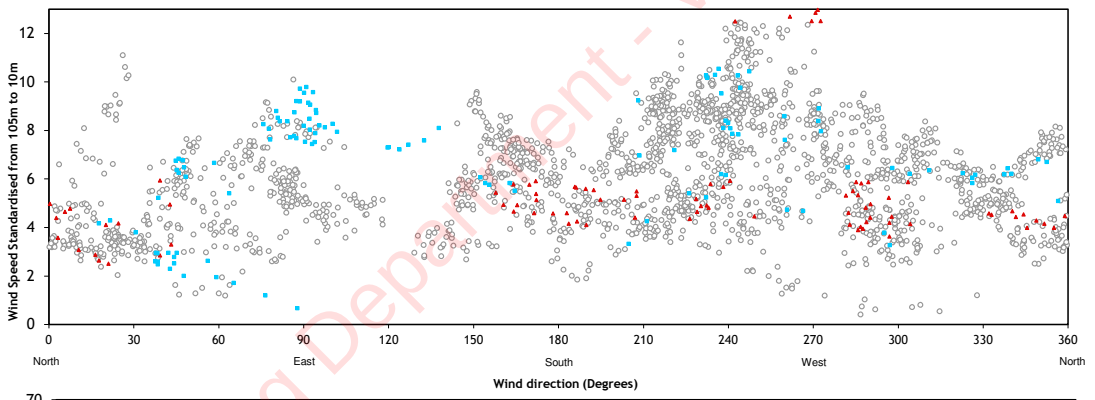
Regression Analysis Quiet Daytime



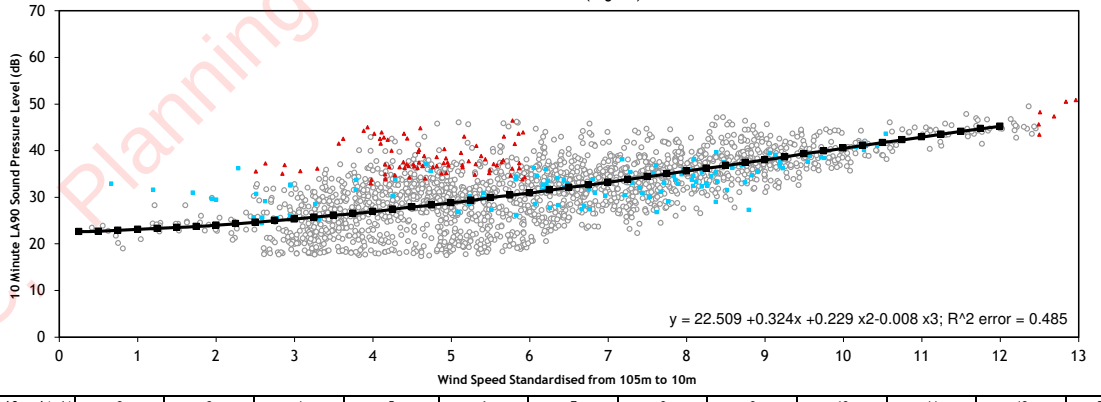
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	46	86	211	268	253	248	165	102	48	8	0	1435
Prevailing Background	32.1	32.1	32.4	33.4	34.8	36.7	38.8	41	43.1	45.1	-	

WEDG 2006 NIGHT-TIME- (NML4)

Wind Conditions Night-Time



Regression Analysis Night-Time



Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	25	198	276	350	300	291	228	214	69	29	30	2010
Prevailing Background	24	25.3	26.9	28.8	30.9	33.2	35.6	38	40.5	42.9	45.2	

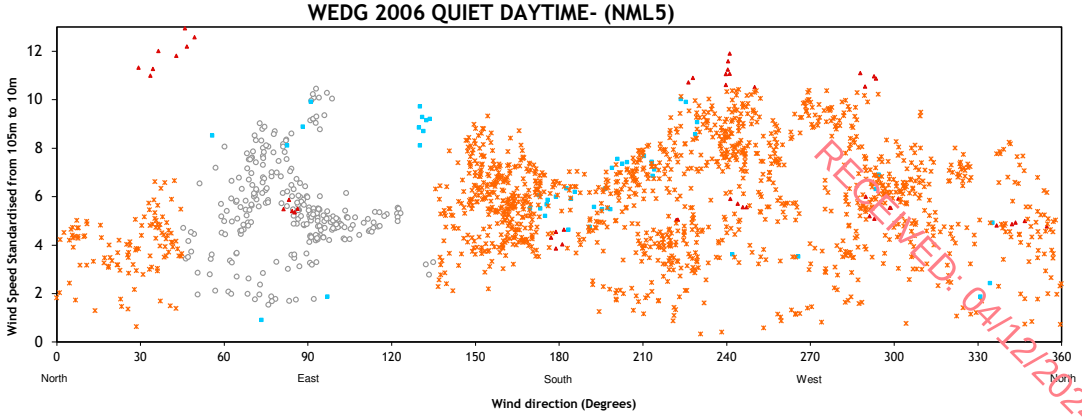
Legend:

- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

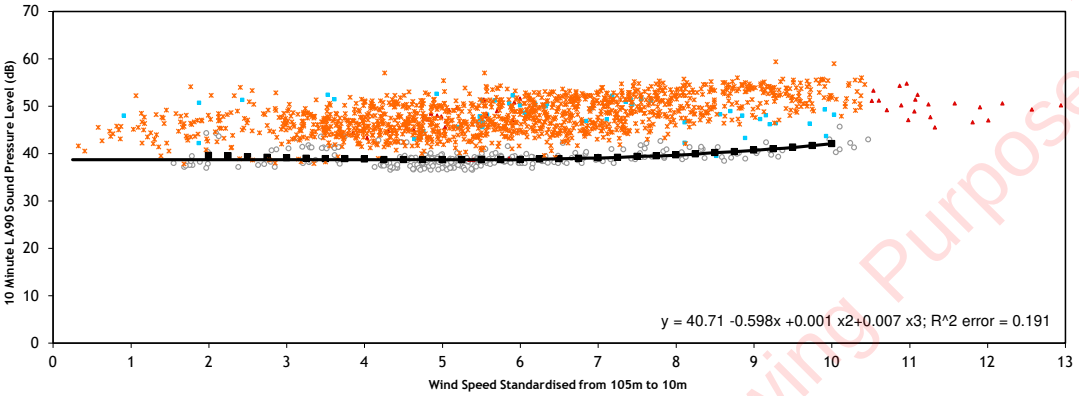
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2d
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125

WEDG 2006 QUIET DAYTIME- (NML5)

Wind Conditions Quiet Daytime



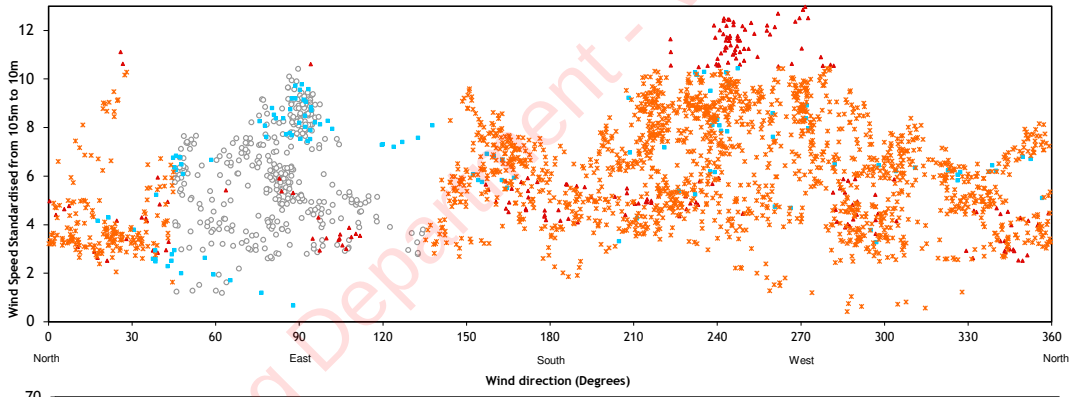
Regression Analysis Quiet Daytime



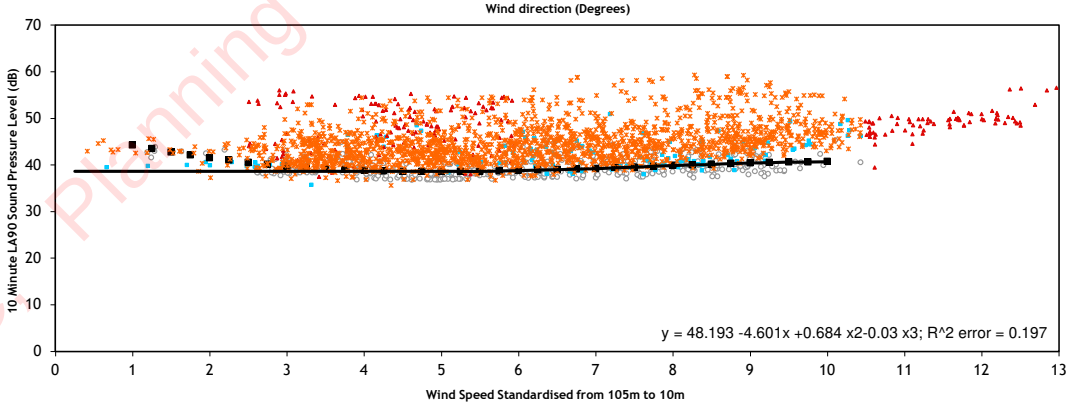
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	15	19	29	97	47	21	22	14	7	0	0	271
Prevailing Background	38.7	38.7	38.7	38.7	38.7	39.1	39.7	40.7	42.1	-	-	

WEDG 2006 NIGHT-TIME- (NML5)

Wind Conditions Night-Time



Regression Analysis Night-Time



Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	4	35	50	70	65	43	57	46	7	0	0	377
Prevailing Background	38.6	38.6	38.6	38.6	38.8	39.2	39.9	40.4	40.7	-	-	

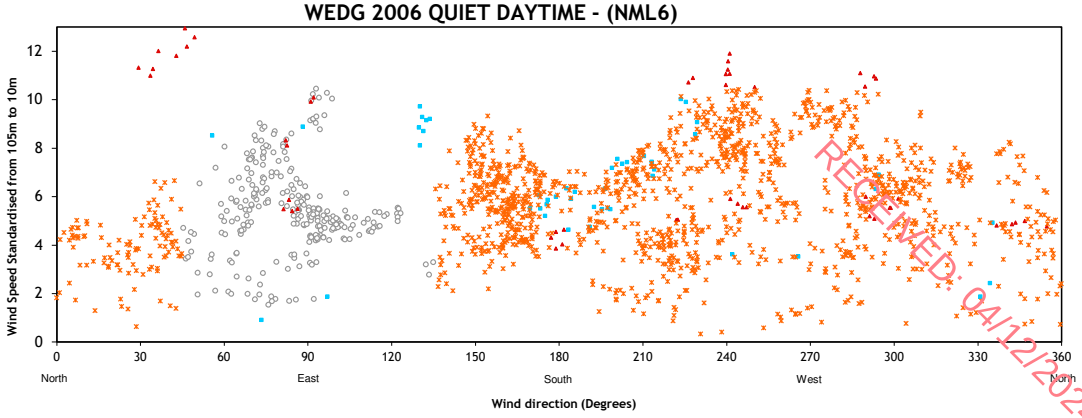
Legend:

- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

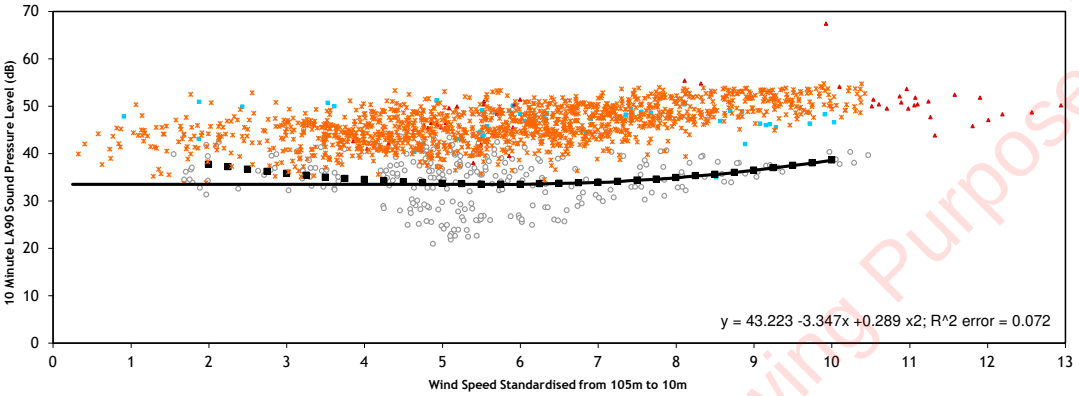
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2e
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125

WEDG 2006 QUIET DAYTIME - (NML6)

Wind Conditions Quiet Daytime



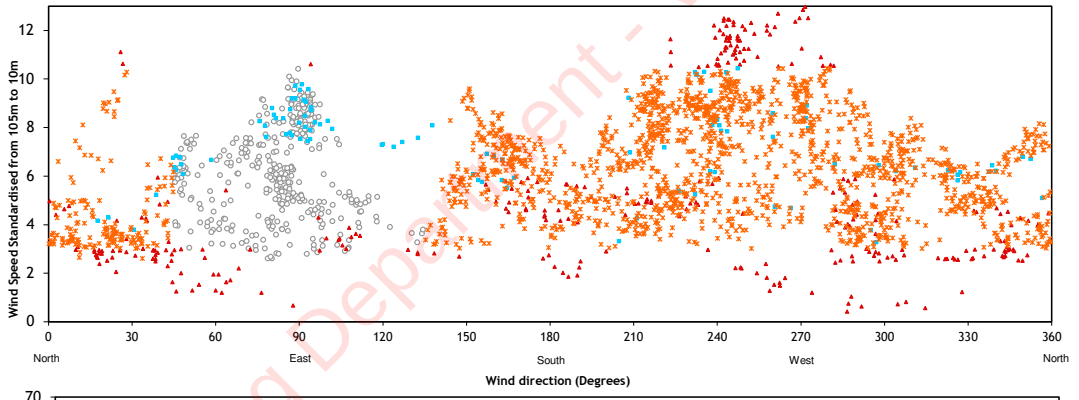
Regression Analysis Quiet Daytime



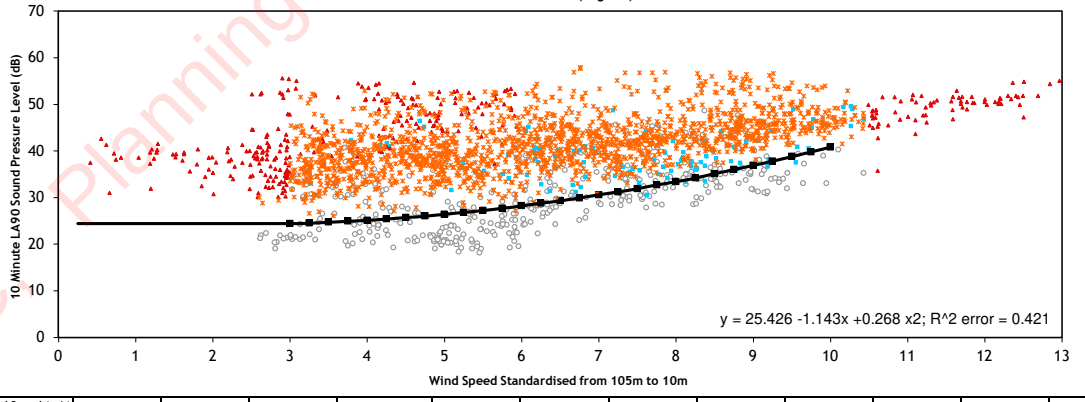
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	15	19	29	98	47	21	21	14	6	0	0	270
Prevailing Background	33.5	33.5	33.5	33.5	33.5	33.9	34.9	36.5	38.6	-	-	

WEDG 2006 NIGHT-TIME- (NML6)

Wind Conditions Night-Time



Regression Analysis Night-Time



Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	0	30	51	72	66	43	57	46	7	0	0	372
Prevailing Background	-	24.4	25.1	26.4	28.2	30.6	33.4	36.9	40.8	-	-	

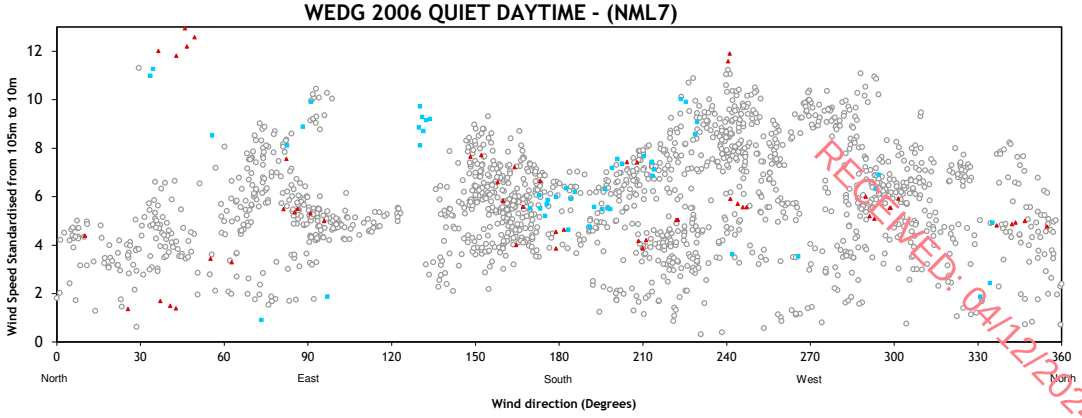
Legend:

- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

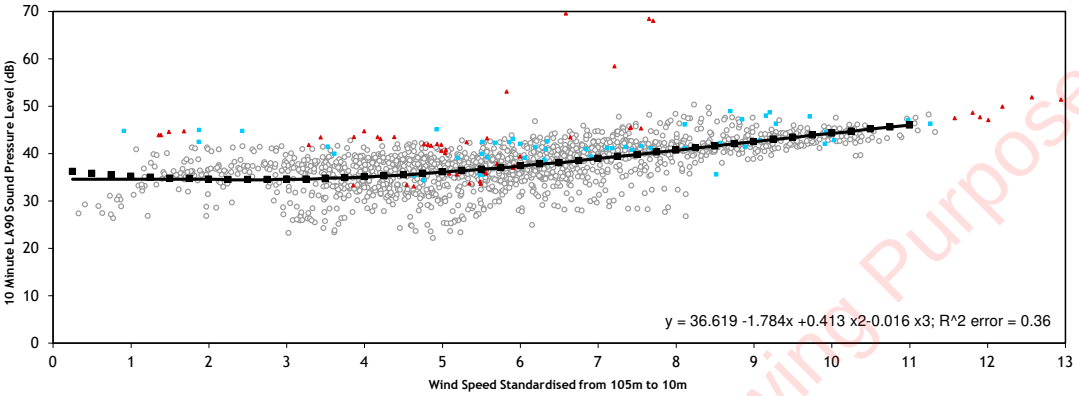
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2f
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125

WEDG 2006 QUIET DAYTIME - (NML7)

Wind Conditions Quiet Daytime



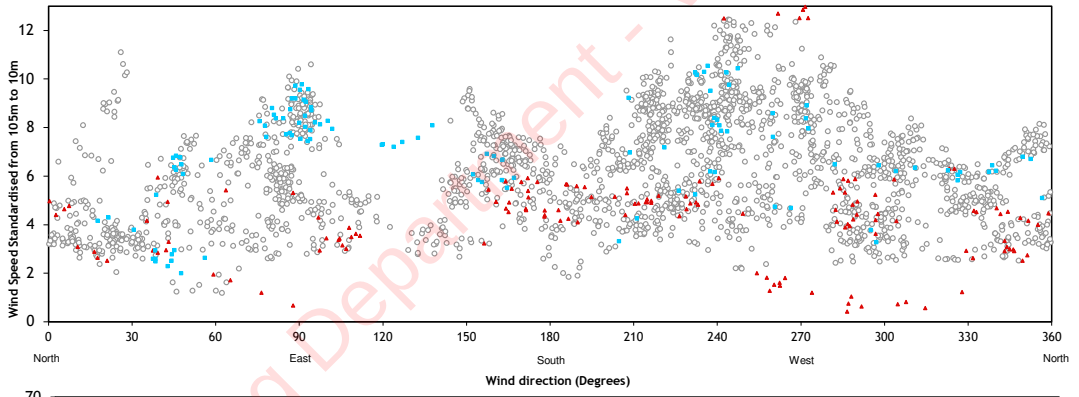
Regression Analysis Quiet Daytime



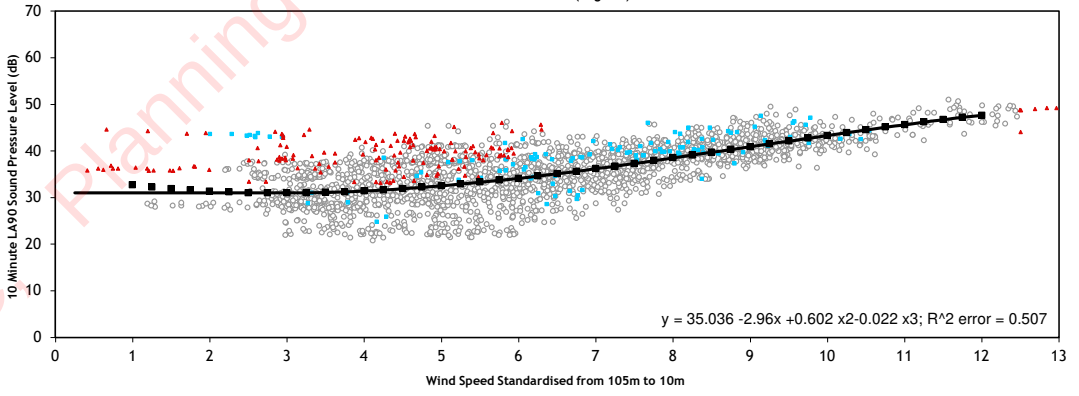
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	66	117	239	308	283	250	175	112	65	12	0	1627
Prevailing Background	34.6	34.6	35.1	36.1	37.4	39	40.7	42.5	44.3	46	-	

WEDG 2006 NIGHT-TIME - (NML7)

Wind Conditions Night-Time



Regression Analysis Night-Time



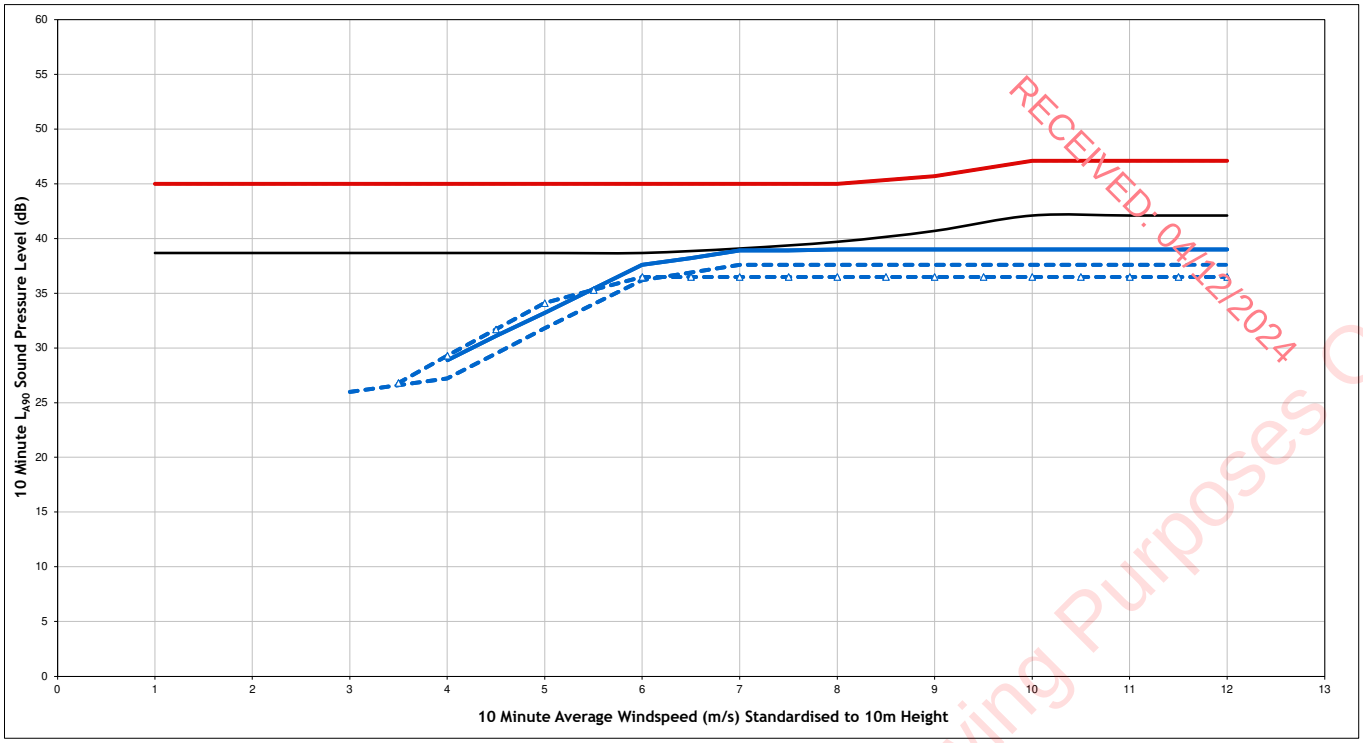
Wind Speed (m/s)	2	3	4	5	6	7	8	9	10	11	12	Total
Number of data points	20	235	300	357	320	306	260	271	103	34	30	2236
Prevailing Background	31	31	31.4	32.5	34.1	36.2	38.5	40.9	43.3	45.6	47.6	

Legend:

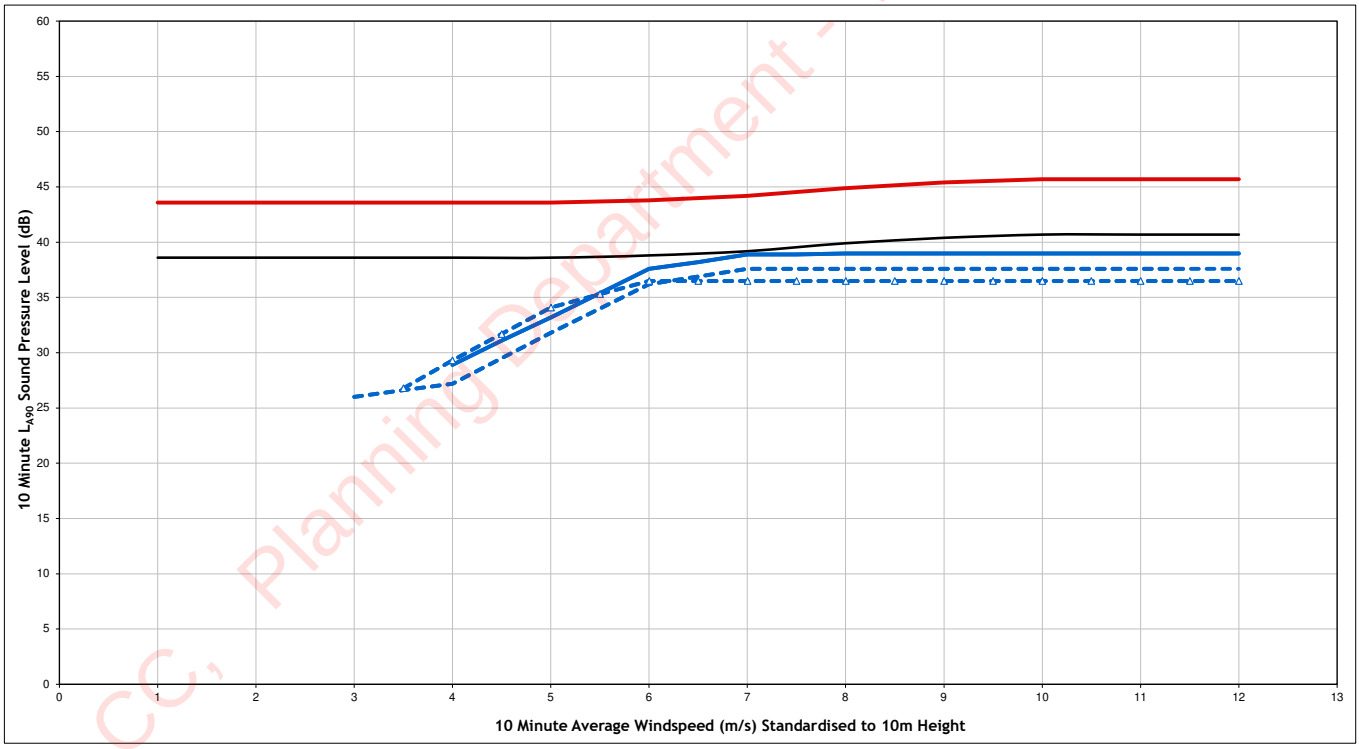
- L_{A90} 10 Minute Measurement Point
- Line of best fit
- Line of best fit flat lined where appropriate(Prevailing Background)
- Excluded Data-Manual exclusion
- Excluded Data-Rain
- Excluded Data-Filtered Wind Direction

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Wind Conditions&Regression Analysis
Figure Number	A1.2g
Drawn	CB
Checked	MT
Date	29/05/2024
Document Reference	IE00125

Daytime - NAL1 (H62)



Night Time - NAL1 (H62)



Legend:

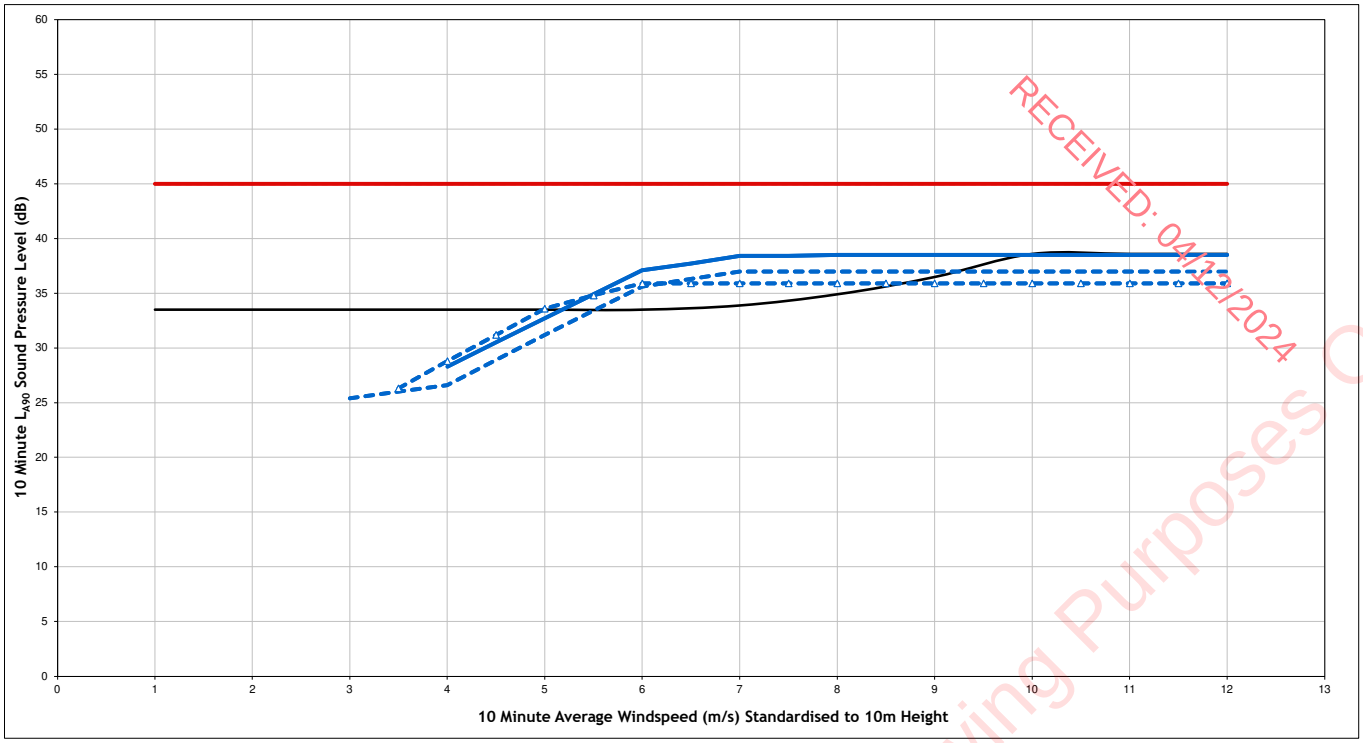
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL1 (H62)
Figure Number	Figure A1.3a
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

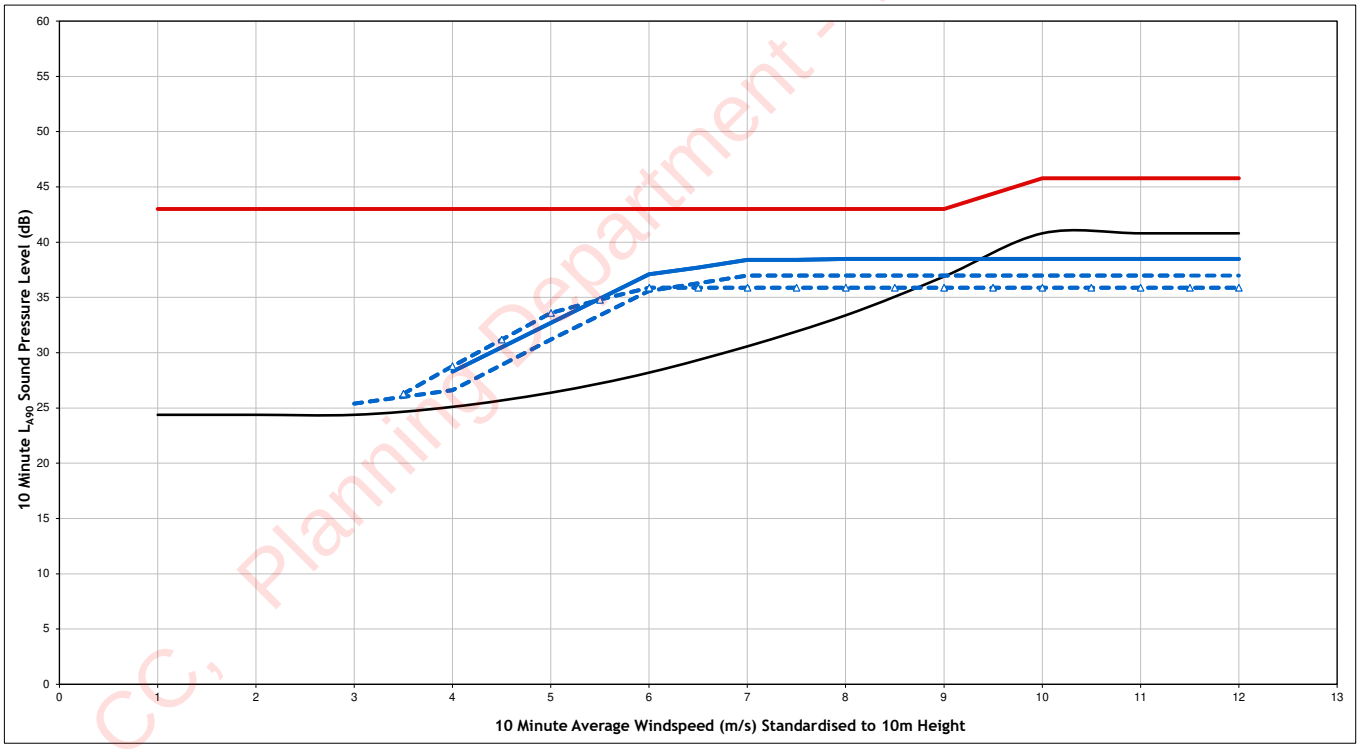
EDF renewables

tnei

Daytime - NAL2 (H233)



Night Time - NAL2 (H233)



Legend:

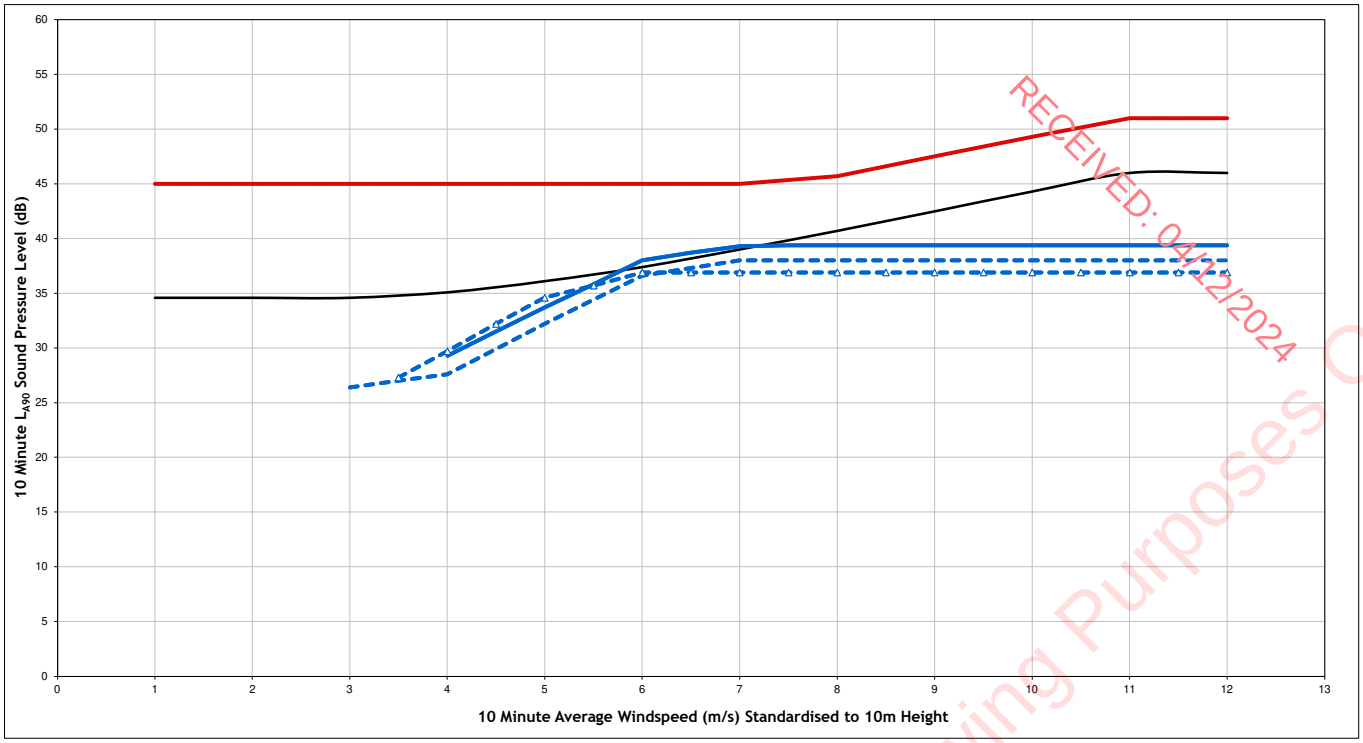
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL2 (H233)
Figure Number	Figure A1.3b
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

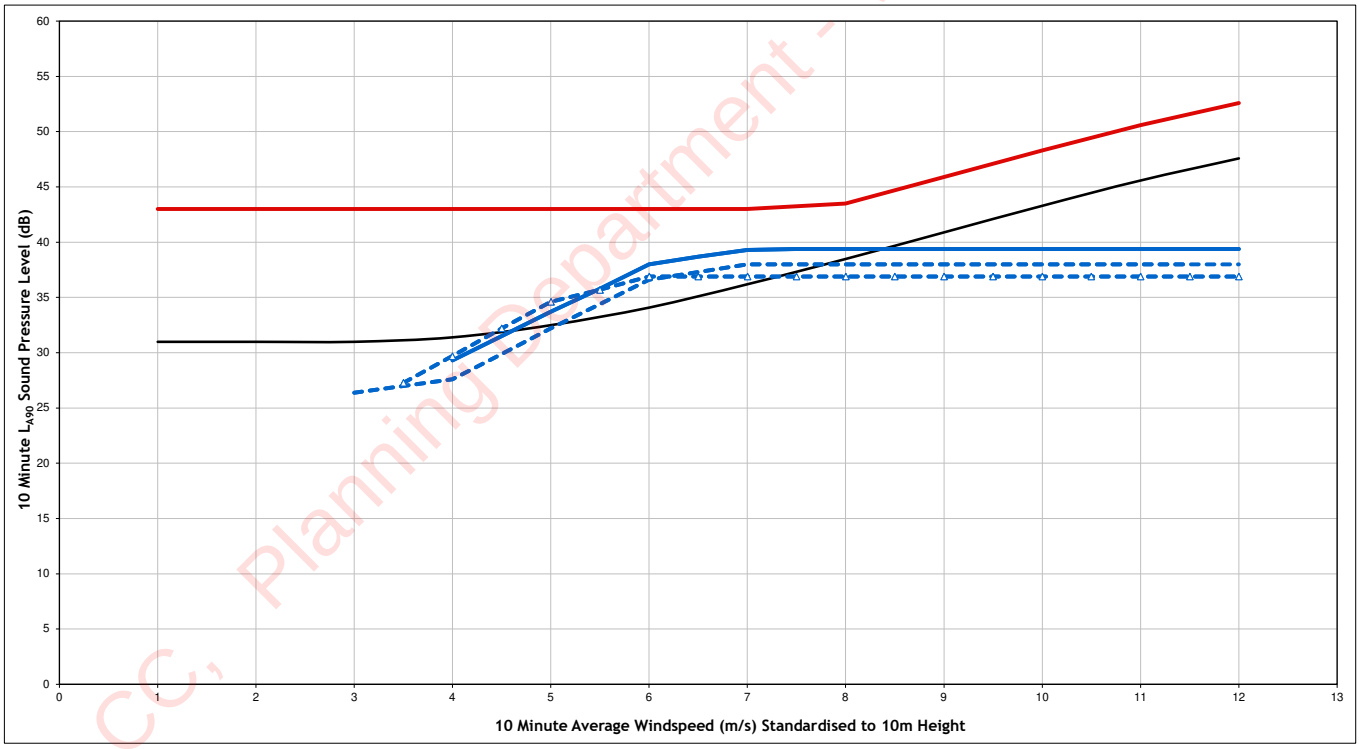
EDF renewables

tnei

Daytime - NAL3 (H158)



Night Time - NAL3 (H158)



Legend:

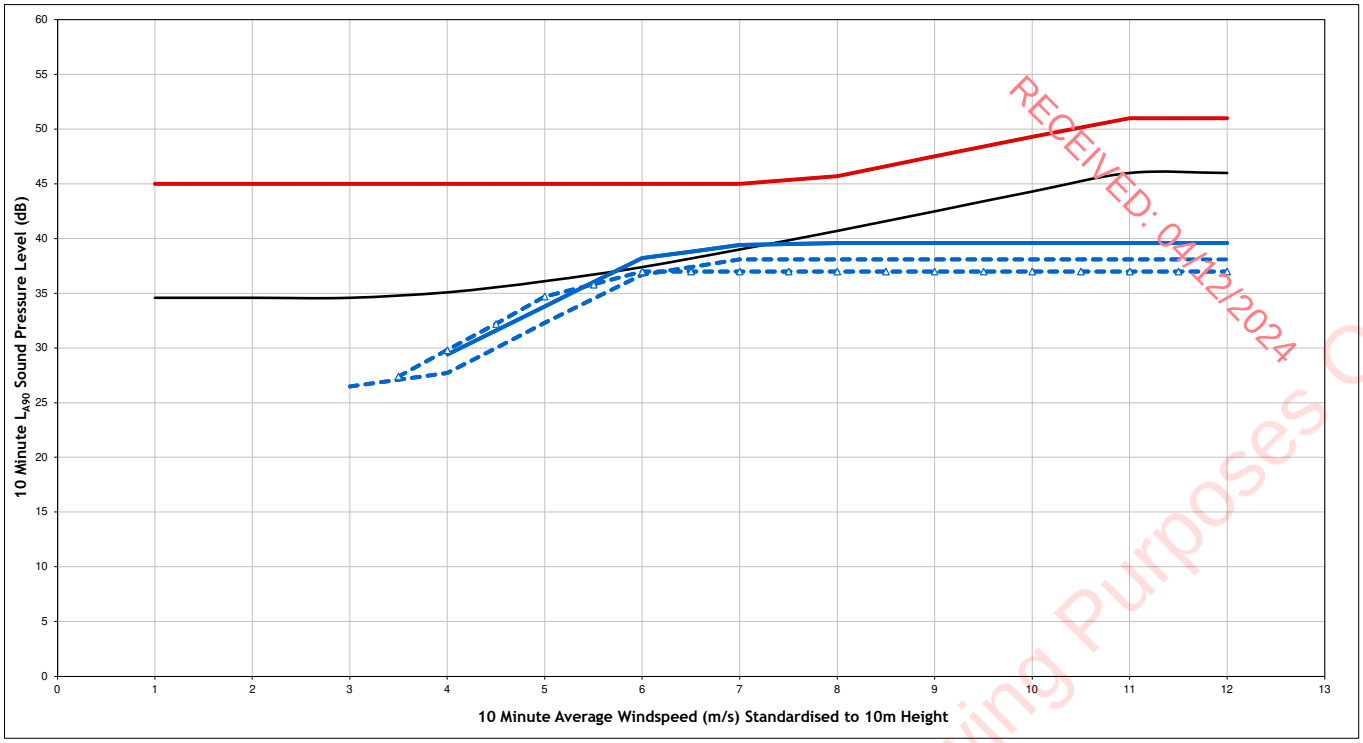
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL3 (H158)
Figure Number	Figure A1.3c
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

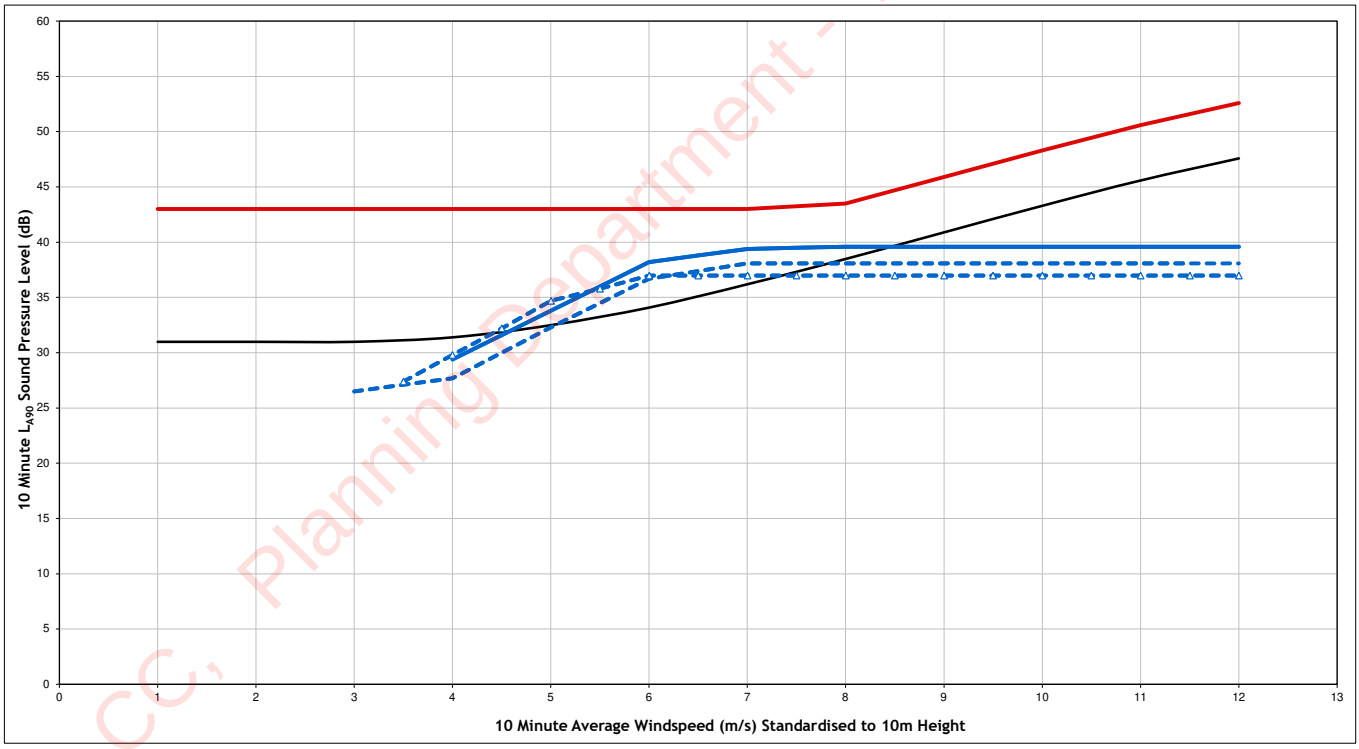
EDF renewables

tnei

Daytime - NAL4 (H187)



Night Time - NAL4 (H187)



Legend:

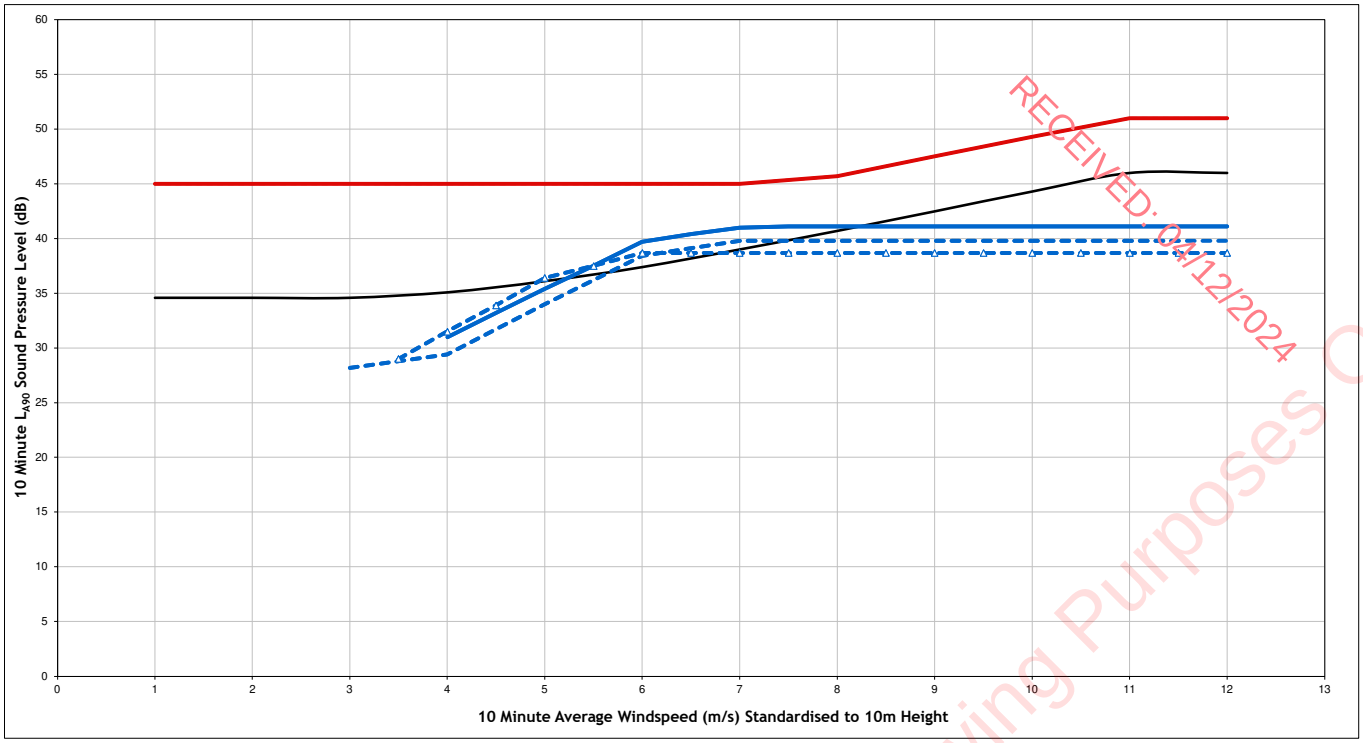
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL4 (H187)
Figure Number	Figure A1.3d
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

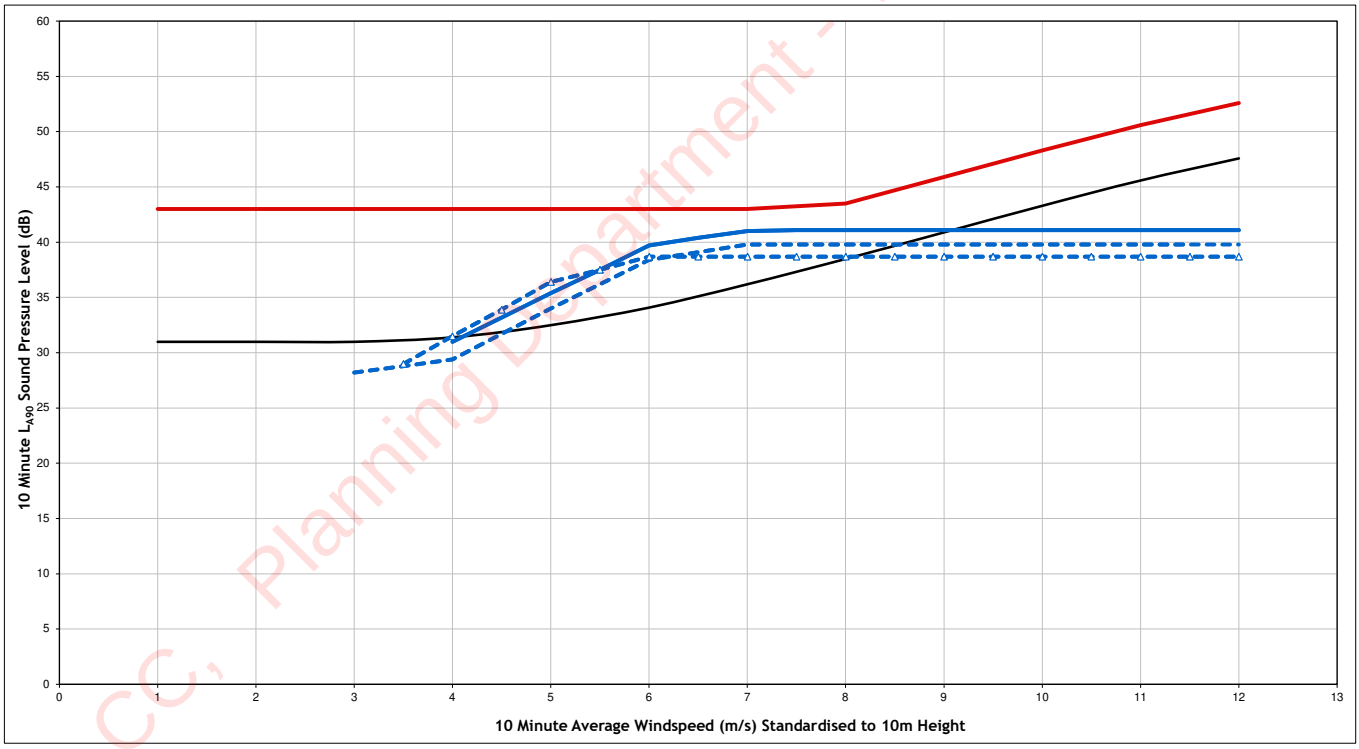
EDF renewables

tnei

Daytime - NAL5 (H71)



Night Time - NAL5 (H71)



Legend:

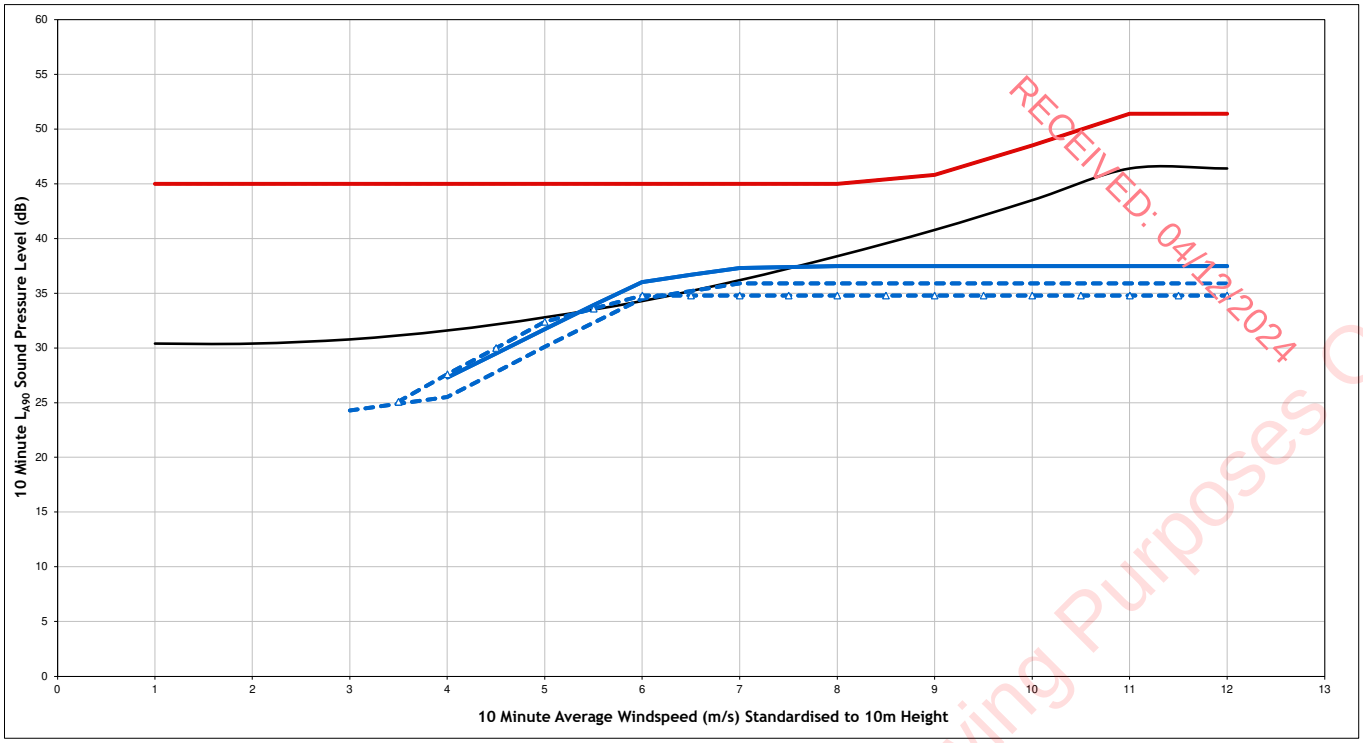
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL5 (H71)
Figure Number	Figure A1.3e
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

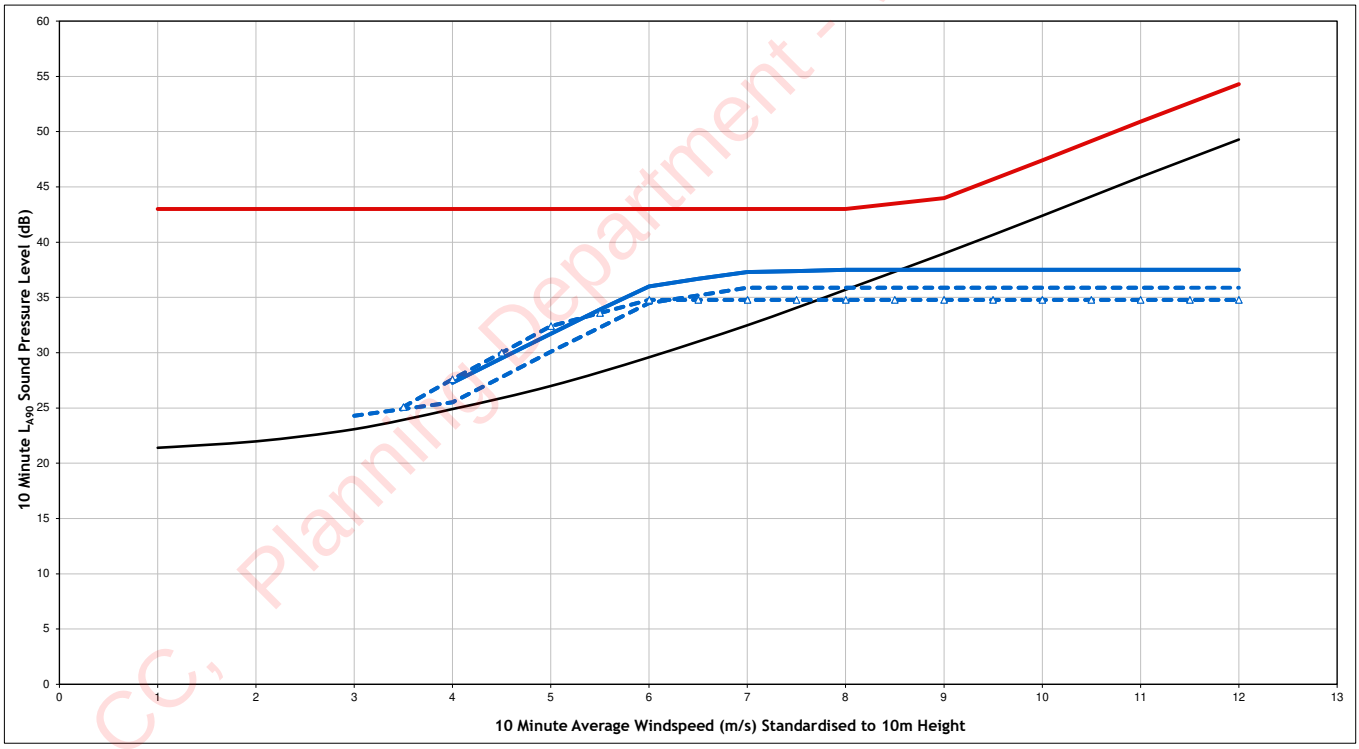
EDF renewables

tnei

Daytime - NAL6 (H181)



Night Time - NAL6 (H181)



Legend:

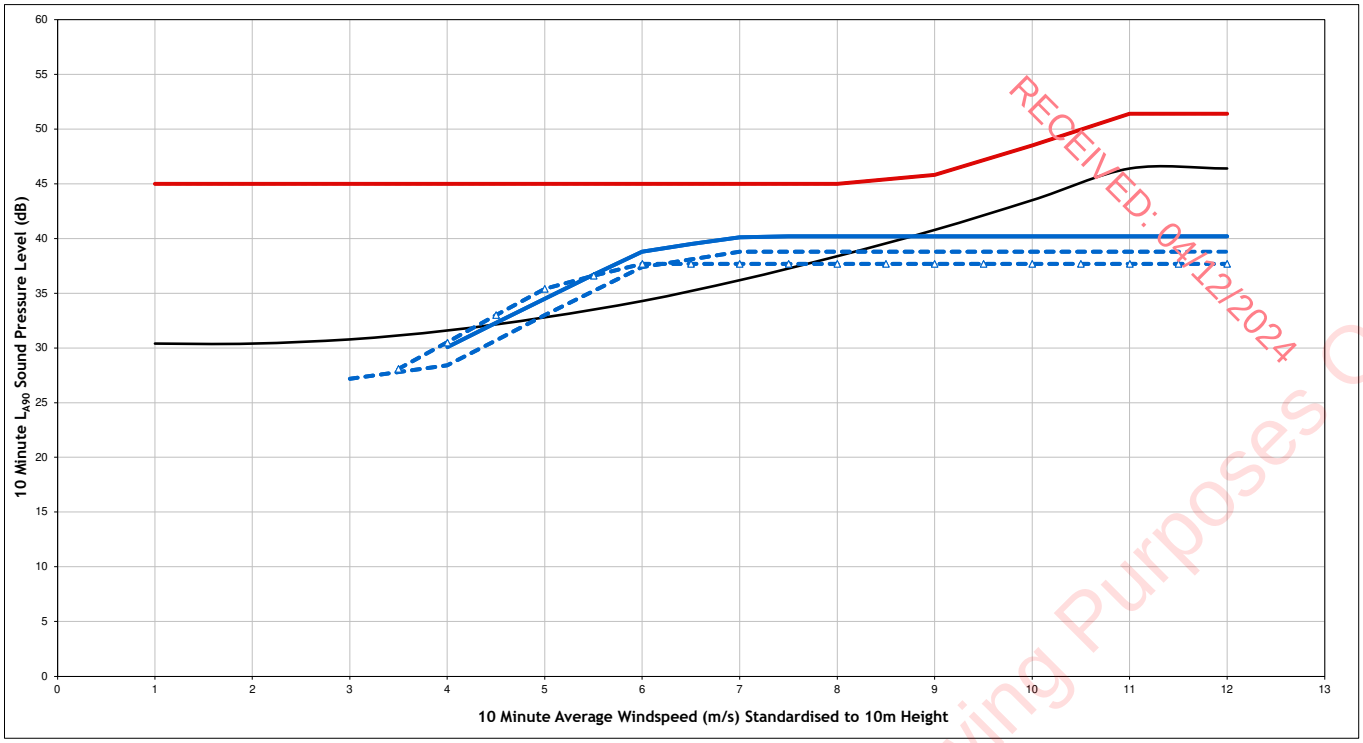
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL6 (H181)
Figure Number	Figure A1.3f
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

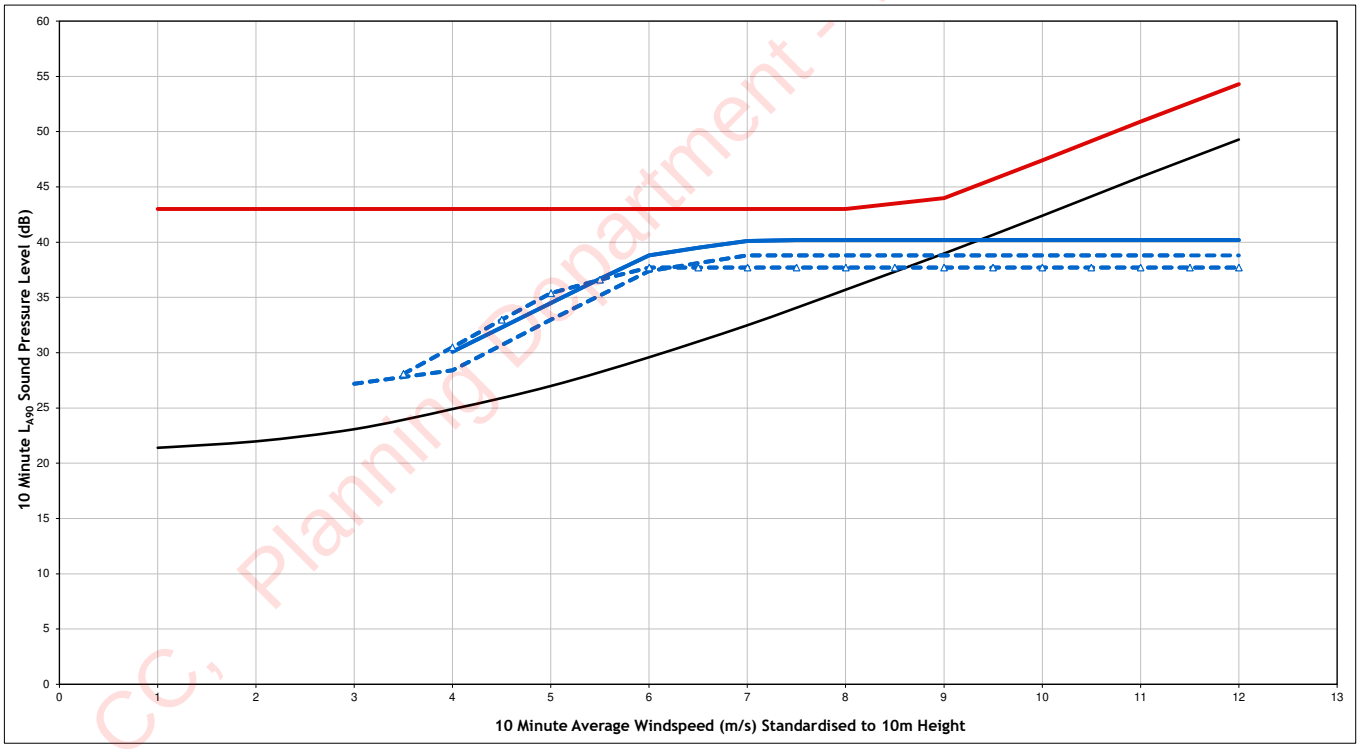
EDF renewables

tnei

Daytime - NAL7 (H179)



Night Time - NAL7 (H179)



Legend:

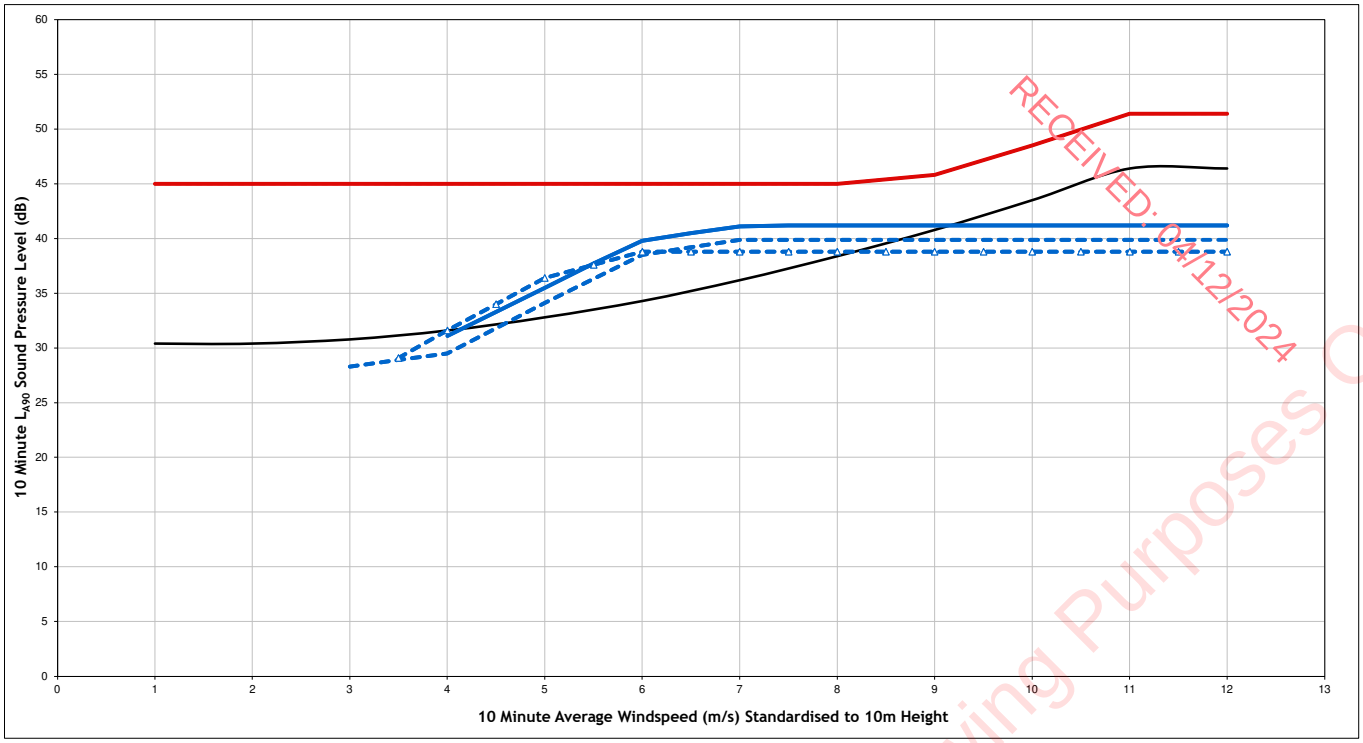
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL7 (H179)
Figure Number	Figure A1.3g
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

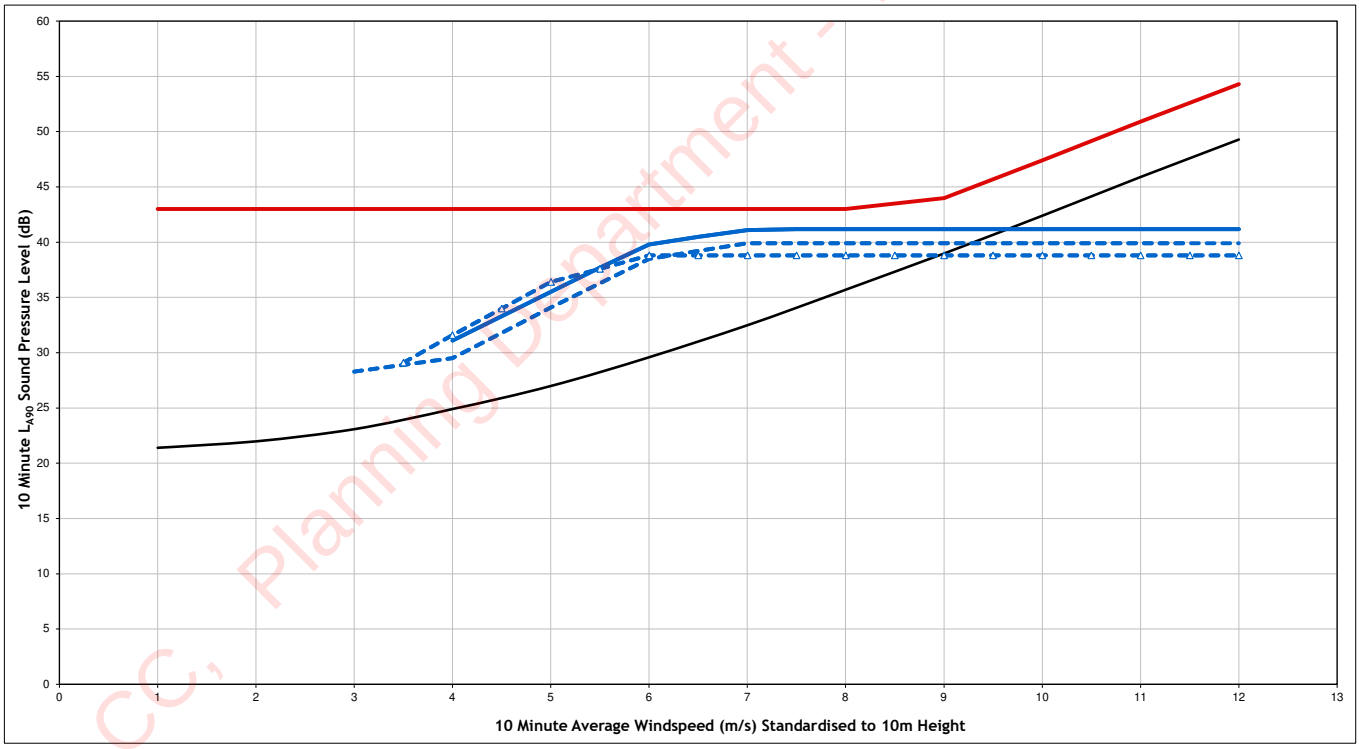
EDF renewables

tnei

Daytime - NAL8 (H115)



Night Time - NAL8 (H115)



Legend:

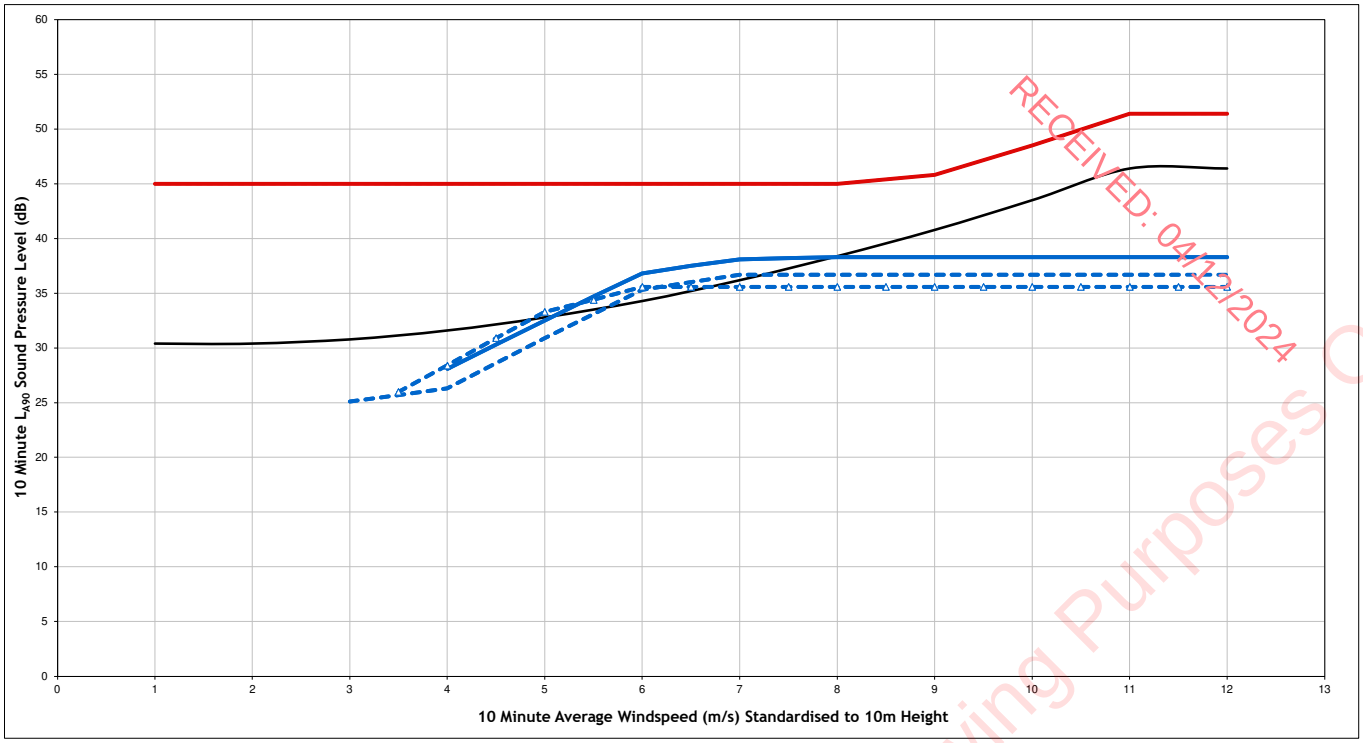
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL8 (H115)
Figure Number	Figure A1.3h
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

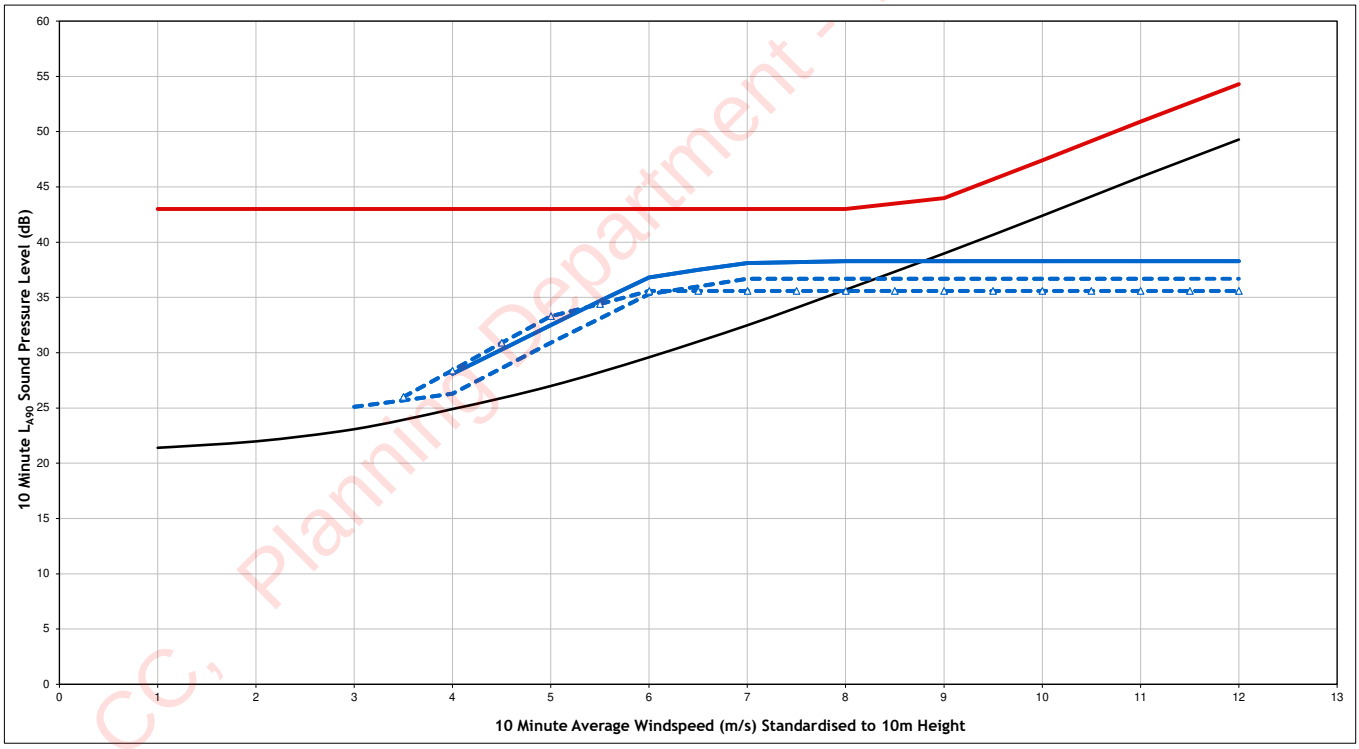
EDF renewables

tnei

Daytime - NAL9 (H14)



Night Time - NAL9 (H14)



Legend:

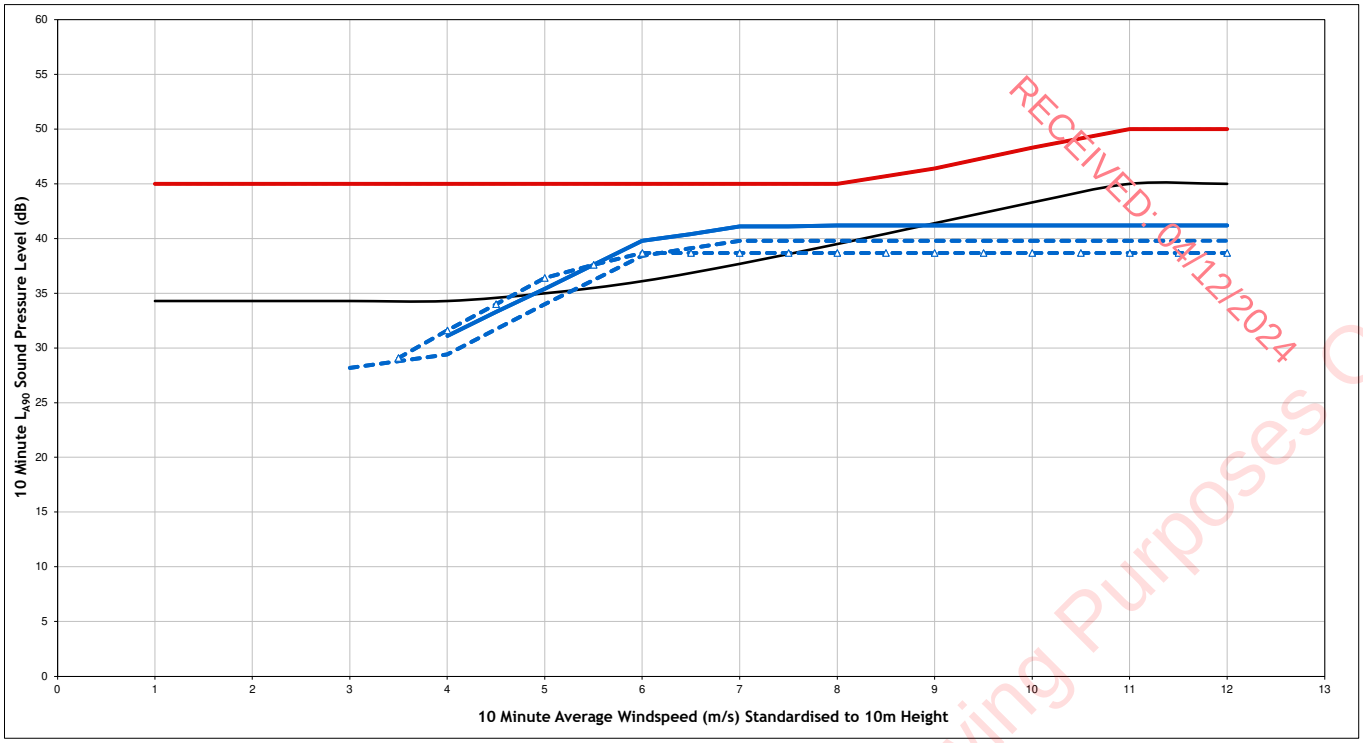
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL9 (H14)
Figure Number	Figure A1.3i
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

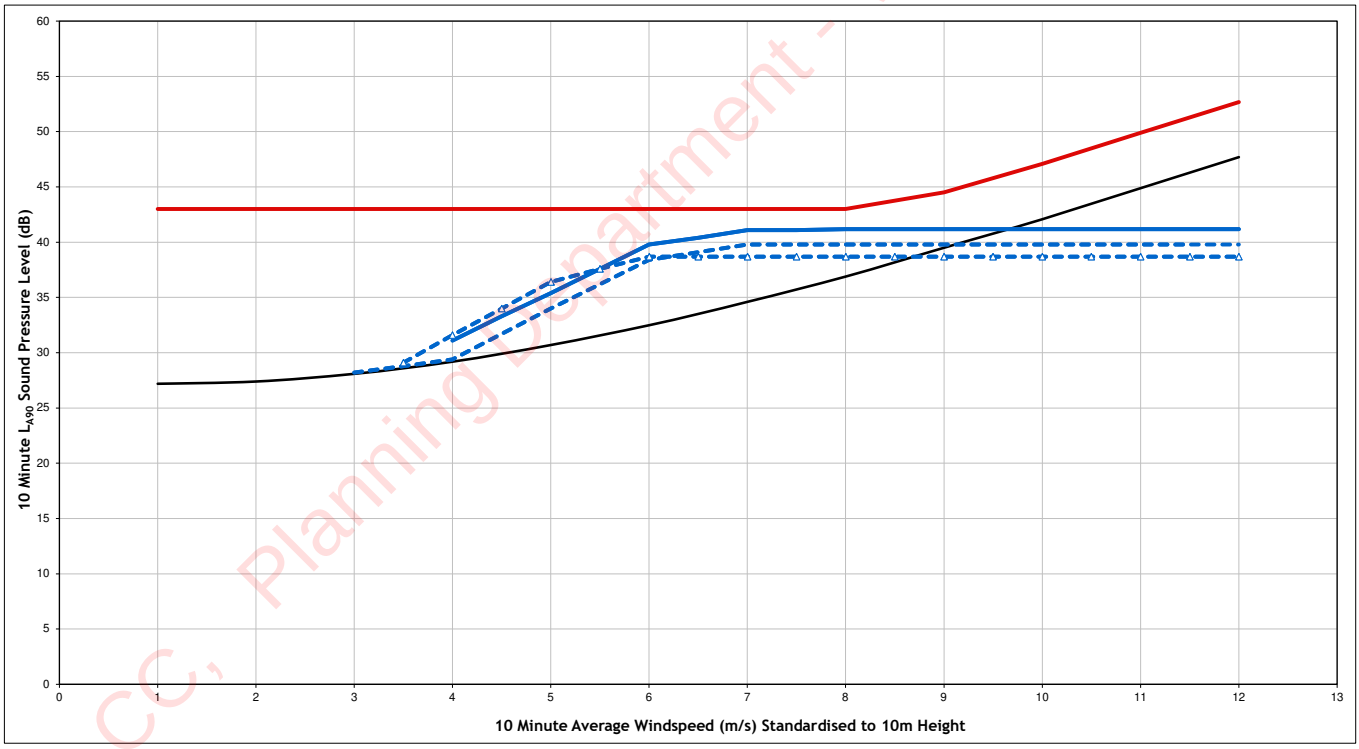
EDF renewables

tnei

Daytime - NAL10 (H109)



Night Time - NAL10 (H109)



Legend:

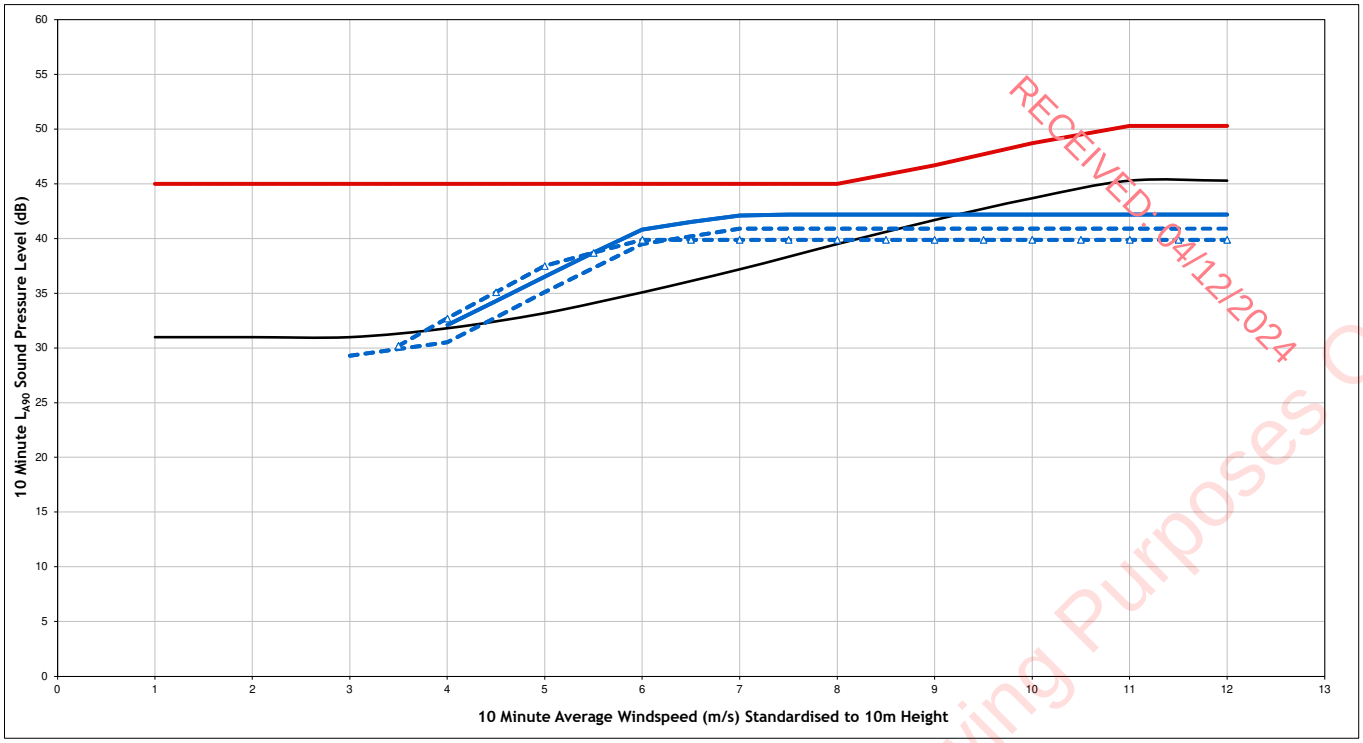
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL10 (H109)
Figure Number	Figure A1.3j
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

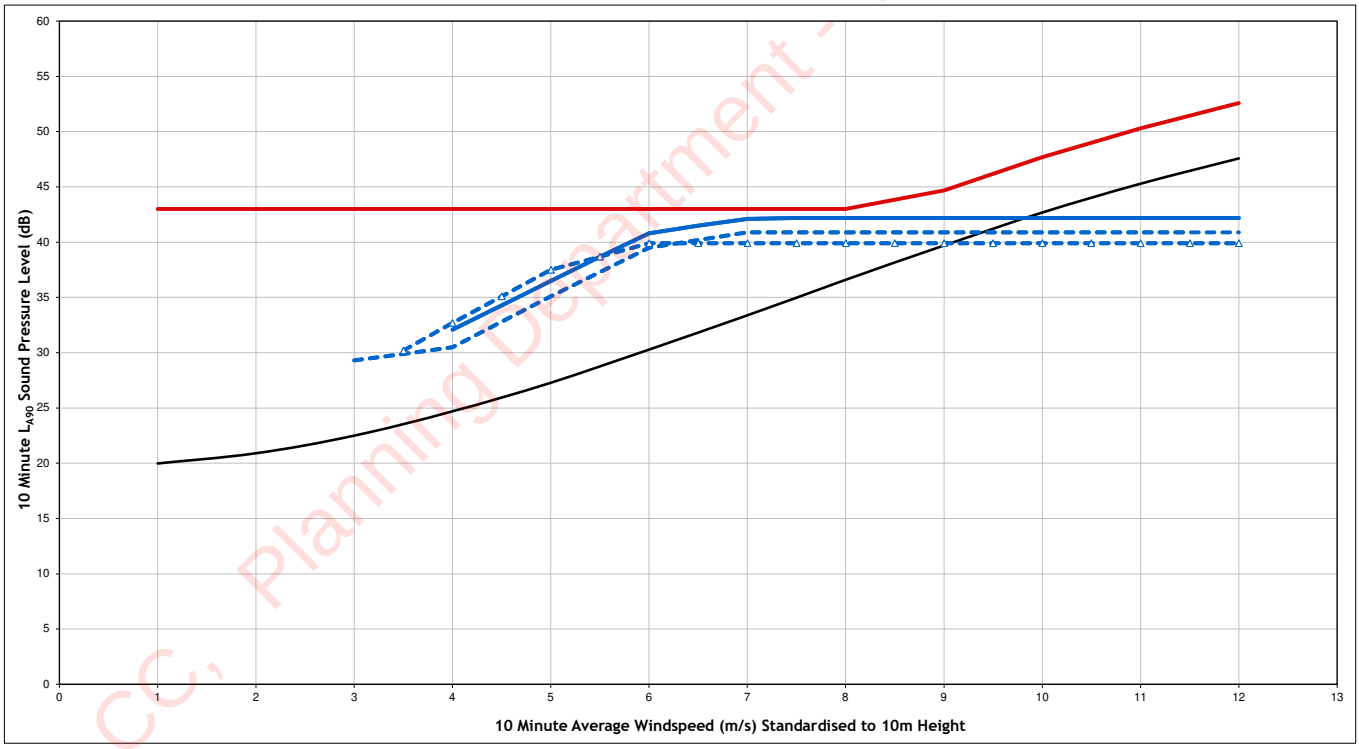
EDF renewables

tnei

Daytime - NAL11 (H374)



Night Time - NAL11 (H374)



Legend:

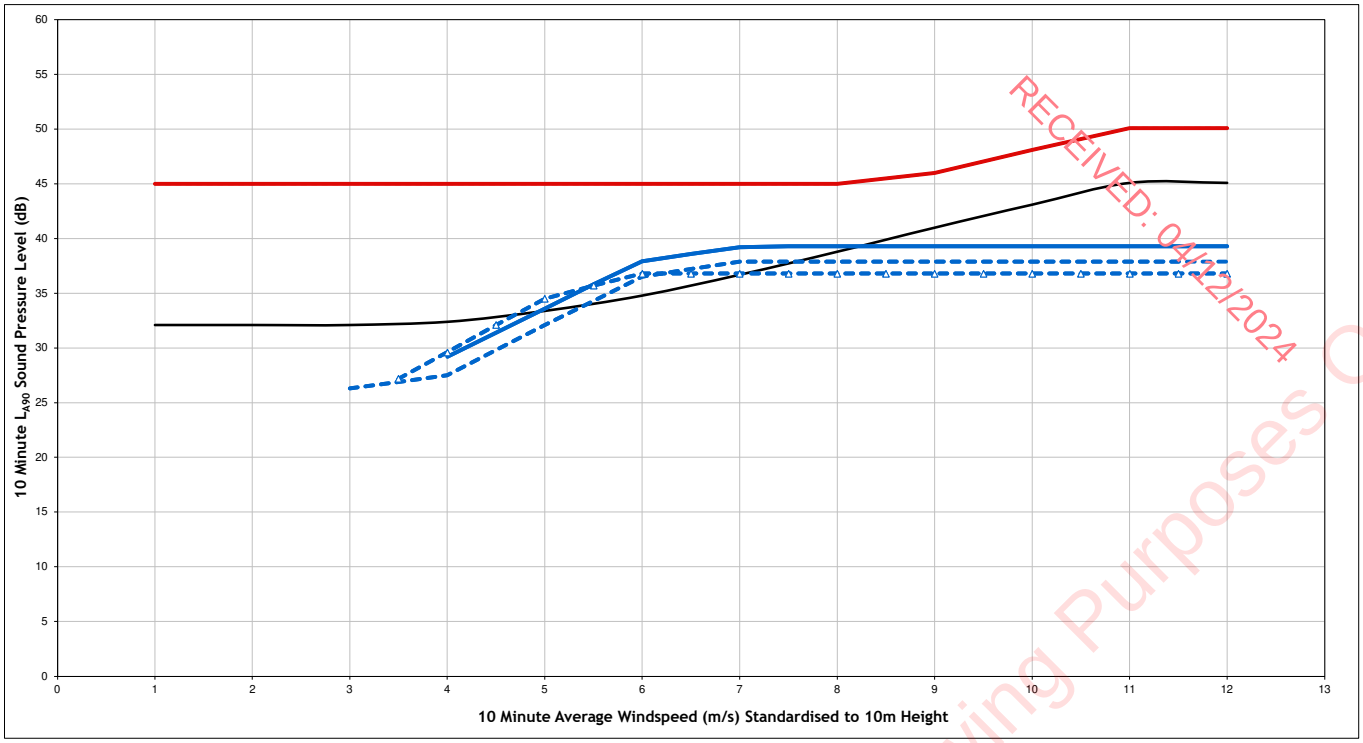
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL11 (H374)
Figure Number	Figure A1.3k
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

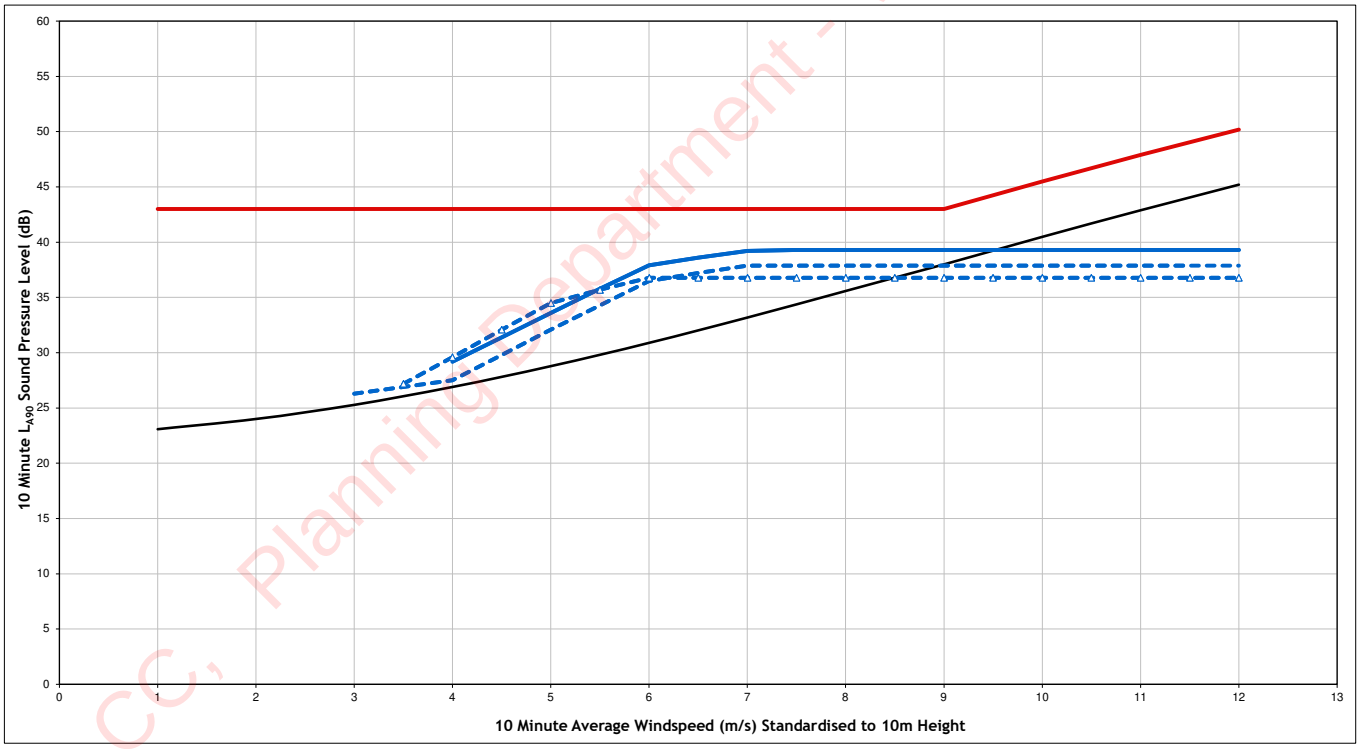
EDF renewables

tnei

Daytime - NAL12 (H265)



Night Time - NAL12 (H265)



Legend:

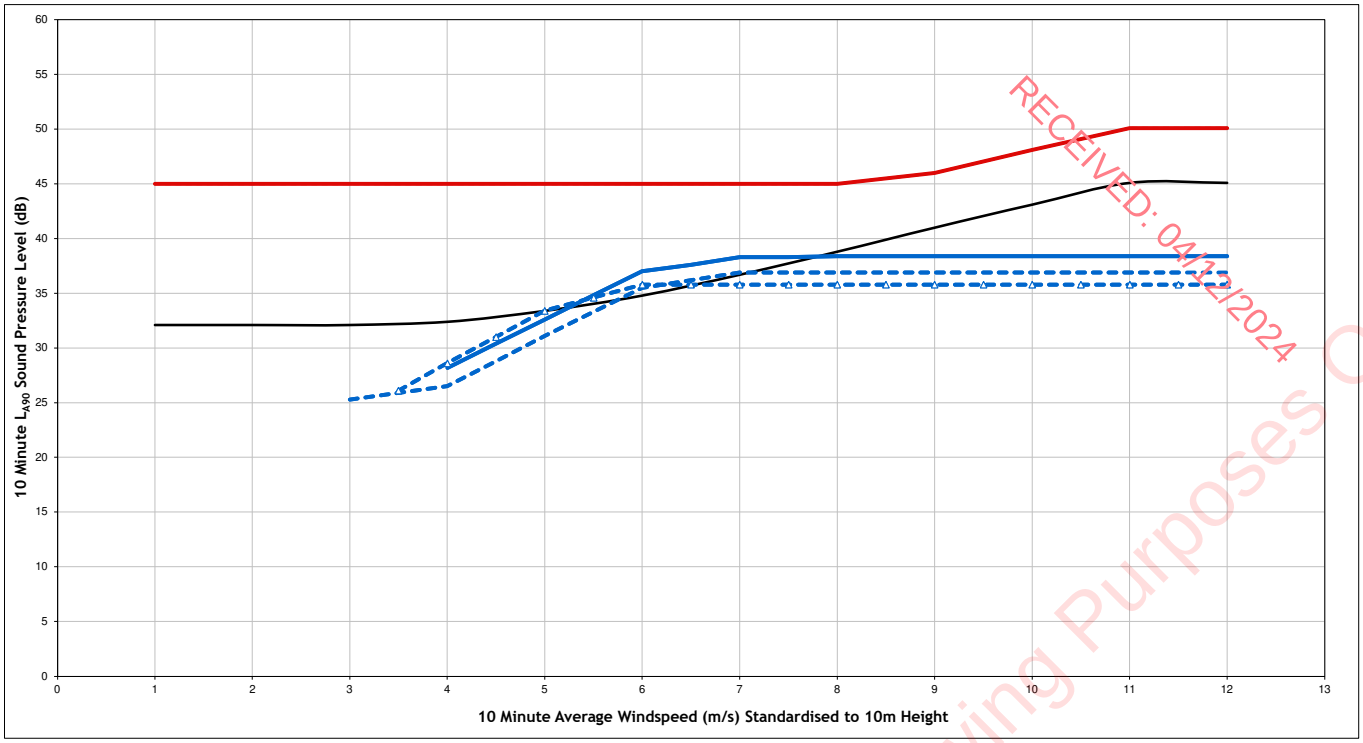
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL12 (H265)
Figure Number	Figure A1.3l
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

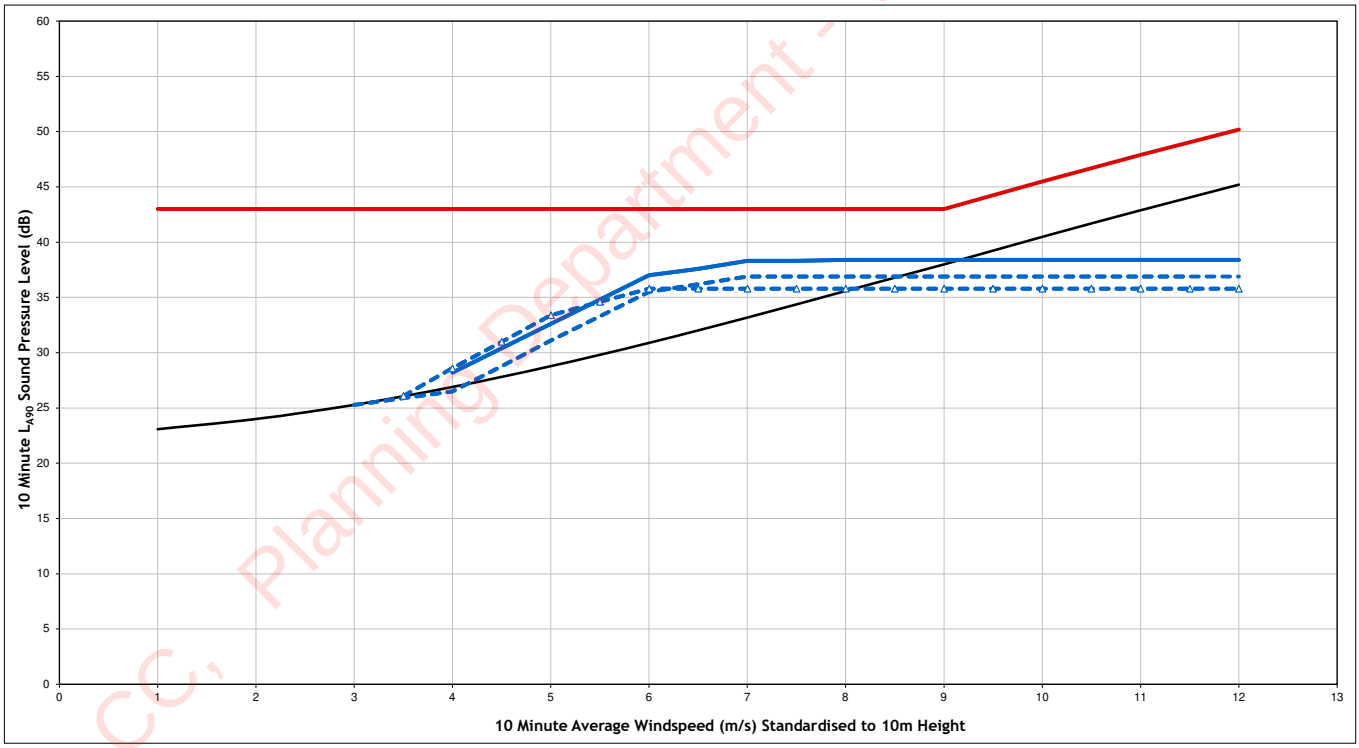
EDF renewables

tnei

Daytime - NAL13 (H226)



Night Time - NAL13 (H226)



Legend:

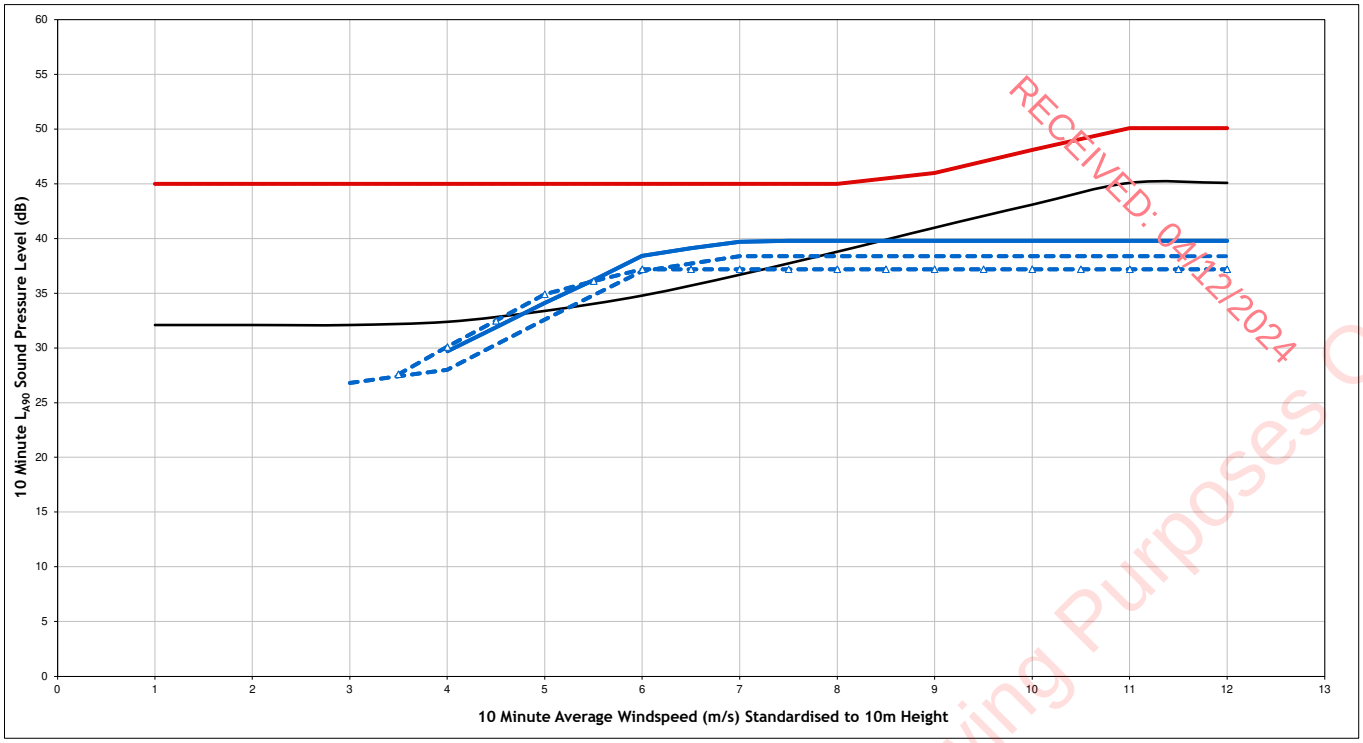
- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL13 (H226)
Figure Number	Figure A1.3m
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

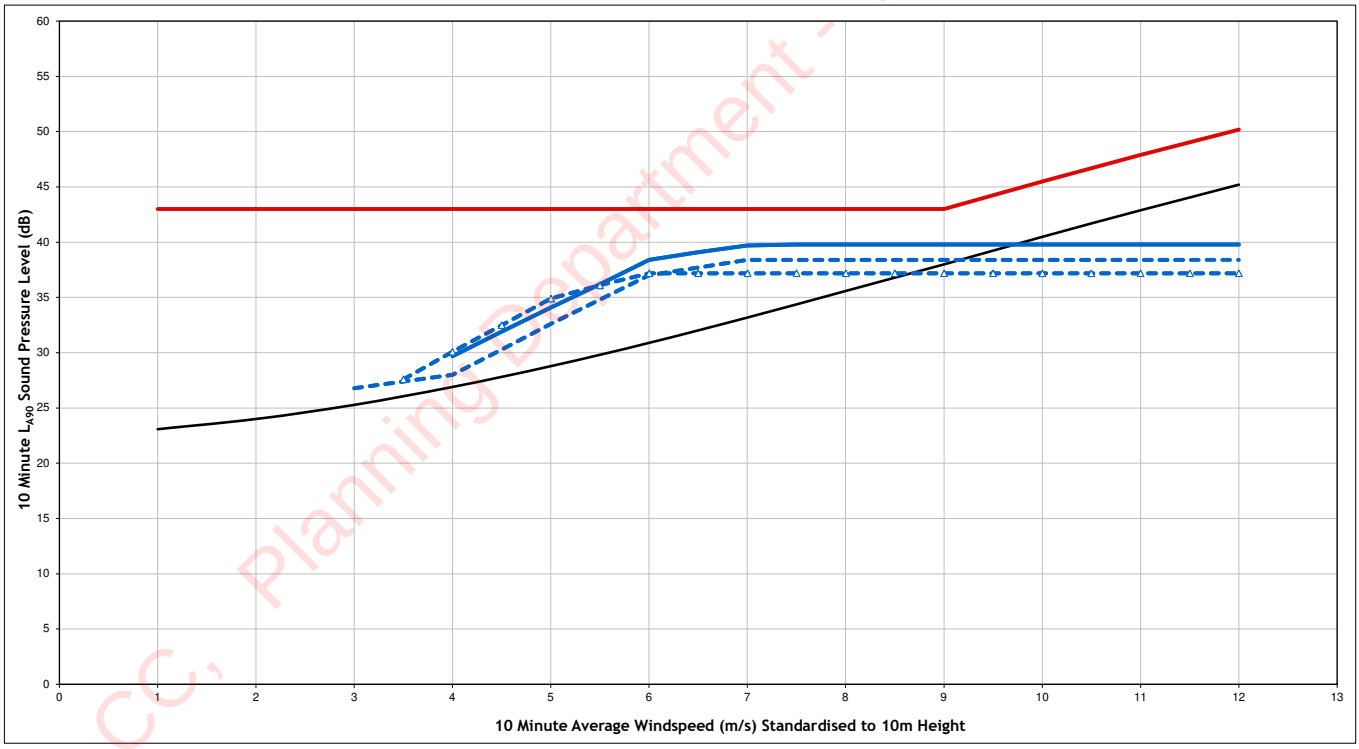
EDF renewables

tnei

Daytime - NAL14 (H46)



Night Time - NAL14 (H46)



Legend:

- Background Noise Trendline
- WEDG 2006 Noise Limit
- Proposed Development - Nordex N163 7MW with STE
- Proposed Development - Nordex N149 5.7MW with STE
- Proposed Development - Siemens-Gamesa SG6.6-155 6.6MW

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Noise Assessment NAL14 (H46)
Figure Number	Figure A1.3n
Scale	NTS
Drawn	AD
Checked	GC
Date	30/07/2024
Document Reference	IE00125 - Models

EDF renewables

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Annex 2 – Field Data Sheets / Installation Report

Kellystown Wind Farm Noise Survey - Installed Noise Monitoring Locations

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Present during the course of the installation:

- Colum Breslin, TNEI Ireland Ltd

Unless specified, all noise meters were installed at least 3.5 m from any hard-reflecting surface except the ground and less than 20 m from the dwelling and away from obvious noise sources, such as boiler flues.

Detailed information and pictures for each of the installed locations are provided below. The original full-size pictures are available on request.

Noise Monitoring Location (NML) - Latitude/ Longitudes

NML	Lat Long	ITM (X , Y)
NML1	53.792988°, -6.342005°	709238, 783878
NML2	53.785649°, -6.342092°	709252, 783061
NML3	53.780855°, -6.349579°	708771, 782517
NML4	53.779242°, -6.367179°	707615, 782310
NML5	53.794175°, -6.385887°	706345, 783944
NML6	53.799907°, -6.384812°	706401, 784583
NML7	53.800707°, -6.350469°	708661, 784724

NML01

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North

South

East

West

Description
The noise monitoring equipment was installed to the west of the property. The location was chosen due to its proximity to the east of the proposed development. The kit was positioned in what was considered to be a representative residential amenity area, in the front garden. The location was seen to be representative of the other properties in the area to the north and east. The predominant sounds that were audible during the installation were from farming activity, birdsong, dogs barking and wind induced noise from the nearby vegetation and trees. The noise meter was located in a free field position, greater than 3.5m from any hard reflecting surface except the ground. A rain gauge was installed at this location.

NML02

North	South
	
East	**West**
	

Description
The noise monitoring equipment was installed to the west of the property. The location was chosen due to its proximity to the east of the proposed development. The kit was positioned in what was considered to be a representative residential amenity area, in the back garden. The location was seen to be representative of the other properties in the area to the east of the property. The predominant sounds that were audible during the installation were from the adjacent farm activity, road traffic, birdsong and wind induced noise from the vegetation and trees. The noise meter was located in a free field position, greater than 3.5m from any hard reflecting surface except the ground, adjacent the property and to a sheep farm.

NML03

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North	South
	
East	**West**
	

Description
The noise monitoring equipment was installed in the front garden of the property as this was deemed to be most representative, which is located to the south of the property and was away from the horse yard. The location was chosen due to its proximity to the south-east of the proposed development, and was also seen to be representative of the other properties in the area to the south and south-east of the property. The predominant sounds that were audible during the installation were from the constant guard dog barking (because of my presence), horses neighing, vehicle and tractor movement and wind induced noise from the surrounding vegetation and trees. There is a farm adjacent, however, during installation, there were no animals present. The noise meter was located in a free field position, greater than 3.5m from any hard reflecting surface except the ground.

NML04

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North

South

East

West

Description
The noise monitoring equipment was installed to the north of the property. The location was chosen due to its proximity to the south of the proposed development, and was also seen to be representative of the other properties in the area to the south and west of the property. The predominant sounds that were audible during the installation were from passing cars, wind induced noise from vegetation (tall bushes) and trees. Secondary noise was the birdsong. Metal shed adjacent but was quiet. The noise meter was located on a grass patch area adjacent to the property, greater than 3.5m from any hard reflecting surface except the ground.

NML05

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North

South

East

West

Description
The noise monitoring equipment was installed to the north of the property. The noise kit was installed in a flower bed area as this was both representative and the resident preferred this location. The location was chosen due to its proximity to the west of the proposed development, and was also seen to be representative of the other properties in the surrounding area. The predominant sounds that were audible during the installation were from birdsong, cars passing from the distant motorway, wind induced noise form the vegetation. There were cattle and sheep in adjacent fields. The noise meter was located in a free field position, greater than 3.5m from any hard reflecting surface except the ground. A rain gauge was installed at this location.

NML06

Reproduced under Google Earth pro licence

North	South
	
East	**West**
	

Description
The noise monitoring equipment was installed to the north of the property. The property has many bushes and trees on the premises. The spot chosen was away from this vegetation and trees to stop contamination of the recorded noise data. The location was chosen due to its proximity to the west of the proposed development and was also seen to be representative of the other properties further west. The predominant sounds that were audible during the installation were from birdsong, rustling from surround vegetation and trees and the passing of quarry trucks. The noise meter was located in a free field position, greater than 3.5m from any hard reflecting surface except the ground.

NML07

Reproduced under Google Earth pro licence

North	South
	
East	**West**
	

Description
The noise monitoring equipment was installed to the south of the property. To note, near to this property is a quarry. The location was chosen due to its proximity to the north-east of the proposed development, and was also seen to be representative of the other properties in the surrounding area. The predominant sounds that were audible during the installation were from the quarry (heavy machinery noise), nearby road traffic and wind induced noise from the vegetation and trees. The noise meter was located in a free field position, greater than 3.5m from any hard reflecting surface except the ground.

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 1
Description	The noise kit was installed to the west of the property. The location was to the east of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground). A rain gauge was installed at this location.
Approximate Irish Transverse Mercator (ITM) Reference	709238, 783878
Noise sources noted during installation, weekly inspection and removal	Farming activity, birdsong, dogs barking and wind induced noise from the nearby vegetation and trees were the main noise sources observed.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 040	NL52	01176428	22/11/2021
Pre Amplifier	Rion	NH-25	76447	22/11/2021
Microphone	Rion	UC-59	12471	22/11/2021
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0101	10:30 08/02/2023	10:50 15/03/23	94.0	93.9	-0.1	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Dogs barking Farming activity on adjacent field Birdsong Windy
0102	12:20 15/03/23	10:30 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Dogs barking Birdsong Windy & Rainy Quite quiet **Note: The SLM was switched with another SLM for calibration purposes during this visit.** **19/04: Equipment Decommission:** Dogs barking Birdsong Windy & Sunny

PHOTOGRAPHS

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 2
Description	The noise kit was installed to the west of the property. The location was to the east of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground).
Approximate Irish Transverse Mercator (ITM) Reference	709252, 783061
Noise sources noted during installation, weekly inspection and removal	farm activity, road traffic, birdsong and wind induced noise from the vegetation and trees were the main noise sources observed.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 044	NL52	00386739	17/11/2021
Pre Amplifier	Rion	NH-21	-	17/11/2021
Microphone	Rion	UC-53a	12362	17/11/2021
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0201	09:10 08/02/2023	11:20 15/03/23	94.0	94.1	0.1	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Foliage rustling in breeze. Farming activity on adjacent field Birdsong Distant car traffic (continuous)
0202	11:40 15/03/23	11:00 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Wind noise from foliage prominent Windy & Rainy Distant car traffic (continuous) **19/04: Equipment Decommission:** Dogs barking (In kennel 10 meters from noise kit) Birdsong Windy & Sunny

PHOTOGRAPHS

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 3
Description	The noise kit was installed to the south of the property. The location was to the south-east of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground).
Approximate Irish Transverse Mercator (ITM) Reference	708771, 782517
Noise sources noted during installation, weekly inspection and removal	Guard dog barking, many horses, vehicle and tractor movement and wind induced noise from the surrounding vegetation and trees were the main noise sources observed.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 014	NL31	01273102	04/08/2021
Pre Amplifier	Rion	NH-21	-	04/08/2021
Microphone	Rion	UC-53a	313359	04/08/2021
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0301	12:00 08/02/2023	11:40 15/03/23	94.0	94.0	0.0	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Dogs barking (many guard dogs) Horses neighing consistently (Stud farm) Birdsong Windy
0302	12:00 15/03/23	11:30 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Dogs barking (many guard dogs) Birdsong Horses neighing consistently (Stud farm) Tractor and vehicle movement **19/04: Equipment Decommission:** Dogs barking Birdsong Horses neighing consistently (Stud farm) Windy & Sunny

PHOTOGRAPHS

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 4
Description	The noise kit was installed to the north of the property. The location was to the south of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground).
Approximate Irish Transverse Mercator (ITM) Reference	707615, 782310
Noise sources noted during installation, weekly inspection and removal	Passing cars, wind induced noise from vegetation (tall bushes) and trees, birdsong were the main noise sources observed.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 050	NL52	00809410	02/07/2022
Pre Amplifier	Rion	NH-21	-	02/07/2022
Microphone	Rion	UC-53a	16495	02/07/2022
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0401	12:30 08/02/2023	12:10 15/03/23	94.0	94.0	0.0	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Cars passing Distant motorway noise Foliage rustling in breeze Windy
0402	12:30 15/03/23	12:00 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Birdsong Foliage rustling in breeze Windy, wet and rainy **19/04: Equipment Decommission:** Birdsong Windy & Sunny

PHOTOGRAPHS

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 5
Description	The noise kit was installed to the north of the property. The location was to the west of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground). A rain gauge was installed at this location.
Approximate Irish Transverse Mercator (ITM) Reference	706345, 783944
Noise sources noted during installation, weekly inspection and removal	Birdsong, cars passing from the distant motorway, wind induced noise form the vegetation were the main noise sources observed. There were cattle and sheep in adjacent fields.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 049	NL52	00809388	02/06/2022
Pre Amplifier	Rion	NH-21	-	02/06/2022
Microphone	Rion	UC-53a	17858	02/06/2022
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0601	14:00 08/02/2023	12:50 15/03/23	94.0	94.0	0.0	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Cars passing Distant motorway noise (constant and loud) Very wet and windy.
0602	13:10 15/03/23	12:30 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Quiet other than noise from the motorway Windy, wet and rainy **19/04: Equipment Decommission:** Quiet other than noise from the motorway Birdsong Windy & Sunny

PHOTOGRAPHS

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 6
Description	The noise kit was installed to the north of the property. The location was to the west of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground).
Approximate Irish Transverse Mercator (ITM) Reference	706401, 784583
Noise sources noted during installation, weekly inspection and removal	Birdsong, rustling from surround vegetation and trees, the passing of quarry trucks and distant road traffic noise from the motorway located to the west were the main noise sources observed.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 030	NL52	00643022	17/11/2021
Pre Amplifier	Rion	NH-21	-	17/11/2021
Microphone	Rion	UC-53a	06802	17/11/2021
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0701	14:50 08/02/2023	13:20 15/03/23	94.0	93.8	-0.2	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Birdsong Distant motorway noise (constant and loud) Very windy.
0702	13:30 15/03/23	13:00 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Birdsong Quiet other than noise from the motorway Windy, wet and rainy **19/04: Equipment Decommission:** Distant motorway noise (constant and loud) Birdsong Windy & Sunny

PHOTOGRAPHS

Noise Monitoring Field Data Sheet

Project Title	Kellystown Wind Farm	**Project Number**	IE00125
Client	EDF Renewables	**Surveyor**	CB

MONITORING LOCATION

Location Name	Noise Monitoring Location (NML) 7
Description	The noise kit was installed to the south of the property. The location was to the north-east of the proposed development. The kit was placed greater than 3.5 m away from any reflective surfaces (excluding the ground). .
Approximate Irish Transverse Mercator (ITM) Reference	708661, 784724
Noise sources noted during installation, weekly inspection and removal	Quarry (heavy machinery noise), nearby road traffic noise and wind induced noise from the vegetation and trees were the main noise sources observed.

NOISE MONITORING EQUIPMENT DETAILS

Survey	Kit Number	Model	Serial Number	Last Calibrated/ Conformance Checked
Sound Level Meter	SLM 050	NL52	00809410	02/07/2022
Pre Amplifier	Rion	NH-21	-	02/07/2022
Microphone	Rion	UC-53a	16495	02/07/2022
Calibrator	Cal 001	NC-74	34762316	21/03/2023
Calibrator	Cal 003	NC-74	35173441	01/04/2022

NOISE MONITORING EQUIPMENT SETTINGS

	Network (A,B,Z)	Index and Time	Time Weighting (Slow, Fast)	Range (dB)	Audio
Parameters Recorded	A	$L_{A9010min}$, $L_{Aeq10min}$	Fast	20-110	No

DATA

File Name	Start Time	End Time	Cal. at Start	Cal. at End	Drift	Observations
0801	15:20 08/02/2023	13:30 15/03/23	94.0	94.0	0.0	**08/02: Installation:** A walk around the property was undertaken to identify any potential water courses, drains etc and other noise sources, such as boiler flues, pumps etc. Quarry heavy machinery noise foliage in breeze audible Nearby road audible Distant motorway noise (constant and loud) Very windy.
0802	13:50 15/03/23	13:30 19/04/23	94.0	94.0	0.0	**15/03: Maintenance:** Noise from nearby road and motorway Rustling noise from foliage Sheep in adjacent field Windy, wet and rainy **19/04: Equipment Decommission:** Noise from nearby road and motorway No quarry noise Birdsong Windy & Sunny

PHOTOGRAPHS

Annex 3 – Calibration/ Conformance Certificates for Sound Level Meters and Calibrator

NSAI

National Metrology Laboratory

Certificate of Calibration

Issued to

TNEI Ireland Limited
Unit S12 Synergy Centre
Technological University Dublin Campus
Tallaght
Dublin 24

Certificate Number	**231154**
Item Calibrated	RION NC-74 Sound Level Calibrator
Serial Number	34762316
ID Number	None
Order Number	16
Date Received	14 Mar 2023
NML Procedure Number	AP-NM-13
Method	The above calibrator was allowed to stabilize for a suitable period in laboratory conditions. It was then calibrated by measuring the sound pressure level generated in its measuring cavity. The calibrator's operating frequency was also measured.
Calibration Standards	Norsonic 1504A Calibration System incorporating: Agilent 34401A Digital Multimeter, File No. 0736 [Cal Due: 16 Aug 2023] B & K 4134 Measuring Microphone, File No. 0744 [Cal Due: 03 Jun 2023] B & K 4228 Pistonphone, File No. 0740 [Cal Due: 04 Jun 2023]

Calibrated by David Fleming

Approved by Paul Hetherington

Date of Calibration 21 Mar 2023

Date of Issue 21 Mar 2023

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Glas Naíon | Baile Átha Cliath 11 | Eire
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5. This contract is governed by the laws of Ireland whose courts shall have exclusive jurisdiction.

Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Measuring Conditions:

Ambient Pressure:	(99.6 ± 0.5) kPa
Ambient Temperature:	(21.3 ± 1.0) °C
Ambient Rel. Humidity:	(40 ± 5) %RH

Results:

The measured sound pressure levels (SPL) reported below refer to the ambient laboratory conditions at the time of calibration.

Calibrator Setting	Measured Parameter	Measured Value (1)		Tolerance (3) (±)	Meas. Uncertainty (±)
		Before Adj.	After Adj.		
94 dB	Sound Pressure Level(2)	94.02 dB	*	0.30 dB	0.15 dB
	Frequency	1002.5 Hz	*	20 Hz	0.30 Hz

Notes: (1) * indicates that no calibration adjustment was made.
(2) The measured sound pressure level was that generated in the calibrator's cavity when loaded by the microphone specified on page 1 of this certificate (including protection grid).
(3) Tolerances set out in IEC:60942 (1997).

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the specifications set out in IEC:60942 (1997) for the sound pressure level and frequency outputs measured at the time of calibration.

Note that the measured values refer to the ambient conditions given above.

When using the calibrator with a sound level meter any manufacturer's guidelines regarding free-field corrections should be observed.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI

National Metrology Laboratory

Certificate of Calibration

Issued to

TNEI Ireland Limited
Unit S12 Synergy Centre
Technological University Campus
Tallaght
Dublin 24

Attention of Ewan Watson

Certificate Number	221332
Item Calibrated	RION NC-74 Sound Level Calibrator
Serial Number	35173441
ID Number	None
Order Number	6
Date Received	24 Mar 2022
NML Procedure Number	AP-NM-13

Method

The above calibrator was allowed to stabilize for a suitable period in laboratory conditions. It was then calibrated by measuring the sound pressure level generated in its measuring cavity. The calibrator's operating frequency was also measured.

Calibration Standards

Norsonic 1504A Calibration System incorporating:
Agilent 34401A Digital Multimeter, File No. 0736 [Cal Due: 10 Jun 2022]
B & K 4134 Measuring Microphone, File No. 0744 [Cal Due: 03 Jun 2023]
B & K 4228 Pistonphone, File No. 0740 [Cal Due: 04 Jun 2023]

Calibrated by David Fleming

Approved by Paul Hetherington

Date of Calibration 01 Apr 2022

Date of Issue 01 Apr 2022

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

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3. NSAI will not release any information received from or provided to the client in relation to this report except as may be required by law, including the Freedom of Information Act 1997, or as specified by the client.
4. This certificate relates only to the item(s) described on the front page and shall not be reproduced, except in full.
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Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Measuring Conditions:

Ambient Pressure:	(102.0 ± 0.5) kPa
Ambient Temperature:	(21.5 ± 1.0) °C
Ambient Rel. Humidity:	(32 ± 5) %RH

Results:

The measured sound pressure levels (SPL) reported below refer to the ambient laboratory conditions at the time of calibration.

Calibrator Setting	Measured Parameter	Measured Value (1)		Tolerance (3) (±)	Meas. Uncertainty (±)
		Before Adj.	After Adj.		
94 dB	Sound Pressure Level(2)	93.95 dB	*	0.40 dB	0.15 dB
	Frequency	1001.8 Hz	*	10 Hz	0.25 Hz

Notes: (1) * indicates that no calibration adjustment was made.
(2) The measured sound pressure level was that generated in the calibrator's cavity when loaded by the microphone specified on page 1 of this certificate (including protection grid).
(3) Tolerance limits set out in IEC 60942:2003, Sound Calibrators, Class 1.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to comply with the requirements of IEC 60942 (2003), Class 1, for the sound pressure level and frequency outputs measured at the time of calibration.

Note that for acoustic calibrators which meet IEC 60942 (2003), the instrument is considered out of tolerance if the measured deviation from the set level, extended by it associated uncertainty, exceeds the specified tolerance limits.

Note that the measured values refer to the ambient conditions given above.

When using the calibrator with a sound level meter any manufacturer's guidelines regarding free-field corrections should be observed.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to

TNEI Ireland Limited
Unit S12 Synergy Centre
Technological University Dublin Campus
Tallaght
Dublin 24

Certificate Number	**231533**
Item Calibrated	RION NC-74 Sound Level Calibrator
Serial Number	35173441
ID Number	None
Order Number	18
Date Received	06 Apr 2023
NML Procedure Number	AP-NM-13
Method	The above calibrator was allowed to stabilize for a suitable period in laboratory conditions. It was then calibrated by measuring the sound pressure level generated in its measuring cavity. The calibrator's operating frequency was also measured.
Calibration Standards	Norsonic 1504A Calibration System incorporating: Agilent 34401A Digital Multimeter, File No. 0736 [Cal Due: 16 Aug 2023] B & K 4134 Measuring Microphone, File No. 0744 [Cal Due: 03 Jun 2023] B & K 4228 Pistonphone, File No. 0740 [Cal Due: 04 Jun 2023]

Calibrated by David Fleming

Approved by Paul Hetherington

Date of Calibration 18 Apr 2023

Date of Issue 18 Apr 2023

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

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3. NSAI will not release any information received from or provided to the client in relation to this report except as may be required by law, including the Freedom of Information Act 1997, or as specified by the client.
4. This certificate relates only to the item(s) described on the front page and shall not be reproduced, except in full.
5. This contract is governed by the laws of Ireland whose courts shall have exclusive jurisdiction.

Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Measuring Conditions:

Ambient Pressure:	(102.6 ± 0.5) kPa
Ambient Temperature:	(21.5 ± 1.0) °C
Ambient Rel. Humidity:	(42 ± 5) %RH

Results:

The measured sound pressure levels (SPL) reported below refer to the ambient laboratory conditions at the time of calibration.

Calibrator Setting	Measured Parameter	Measured Value (1)		Tolerance (3)	Meas. Uncertainty
		Before Adj.	After Adj.	(±)	(±)
94 dB	Sound Pressure Level(2)	93.99 dB	*	0.30 dB	0.15 dB
	Frequency	1001.8 Hz	*	20 Hz	0.30 Hz

Notes: (1) * indicates that no calibration adjustment was made.
(2) The measured sound pressure level was that generated in the calibrator's cavity when loaded by the microphone specified on page 1 of this certificate (including protection grid).
(3) Tolerances set out in IEC:60942 (1997).

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the specifications set out in IEC:60942 (1997) for the sound pressure level and frequency outputs measured at the time of calibration.

Note that the measured values refer to the ambient conditions given above.

When using the calibrator with a sound level meter any manufacturer's guidelines regarding free-field corrections should be observed.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

MEASUREMENT SYSTEMS

CERTIFICATE OF CONFORMANCE

Date of Issue	**21 October 2022**
Customer	**TNEI Ireland Ltd**
Certificate Number	**CONF102213**

	Manufacturer	**Type**	**Serial Number**
Sound Level Meter	Rion	NL-52	00721061
Preamplifier	Rion	NH-25	22167
Microphone	Rion	UC-59	22049

This is to certify that the instrument was tested and calibrated at the Manufacturer's factory according to their specification and that the product satisfied all the relevant requirements of the following Standards:

IEC 61672-1:2013 Class 1.

The instrument also received a functional check by ANV Measurement Systems prior to despatch in the UK, in accordance with our standard procedures.

Signed..... Position. Calibration Technician Date. 21 October 2022

B. Bogdan

BEAUFORT COURT, 17 ROEBUCK WAY, MILTON KEYNES, MK5 8HL
☎ 01908 642846 🖷 01908 642814
✉ info@noise-and-vibration.co.uk 💻 www.noise-and-vibration.co.uk

NSAI

National Metrology Laboratory

Certificate of Calibration

Issued to	TNEI Group Floor 7 West One Forth Banks Newcastle Upon Tyne England
Attention of	Ewan Watson

Certificate Number	**212990**
Item Calibrated	Rion NL-31 Sound Level Meter, complete with Rion UC53A Microphone
Serial Numbers	01273102 (Sound Level Meter) and 313359 (Microphone)
ID Number	SLM014
Order Number	1696
Date Received	20 Jul 2021
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 10 Jun 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 10 Jun 2022] B&K 4134 Measuring Microphone, No. 0743 [Cal Due Date: 27 May 2022] B&K 4228 Pistonphone, No. 0741 [Cal Due Date: 26 May 2022] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 02 Sep 2021]

Calibrated by	David Fleming	Approved by	Paul Hetherington
Date of Calibration	04 Aug 2021	Date of Issue	04 Aug 2021

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org).

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Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Ambient laboratory conditions:

Barometric Pressure:	100.7 kPa ± 0.5 kPa
Temperature:	21.8 °C ± 1 °C
Relative Humidity:	52 %RH ± 5%RH

Summary of Results:

The following table summarises the results of the verification tests. The detailed results are given in the subsequent tables.

IEC 61672 Test	Test Title	Status
10	Self-generated Noise (Electrical)	/
11	Acoustical Signal	PASS
12	Frequency Weighting	PASS
13	Frequency and Time Weighting @ 1 kHz	PASS
14	Level Linearity Test on Reference Level Range	PASS
15	Level Linearity including Range Control	PASS
16	Toneburst Response	PASS
17	Peak C	PASS
18	Overload Indication	PASS

Detailed Results.

Prior to carrying out the verification tests the sound level meter was adjusted to read correctly for pressure response through application of a reference acoustical calibrator.

Self-generated Noise Test (Electrical Input) (Test #10) [1]

Range: 20 - 80 dB
Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading[2]
Microphone installed	A	19.8 dB
Microphone replaced by electrical signal device and Fitted with a short-circuit	A	17.4 (U/R)[3]
	C	25.1
	Z (Linear)	31.1

Acoustical signal test of a frequency weighting (Test #11) [1]

Range: 20 - 110 dB
Frequency Weighting setting: C
Time Weighting response: Slow

Input Level[4]	Input Freq.	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
94.0 dB	1000 Hz	0.0 dB (Ref)	1.1 dB	0.3 dB
	125	+0.1	1.5	0.3
	4000[7]	+0.3	1.6	0.5

Electrical signal tests of frequency weightings (Test #12)[1]

Range: 20 - 110 dB

Freq. (nominal)	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
A-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	92.8	-0.2	1.5	0.20
250	93	92.8	-0.2	1.4	0.20
500	93	92.9	-0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.1	+0.1	1.6	0.20
8000	93	93.0	0.0	2.1, -3.1	0.20
16000	93	93.1	+0.1	3.5, -17	0.20
C-Weighting					
63 Hz	93 dB	92.9 dB	-0.1 dB	1.5 dB	0.20 dB
125	93	93.1	+0.1	1.5	0.20
250	93	93.1	+0.1	1.4	0.20
500	93	93.1	+0.1	1.4	0.20
1000	93	93.2	+0.2	1.1	0.20
2000	93	93.2	+0.2	1.6	0.20
4000	93	93.3	+0.3	1.6	0.20
8000	93	93.2	+0.2	2.1, -3.1	0.20
16000	93	93.4	+0.4	3.5, -17	0.20
LIN Weighting					
63 Hz	93 dB	93.1 dB	+0.1 dB	1.5 dB	0.20 dB
125	93	93.1	+0.1	1.5	0.20
250	93	93.1	+0.1	1.4	0.20
500	93	93.2	+0.2	1.4	0.20
1000	93	93.3	+0.3	1.1	0.20
2000	93	93.3	+0.3	1.6	0.20
4000	93	93.4	+0.4	1.6	0.20
8000	93	93.2	+0.2	2.1, -3.1	0.20
16000	93	92.7	-0.3	3.5, -17	0.20

Frequency and time weightings at 1 kHz (Test #13)[1]

Range: 30 - 120 dB

Time Weighting Setting	Frequency Weighting Setting	Input Level[4]	Deviation from Reference	Tolerance[6] (±)	Uncertainty. of Measurement (±)
Fast	A	94.0 dB	0.0 dB	0.4 dB	0.20 dB
	C		+0.1	0.4	0.20
	Z		+0.2	0.4	0.20
Slow	A	94.0 dB	-0.1 dB	0.3 dB	0.20 dB
Leq.	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
SEL	A	114.0 dB	0.0 dB	0.3 dB	0.20 dB

Linearity level on the reference range (Test #14)[1]

Range: 40 to 130 dB
Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	99	99.0	0.0	1.1	0.20
	104	103.9	-0.1	1.1	0.20
	109	108.9	-0.1	1.1	0.20
	114	113.9	-0.1	1.1	0.20
	119	118.9	-0.1	1.1	0.20
	124	123.9	-0.1	1.1	0.20
	129	128.9	-0.1	1.1	0.20
	132	131.9	-0.1	1.1	0.20
	133	132.9	-0.1	1.1	0.20
	134	133.9	-0.1	1.1	0.20
	135	134.9	-0.1	1.1	0.20
	136	135.9	-0.1	1.1	0.20
	94	94.0	0.0	1.1	0.20
	89	88.9	-0.1	1.1	0.20
	84	83.9	-0.1	1.1	0.20
	79	78.9	-0.1	1.1	0.20
	74	73.9	-0.1	1.1	0.20
	69	68.9	-0.1	1.1	0.20
	64	63.9	-0.1	1.1	0.20
	59	58.9	-0.1	1.1	0.21
	54	53.9	-0.1	1.1	0.21
	49	48.9	-0.1	1.1	0.21
	44	43.9	-0.1	1.1	0.21

Level Linearity including Range Control (Test #15)[1]

Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[3]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94.0 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	125.0	125.0	0.0	1.1	0.20
120 dB	94.0 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	115.0	115.0	0.0	1.1	0.20
110 dB	94.0 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	105.0	105.0	0.0	1.1	0.20
100 dB	94.0 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	95.0	95.1	+0.1	1.1	0.20
90 dB	85.0 dB	84.9 dB	-0.1 dB	1.1 dB	0.20 dB
80 dB	75.0 dB	74.9 dB	-0.1 dB	1.1 dB	0.20 dB

Toneburst response (Test #16)[1]

Range: 40 to 130 dB

Burst Type	SLM Mode	Input Level[4]	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
200 ms	LAF	116.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAF	99.0	0.0	1.3	0.3
0.25 msec	LAF	90.0	-0.1	1.3, -3.3	0.3
200 ms	LAS	109.6 dB	-0.1 dB	0.8 dB	0.3 dB
2.0 ms	LAS	90.0	-0.1	1.3, -1.8	0.3
200 ms	SEL	110.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	SEL	90.3	0.0	1.3	0.3
0.25 ms	SEL	81.0	-0.1	1.3, -3.3	0.3

Peak C sound level (Test #17)[1]

Range: 40 to 130 dB

Pulse Type	Pulse Frequency	Input Level[4] (peak value)	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
1 cycle	8 kHz	133.4 dB	-0.2 dB	2.4 dB	0.35 dB
Pos. ½ cycle	500 Hz	132.4 dB	-0.4 dB	1.4 dB	0.35 dB
Neg. ½ cycle	500 Hz	132.4 dB	-0.4 dB	1.4 dB	0.35 dB

Overload indication (Test #18)[1]

Range: 40 to 130 dB
SLM Measuring Mode: LAEq

Test description	Overload occurred at (±)	Meas. Diff. (Pos – Neg)	Tolerance[6] (±)	Uncertainty of Measurement (±)
Positive ½ cycle at 4 kHz	139.3 dB	-	-	-
Negative ½ cycle at 4 kHz	139.2 dB	-	-	-
Level difference of positive & negative pulses	-	0.1 dB	1.8 dB	0.30 dB

Notes:

(1) The test number, given in parentheses after the section heading, refers to the relevant clause in IEC 61672-3 (2006).

(2) SLM denotes Sound Level Meter

(3) U/R denotes Under Range

(4) All input levels are given in dB relative to a 20 µPa reference level.

(5) The SLM Error of Indication is defined as follows:
SLM Error of Indication = SLM Reading - Input Level

(6) The figures in the column labelled 'Tolerance' are the acceptance limits given in IEC 61672-1(2003). These tolerance limits include an allowance for the maximum expanded uncertainty of the test laboratory. The criteria for compliance with the tolerance is that the measurement result, extended by its associated uncertainty, lies within the specified limits.

(7) Microphone response at 4 kHz was measured using an electrostatic actuator. A Free Field correction of +1.2 dB was applied to the measured actuator response.
This measurement is not included in NML's tables of Calibration and Measurement Capabilities, approved under the CIPM MRA.
For information, the measured sensitivity and frequency response of the microphone is given in an addendum to this certificate.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the requirements of IEC 61672-1 (2003) in accordance with the verification procedures set out in IEC 61672-3 (2006) at the time of calibration.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Addendum to Certificate 21299

Rion
Type: UC53A

Serial no: 313359

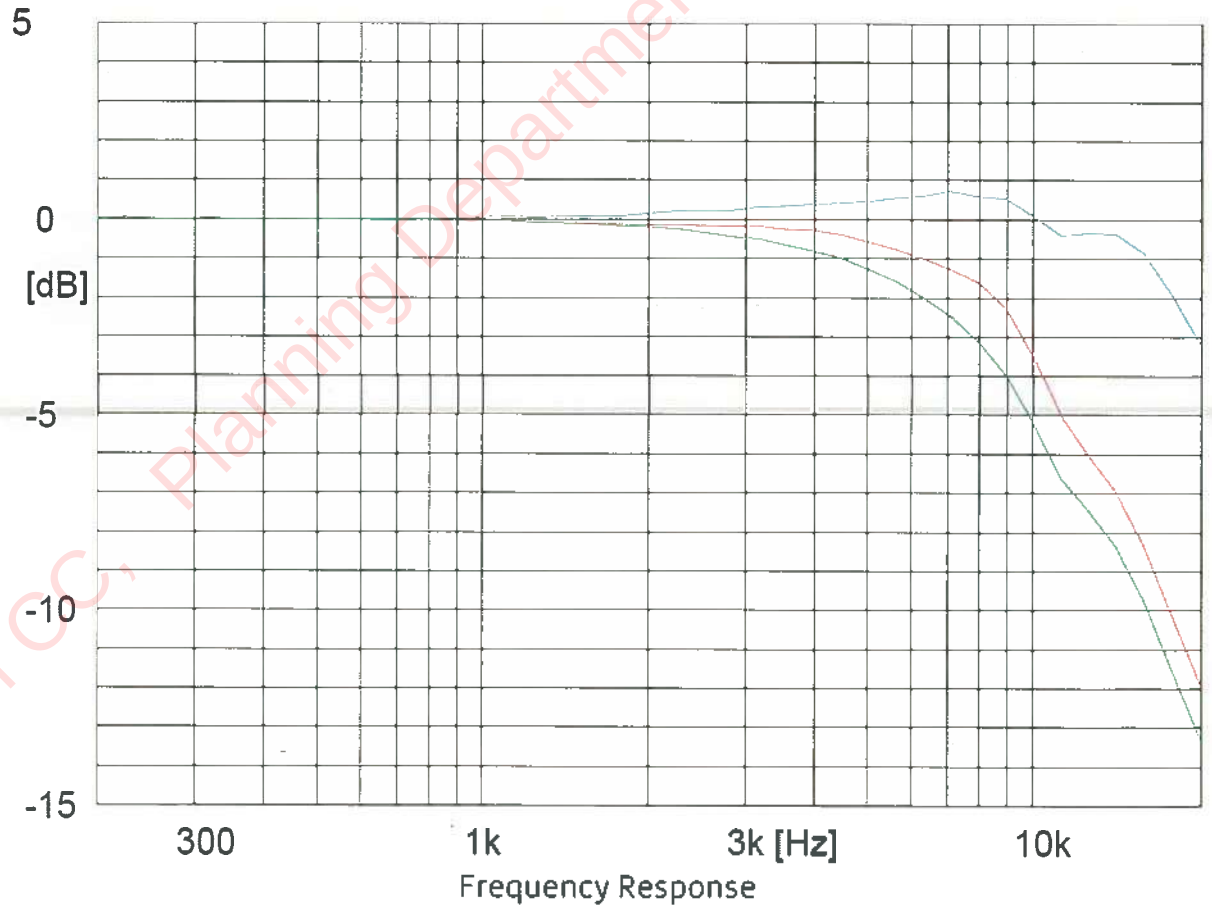
Sensitivity: 43.0 mV/Pa
-27.3 ±0.10 dB re. 1 V/Pa

Date: 03/08/2021

Measurement conditions:	
Polarisation voltage:	0.0 V
Pressure:	100.82 ±0.02 kPa
Temperature:	22.1 ±1.0 °C
Relative humidity:	50.7 ±2.6 %RH

Results are normalized to the reference conditions.

Free field response
Diffuse field response
Pressure (Actuator) response



NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to

TNEI Ireland Limited
Unit S12 Synergy Centre
Technological University Dublin Campus
Tallaght
Dublin 24

Certificate Number	222721
Item Calibrated	Rion NL-52 Sound Level Meter, complete with Rion UC59 Microphone
Serial Numbers	00809388 (Sound Level Meter) and 17858 (Microphone)
ID Number	SLM49
Order Number	7
Date Received	22 Jun 2022
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 08 Jul 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 08 Jul 2022] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by	David Fleming	**Approved by**	Paul Hetherington
Date of Calibration	02 Jul 2022	**Date of Issue**	02 Jul 2022

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

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5. This contract is governed by the laws of Ireland whose courts shall have exclusive jurisdiction.

Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:

(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Ambient laboratory conditions:

Barometric Pressure:	101.0 kPa ± 0.5 kPa
Temperature:	21.5 °C ± 1 °C
Relative Humidity:	48 %RH ± 5%RH

Summary of Results:

The following table summarises the results of the verification tests. The detailed results are given in the subsequent tables.

IEC 61672 Test	Test Title	Status
10	Self-generated Noise (Electrical)	/
11	Acoustical Signal	PASS
12	Frequency Weighting	PASS
13	Frequency and Time Weighting @ 1 kHz	PASS
14	Level Linearity Test on Reference Level Range	PASS
15	Level Linearity including Range Control	n/a
16	Toneburst Response	PASS
17	Peak C	PASS
18	Overload Indication	PASS

Detailed Results.

Prior to carrying out the verification tests the sound level meter confirmed to be reading correctly for pressure response through application of a reference acoustical calibrator.

Self-generated Noise Test (Electrical Input) (Test #10) [1]

Range: Single Range Instrument
Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading[2]
Microphone installed	A	18.9 dB (U/R)[3]
Microphone replaced by electrical signal device and Fitted with a short-circuit	A	18.5 (U/R)[3]
	C	24.1
	Z (Linear)	25.8

Acoustical signal test of a frequency weighting (Test #11) [1]

Range: Single Range Instrument
Frequency Weighting setting: C
Time Weighting response: Slow

Input Level[4]	Input Freq.	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
94.0 dB	1000 Hz	0.0 dB (Ref)	1.1 dB	0.3 dB
	125	+0.2	1.5	0.3
	4000[7]	+0.5	1.6	0.5

Electrical signal tests of frequency weightings (Test #12)[1]

Range: Single Range Instrument

Freq. (nominal)	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
A-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	92.9	-0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.8	-1.2	3.5, -17	0.20
C-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.9	-1.1	3.5, -17	0.20
LIN Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.0	0.0	2.1, -3.1	0.20
16000	93	93.0	0.0	3.5, -17	0.20

Frequency and time weightings at 1 kHz (Test #13)[1]

Range: Single Range Instrument

Time Weighting Setting	Frequency Weighting Setting	Input Level[4]	Deviation from Reference	Tolerance[6] (±)	Uncertainty of Measurement (±)
Fast	A	94.0 dB	0.0 dB	0.4 dB	0.20 dB
	C		+0.1	0.4	0.20
	Z		+0.1	0.4	0.20
Slow	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
Leq.	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
SEL	A	114.0 dB	0.0 dB	0.3 dB	0.20 dB

Linearity level on the reference range (Test #14)[1]

Range: Single Range Instrument
Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	99	99.0	0.0	1.1	0.20
	104	104.1	+0.1	1.1	0.20
	109	109.0	0.0	1.1	0.20
	114	114.0	0.0	1.1	0.20
	119	119.0	0.0	1.1	0.20
	124	124.0	0.0	1.1	0.20
	129	129.0	0.0	1.1	0.20
	132	132.0	0.0	1.1	0.20
	133	133.0	0.0	1.1	0.20
	134	134.0	0.0	1.1	0.20
	135	135.0	0.0	1.1	0.20
	136	136.1	+0.1	1.1	0.20
	94	94.0	0.0	1.1	0.20
	89	89.0	0.0	1.1	0.20
	84	84.1	+0.1	1.1	0.21
	79	79.0	0.0	1.1	0.21
	74	74.0	0.0	1.1	0.21
	69	69.0	0.0	1.1	0.21
	64	64.0	0.0	1.1	0.21
	59	59.0	0.0	1.1	0.21
	54	54.0	0.0	1.1	0.21
	49	49.0	0.0	1.1	0.21
	44	44.0	0.0	1.1	0.21
	39	39.0	0.0	1.1	0.21
	34	34.1	+0.1	1.1	0.21
	30	30.2	+0.2	1.1	0.21
	29	29.2	+0.2	1.1	0.21
	28	28.3	+0.3	1.1	0.21
	27	27.5	+0.5	1.1	0.21
	26	26.5	+0.5	1.1	0.21
	25	25.6	+0.6	1.1	0.21

Toneburst response (Test #16)[1]

Range: Single Range Instrument

Burst Type	SLM Mode	Input Level[4]	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
200 ms	LAF	134.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAF	117.0	-0.1	1.3	0.3
0.25 msec	LAF	108.0	-0.2	1.3, -3.3	0.3
200 ms	LAS	127.6 dB	-0.1 dB	0.8 dB	0.3 dB
2.0 ms	LAS	108.0	-0.1	1.3, -1.8	0.3
200 ms	SEL	128.0 dB	-0.1 dB	0.8 dB	0.3 dB
2.0 ms	SEL	108.3	-0.1	1.3	0.3
0.25 ms	SEL	99.0	-0.2	1.3, -3.3	0.3

Peak C sound level (Test #17)[1]

Range: Single Range Instrument

Pulse Type	Pulse Frequency	Input Level[4] (peak value)	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
1 cycle	8 kHz	133.4 dB	0.0 dB	2.4 dB	0.35 dB
Pos. ½ cycle	500 Hz	135.4 dB	-0.3 dB	1.4 dB	0.35 dB
Neg. ½ cycle	500 Hz	135.4 dB	-0.3 dB	1.4 dB	0.35 dB

Overload indication (Test #18)[1]

Range: Single Range Instrument
SLM Measuring Mode: LAEq

Test description	Overload occurred at (±)	Meas. Diff. (Pos – Neg)	Tolerance[6] (±)	Uncertainty of Measurement (±)
Positive ½ cycle at 4 kHz	139.2 dB	-	-	-
Negative ½ cycle at 4 kHz	139.4 dB	-	-	-
Level difference of positive & negative pulses	-	0.2 dB	1.8 dB	0.30 dB

Notes:

(1) The test number, given in parentheses after the section heading, refers to the relevant clause in IEC 61672-3 (2006).

(2) SLM denotes Sound Level Meter

(3) U/R denotes Under Range

(4) All input levels are given in dB relative to a 20 µPa reference level.

(5) The SLM Error of Indication is defined as follows:
SLM Error of Indication = SLM Reading - Input Level

(6) The figures in the column labelled 'Tolerance' are the acceptance limits given in IEC 61672-1(2003). These tolerance limits include an allowance for the maximum expanded uncertainty of the test laboratory. The criteria for compliance with the tolerance is that the measurement result, extended by its associated uncertainty, lies within the specified limits.

(7) Microphone response at 4 kHz was measured using an electrostatic actuator. A Free Field correction of +1.2 dB was applied to the measured actuator response.
This measurement is not included in NML's tables of Calibration and Measurement Capabilities, approved under the CIPM MRA.
For information, the measured sensitivity and frequency response of the microphone is given in an addendum to this certificate.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the requirements of IEC 61672-1 (2003) in accordance with the verification procedures set out in IEC 61672-3 (2006) at the time of calibration.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Addendum to Certificate 222721

Rion
Type: UC59

Serial no: 17858

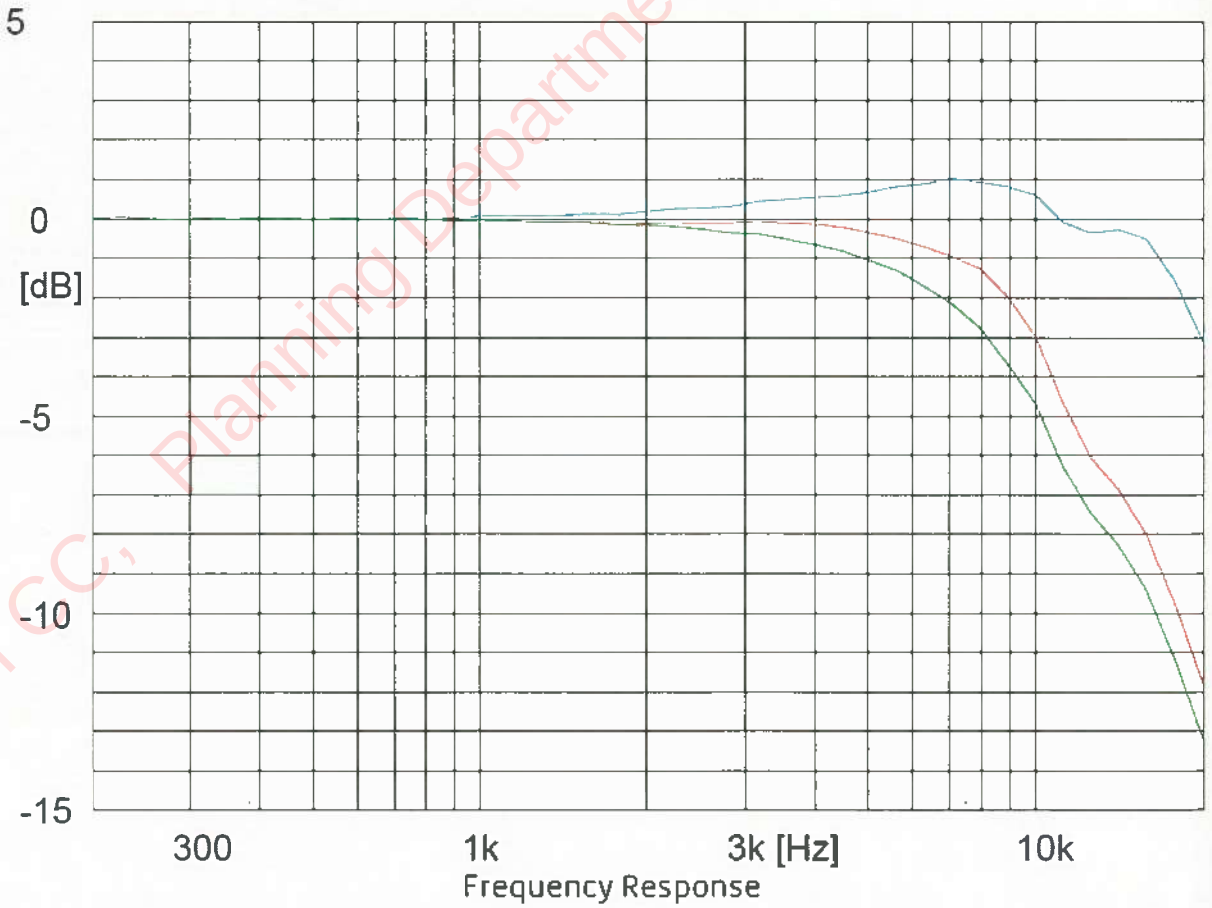
Sensitivity: 46.2 mV/Pa
-26.7 ±0.08 dB re. 1 V/Pa

Date: 02/07/2022

Measurement conditions:	
Polarisation voltage:	0.0 V
Pressure:	100.95 ±0.00 kPa
Temperature:	21.4 ±1.0 °C
Relative humidity:	48.1 ±2.2 %RH

Results are normalized to the reference conditions.

Free field response
Diffuse field response
Pressure (Actuator) response



NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to

TNEI Ireland Limited
Unit S12 Synergy Centre
Technological University Dublin Campus
Tallaght
Dublin 24

Certificate Number	222720
Item Calibrated	Rion NL-52 Sound Level Meter, complete with Rion UC59 Microphone
Serial Numbers	00809410 (Sound Level Meter) and 16495 (Microphone)
ID Number	SLM50
Order Number	7
Date Received	22 Jun 2022
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters.* This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 08 Jul 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 08 Jul 2022] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by	David Fleming	**Approved by**	Paul Hetherington
Date of Calibration	02 Jul 2022	**Date of Issue**	02 Jul 2022

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Standard Terms & Conditions for Calibration, Testing and Consultancy Assignments

1. Reports issued by the National Metrology Laboratory Division of NSAI are copyright to NSAI and shall not be used, either in whole or in part, for the purposes of advertising, publicity or litigation without the written consent of the Chief Executive or his nominee.
2. No action or legal proceeding shall be taken (except in the case of wilful neglect or default) against NSAI or the Board or any member of the Board or any committee appointed by the Board or any officer or servant of NSAI, by reason of or arising out of the carrying out of any research, investigation, test or analysis or the publication of the results thereof in the name of NSAI.
3. NSAI will not release any information received from or provided to the client in relation to this report except as may be required by law, including the Freedom of Information Act 1997, or as specified by the client.
4. This certificate relates only to the item(s) described on the front page and shall not be reproduced, except in full.
5. This contract is governed by the laws of Ireland whose courts shall have exclusive jurisdiction.

Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:

(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Ambient laboratory conditions:

Barometric Pressure:	100.9 kPa ± 0.5 kPa
Temperature:	21.6 °C ± 1 °C
Relative Humidity:	48 %RH ± 5%RH

Summary of Results:

The following table summarises the results of the verification tests. The detailed results are given in the subsequent tables.

IEC 61672 Test	Test Title	Status
10	Self-generated Noise (Electrical)	/
11	Acoustical Signal	PASS
12	Frequency Weighting	PASS
13	Frequency and Time Weighting @ 1 kHz	PASS
14	Level Linearity Test on Reference Level Range	PASS
15	Level Linearity including Range Control	n/a
16	Toneburst Response	PASS
17	Peak C	PASS
18	Overload Indication	PASS

Detailed Results.

Prior to carrying out the verification tests the sound level meter confirmed to be reading correctly for pressure response through application of a reference acoustical calibrator.

Self-generated Noise Test (Electrical Input) (Test #10) [1]

Range: Single Range Instrument
Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading[2]
Microphone installed	A	20.9 dB (U/R)[3]
Microphone replaced by electrical signal device and Fitted with a short-circuit	A	19.4 (U/R)[3]
	C	25.3
	Z (Linear)	26.8

Acoustical signal test of a frequency weighting (Test #11) [1]

Range: Single Range Instrument
Frequency Weighting setting: C
Time Weighting response: Slow

Input Level[4]	Input Freq.	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
94.0 dB	1000 Hz	0.0 dB (Ref)	1.1 dB	0.3 dB
	125	+0.2	1.5	0.3
	4000[7]	+0.3	1.6	0.5

Electrical signal tests of frequency weightings (Test #12)[1]

Range: Single Range Instrument

Freq. (nominal)	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
A-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	92.9	-0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.8	-1.2	3.5, -17	0.20
C-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.8	-1.2	3.5, -17	0.20
LIN Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	92.9	-0.1	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.0	0.0	2.1, -3.1	0.20
16000	93	93.0	0.0	3.5, -17	0.20

Frequency and time weightings at 1 kHz (Test #13)[1]

Range: Single Range Instrument

Time Weighting Setting	Frequency Weighting Setting	Input Level[4]	Deviation from Reference	Tolerance[6] (±)	Uncertainty of Measurement (±)
Fast	A	94.0 dB	0.0 dB	0.4 dB	0.20 dB
	C		+0.1	0.4	0.20
	Z		+0.1	0.4	0.20
Slow	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
Leq.	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
SEL	A	114.0 dB	0.0 dB	0.3 dB	0.20 dB

Linearity level on the reference range (Test #14)[1]

Range: Single Range Instrument
Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	99	99.1	+0.1	1.1	0.20
	104	104.1	+0.1	1.1	0.20
	109	109.0	0.0	1.1	0.20
	114	114.0	0.0	1.1	0.20
	119	119.1	+0.1	1.1	0.20
	124	124.0	0.0	1.1	0.20
	129	129.0	0.0	1.1	0.20
	132	132.0	0.0	1.1	0.20
	133	133.0	0.0	1.1	0.20
	134	134.1	+0.1	1.1	0.20
	135	135.1	+0.1	1.1	0.20
	136	136.1	+0.1	1.1	0.20
	94	94.0	0.0	1.1	0.20
	89	89.1	+0.1	1.1	0.20
	84	84.1	+0.1	1.1	0.21
	79	79.1	+0.1	1.1	0.21
	74	74.0	0.0	1.1	0.21
	69	69.0	0.0	1.1	0.21
	64	64.0	0.0	1.1	0.21
	59	59.0	0.0	1.1	0.21
	54	54.0	0.0	1.1	0.21
	49	49.0	0.0	1.1	0.21
	44	44.0	0.0	1.1	0.21
	39	39.0	0.0	1.1	0.21
	34	34.1	+0.1	1.1	0.21
	30	30.2	+0.2	1.1	0.21
	29	29.2	+0.2	1.1	0.21
	28	28.3	+0.3	1.1	0.21
	27	27.4	+0.4	1.1	0.21
	26	26.6	+0.6	1.1	0.21
	25	25.7	+0.7	1.1	0.21

Toneburst response (Test #16)[1]

Range: Single Range Instrument

Burst Type	SLM Mode	Input Level[4]	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
200 ms	LAF	134.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAF	117.0	-0.1	1.3	0.3
0.25 msec	LAF	108.0	-0.2	1.3, -3.3	0.3
200 ms	LAS	127.6 dB	-0.1 dB	0.8 dB	0.3 dB
2.0 ms	LAS	108.0	-0.1	1.3, -1.8	0.3
200 ms	SEL	128.0 dB	-0.1 dB	0.8 dB	0.3 dB
2.0 ms	SEL	108.3	-0.1	1.3	0.3
0.25 ms	SEL	99.0	-0.2	1.3, -3.3	0.3

Peak C sound level (Test #17)[1]

Range: Single Range Instrument

Pulse Type	Pulse Frequency	Input Level[4] (peak value)	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
1 cycle	8 kHz	133.4 dB	0.0 dB	2.4 dB	0.35 dB
Pos. ½ cycle	500 Hz	135.4 dB	-0.3 dB	1.4 dB	0.35 dB
Neg. ½ cycle	500 Hz	135.4 dB	-0.3 dB	1.4 dB	0.35 dB

Overload indication (Test #18)[1]

Range: Single Range Instrument
SLM Measuring Mode: LAEq

Test description	Overload occurred at (±)	Meas. Diff. (Pos – Neg)	Tolerance[6] (±)	Uncertainty of Measurement (±)
Positive ½ cycle at 4 kHz	140.1 dB	-	-	-
Negative ½ cycle at 4 kHz	139.6 dB	-	-	-
Level difference of positive & negative pulses	-	0.5 dB	1.8 dB	0.30 dB

Notes:

(1) The test number, given in parentheses after the section heading, refers to the relevant clause in IEC 61672-3 (2006).

(2) SLM denotes Sound Level Meter

(3) U/R denotes Under Range

(4) All input levels are given in dB relative to a 20 µPa reference level.

(5) The SLM Error of Indication is defined as follows:
SLM Error of Indication = SLM Reading - Input Level

(6) The figures in the column labelled 'Tolerance' are the acceptance limits given in IEC 61672-1(2003). These tolerance limits include an allowance for the maximum expanded uncertainty of the test laboratory. The criteria for compliance with the tolerance is that the measurement result, extended by its associated uncertainty, lies within the specified limits.

(7) Microphone response at 4 kHz was measured using an electrostatic actuator. A Free Field correction of +1.2 dB was applied to the measured actuator response.
This measurement is not included in NML's tables of Calibration and Measurement Capabilities, approved under the CIPM MRA.
For information, the measured sensitivity and frequency response of the microphone is given in an addendum to this certificate.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the requirements of IEC 61672-1 (2003) in accordance with the verification procedures set out in IEC 61672-3 (2006) at the time of calibration.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Addendum to Certificate 222720

Rion
Type: UC59

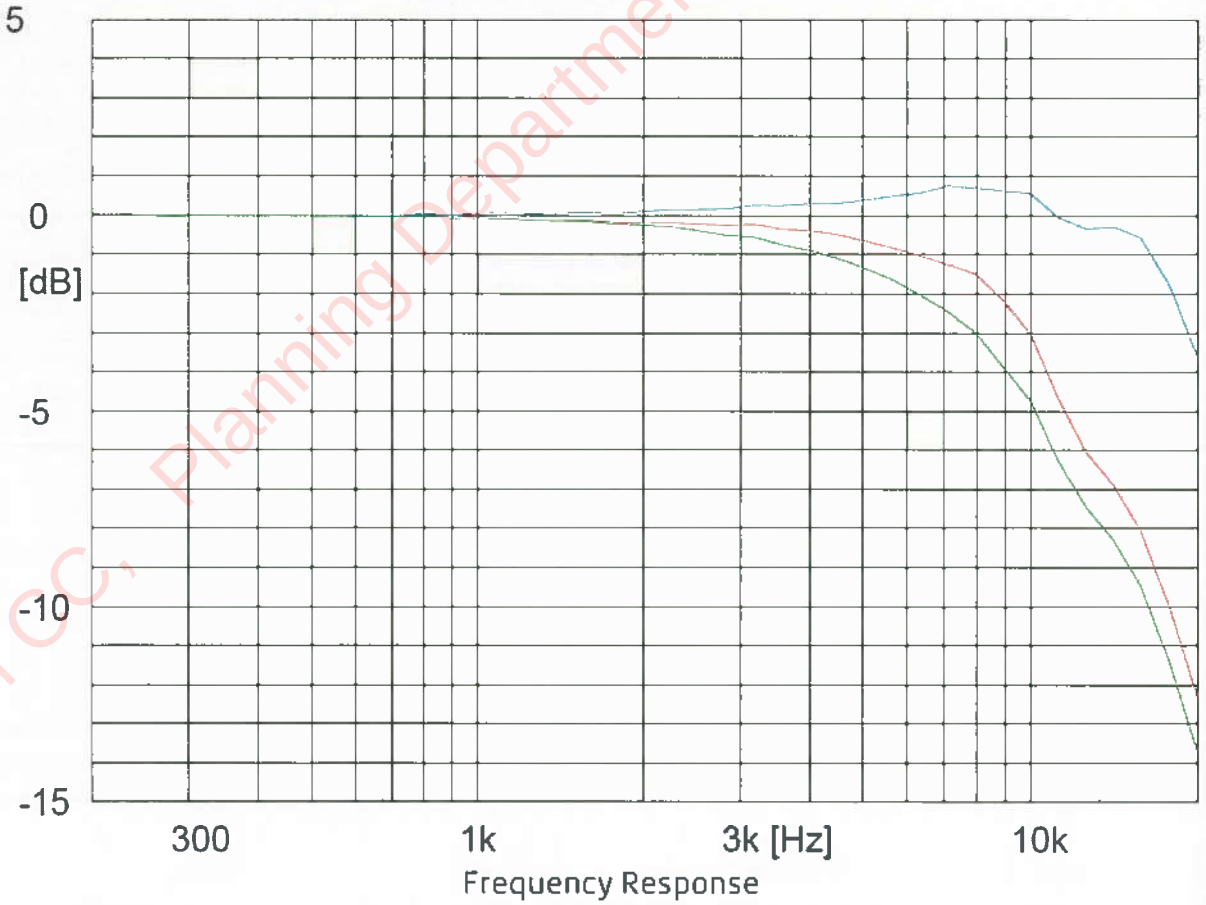
Serial no: 16495

Sensitivity: 49.7 mV/Pa
-26.1 ±0.00 dB re. 1 V/Pa

Date: 02/07/2022

Measurement conditions:	
Polarisation voltage:	0.0 V
Pressure:	100.94 ±0.00 kPa
Temperature:	21.5 ±1.1 °C
Relative humidity:	47.8 ±2.1 %RH
Results are normalized to the reference conditions.	

Free field response
Diffuse field response
Pressure (Actuator) response



NSAI

National Metrology Laboratory

Certificate of Calibration

Issued to	TNEI Ireland Limited Unit S12 Synergy Centre Technological University Dublin Campus Tallaght Dublin D24 A386
Attention of	Ewan Watson

Certificate Number	**214286**
Item Calibrated	Rion NL-52 Sound Level Meter, complete with Rion UC59 Microphone
Serial Numbers	00643022 (Sound Level Meter) and 06802 (Microphone)
ID Number	SLM030
Order Number	3
Date Received	18 Oct 2021
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 10 Jun 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 10 Jun 2022] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by	David Fleming	Approved by	Paul Hetherington
Date of Calibration	17 Nov 2021	**Date of Issue**	18 Nov 2021

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Standard Terms & Conditions for Calibration, Testing and Consultancy Assignments

1. Reports issued by the National Metrology Laboratory Division of NSAI are copyright to NSAI and shall not be used, either in whole or in part, for the purposes of advertising, publicity or litigation without the written consent of the Chief Executive or his nominee.
2. No action or legal proceeding shall be taken (except in the case of wilful neglect or default) against NSAI or the Board or any member of the Board or any committee appointed by the Board or any officer or servant of NSAI, by reason of or arising out of the carrying out of any research, investigation, test or analysis or the publication of the results thereof in the name of NSAI.
3. NSAI will not release any information received from or provided to the client in relation to this report except as may be required by law, including the Freedom of Information Act 1997, or as specified by the client.
4. This certificate relates only to the item(s) described on the front page and shall not be reproduced, except in full.
5. This contract is governed by the laws of Ireland whose courts shall have exclusive jurisdiction.

Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Ambient laboratory conditions:

Barometric Pressure:	102.0 kPa ± 0.5 kPa
Temperature:	20.8 °C ± 1 °C
Relative Humidity:	39 %RH ± 5%RH

Summary of Results:

The following table summarises the results of the verification tests. The detailed results are given in the subsequent tables.

IEC 61672 Test	Test Title	Status
10	Self-generated Noise (Electrical)	/
11	Acoustical Signal	PASS
12	Frequency Weighting	PASS
13	Frequency and Time Weighting @ 1 kHz	PASS
14	Level Linearity Test on Reference Level Range	PASS
15	Level Linearity including Range Control	n/a
16	Toneburst Response	PASS
17	Peak C	PASS
18	Overload Indication	PASS

Detailed Results.

Prior to carrying out the verification tests the sound level meter was adjusted to read correctly for pressure response through application of a reference acoustical calibrator.

Self-generated Noise Test (Electrical Input) (Test #10) (1)

Range: Single Range Instrument
Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading(2)
Microphone installed	A	18.9 dB (U/R)(3)
Microphone replaced by electrical signal device and Fitted with a short-circuit	A	19.4 (U/R)(3)
	C	25.9
	Z (Linear)	26.4

Acoustical signal test of a frequency weighting (Test #11) (1)

Range: Single Range Instrument
Frequency Weighting setting: C
Time Weighting response: Slow

Input Level(4)	Input Freq.	SLM Error of Indication(5)	Tolerance(6) (±)	Uncertainty of Measurement (±)
94.0 dB	1000 Hz	0.0 dB (Ref)	1.1 dB	0.3 dB
	125	+0.2	1.5	0.3
	4000(7)	+0.5	1.6	0.5

Electrical signal tests of frequency weightings (Test #12)[1]

Range: Single Range Instrument

Freq. (nominal)	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
A-Weighting					
63 Hz	93 dB	92.9 dB	-0.1 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.8	-1.2	3.5, -17	0.20
C-Weighting					
63 Hz	93 dB	92.7 dB	-0.3 dB	1.5 dB	0.20 dB
125	93	93.1	+0.1	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.1	+0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	92.9	-0.1	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	92.0	-1.0	3.5, -17	0.20
LIN Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.0	0.0	2.1, -3.1	0.20
16000	93	93.0	0.0	3.5, -17	0.20

Frequency and time weightings at 1 kHz (Test #13)[1]

Range: Single Range Instrument

Time Weighting Setting	Frequency Weighting Setting	Input Level[4]	Deviation from Reference	Tolerance[6] (±)	Uncertainty of Measurement (±)
Fast	A	94.0 dB	0.0 dB	0.4 dB	0.20 dB
	C		+0.1	0.4	0.20
	Z		+0.1	0.4	0.20
Slow	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
Leq.	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
SEL	A	114.0 dB	0.0 dB	0.3 dB	0.20 dB

Linearity level on the reference range (Test #14)[1]

Range: Single Range Instrument
Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	99	99.0	0.0	1.1	0.20
	104	104.0	0.0	1.1	0.20
	109	109.0	0.0	1.1	0.20
	114	114.0	0.0	1.1	0.20
	119	119.0	0.0	1.1	0.20
	124	124.0	0.0	1.1	0.20
	129	129.0	0.0	1.1	0.20
	132	132.0	0.0	1.1	0.20
	133	133.0	0.0	1.1	0.20
	134	134.0	0.0	1.1	0.20
	135	135.0	0.0	1.1	0.20
	136	136.0	0.0	1.1	0.20
	94	94.0	0.0	1.1	0.20
	89	89.0	0.0	1.1	0.20
	84	84.0	0.0	1.1	0.21
	79	79.0	0.0	1.1	0.21
	74	74.0	0.0	1.1	0.21
	69	69.0	0.0	1.1	0.21
	64	64.0	0.0	1.1	0.21
	59	59.0	0.0	1.1	0.21
	54	53.9	-0.1	1.1	0.21
	49	49.0	0.0	1.1	0.21
	44	44.0	0.0	1.1	0.21
	39	39.0	0.0	1.1	0.21
	34	34.1	+0.1	1.1	0.21
	30	30.2	+0.2	1.1	0.21
	29	29.3	+0.3	1.1	0.21
	28	28.3	+0.3	1.1	0.21
	27	27.4	+0.4	1.1	0.21
	26	26.5	+0.5	1.1	0.21
	25	25.6	+0.6	1.1	0.21

Toneburst response (Test #16)[1]

Range: Single Range Instrument

Burst Type	SLM Mode	Input Level[4]	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
200 ms	LAF	135.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAF	118.0	-0.1	1.3	0.3
0.25 msec	LAF	109.0	-0.1	1.3, -3.3	0.3
200 ms	LAS	128.6 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAS	109.0	0.0	1.3, -1.8	0.3
200 ms	SEL	129.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	SEL	109.3	-0.1	1.3	0.3
0.25 ms	SEL	100.0	-0.2	1.3, -3.3	0.3

Peak C sound level (Test #17)[1]

Range: Single Range Instrument

Pulse Type	Pulse Frequency	Input Level[4] (peak value)	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
1 cycle	8 kHz	130.4 dB	-0.5 dB	2.4 dB	0.35 dB
Pos. ½ cycle	500 Hz	132.4 dB	-0.4 dB	1.4 dB	0.35 dB
Neg. ½ cycle	500 Hz	132.4 dB	-0.3 dB	1.4 dB	0.35 dB

Overload indication (Test #18)[1]

Range: Single Range Instrument
SLM Measuring Mode: LAEq

Test description	Overload occurred at (±)	Meas. Diff. (Pos – Neg)	Tolerance[6] (±)	Uncertainty of Measurement (±)
Positive ½ cycle at 4 kHz	139.6 dB	-	-	-
Negative ½ cycle at 4 kHz	139.4 dB	-	-	-
Level difference of positive & negative pulses	-	0.2 dB	1.8 dB	0.30 dB

Notes:

(1) The test number, given in parentheses after the section heading, refers to the relevant clause in IEC 61672-3 (2006).

(2) SLM denotes Sound Level Meter

(3) U/R denotes Under Range

(4) All input levels are given in dB relative to a 20 µPa reference level.

(5) The SLM Error of Indication is defined as follows:
SLM Error of Indication = SLM Reading - Input Level

(6) The figures in the column labelled 'Tolerance' are the acceptance limits given in IEC 61672-1(2003). These tolerance limits include an allowance for the maximum expanded uncertainty of the test laboratory. The criteria for compliance with the tolerance is that the measurement result, extended by its associated uncertainty, lies within the specified limits.

(7) Microphone response at 4 kHz was measured using an electrostatic actuator. A Free Field correction of +1.2 dB was applied to the measured actuator response.
This measurement is not included in NML's tables of Calibration and Measurement Capabilities, approved under the CIPM MRA.
For information, the measured sensitivity and frequency response of the microphone is given in an addendum to this certificate.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the requirements of IEC 61672-1 (2003) in accordance with the verification procedures set out in IEC 61672-3 (2006) at the time of calibration.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Addendum to Certificate 214286

Rion
Type: UC59

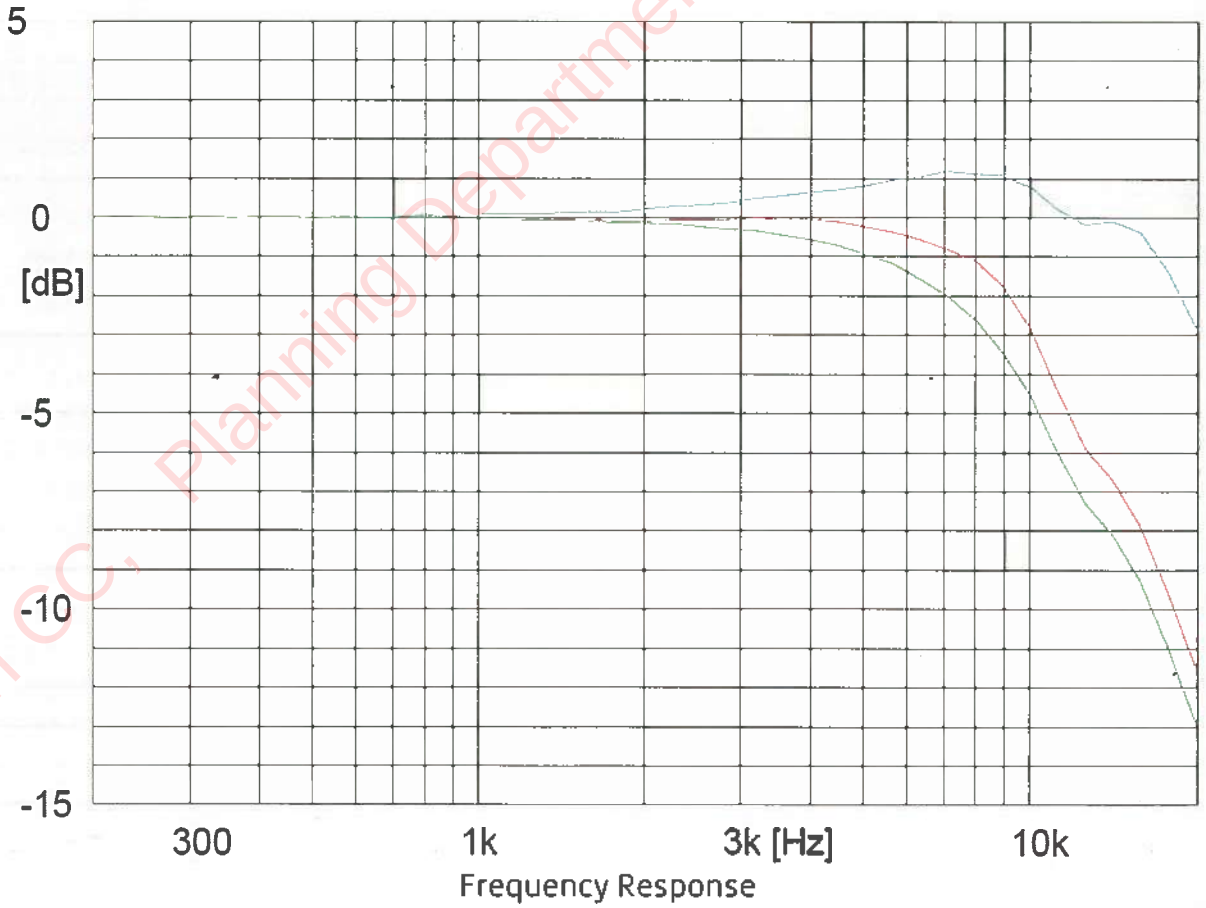
Serial no: 06802

Sensitivity: 39.3 mV/Pa
-28.1 ±0.01 dB re. 1 V/Pa

Date: 17/11/2021

Measurement conditions:	
Polarisation voltage:	0.0 V
Pressure:	101.94 ±0.00 kPa
Temperature:	20.7 ±1.1 °C
Relative humidity:	39.3 ±2.1 %RH
Results are normalized to the reference conditions.	

Free field response
Diffuse field response
Pressure (Actuator) response



NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to
TNEI Ireland Limited
Unit S12 Synergy Centre
Technological University Dublin Campus
Tallaght
Dublin
D24 A386

Attention of Ewan Watson

Certificate Number	**214285**
Item Calibrated	Rion NL-52 Sound Level Meter, complete with Rion UC59 Microphone
Serial Numbers	01176428 (Sound Level Meter) and 12471 (Microphone)
ID Number	SLM040
Order Number	3
Date Received	18 Oct 2021
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 10 Jun 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 10 Jun 2022] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by David Fleming

Approved by Paul Hetherington

Date of Calibration 22 Nov 2021

Date of Issue 22 Nov 2021

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Standard Terms & Conditions for Calibration, Testing and Consultancy Assignments

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5. This contract is governed by the laws of Ireland whose courts shall have exclusive jurisdiction.

Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Ambient laboratory conditions:

Barometric Pressure:	103.1 kPa ± 0.5 kPa
Temperature:	22.1 °C ± 1 °C
Relative Humidity:	30 %RH ± 5%RH

Summary of Results:

The following table summarises the results of the verification tests. The detailed results are given in the subsequent tables.

IEC 61672 Test	Test Title	Status
10	Self-generated Noise (Electrical)	/
11	Acoustical Signal	PASS
12	Frequency Weighting	PASS
13	Frequency and Time Weighting @ 1 kHz	PASS
14	Level Linearity Test on Reference Level Range	PASS
15	Level Linearity including Range Control	n/a
16	Toneburst Response	PASS
17	Peak C	PASS
18	Overload Indication	PASS

Detailed Results.

Prior to carrying out the verification tests the sound level meter was adjusted to read correctly for pressure response through application of a reference acoustical calibrator.

Self-generated Noise Test (Electrical Input) (Test #10) (1)

Range: Single Range Instrument
Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading(2)
Microphone installed	A	19.4 dB (U/R)(3)
Microphone replaced by electrical signal device and Fitted with a short-circuit	A	18.9 (U/R)(3)
	C	24.4
	Z (Linear)	25.9

Acoustical signal test of a frequency weighting (Test #11)(1)

Range: Single Range Instrument
Frequency Weighting setting: C
Time Weighting response: Slow

Input Level(4)	Input Freq.	SLM Error of Indication(5)	Tolerance(6) (±)	Uncertainty of Measurement (±)
94.0 dB	1000 Hz	0.0 dB (Ref)	1.1 dB	0.3 dB
	125	+0.2	1.5	0.3
	4000(7)	+0.5	1.6	0.5

Electrical signal tests of frequency weightings (Test #12)[1]

Range: Single Range Instrument

Freq. (nominal)	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
A-Weighting					
63 Hz	93 dB	92.9 dB	-0.1 dB	1.5 dB	0.20 dB
125	93	92.9	-0.1	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	92.9	-0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.8	-1.2	3.5, -17	0.20
C-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	93.0	0.0	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	92.9	-0.1	1.6	0.20
8000	93	93.0	0.0	2.1, -3.1	0.20
16000	93	91.9	-1.1	3.5, -17	0.20
LIN Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.1	+0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.1	+0.1	1.6	0.20
4000	93	93.1	+0.1	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	93.1	+0.1	3.5, -17	0.20

Frequency and time weightings at 1 kHz (Test #13)[1]

Range: Single Range Instrument

Time Weighting Setting	Frequency Weighting Setting	Input Level[4]	Deviation from Reference	Tolerance[6] (±)	Uncertainty of Measurement (±)
Fast	A	94.0 dB	0.0 dB	0.4 dB	0.20 dB
	C		+0.1	0.4	0.20
	Z		+0.2	0.4	0.20
Slow	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
Leq.	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
SEL	A	114.0 dB	0.0 dB	0.3 dB	0.20 dB

Linearity level on the reference range (Test #14)[1]

Range: Single Range Instrument
Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	99	99.0	0.0	1.1	0.20
	104	104.0	0.0	1.1	0.20
	109	109.0	0.0	1.1	0.20
	114	114.0	0.0	1.1	0.20
	119	119.0	0.0	1.1	0.20
	124	124.0	0.0	1.1	0.20
	129	129.0	0.0	1.1	0.20
	132	132.0	0.0	1.1	0.20
	133	133.0	0.0	1.1	0.20
	134	134.0	0.0	1.1	0.20
	135	135.0	0.0	1.1	0.20
	136	136.0	0.0	1.1	0.20
	94	94.0	0.0	1.1	0.20
	89	89.0	0.0	1.1	0.20
	84	84.0	0.0	1.1	0.21
	79	79.0	0.0	1.1	0.21
	74	74.0	0.0	1.1	0.21
	69	69.0	0.0	1.1	0.21
	64	64.0	0.0	1.1	0.21
	59	59.0	0.0	1.1	0.21
	54	53.9	-0.1	1.1	0.21
	49	49.0	0.0	1.1	0.21
	44	44.0	0.0	1.1	0.21
	39	39.0	0.0	1.1	0.21
	34	34.1	+0.1	1.1	0.21
	30	30.2	+0.2	1.1	0.21
	29	29.2	+0.2	1.1	0.21
	28	28.3	+0.3	1.1	0.21
	27	27.4	+0.4	1.1	0.21
	26	26.5	+0.5	1.1	0.21
	25	25.6	+0.6	1.1	0.21

Toneburst response (Test #16)[1]

Range: Single Range Instrument

Burst Type	SLM Mode	Input Level[4]	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
200 ms	LAF	135.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAF	118.0	-0.1	1.3	0.3
0.25 msec	LAF	109.0	-0.2	1.3, -3.3	0.3
200 ms	LAS	128.6 dB	-0.1 dB	0.8 dB	0.3 dB
2.0 ms	LAS	109.0	-0.1	1.3, -1.8	0.3
200 ms	SEL	129.0 dB	0.0 dB	0.8 dB	0.3 dB
2 .0 ms	SEL	109.3	0.0	1.3	0.3
0.25 ms	SEL	100.0	-0.2	1.3, -3.3	0.3

Peak C sound level (Test #17)[1]

Range: Single Range Instrument

Pulse Type	Pulse Frequency	Input Level[4] (peak value)	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
1 cycle	8 kHz	130.4 dB	-0.1 dB	2.4 dB	0.35 dB
Pos. ½ cycle	500 Hz	132.4 dB	-0.4 dB	1.4 dB	0.35 dB
Neg. ½ cycle	500 Hz	132.4 dB	-0.3 dB	1.4 dB	0.35 dB

Overload indication (Test #18)[1]

Range: Single Range Instrument
SLM Measuring Mode: LAEq

Test description	Overload occurred at (±)	Meas. Diff. (Pos – Neg)	Tolerance[6] (±)	Uncertainty of Measurement (±)
Positive ½ cycle at 4 kHz	140.1 dB	-	-	-
Negative ½ cycle at 4 kHz	139.6 dB	-	-	-
Level difference of positive & negative pulses	-	0.5 dB	1.8 dB	0.30 dB

Notes:

(1) The test number, given in parentheses after the section heading, refers to the relevant clause in IEC 61672-3 (2006).

(2) SLM denotes Sound Level Meter

(3) U/R denotes Under Range

(4) All input levels are given in dB relative to a 20 µPa reference level.

(5) The SLM Error of Indication is defined as follows:
SLM Error of Indication = SLM Reading - Input Level

(6) The figures in the column labelled 'Tolerance' are the acceptance limits given in IEC 61672-1(2003). These tolerance limits include an allowance for the maximum expanded uncertainty of the test laboratory. The criteria for compliance with the tolerance is that the measurement result, extended by its associated uncertainty, lies within the specified limits.

(7) Microphone response at 4 kHz was measured using an electrostatic actuator. A Free Field correction of +1.2 dB was applied to the measured actuator response.
This measurement is not included in NML's tables of Calibration and Measurement Capabilities, approved under the CIPM MRA.
For information, the measured sensitivity and frequency response of the microphone is given in an addendum to this certificate.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the requirements of IEC 61672-1 (2003) in accordance with the verification procedures set out in IEC 61672-3 (2006) at the time of calibration.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Addendum to Certificate 214285

Rion
Type: UC59

Serial no: 12471

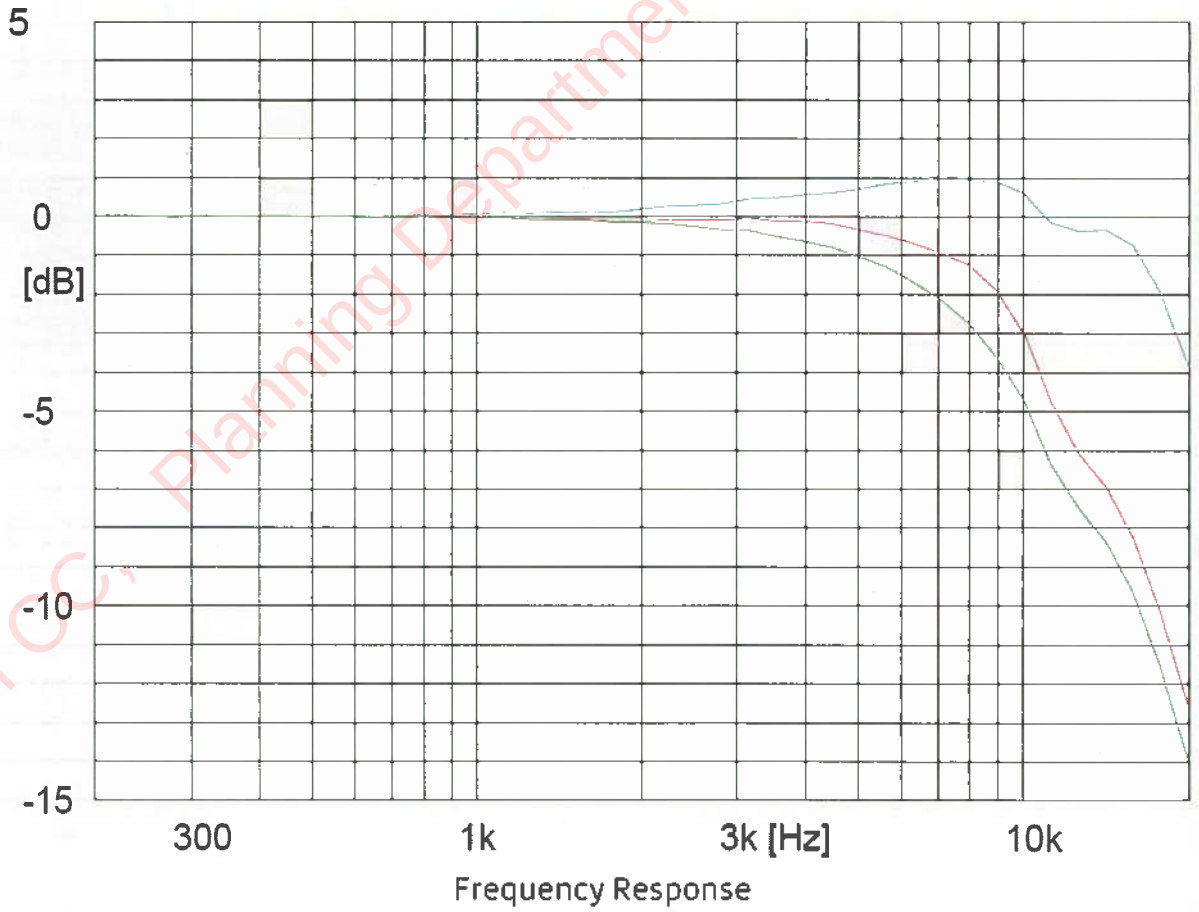
Sensitivity: 39.9 mV/Pa
-28.0 ±0.00 dB re. 1 V/Pa

Date: 22/11/2021

Measurement conditions:	
Polarisation voltage:	0.0 V
Pressure:	103.10 ±0.00 kPa
Temperature:	20.4 ±1.0 °C
Relative humidity:	31.8 ±2.2 %RH

Results are normalized to the reference conditions.

Free field response
Diffuse field response
Pressure (Actuator) response



NSAI

National Metrology Laboratory

Certificate of Calibration

Issued to	TNEI Ireland Limited Unit S12 Synergy Centre Technological University Dublin Campus Tallaght Dublin D24 A386
Attention of	Ewan Watson

Certificate Number	**214287**
Item Calibrated	Rion NL-52 Sound Level Meter, complete with Rion UC59 Microphone
Serial Numbers	00386739 (Sound Level Meter) and 12362 (Microphone)
ID Number	SLM044
Order Number	3
Date Received	18 Oct 2021
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 10 Jun 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 10 Jun 2022] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by	David Fleming	Approved by	Paul Hetherington
Date of Calibration	17 Nov 2021	Date of Issue	18 Nov 2021

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Glas Naíon | Baile Átha Cliath 11 | Eire
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Decision Rule and Compliance Statement

The rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement is known as a decision rule. The rule used by NSAI NML follows the guidelines set out in the document ILAC-G8:09/2019 published by the International Laboratory Accreditation Co-operation. Further information on the decision rule is available on the NSAI website:
(https://www.nsai.ie/images/uploads/metrology/Decision_Rule.pdf).

The symbols used to indicate the state of compliance of the instrument calibration and their meanings are given in the following table.

Statement of compliance and associated symbol	Description
PASS	The absence of a symbol indicates that the measurement result is inside the specification limit by a margin greater than its associated expanded uncertainty; the instrument meets its accuracy specification.
Conditional PASS Symbol: £	The measurement result is inside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state compliance. There is a risk that the instrument fails to meet its specification.
Conditional FAIL Symbol: &	The measurement result is on the specification limit or is outside the specification limit by a margin less than or equal to its associated expanded measurement uncertainty; it is therefore not possible to state non-compliance.
FAIL Symbol: $	The measurement result is outside the specification limit by a margin greater than its associated measurement uncertainty; the instrument fails to meet its accuracy specification.
Unc. > Spec Symbol: #	The expanded measurement uncertainty is greater than the instrument's accuracy specification. It is not possible to determine compliance or otherwise with the specification. The user should expand the in-use accuracy specification to make allowance for the calibration uncertainty.
Outside CIPM MRA Symbol: ¢	Indicates that the calibration result is traceable to SI units but is not currently included in the table of NSAI NML's calibration and measurement capabilities approved under the CIPM MRA.

Where no specification exists, and none is prescribed by the client, the Decision Rule policy of the NSAI NML does not apply and results are provided without a statement of compliance.

Ambient laboratory conditions:

Barometric Pressure:	101.9 kPa ± 0.5 kPa
Temperature:	20.6 °C ± 1 °C
Relative Humidity:	39 %RH ± 5%RH

Summary of Results:

The following table summarises the results of the verification tests. The detailed results are given in the subsequent tables.

IEC 61672 Test	Test Title	Status
10	Self-generated Noise (Electrical)	/
11	Acoustical Signal	PASS
12	Frequency Weighting	PASS
13	Frequency and Time Weighting @ 1 kHz	PASS
14	Level Linearity Test on Reference Level Range	PASS
15	Level Linearity including Range Control	n/a
16	Toneburst Response	PASS
17	Peak C	PASS
18	Overload Indication	PASS

Detailed Results.

Prior to carrying out the verification tests the sound level meter was adjusted to read correctly for pressure response through application of a reference acoustical calibrator.

Self-generated Noise Test (Electrical Input) (Test #10) [1]

Range: Single Range Instrument
Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading[2]
Microphone installed	A	17.2 dB (U/R)[3]
Microphone replaced by electrical signal device and Fitted with a short-circuit	A	18.1 (U/R)[3]
	C	24.9
	Z (Linear)	25.9

Acoustical signal test of a frequency weighting (Test #11) [1]

Range: Single Range Instrument
Frequency Weighting setting: C
Time Weighting response: Slow

Input Level[4]	Input Freq.	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
94.0 dB	1000 Hz	0.0 dB (Ref)	1.1 dB	0.3 dB
	125	+0.2	1.5	0.3
	4000[7]	+0.3	1.6	0.5

Electrical signal tests of frequency weightings (Test #12)[1]

Range: Single Range Instrument

Freq. (nominal)	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
A-Weighting					
63 Hz	93 dB	92.9 dB	-0.1 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	92.9	-0.1	1.4	0.20
500	93	92.9	-0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.8	-1.2	3.5, -17	0.20
C-Weighting					
63 Hz	93 dB	92.8 dB	-0.2 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	93.1	+0.1	1.4	0.20
1000	93	93.1	+0.1	1.1	0.20
2000	93	93.1	+0.1	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.1	+0.1	2.1, -3.1	0.20
16000	93	91.9	-1.1	3.5, -17	0.20
LIN Weighting					
63 Hz	93 dB	93.0 dB	0.0 dB	1.5 dB	0.20 dB
125	93	93.0	0.0	1.5	0.20
250	93	93.0	0.0	1.4	0.20
500	93	92.9	-0.1	1.4	0.20
1000	93	93.0	0.0	1.1	0.20
2000	93	93.0	0.0	1.6	0.20
4000	93	93.0	0.0	1.6	0.20
8000	93	93.0	0.0	2.1, -3.1	0.20
16000	93	93.0	0.0	3.5, -17	0.20

Frequency and time weightings at 1 kHz (Test #13)[1]

Range: Single Range Instrument

Time Weighting Setting	Frequency Weighting Setting	Input Level[4]	Deviation from Reference	Tolerance[6] (±)	Uncertainty of Measurement (±)
Fast	A	94.0 dB	0.0 dB	0.4 dB	0.20 dB
	C		+0.1	0.4	0.20
	Z		+0.1	0.4	0.20
Slow	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
Leq.	A	94.0 dB	0.0 dB	0.3 dB	0.20 dB
SEL	A	114.0 dB	0.0 dB	0.3 dB	0.20 dB

Linearity level on the reference range (Test #14)[1]

Range: Single Range Instrument
Input Frequency: 1 kHz
SLM Measuring Mode: SPL

Range	Input Level[4]	SLM Reading	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
130 dB	94 dB	94.0 dB	0.0 dB	1.1 dB	0.20 dB
	99	99.0	0.0	1.1	0.20
	104	104.0	0.0	1.1	0.20
	109	109.0	0.0	1.1	0.20
	114	114.0	0.0	1.1	0.20
	119	119.0	0.0	1.1	0.20
	124	124.0	0.0	1.1	0.20
	129	129.0	0.0	1.1	0.20
	132	132.0	0.0	1.1	0.20
	133	133.0	0.0	1.1	0.20
	134	134.0	0.0	1.1	0.20
	135	135.0	0.0	1.1	0.20
	136	136.0	0.0	1.1	0.20
	94	94.0	0.0	1.1	0.20
	89	89.0	0.0	1.1	0.20
	84	84.0	0.0	1.1	0.21
	79	79.0	0.0	1.1	0.21
	74	74.0	0.0	1.1	0.21
	69	69.0	0.0	1.1	0.21
	64	64.0	0.0	1.1	0.21
	59	59.0	0.0	1.1	0.21
	54	53.9	-0.1	1.1	0.21
	49	49.0	0.0	1.1	0.21
	44	44.0	0.0	1.1	0.21
	39	39.0	0.0	1.1	0.21
	34	34.1	+0.1	1.1	0.21
	30	30.2	+0.2	1.1	0.21
	29	29.3	+0.3	1.1	0.21
	28	28.3	+0.3	1.1	0.21
	27	27.4	+0.4	1.1	0.21
	26	26.5	+0.5	1.1	0.21
	25	25.5	+0.5	1.1	0.21

Toneburst response (Test #16)[1]

Range: Single Range Instrument

Burst Type	SLM Mode	Input Level[4]	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
200 ms	LAF	135.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAF	118.0	-0.1	1.3	0.3
0.25 msec	LAF	109.0	-0.1	1.3, -3.3	0.3
200 ms	LAS	128.6 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	LAS	109.0	0.0	1.3, -1.8	0.3
200 ms	SEL	129.0 dB	0.0 dB	0.8 dB	0.3 dB
2.0 ms	SEL	109.3	-0.1	1.3	0.3
0.25 ms	SEL	100.0	-0.2	1.3, -3.3	0.3

Peak C sound level (Test #17)[1]

Range: Single Range Instrument

Pulse Type	Pulse Frequency	Input Level[4] (peak value)	SLM Error of Indication[5]	Tolerance[6] (±)	Uncertainty of Measurement (±)
1 cycle	8 kHz	130.4 dB	-0.3 dB	2.4 dB	0.35 dB
Pos. ½ cycle	500 Hz	132.4 dB	-0.4 dB	1.4 dB	0.35 dB
Neg. ½ cycle	500 Hz	132.4 dB	-0.3 dB	1.4 dB	0.35 dB

Overload indication (Test #18)[1]

Range: Single Range Instrument
SLM Measuring Mode: LAEq

Test description	Overload occurred at (±)	Meas. Diff. (Pos – Neg)	Tolerance[6] (±)	Uncertainty of Measurement (±)
Positive ½ cycle at 4 kHz	139.6 dB	-	-	-
Negative ½ cycle at 4 kHz	139.6 dB	-	-	-
Level difference of positive & negative pulses	-	0.0 dB	1.8 dB	0.30 dB

Notes:

(1) The test number, given in parentheses after the section heading, refers to the relevant clause in IEC 61672-3 (2006).

(2) SLM denotes Sound Level Meter

(3) U/R denotes Under Range

(4) All input levels are given in dB relative to a 20 µPa reference level.

(5) The SLM Error of Indication is defined as follows:
SLM Error of Indication = SLM Reading - Input Level

(6) The figures in the column labelled 'Tolerance' are the acceptance limits given in IEC 61672-1(2003). These tolerance limits include an allowance for the maximum expanded uncertainty of the test laboratory. The criteria for compliance with the tolerance is that the measurement result, extended by its associated uncertainty, lies within the specified limits.

(7) Microphone response at 4 kHz was measured using an electrostatic actuator. A Free Field correction of +1.2 dB was applied to the measured actuator response.
This measurement is not included in NML's tables of Calibration and Measurement Capabilities, approved under the CIPM MRA.
For information, the measured sensitivity and frequency response of the microphone is given in an addendum to this certificate.

Comments:

Where used in the results table, further information on the meaning of symbols is given in the table on page 2 of this certificate.

The instrument was found to meet the requirements of IEC 61672-1 (2003) in accordance with the verification procedures set out in IEC 61672-3 (2006) at the time of calibration.

The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML) or by other national metrology institutes, to internationally accepted realisations of the SI units.

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ which, for a normal probability distribution, corresponds to a coverage probability of approximately 95%. It has been determined in accordance with the "Guide to the Expression of Uncertainty in Measurement (GUM)". These uncertainties apply only to the measured values and do not carry any implication regarding the long-term stability of the instrument.

NSAI
National Metrology Laboratory

Addendum to Certificate 214287

Rion
Type: UC59

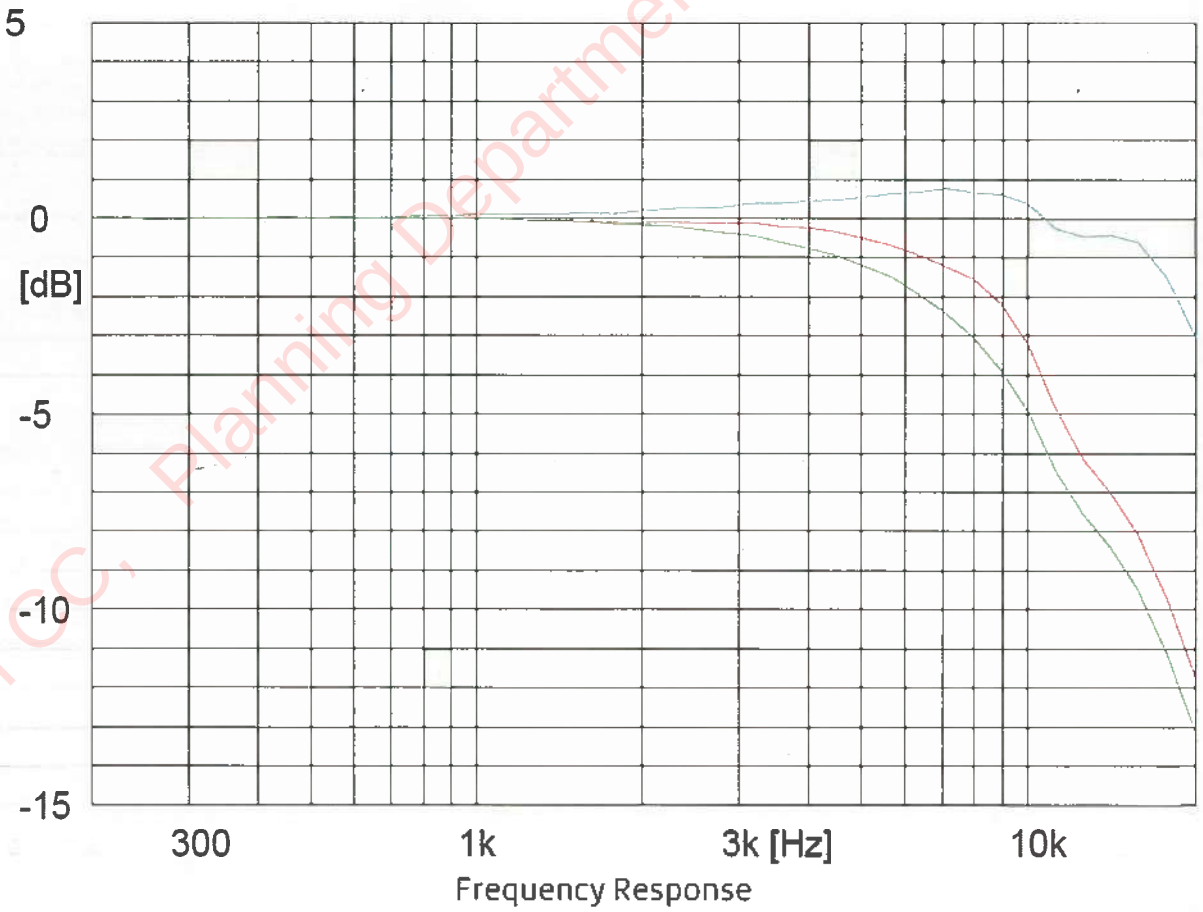
Serial no: 12362

Sensitivity: 46.2 mV/Pa
-26.7 ±0.00 dB re. 1 V/Pa

Date: 17/11/2021

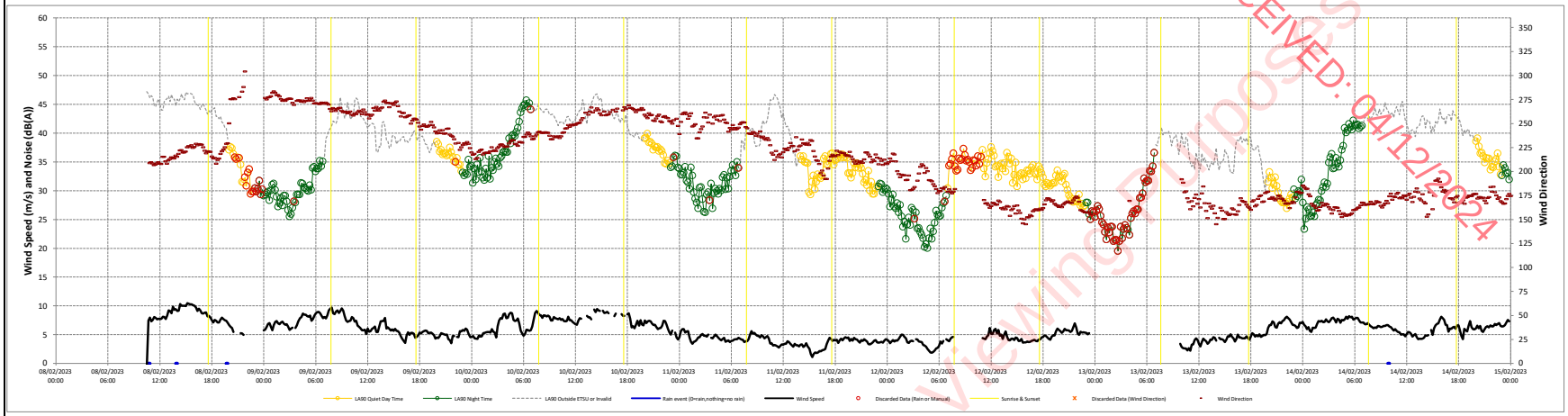
Measurement conditions:	
Polarisation voltage:	0.0 V
Pressure:	101.94 ±0.01 kPa
Temperature:	20.6 ±1.1 °C
Relative humidity:	39.5 ±2.1 %RH
Results are normalized to the reference conditions.	

Free field response
Diffuse field response
Pressure (Actuator) response



Annex 4 – Time Series Graphs

08/02/2023 to 15/02/2023



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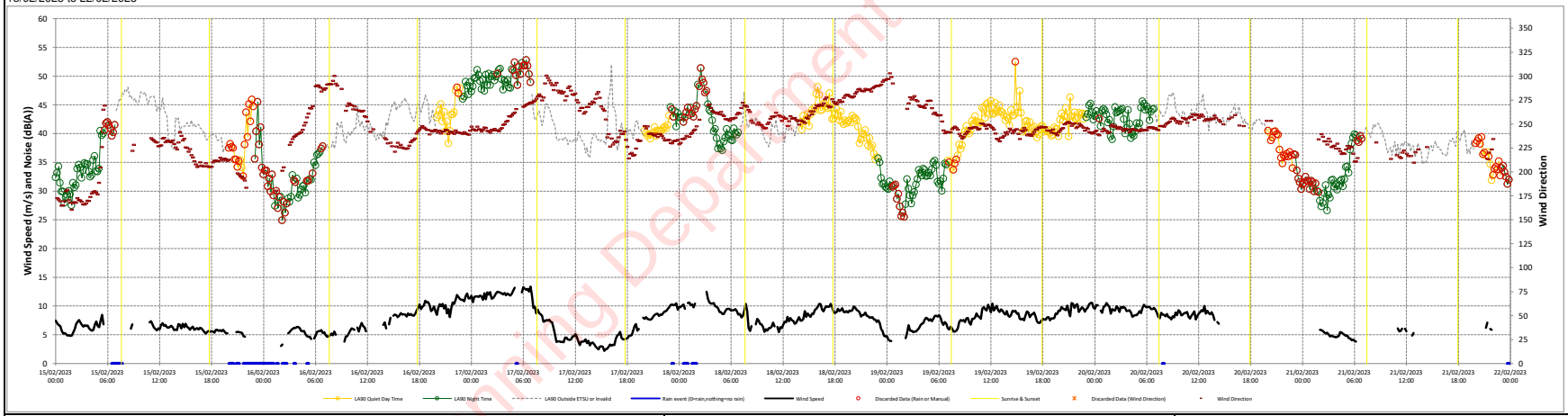
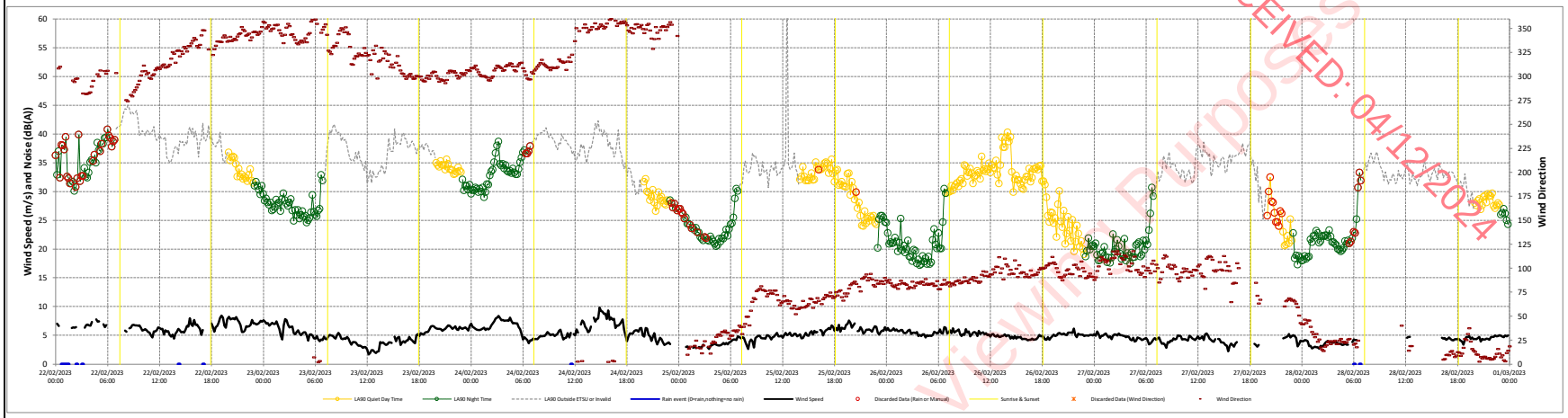


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML1 Page 1 of 6
Date	29/05/2024

22/02/2023 to 01/03/2023



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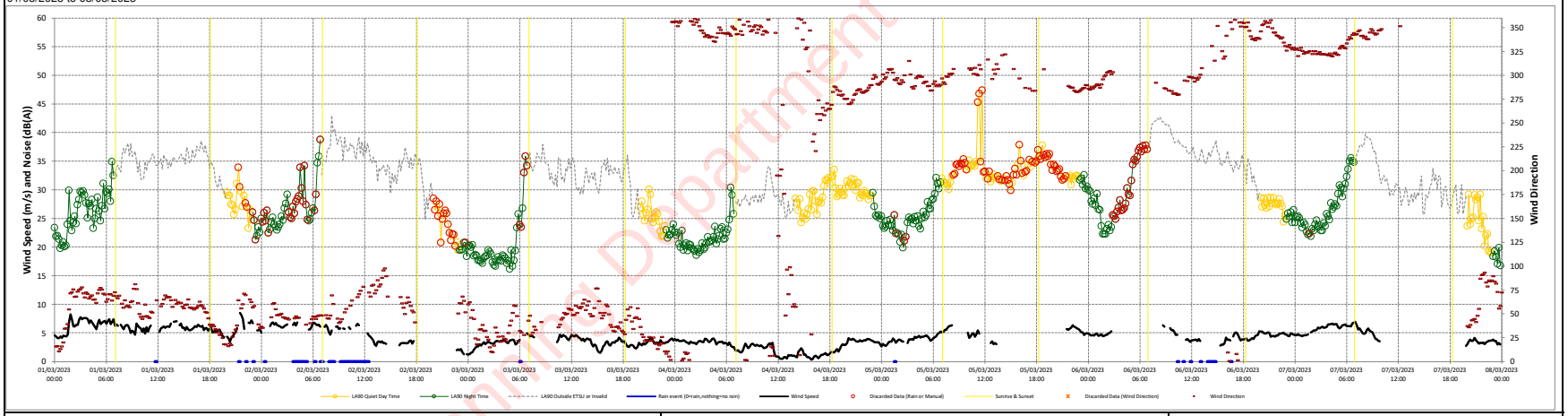

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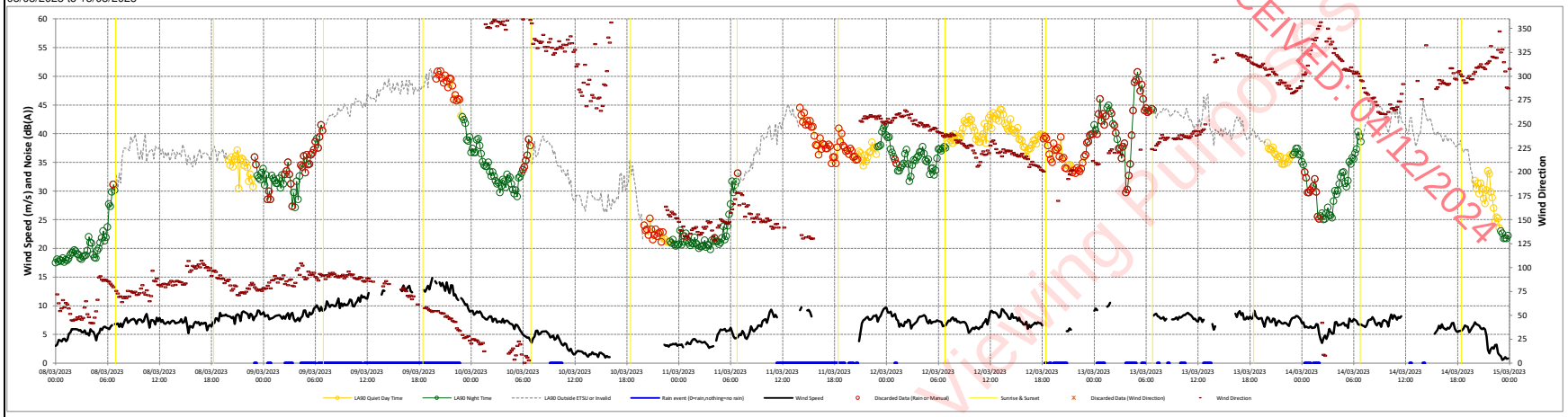
Client	Kellystown Wind Farm Limited
Title	Time Series for NML1 Page 2 of 6
Date	29/05/2024

08/03/2023 to 15/03/2023



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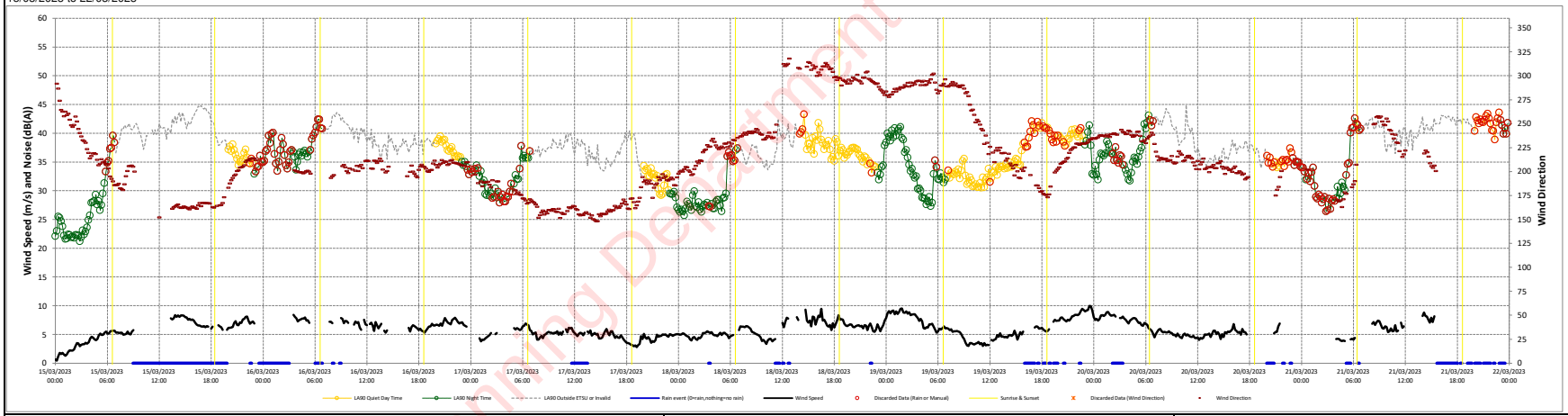

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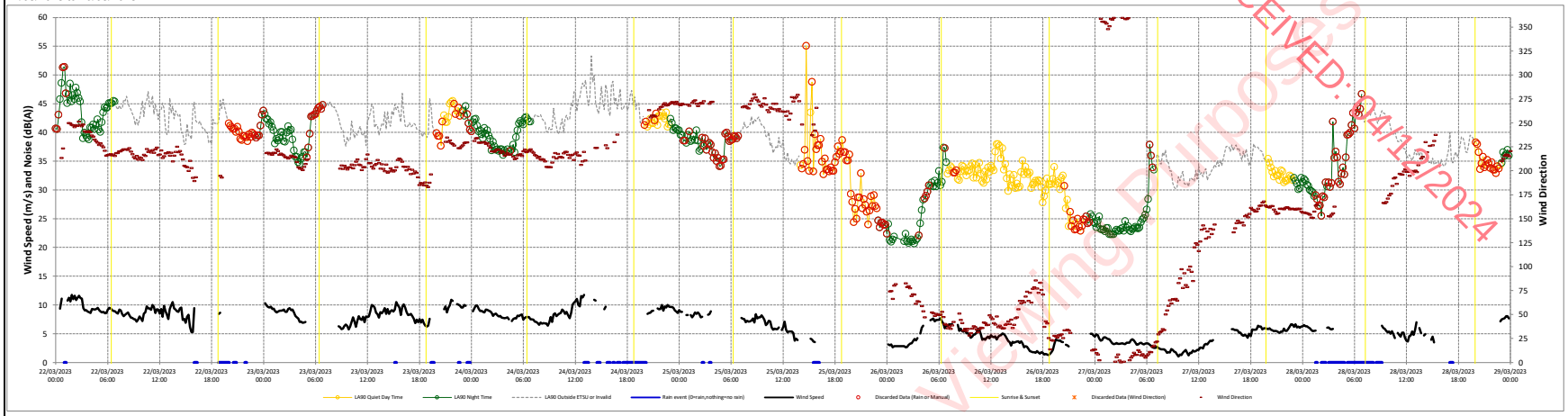
Client	Kellystown Wind Farm Limited
Title	Time Series for NML1 Page 3 of 6
Date	29/05/2024

22/03/2023 to 29/03/2023



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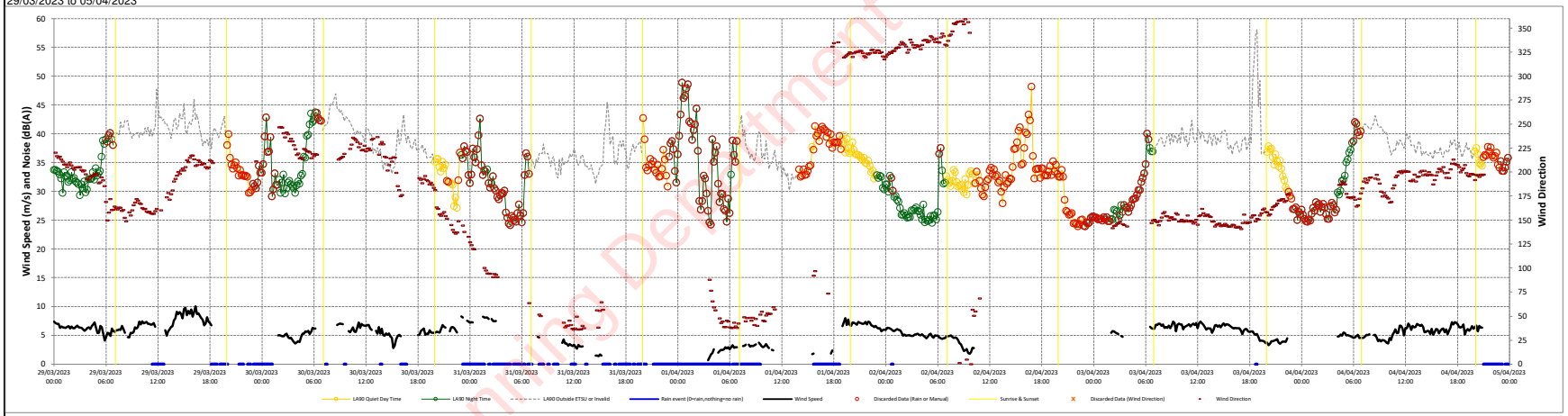

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Client	Kellystown Wind Farm Limited
Title	Time Series for NML1 Page 4 of 6
Date	29/05/2024

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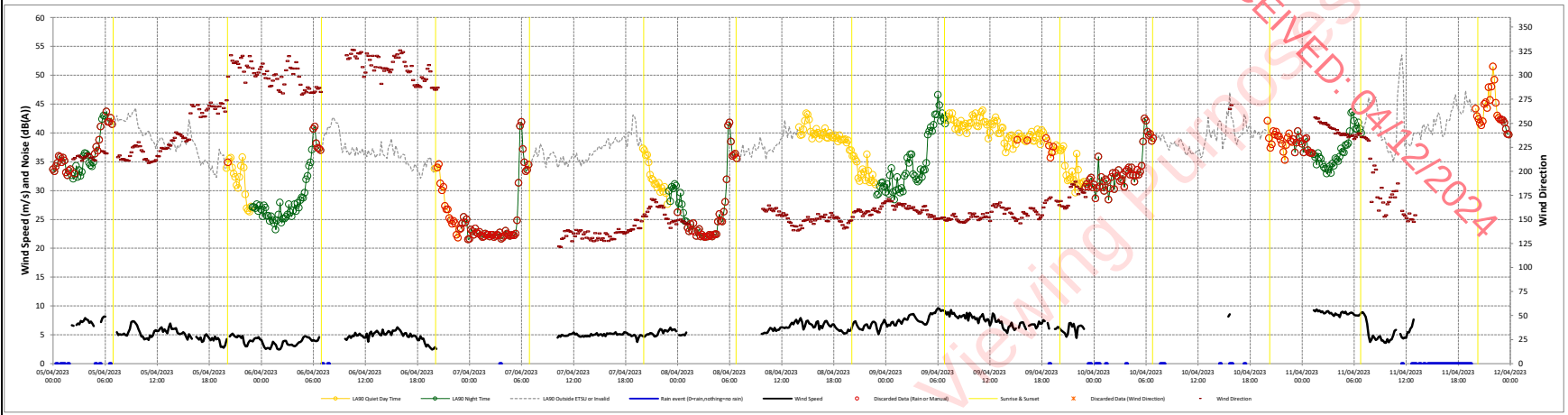
05/04/2023 to 12/04/2023



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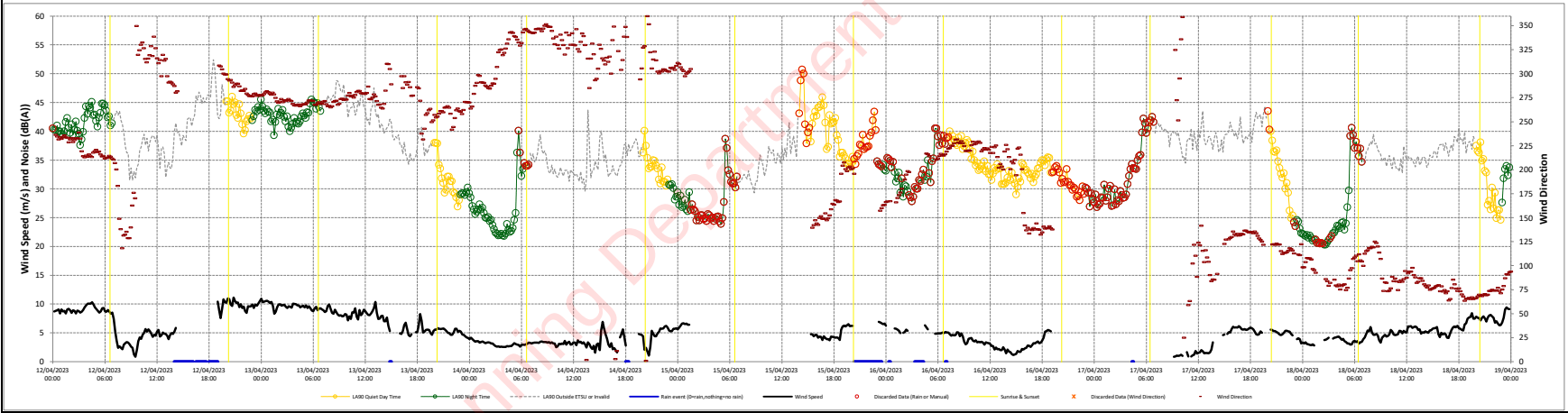

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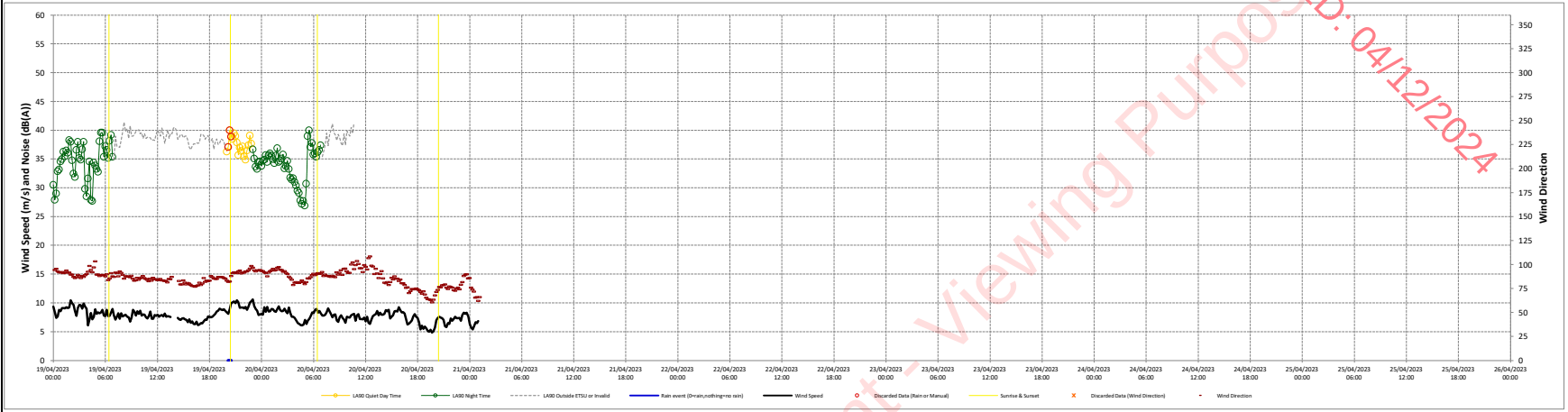
Title	Time Series for NML1 Page 5 of 6
Date	29/05/2024

19/04/2023 to 26/04/2023



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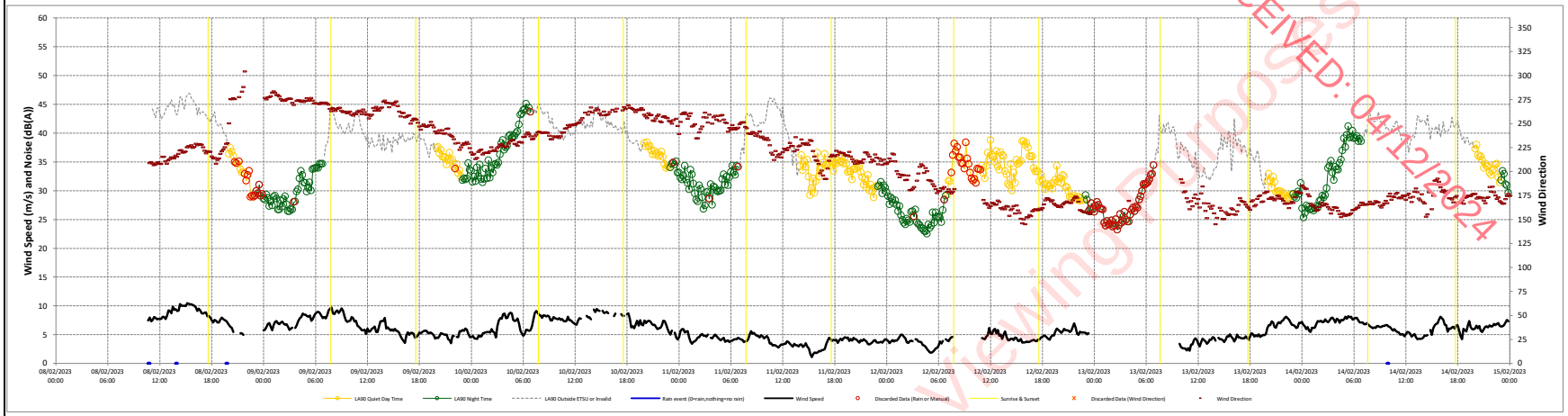
Client	Kellystown Wind Farm Limited	
Title	Time Series for NML1 Page 6 of 6	
Date	29/05/2024	

08/02/2023 to 15/02/2023



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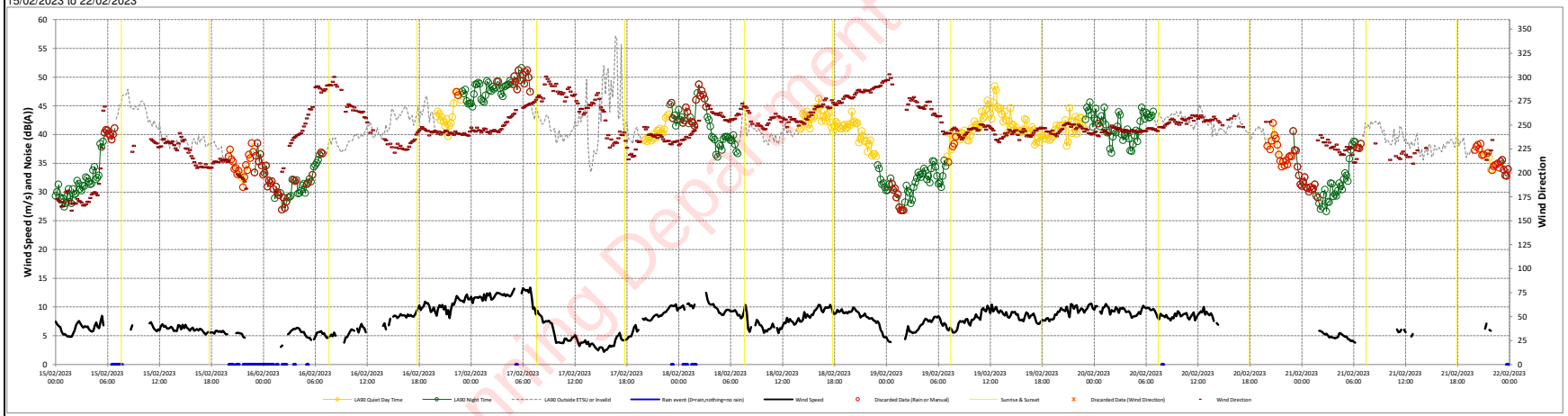

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Client	Kellystown Wind Farm Limited
Title	Time Series for NML2 Page 1 of 6
Date	29/05/2024

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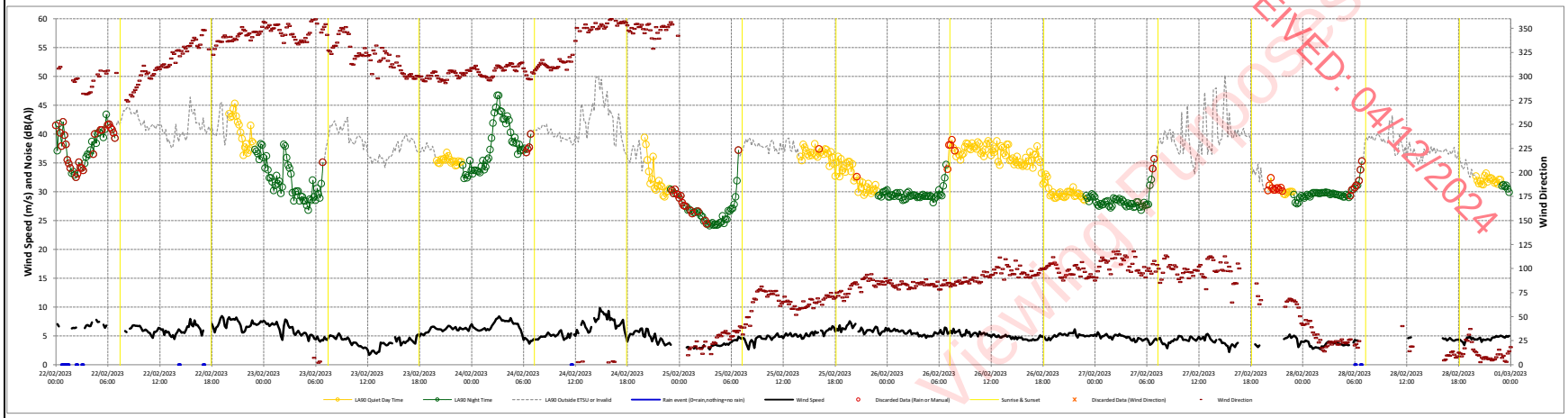
22/02/2023 to 01/03/2023



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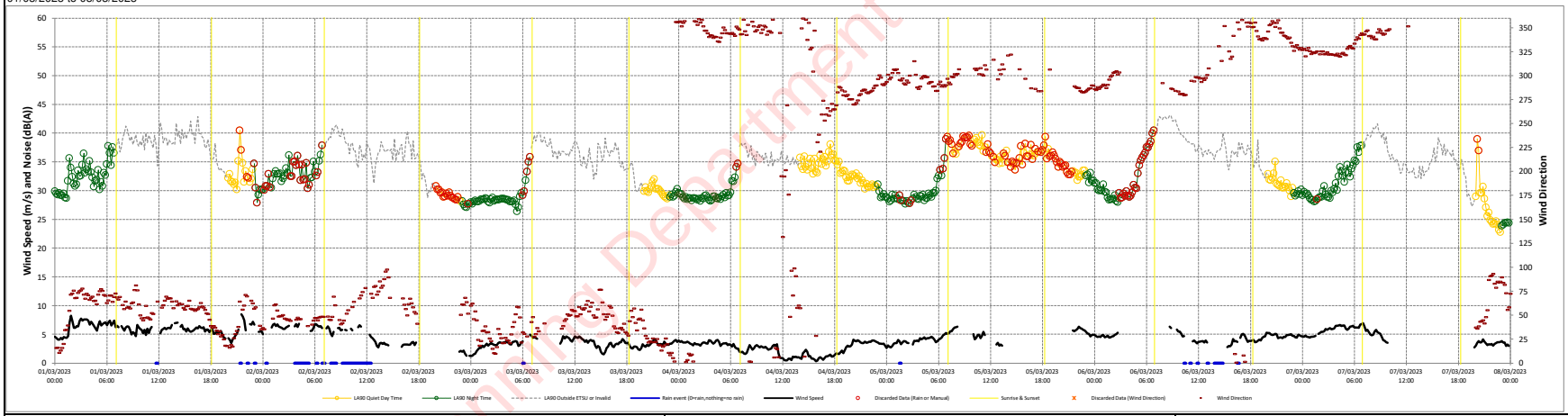

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Client	Kellystown Wind Farm Limited
Title	Time Series for NML2 Page 2 of 6
Date	29/05/2024

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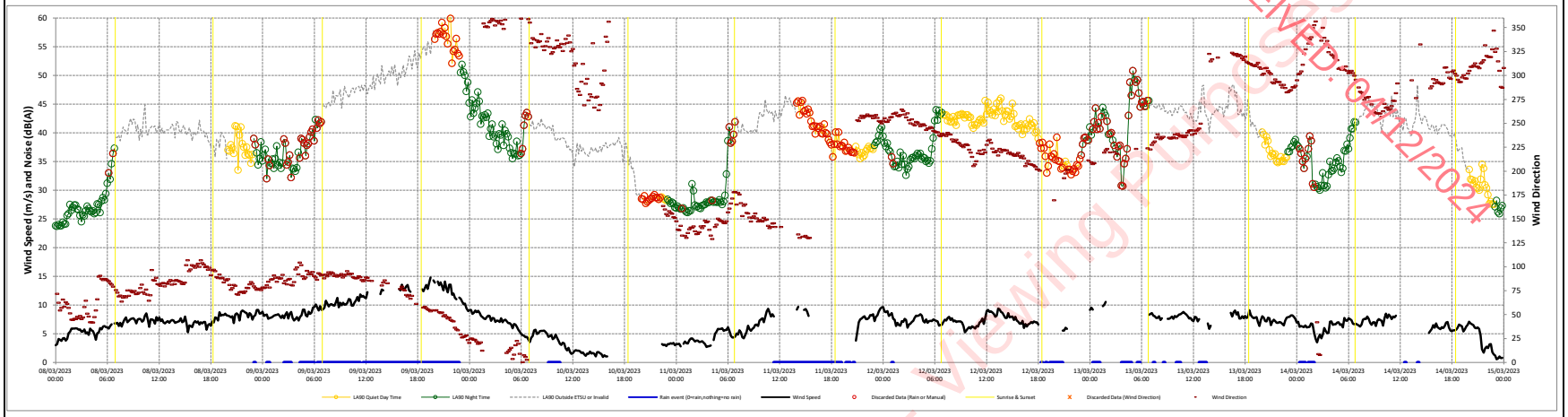

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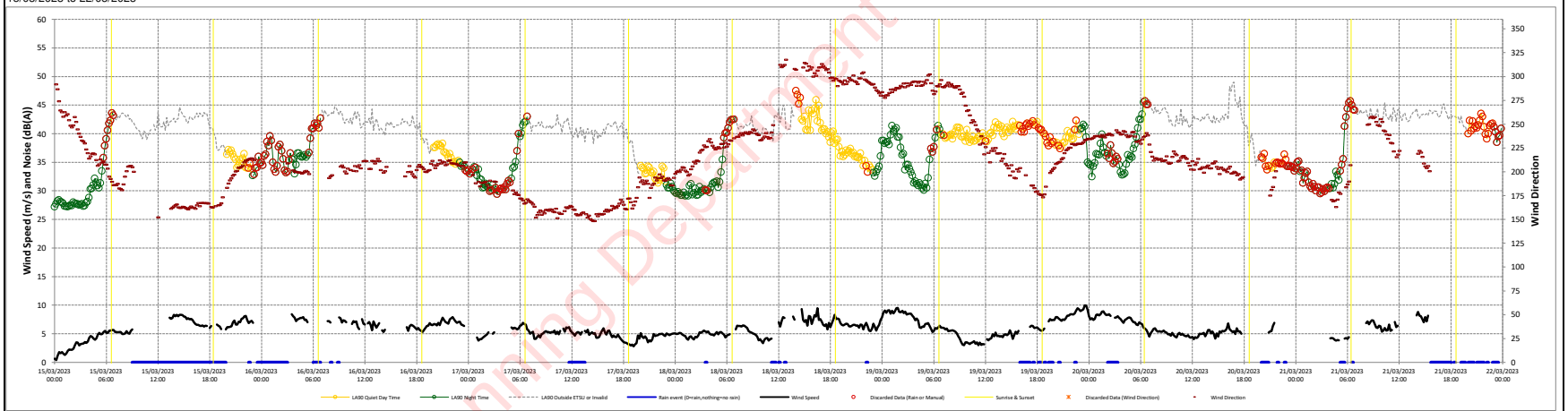

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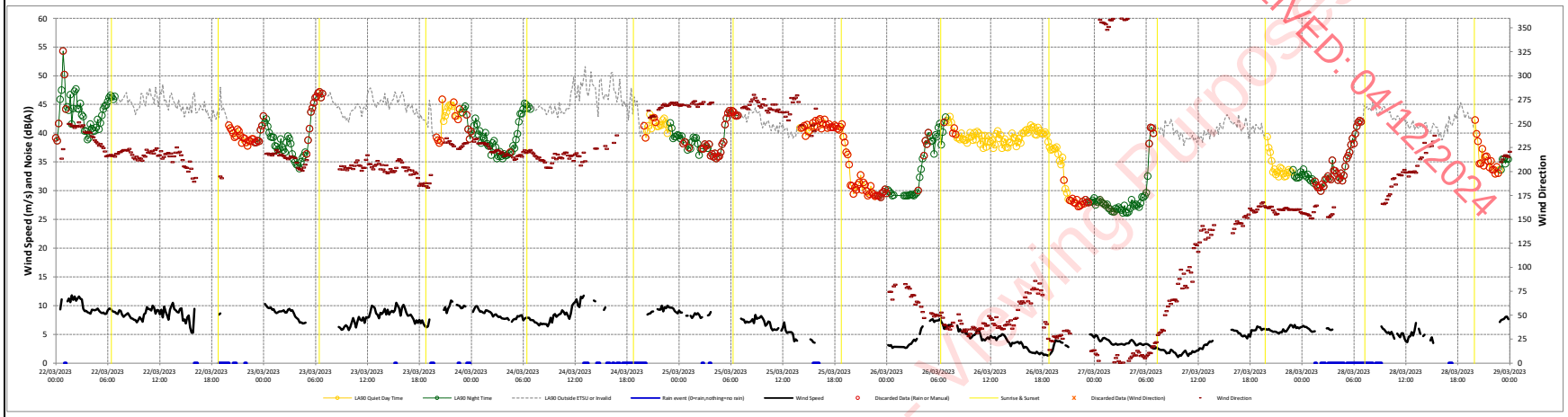
Client	Kellystown Wind Farm Limited
Title	Time Series for NML2 Page 3 of 6
Date	29/05/2024

22/03/2023 to 29/03/2023



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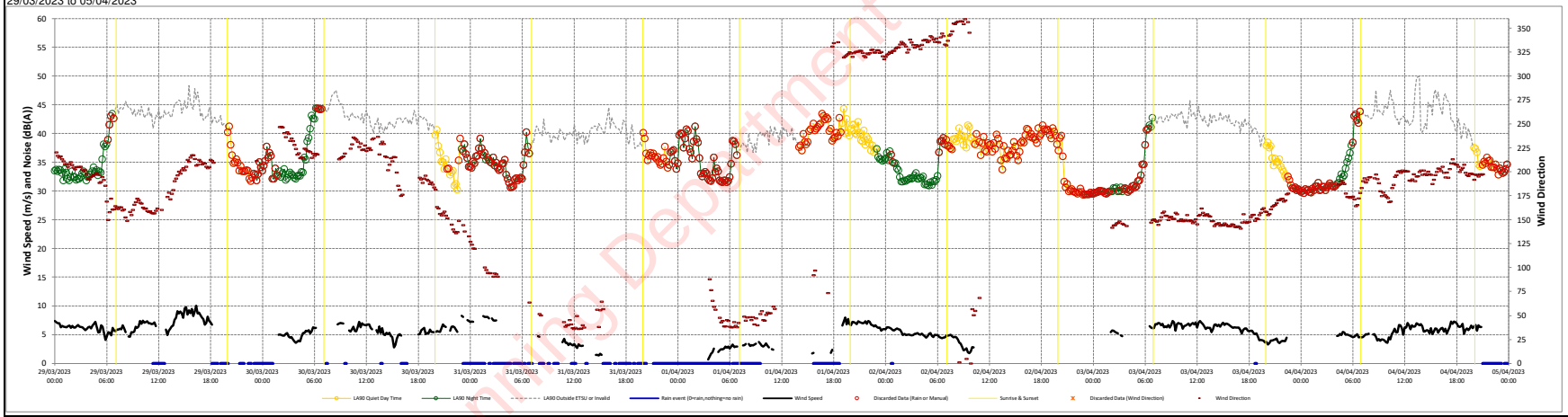

Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML2 Page 4 of 6
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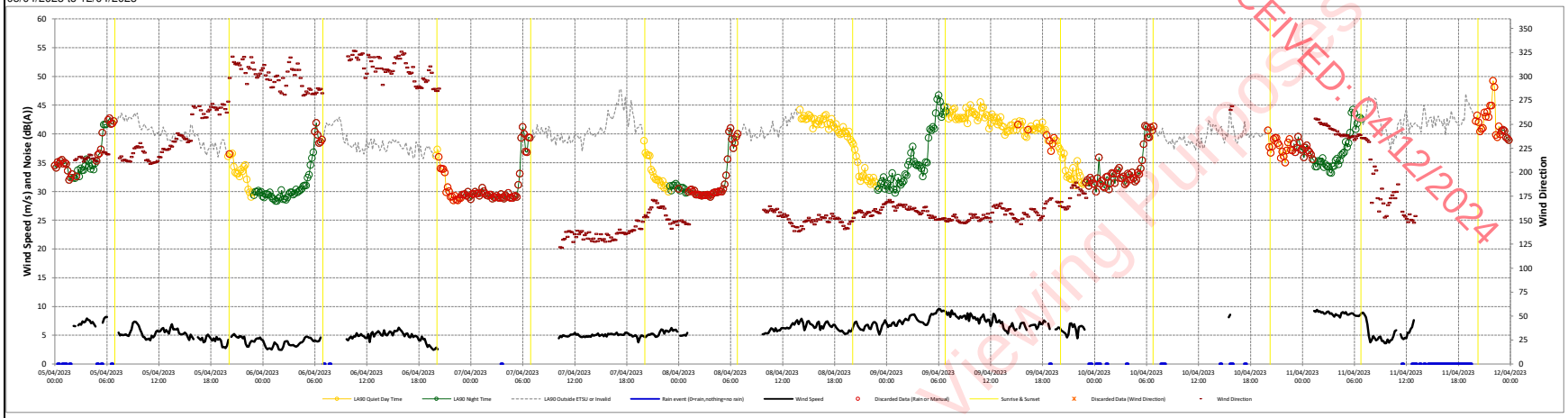
05/04/2023 to 12/04/2023



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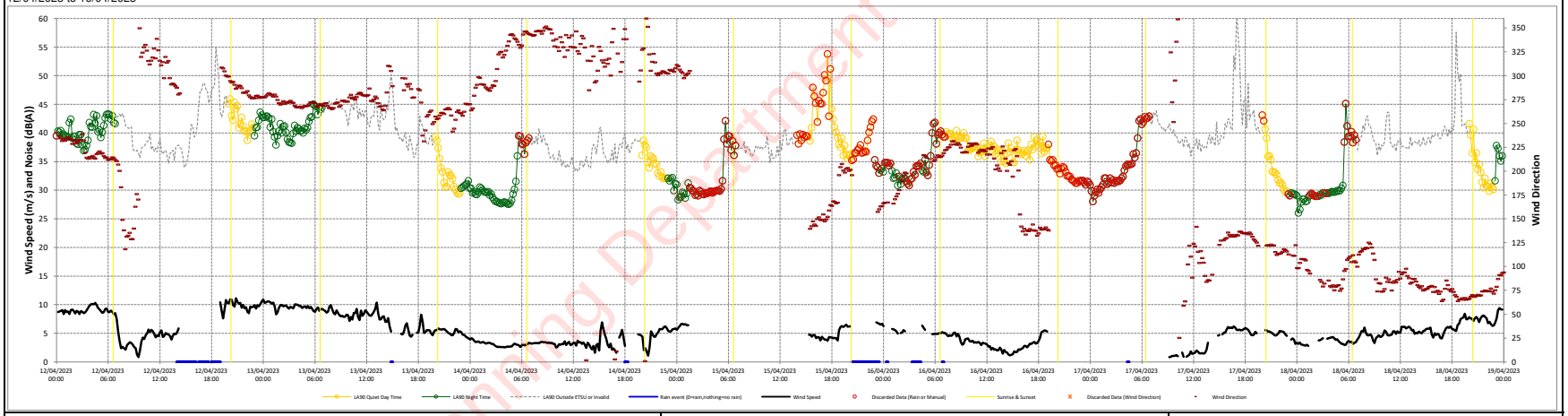
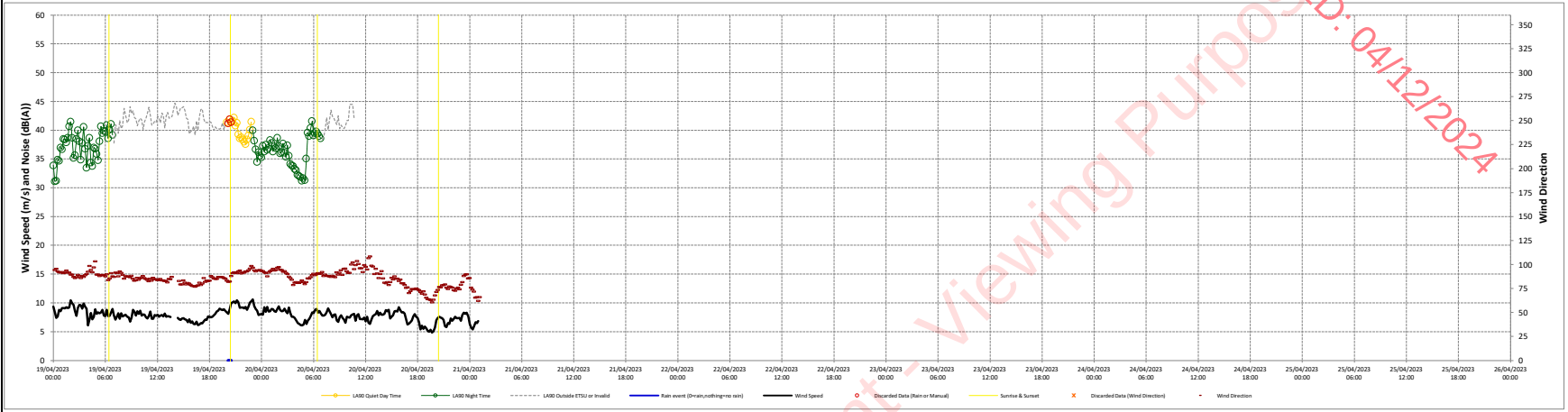


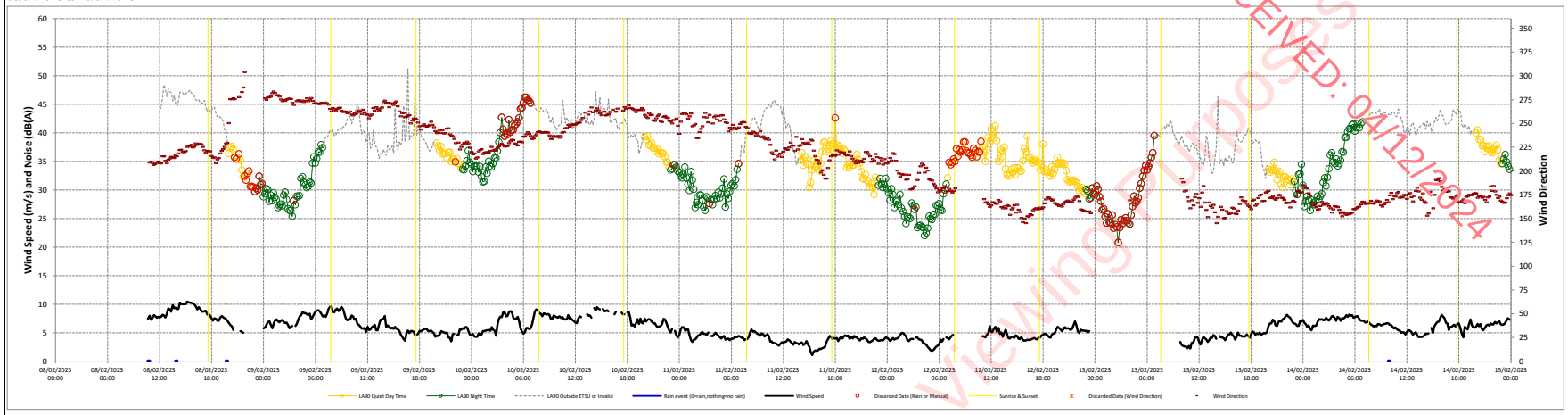
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML2 Page 5 of 6
Date	29/05/2024

19/04/2023 to 26/04/2023

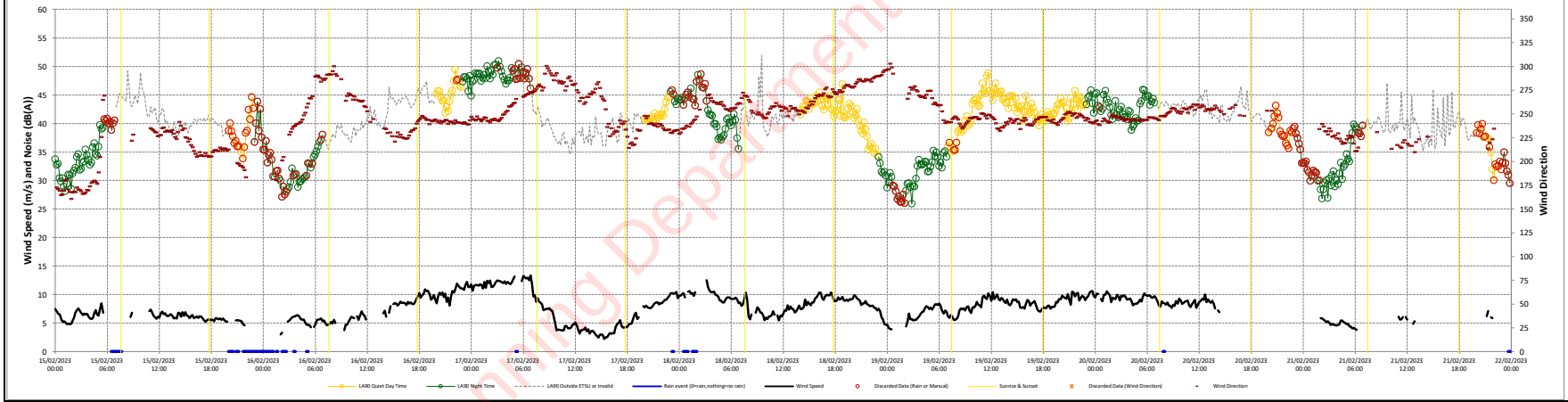


Project	Kellystown Wind Farm	
Client	Kellystown Wind Farm Limited	
Title	Time Series for NML2 Page 6 of 6	
Date	29/05/2024	

08/02/2023 to 15/02/2023

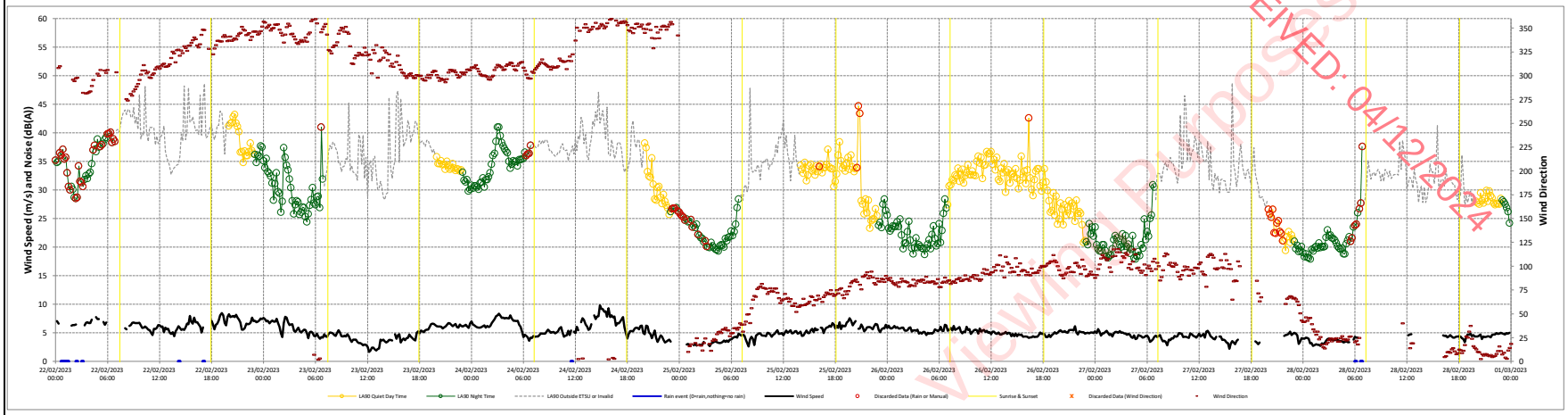


15/02/2023 to 22/02/2023

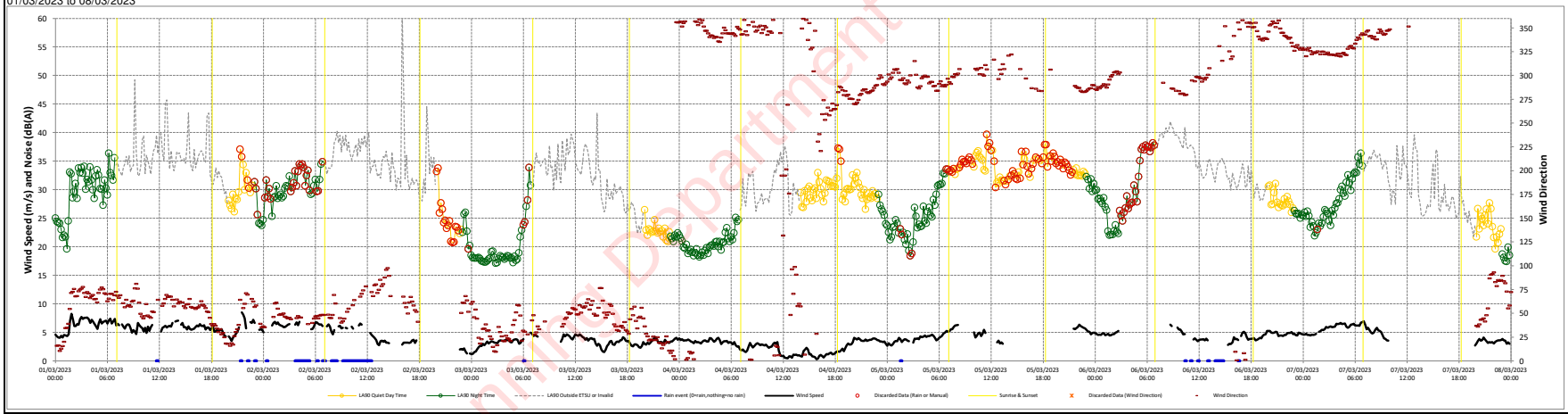


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML3 Page 1 of 6
Date	29/05/2024

22/02/2023 to 01/03/2023

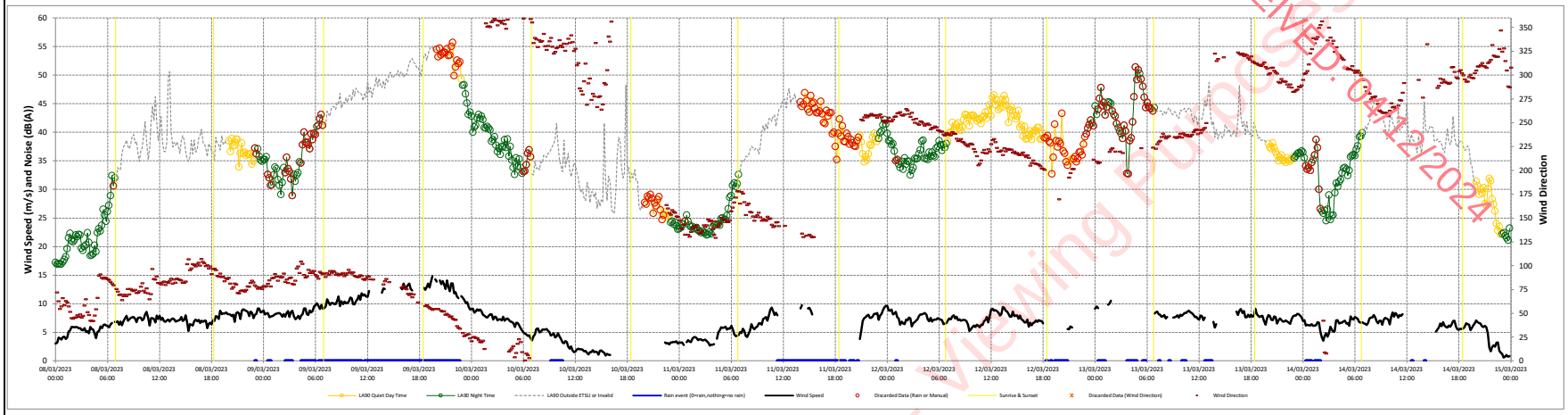


01/03/2023 to 08/03/2023

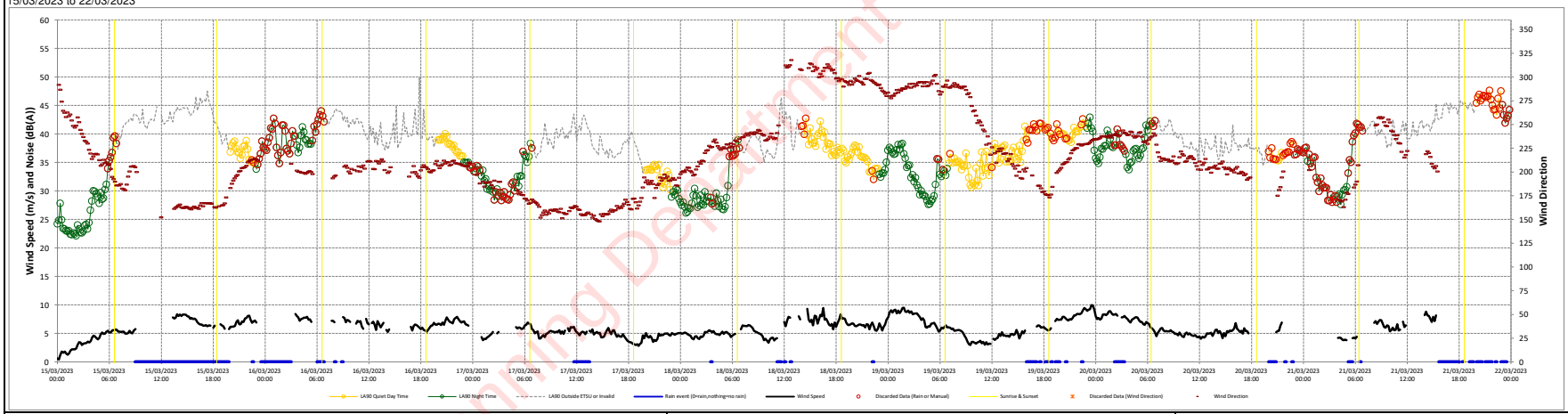


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML3 Page 2 of 6
Date	29/05/2024

08/03/2023 to 15/03/2023

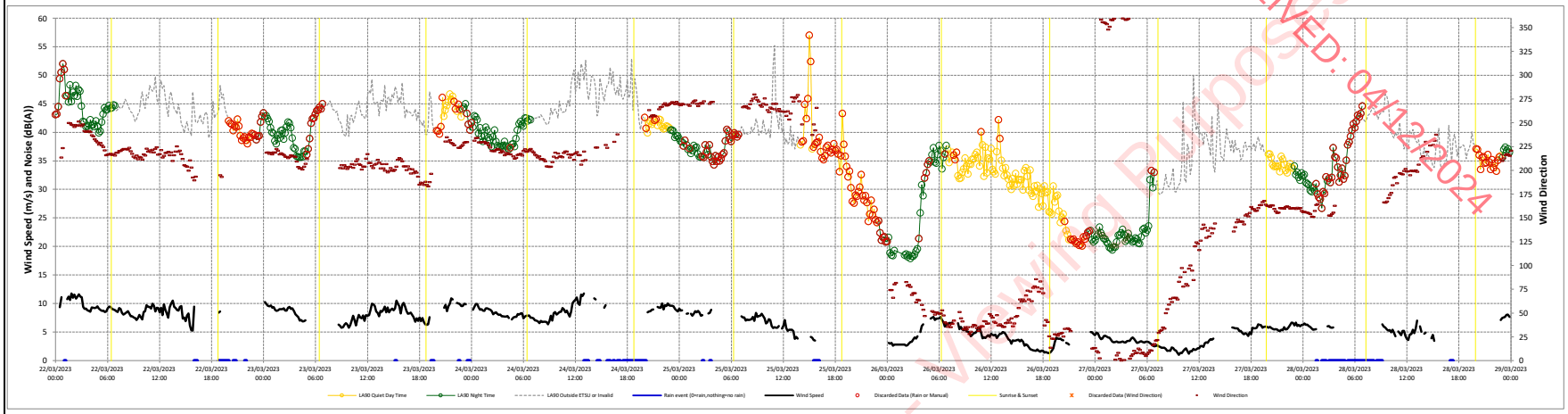


15/03/2023 to 22/03/2023

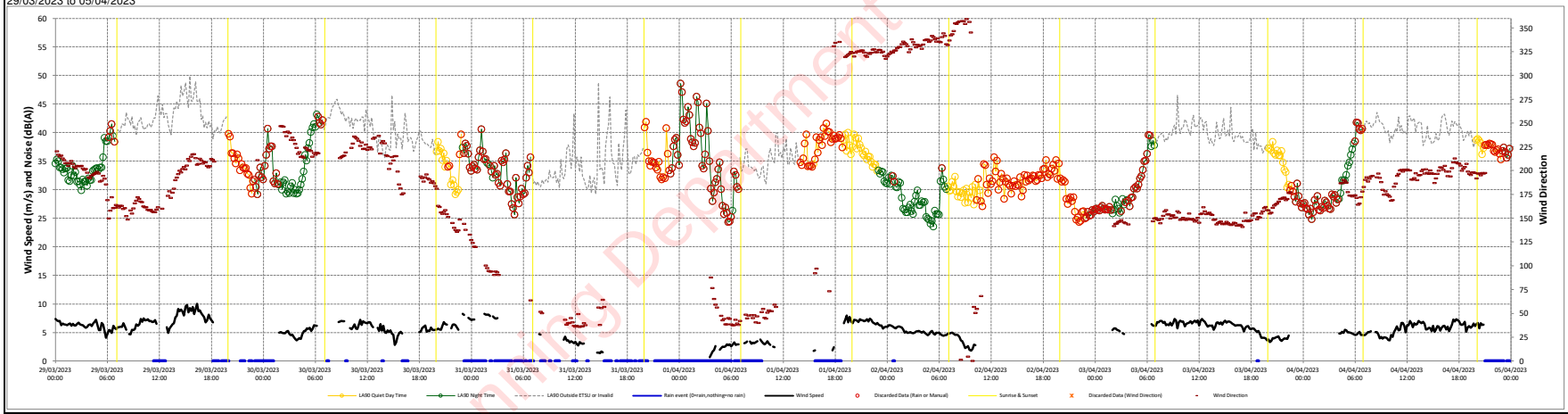


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML3 Page 3 of 6
Date	29/05/2024

22/03/2023 to 29/03/2023

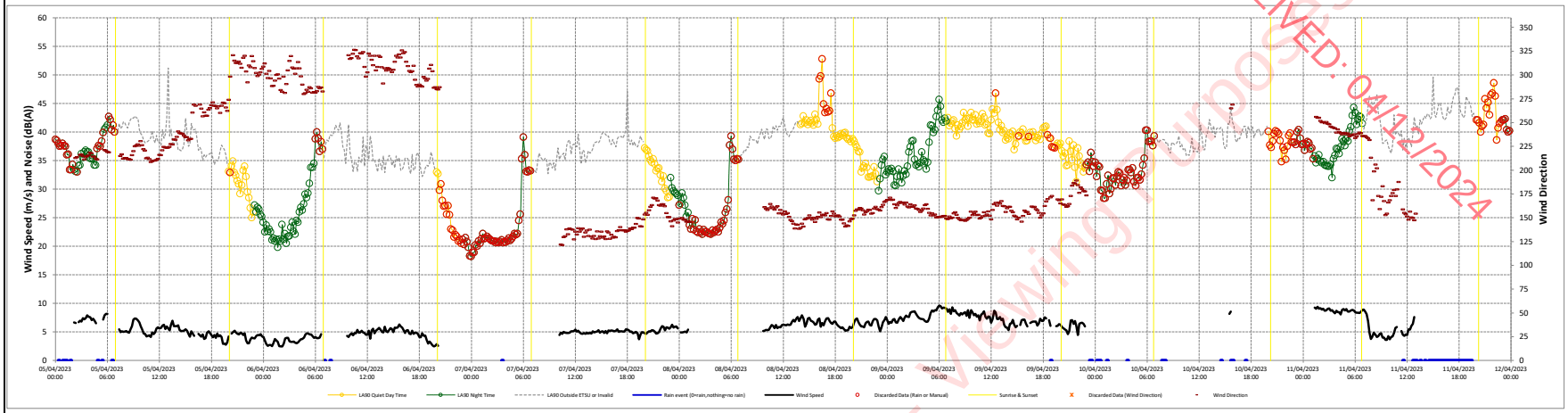


29/03/2023 to 05/04/2023

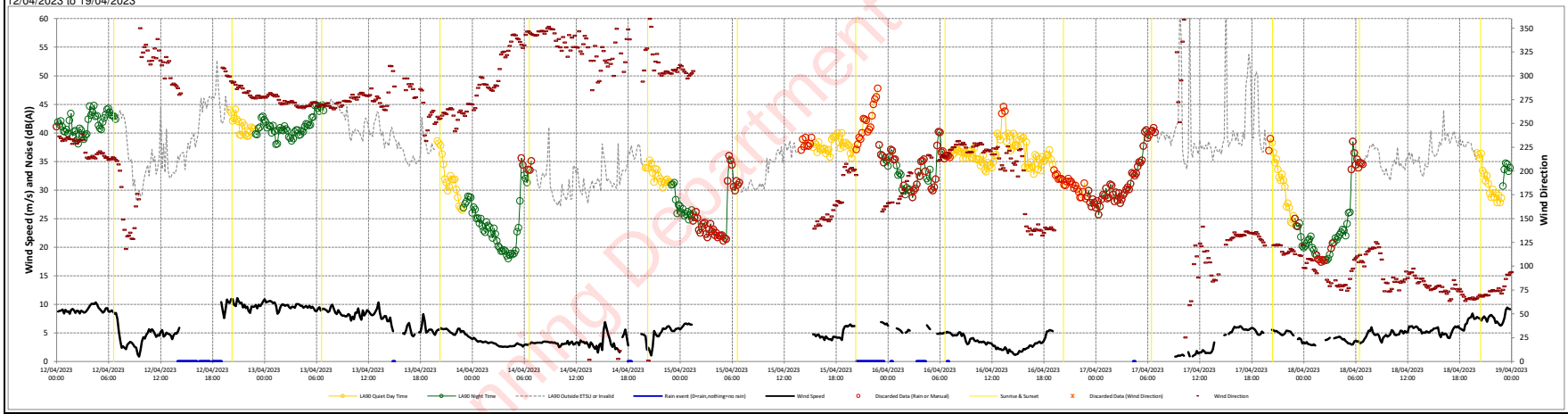


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML3 Page 4 of 6
Date	29/05/2024

05/04/2023 to 12/04/2023

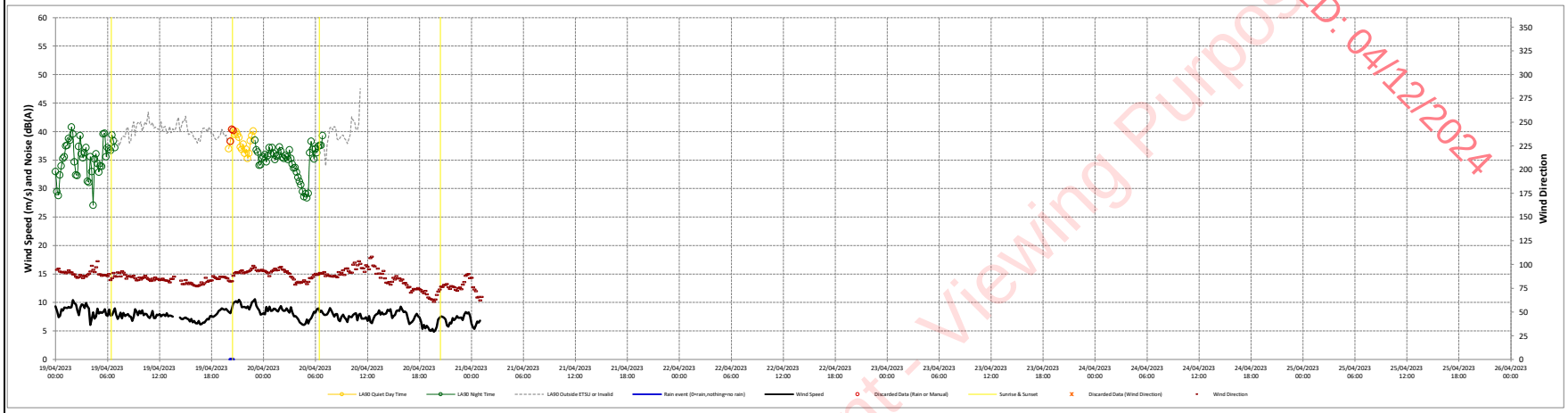


12/04/2023 to 19/04/2023



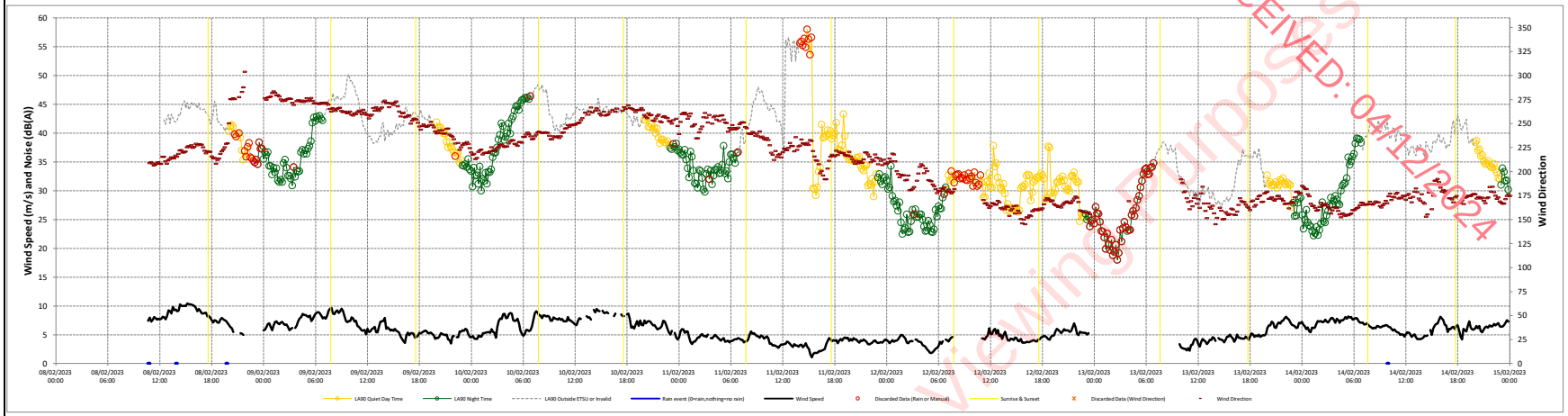
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML3 Page 5 of 6
Date	29/05/2024

19/04/2023 to 26/04/2023

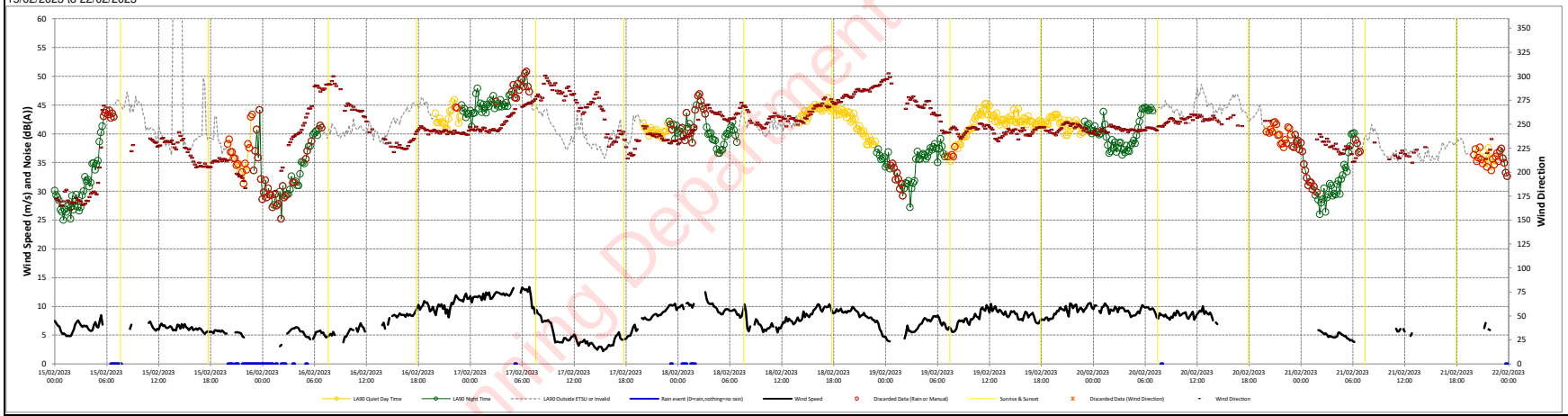


Project	Kellystown Wind Farm	
Client	Kellystown Wind Farm Limited	
Title	Time Series for NML3 Page 6 of 6	
Date	29/05/2024	

08/02/2023 to 15/02/2023



15/02/2023 to 22/02/2023



Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML4 Page 1 of 6
Date	29/05/2024

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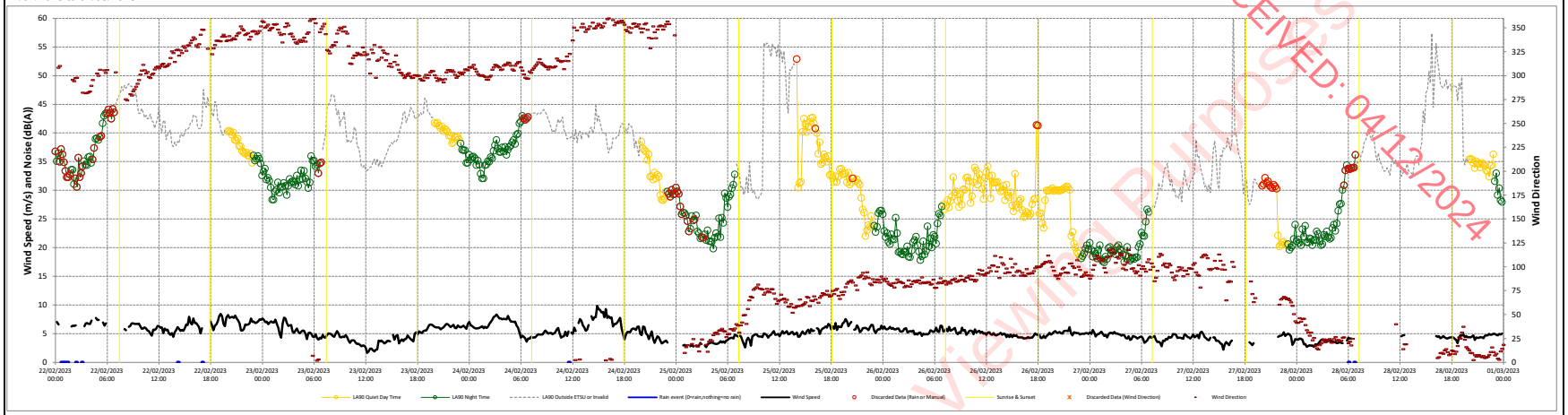
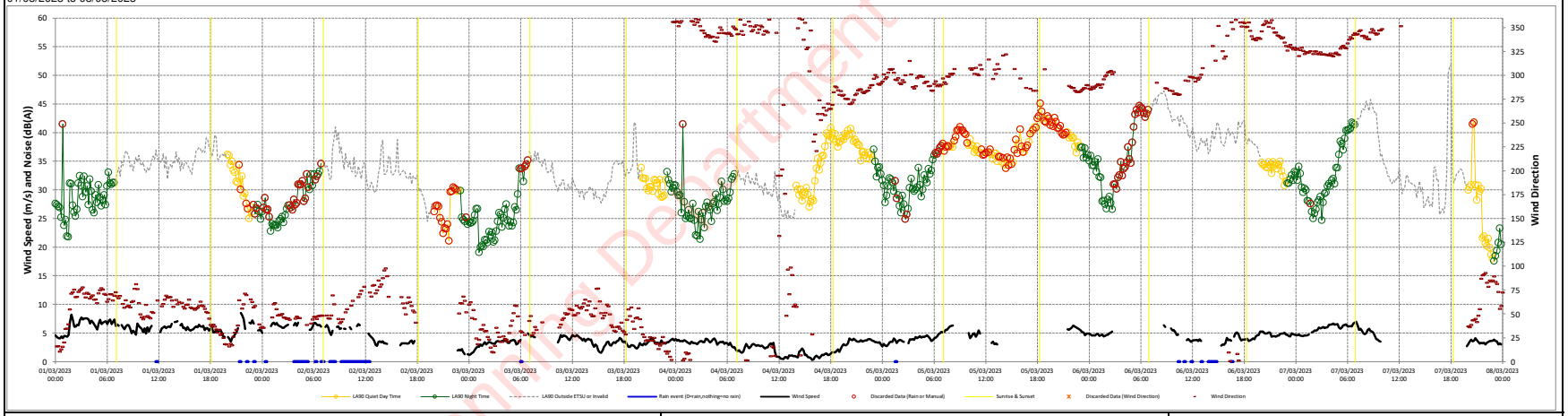
22/02/2023 to 01/03/2023

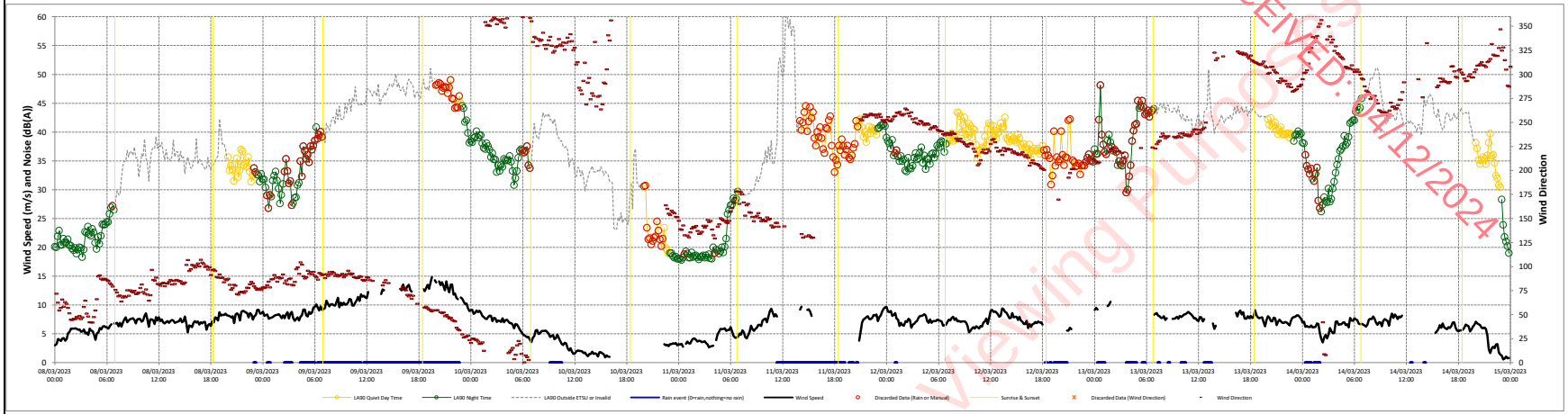


01/03/2023 to 08/03/2023

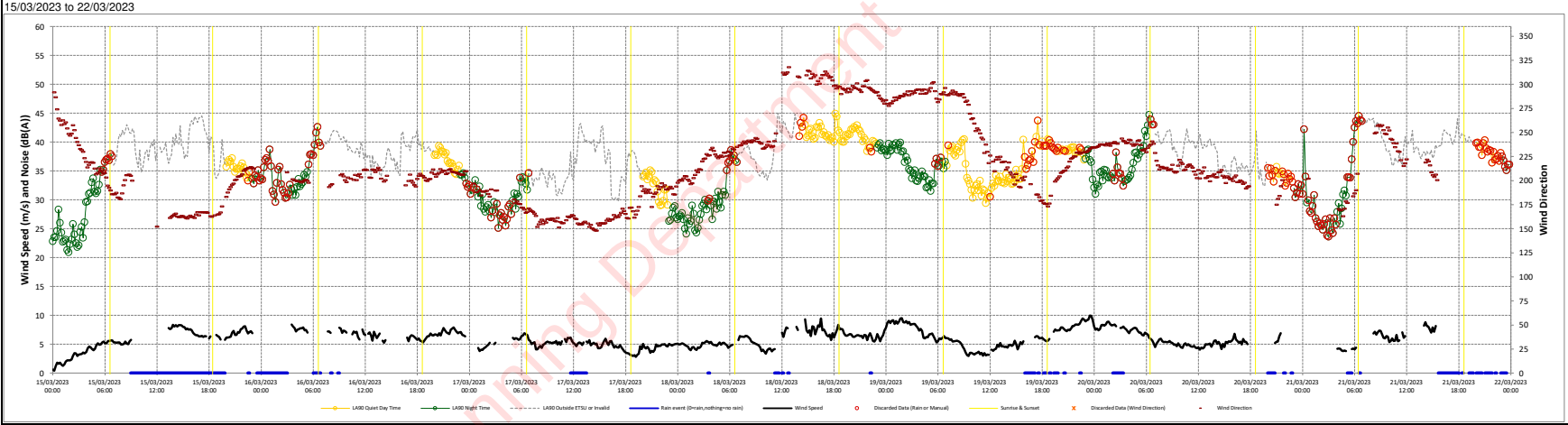


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML4 Page 2 of 6
Date	29/05/2024

08/03/2023 to 15/03/2023

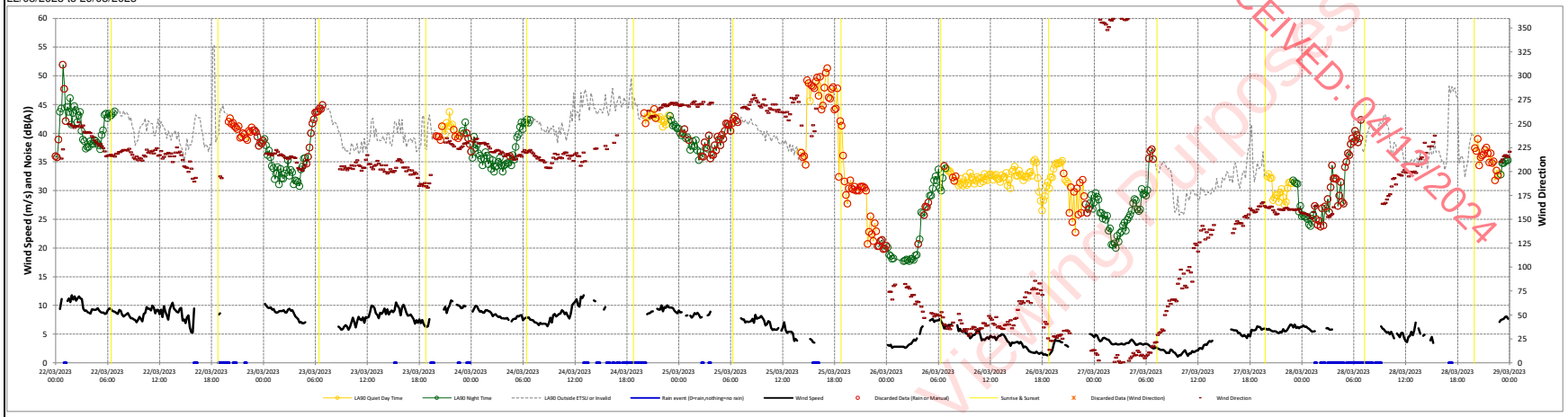


15/03/2023 to 22/03/2023

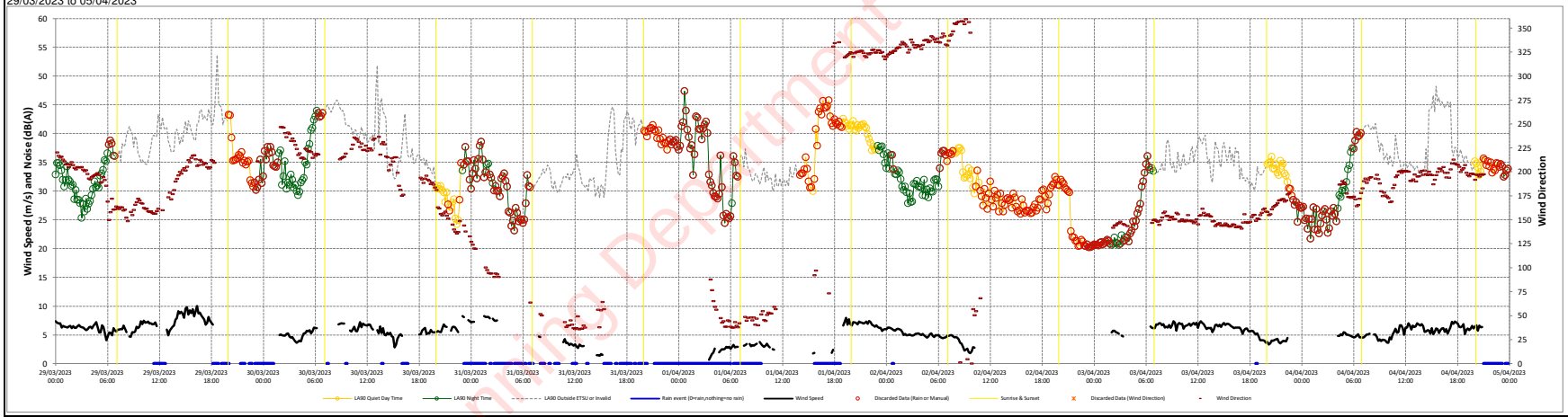


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML4 Page 3 of 6
Date	29/05/2024

22/03/2023 to 29/03/2023

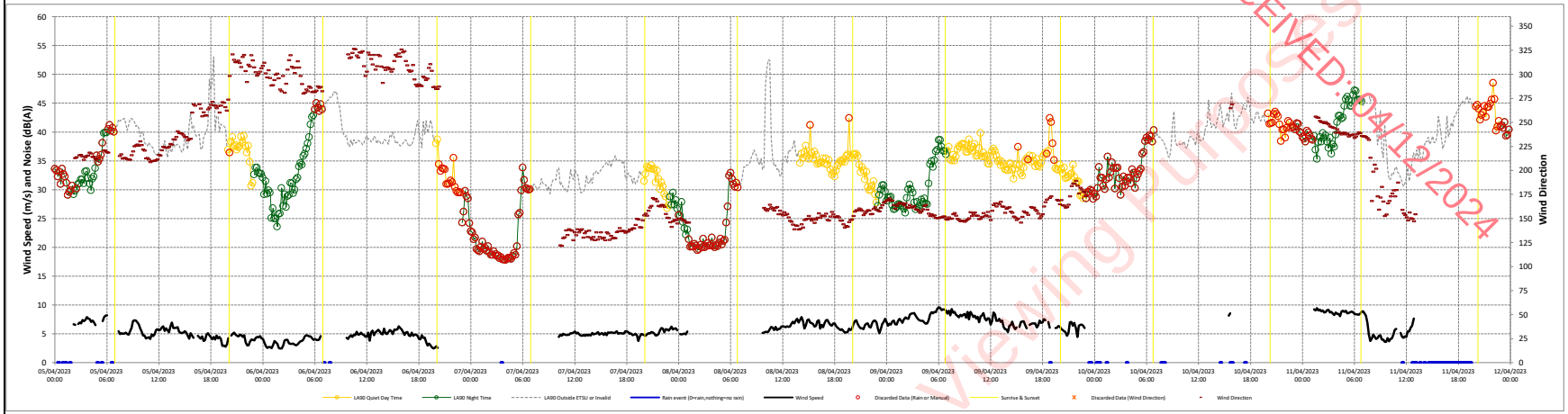


29/03/2023 to 05/04/2023

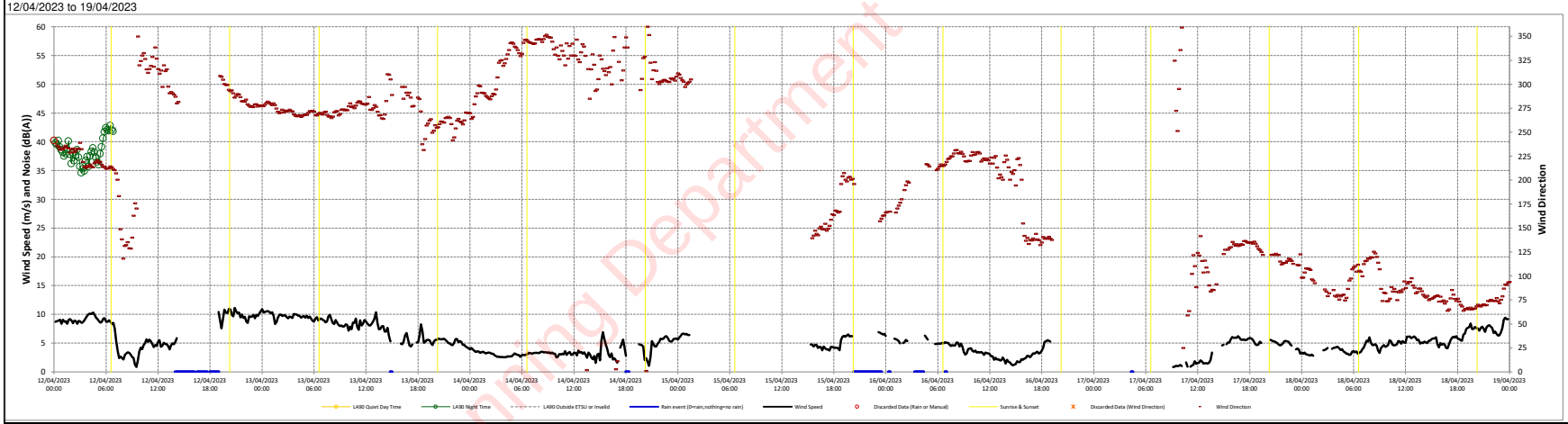


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML4 Page 4 of 6
Date	29/05/2024

05/04/2023 to 12/04/2023

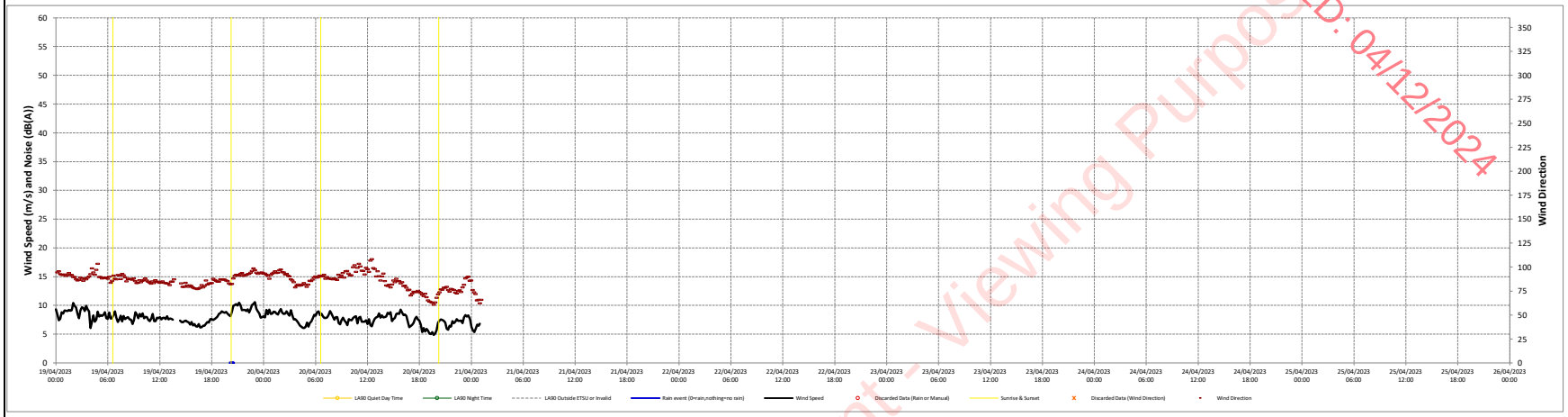


12/04/2023 to 19/04/2023



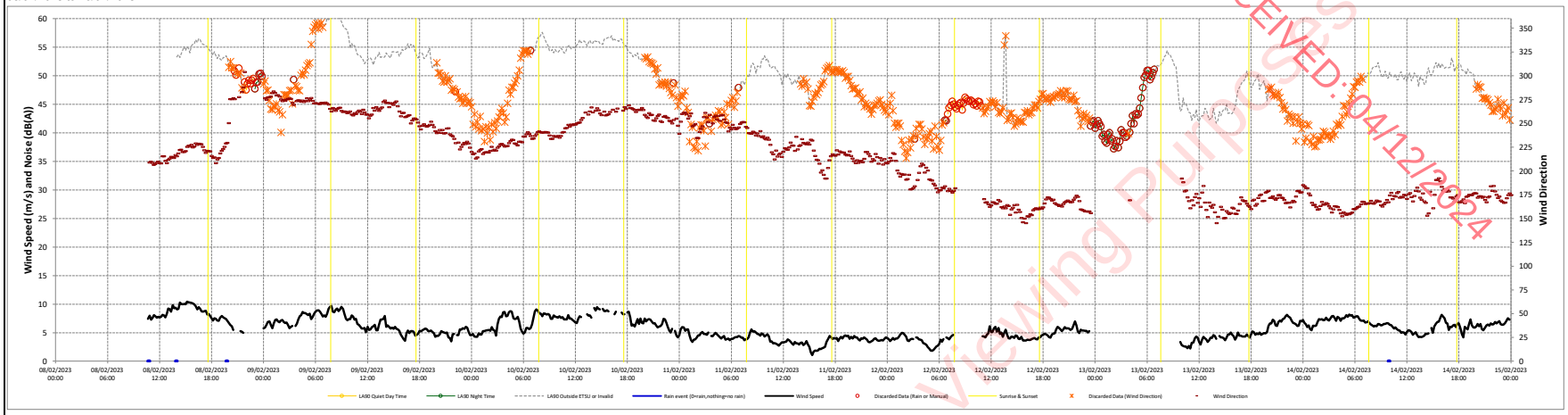
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML4 Page 5 of 6
Date	29/05/2024

19/04/2023 to 26/04/2023

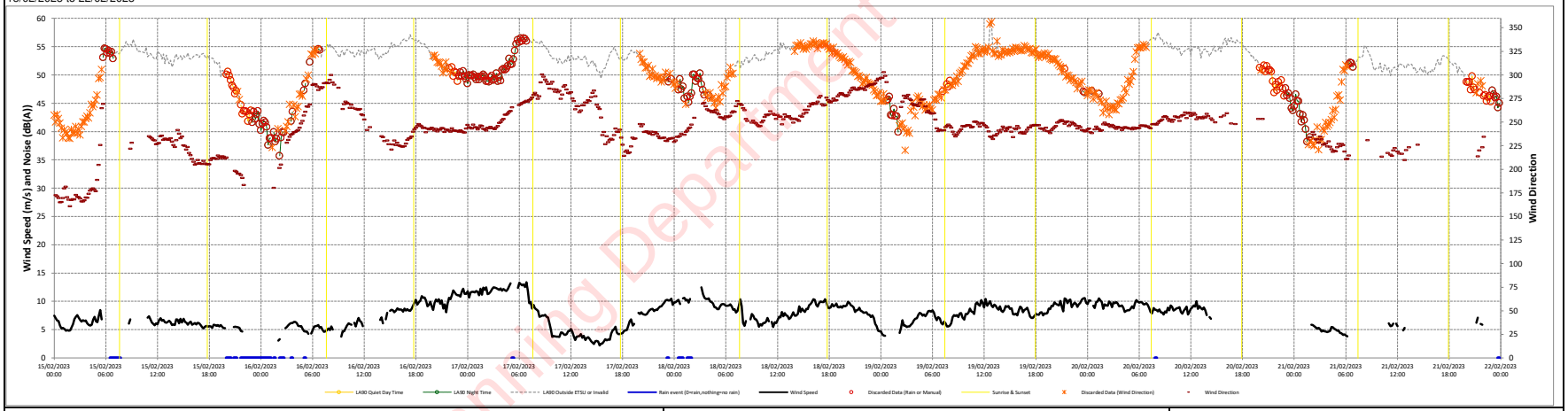


Project	Kellystown Wind Farm	
Client	Kellystown Wind Farm Limited	
Title	Time Series for NML4 Page 6 of 6	
Date	29/05/2024	

08/02/2023 to 15/02/2023

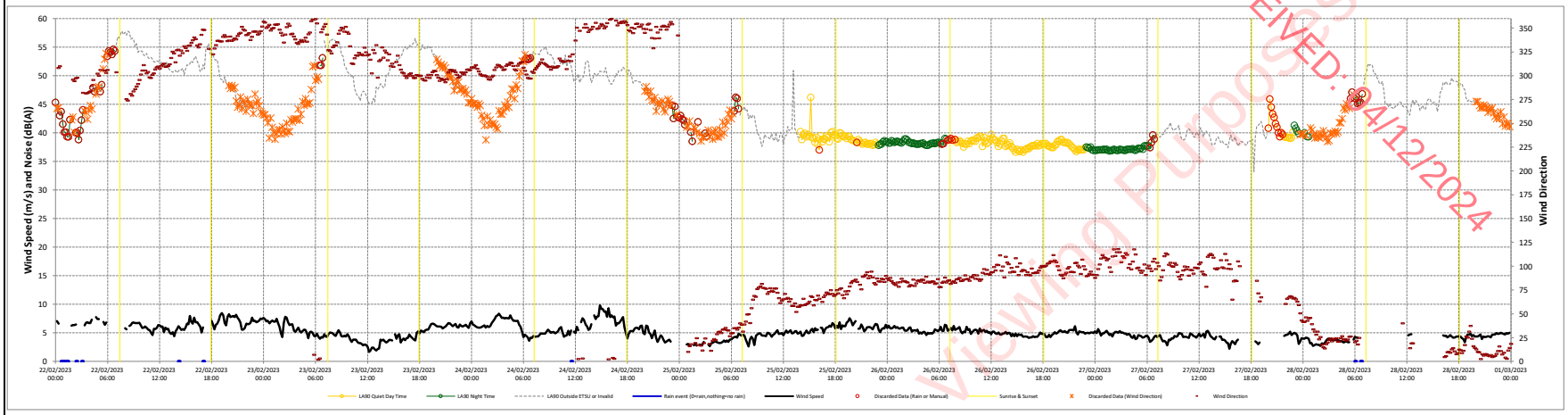


15/02/2023 to 22/02/2023

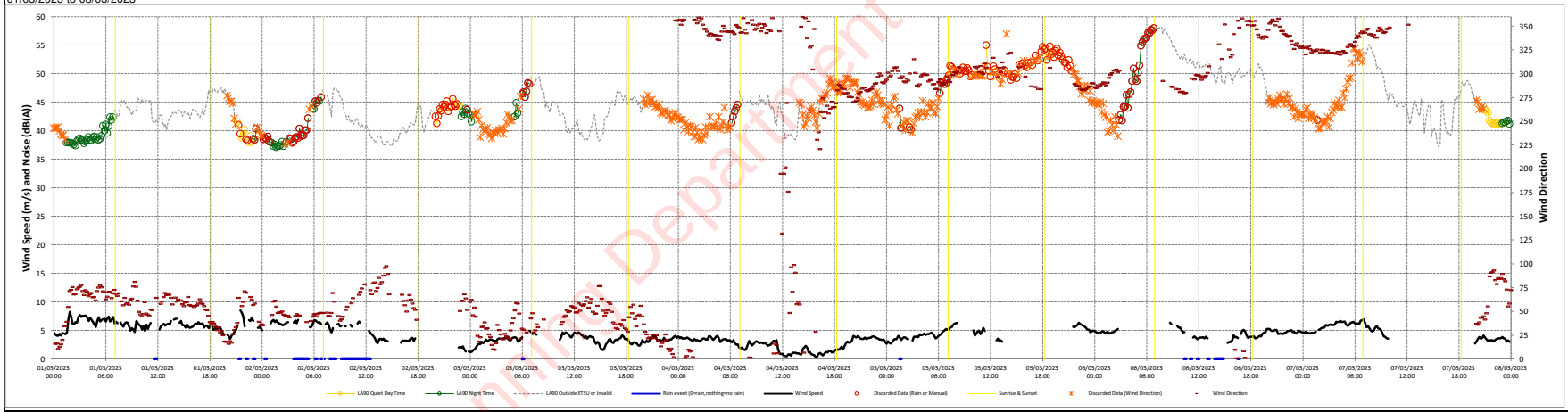


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML5 Page 1 of 6
Date	29/05/2024

22/02/2023 to 01/03/2023

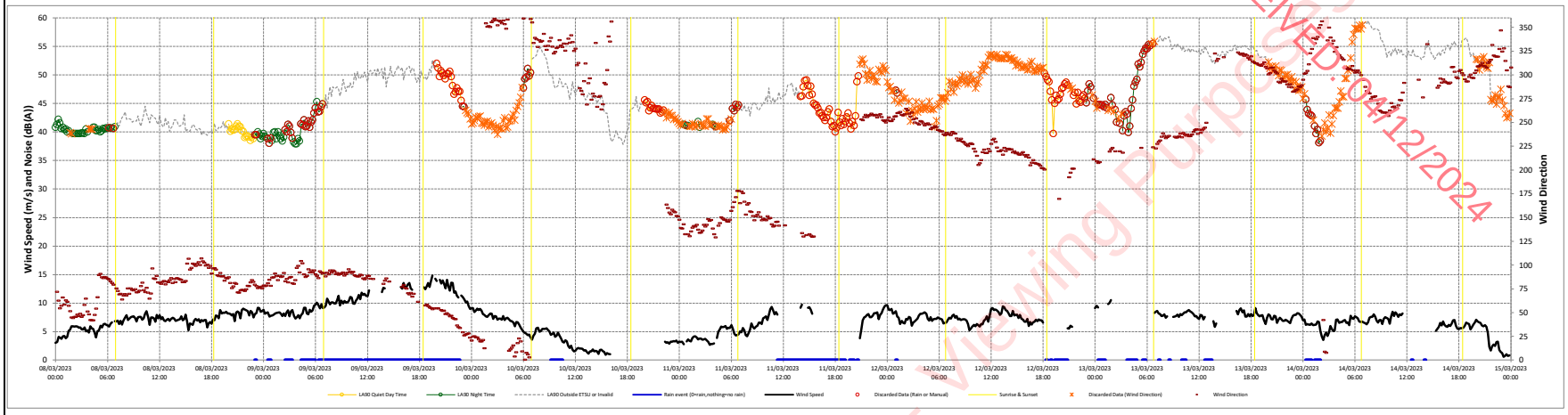


01/03/2023 to 08/03/2023

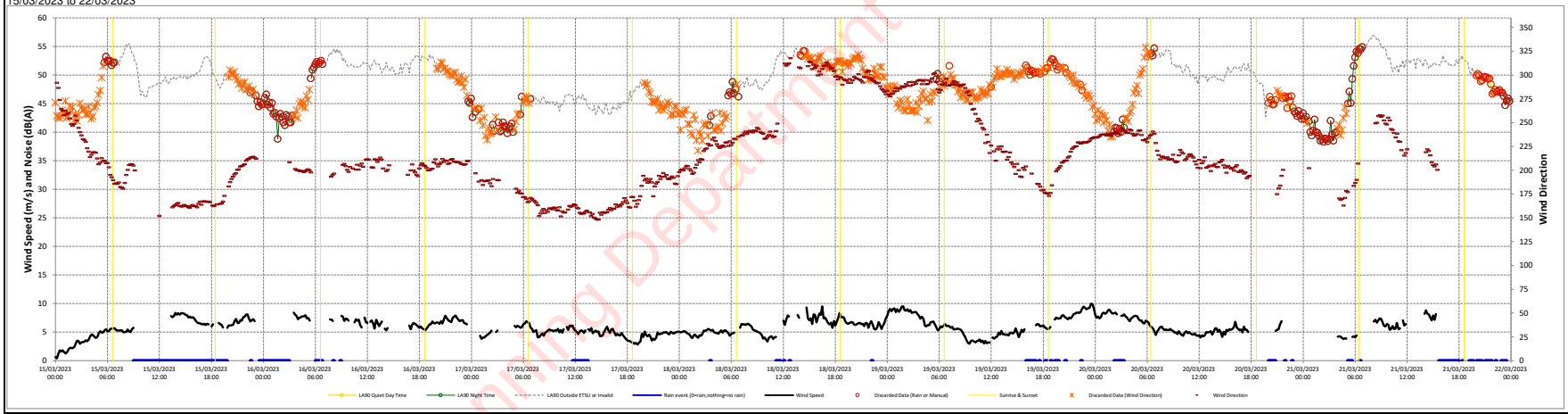


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML5 Page 2 of 6
Date	29/05/2024

08/03/2023 to 15/03/2023

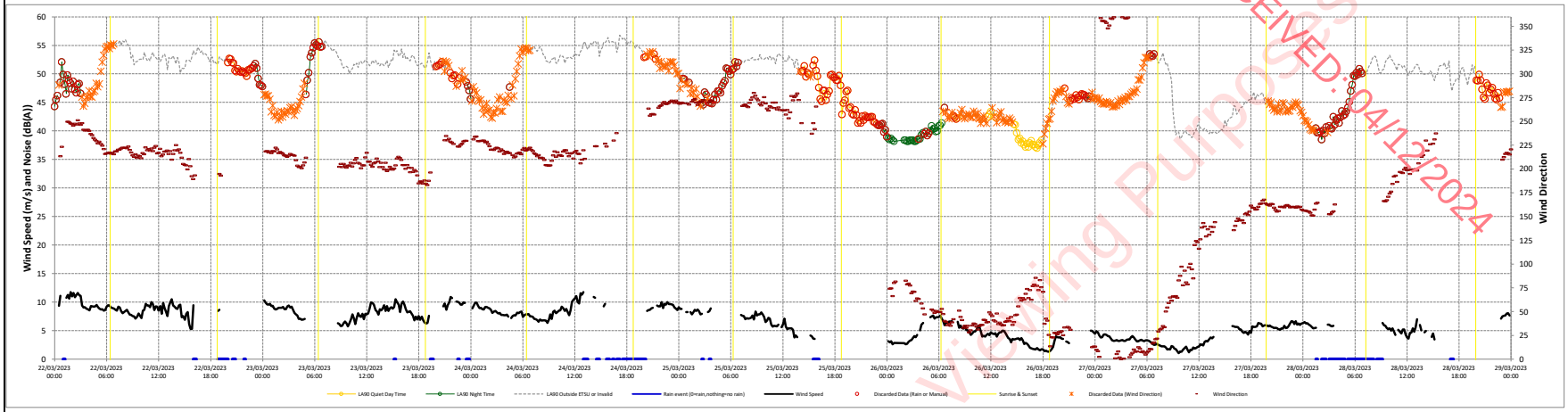


15/03/2023 to 22/03/2023

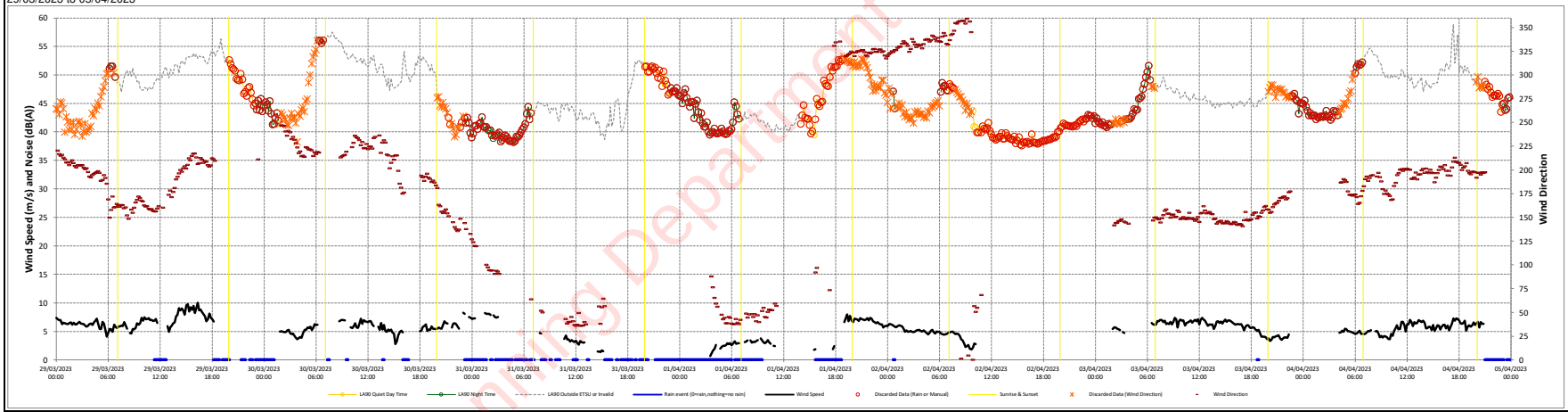


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML5 Page 3 of 6
Date	29/05/2024

22/03/2023 to 29/03/2023

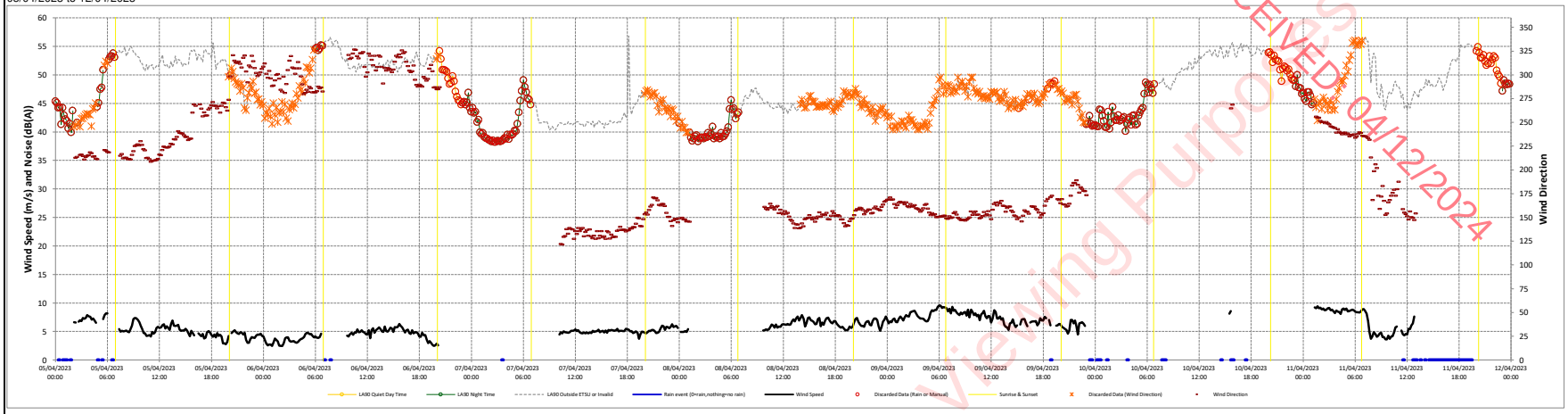


29/03/2023 to 05/04/2023

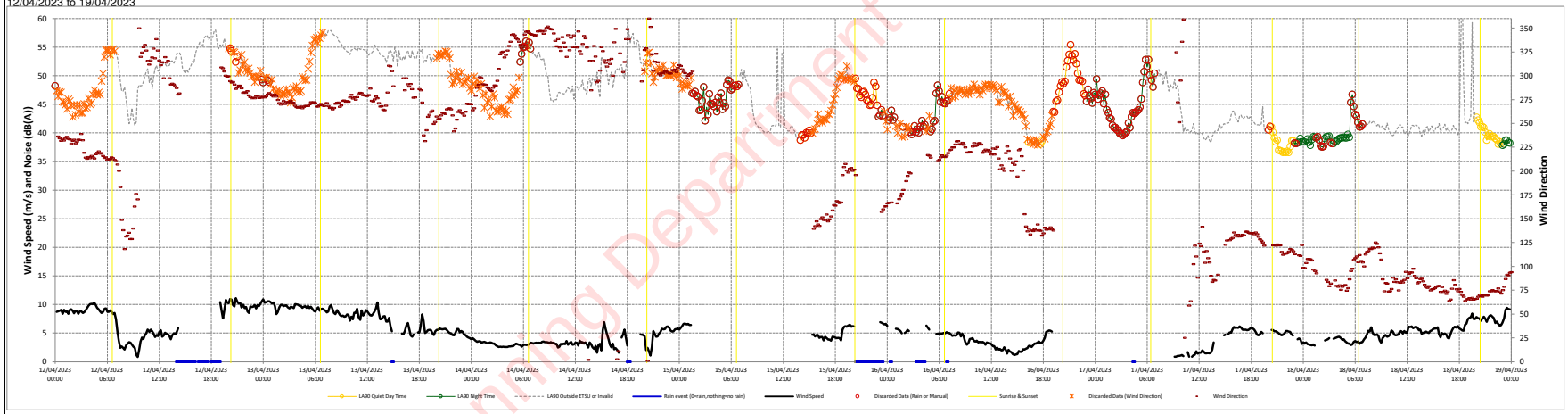


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML5 Page 4 of 6
Date	29/05/2024

05/04/2023 to 12/04/2023



12/04/2023 to 19/04/2023



Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Series for NML5 Page 5 of 6
Date	29/05/2024

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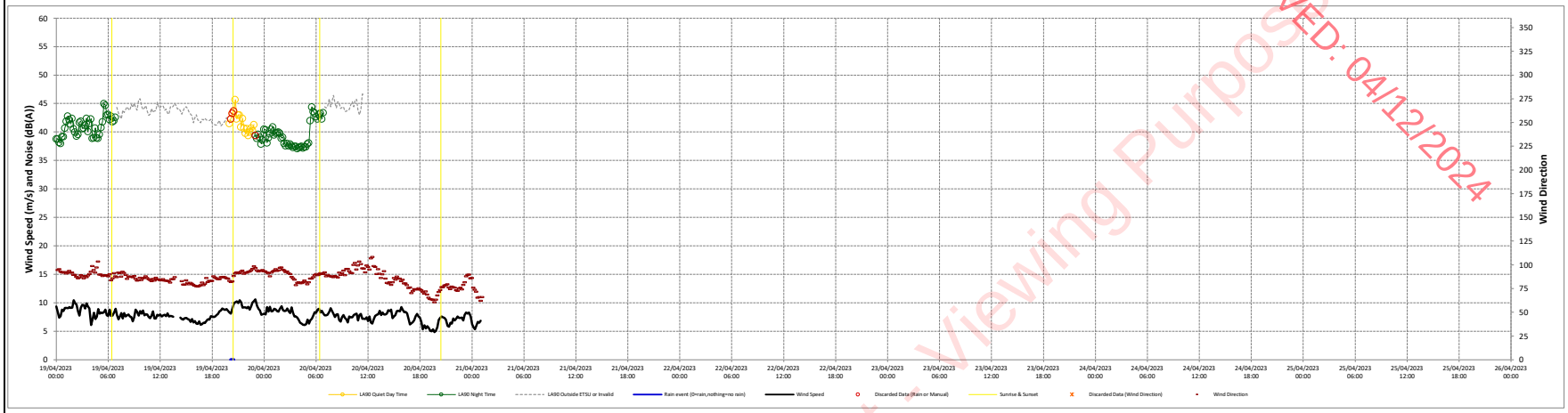
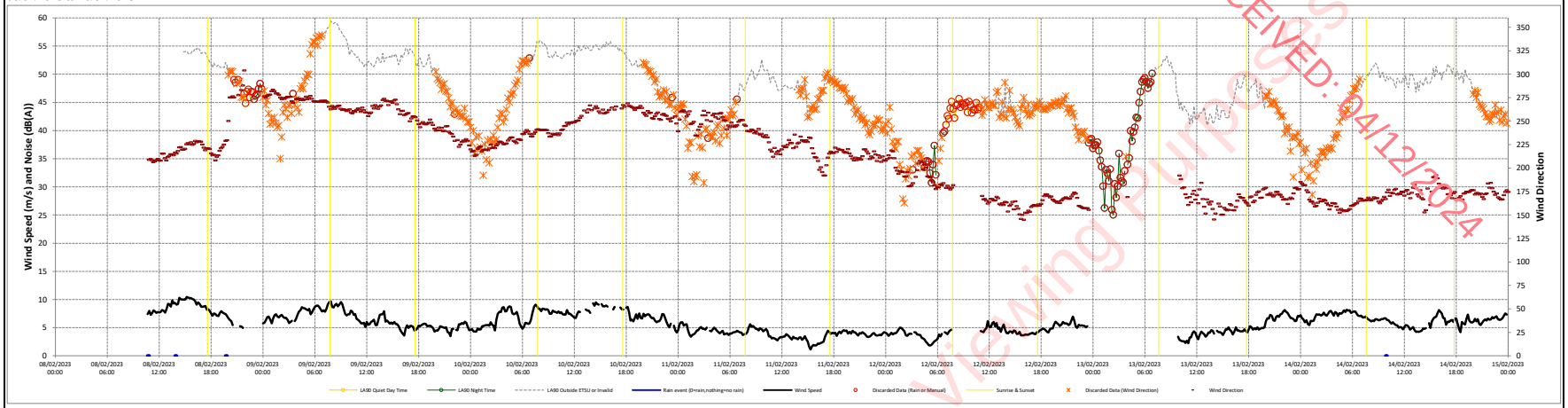
19/04/2023 to 26/04/2023

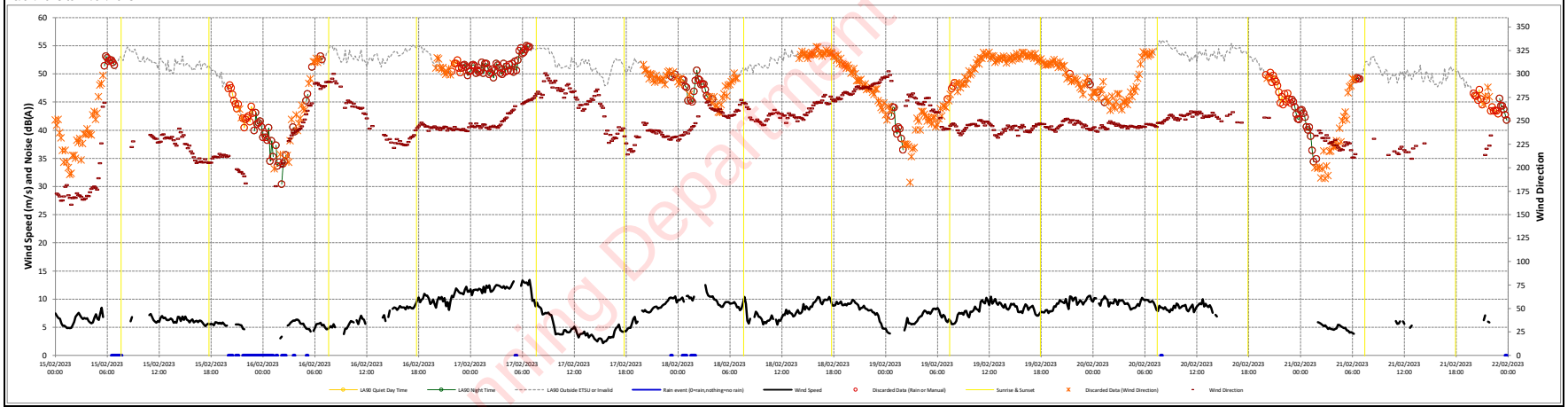


Project	Kellystown Wind Farm	
Client	Kellystown Wind Farm Limited	
Title	Time Series for NML5 Page 6 of 6	
Date	29/05/2024	

08/02/2023 to 15/02/2023



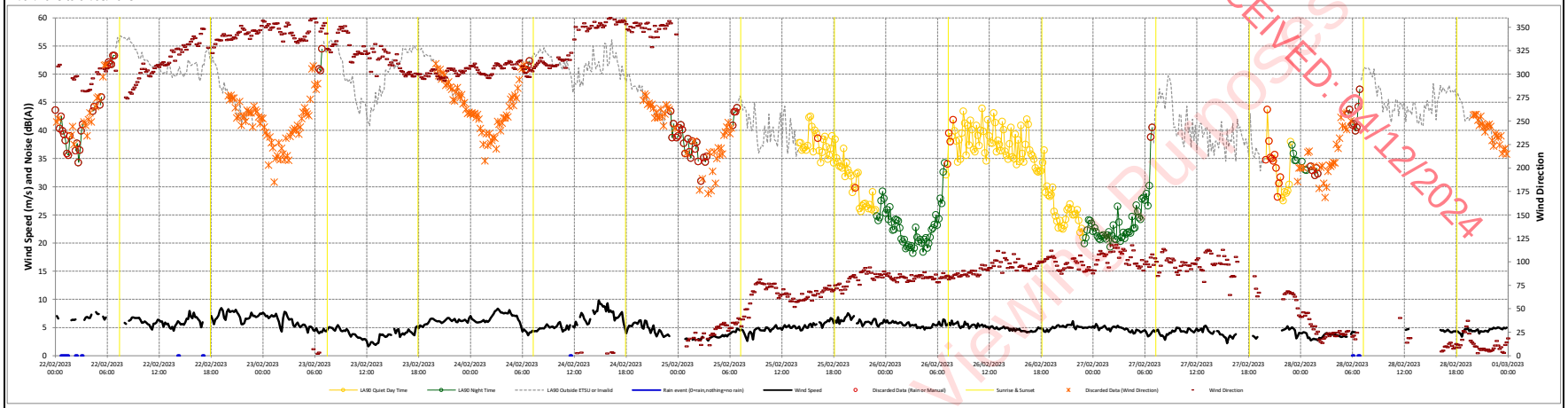
15/02/2023 to 22/02/2023



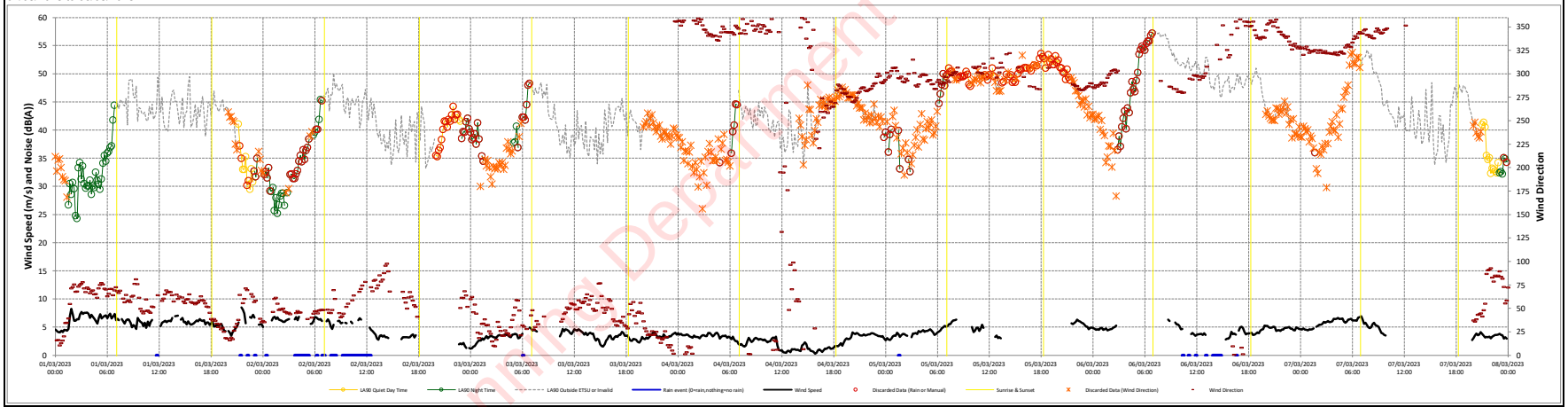
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML6 Page 1 of 6
Date	21/08/2024

tnei

22/02/2023 to 01/03/2023



01/03/2023 to 08/03/2023



Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML6 Page 2 of 6
Date	21/08/2024

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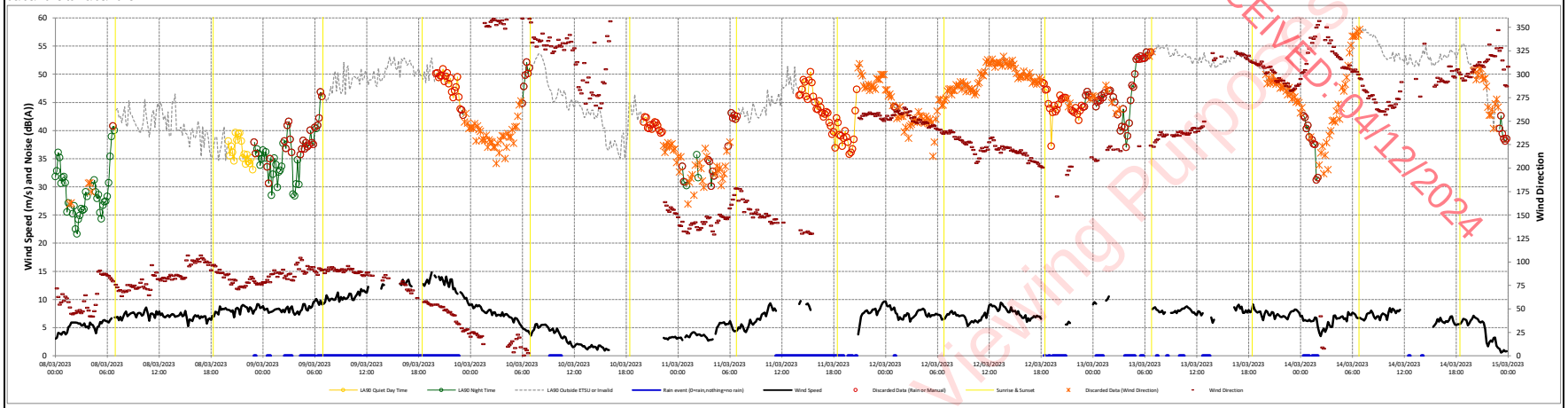
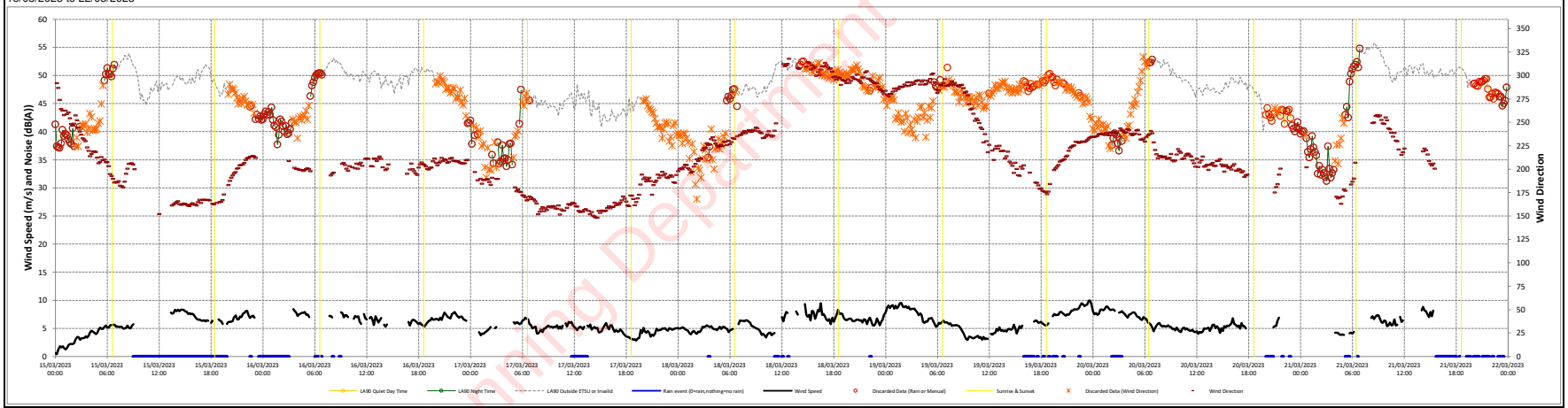
08/03/2023 to 15/03/2023



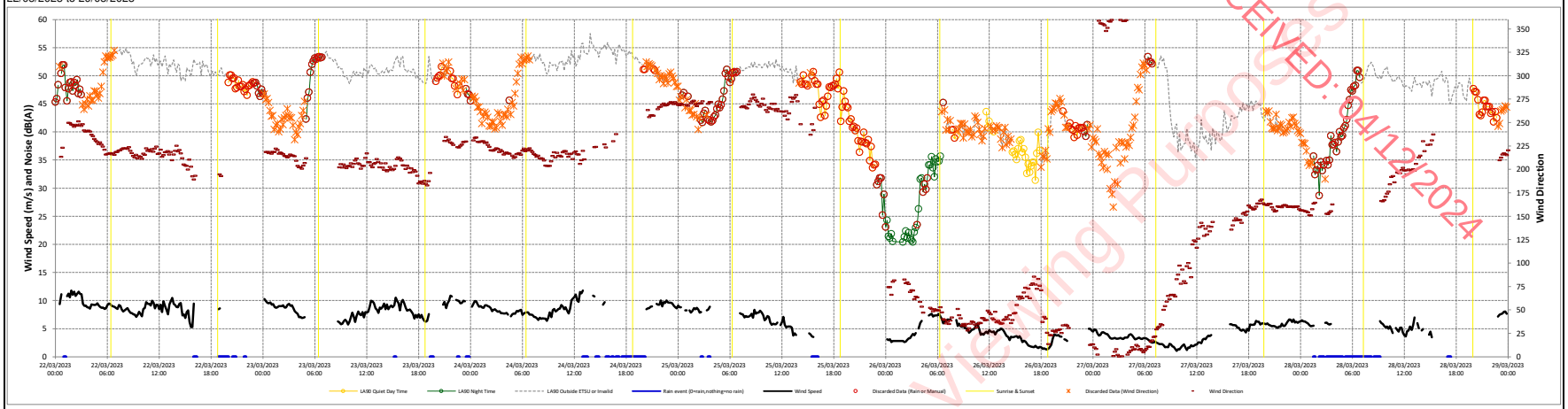
15/03/2023 to 22/03/2023



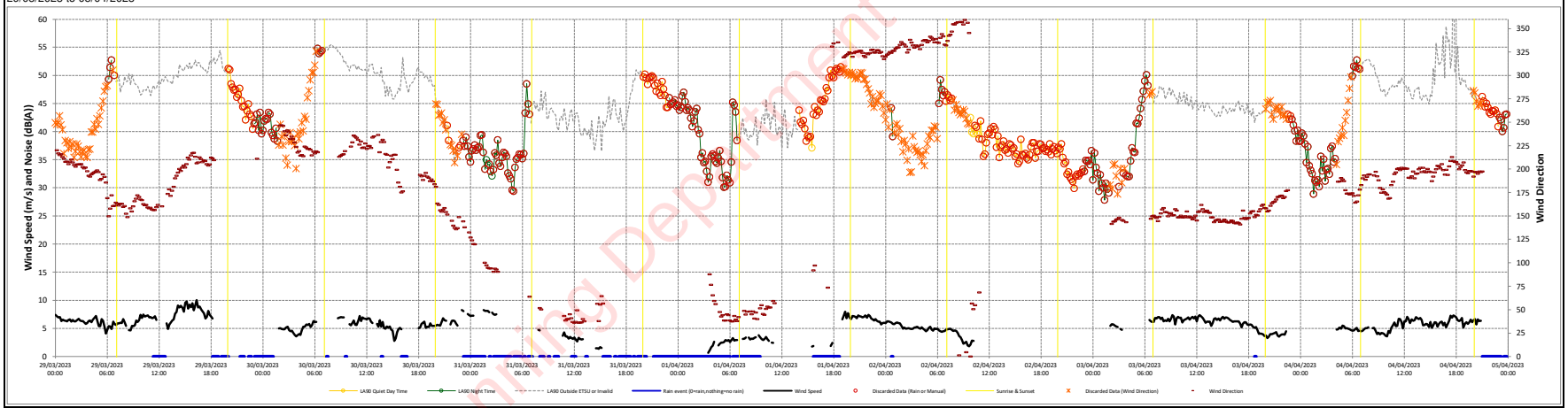
Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML6 Page 3 of 6
Date	21/08/2024

tnei

22/03/2023 to 29/03/2023



29/03/2023 to 05/04/2023



Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML6 Page 4 of 6
Date	21/08/2024

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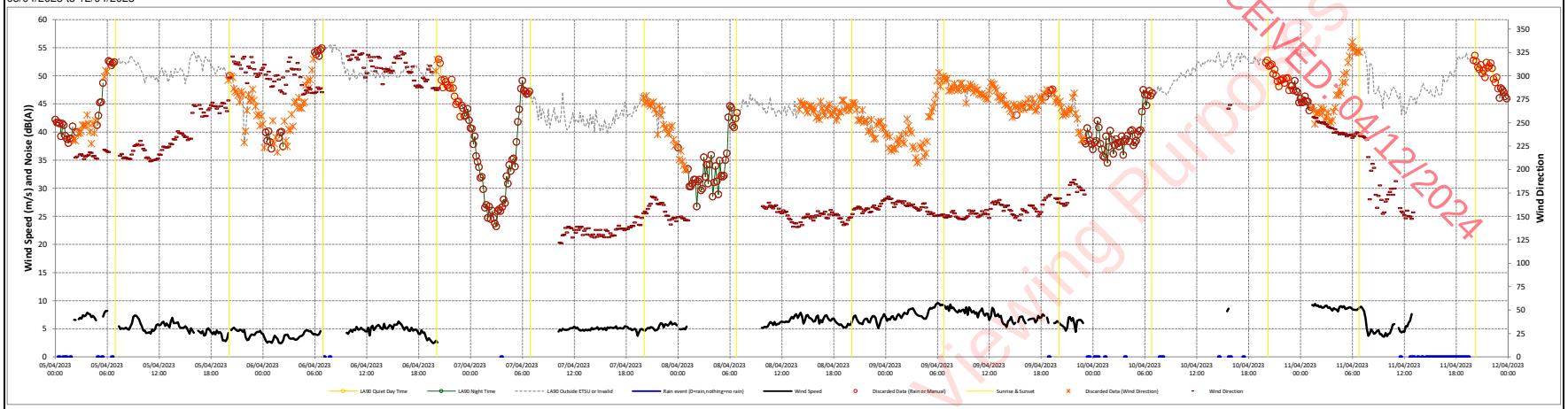
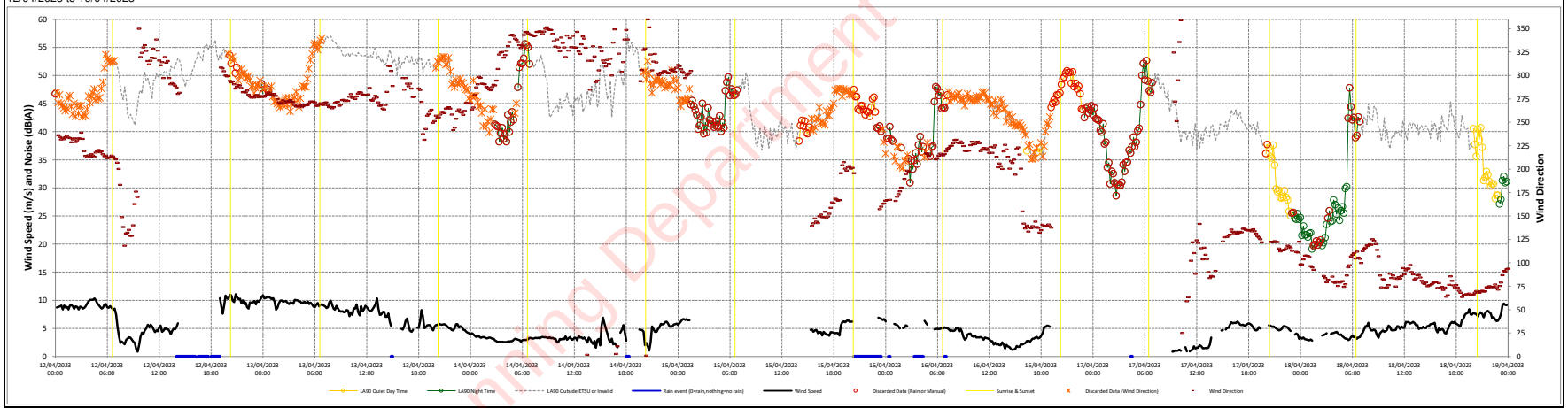
05/04/2023 to 12/04/2023



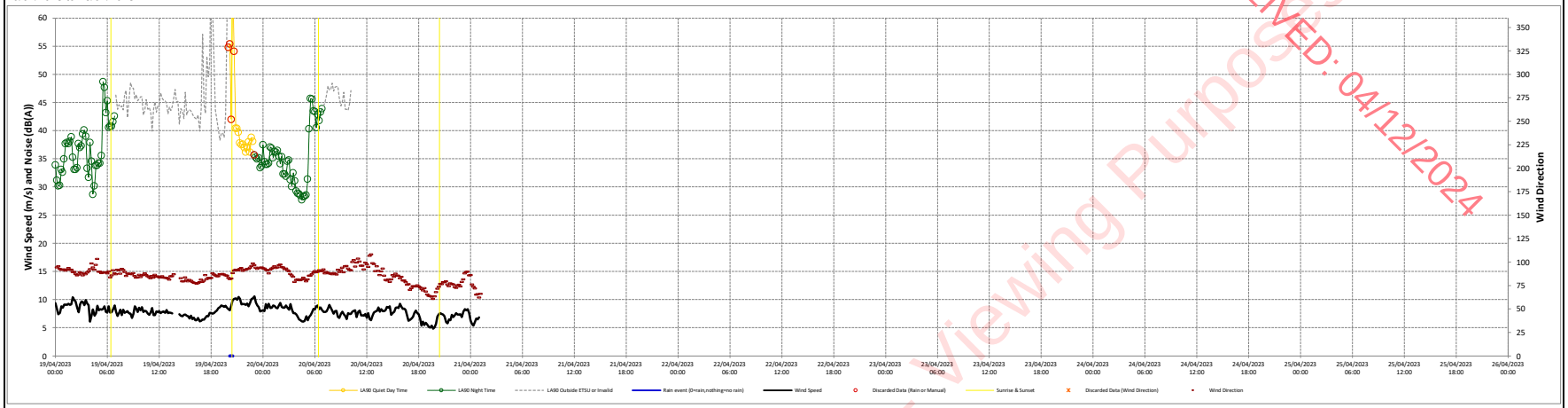
12/04/2023 to 19/04/2023



Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML6 Page 5 of 6
Date	21/08/2024

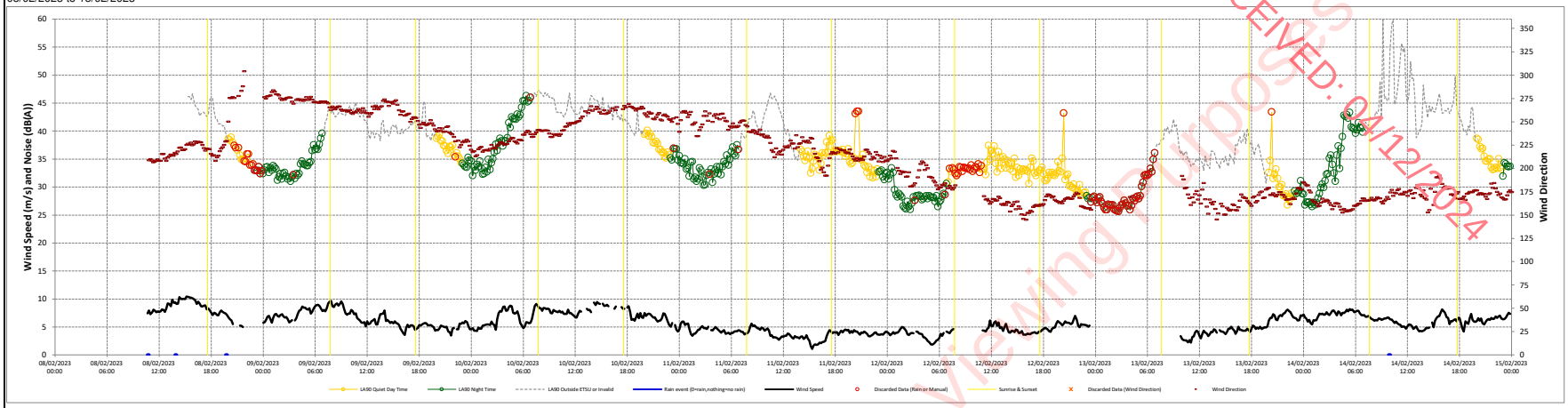
tnei

19/04/2023 to 26/04/2023

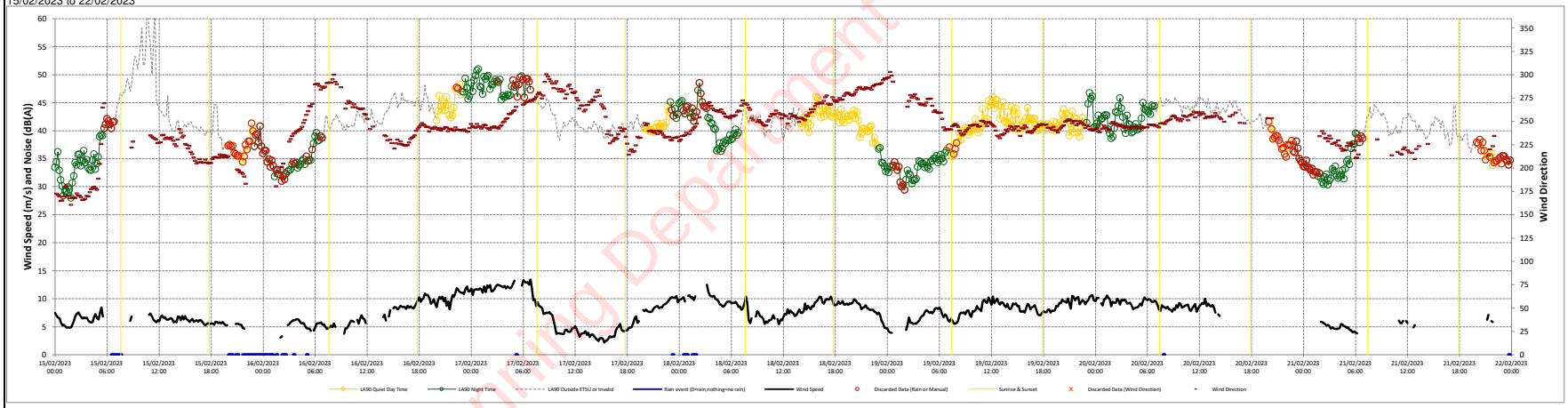


Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML6 Page 6 of 6
Date	21/08/2024

08/02/2023 to 15/02/2023



15/02/2023 to 22/02/2023



Project	Kellystown Wind Farm
Client	Kellystown Wind Farm Limited
Title	Time Serie for NML7 Page 1 of 6
Date	21/08/2024

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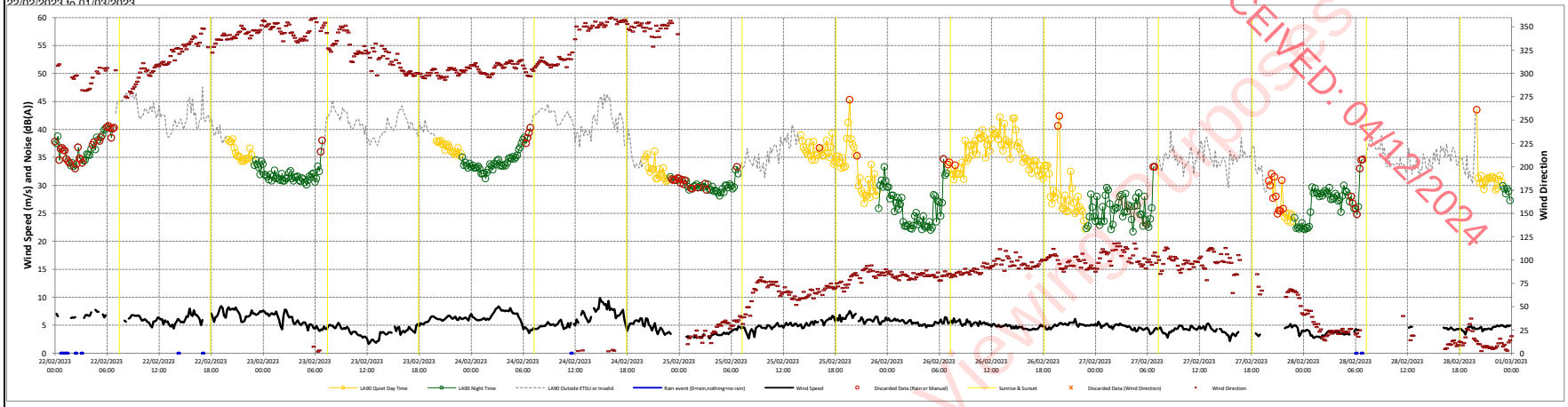
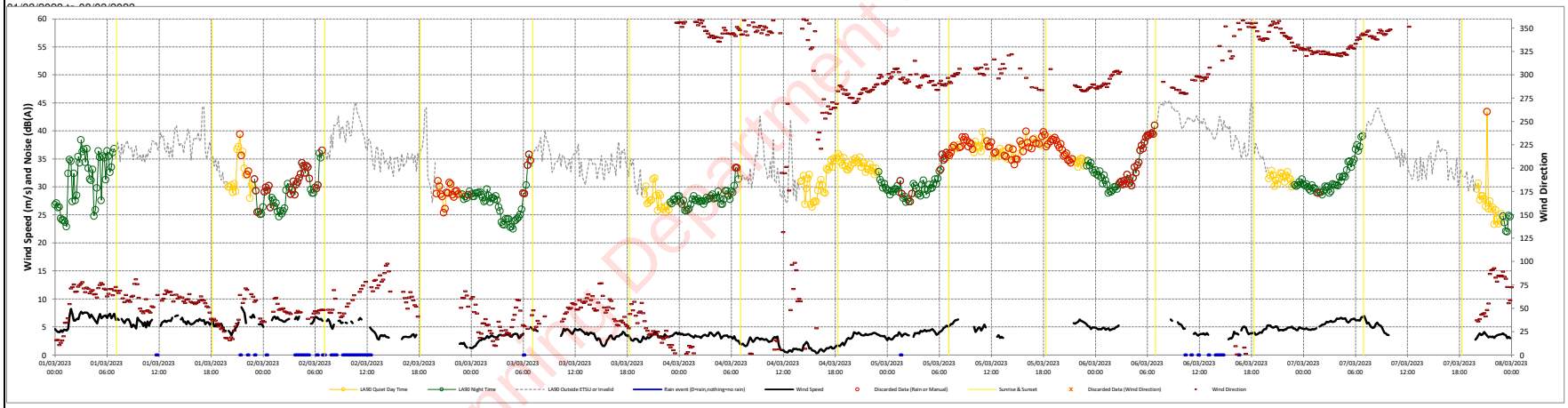
22/02/2023 to 01/03/2023





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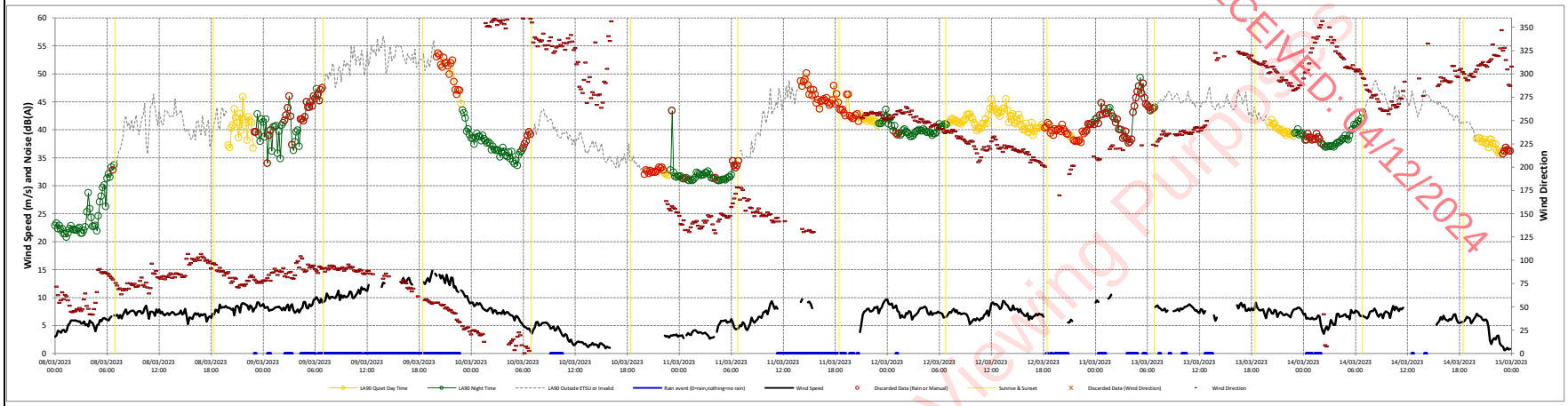

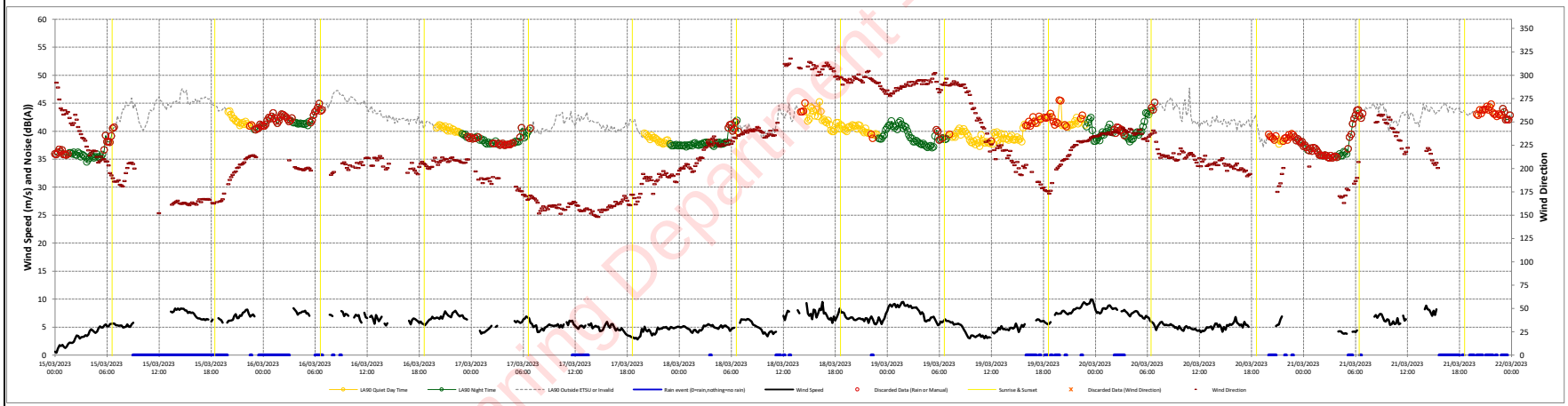

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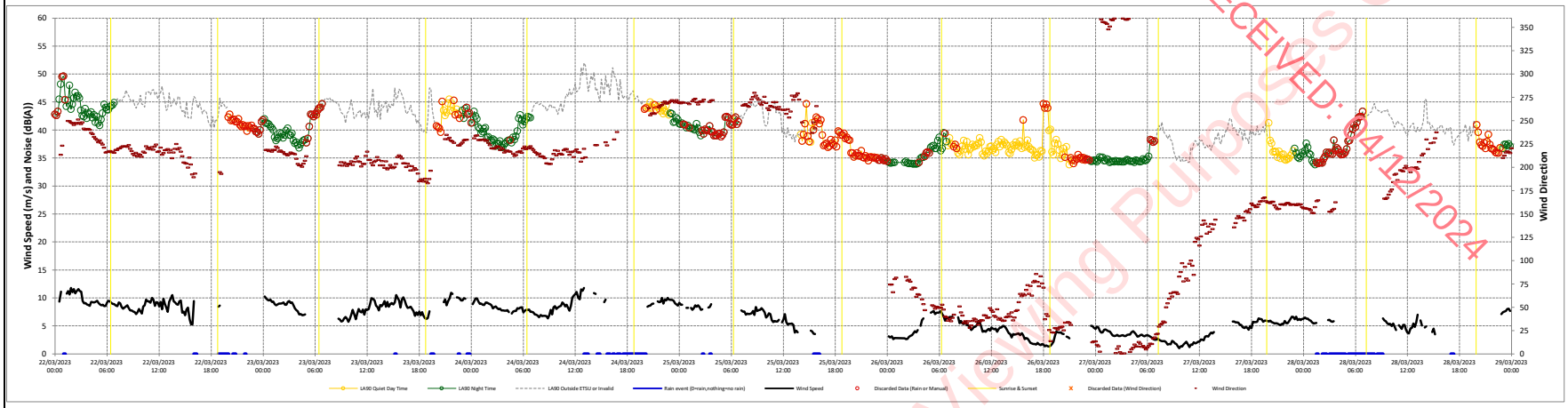

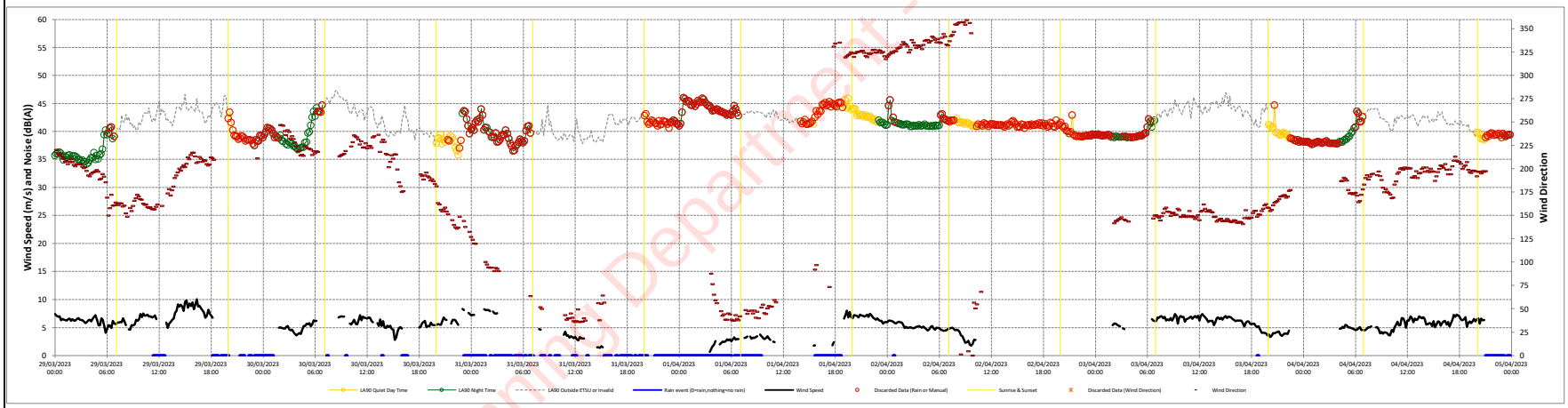

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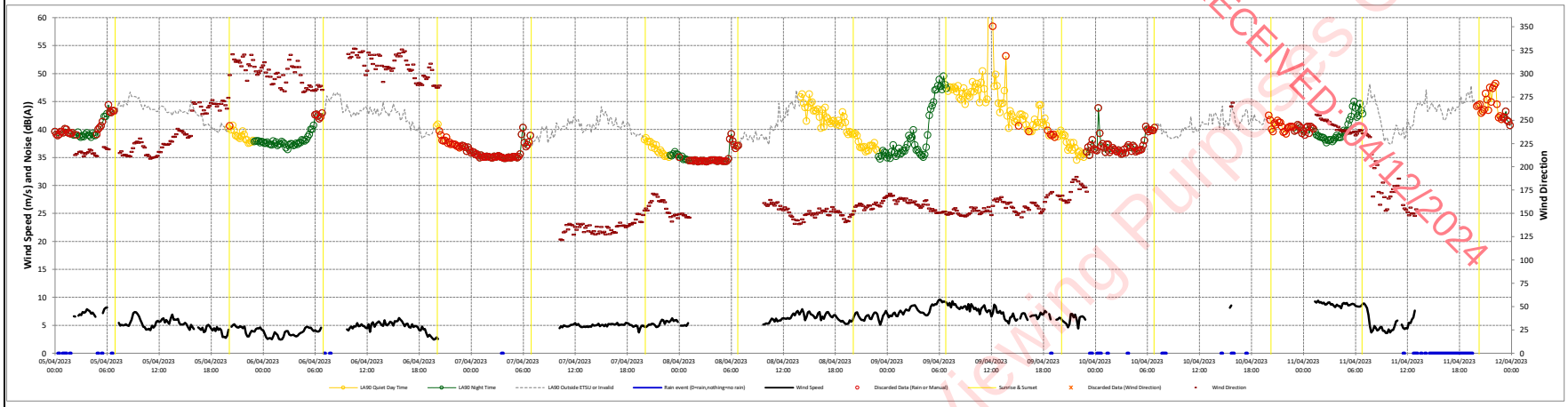

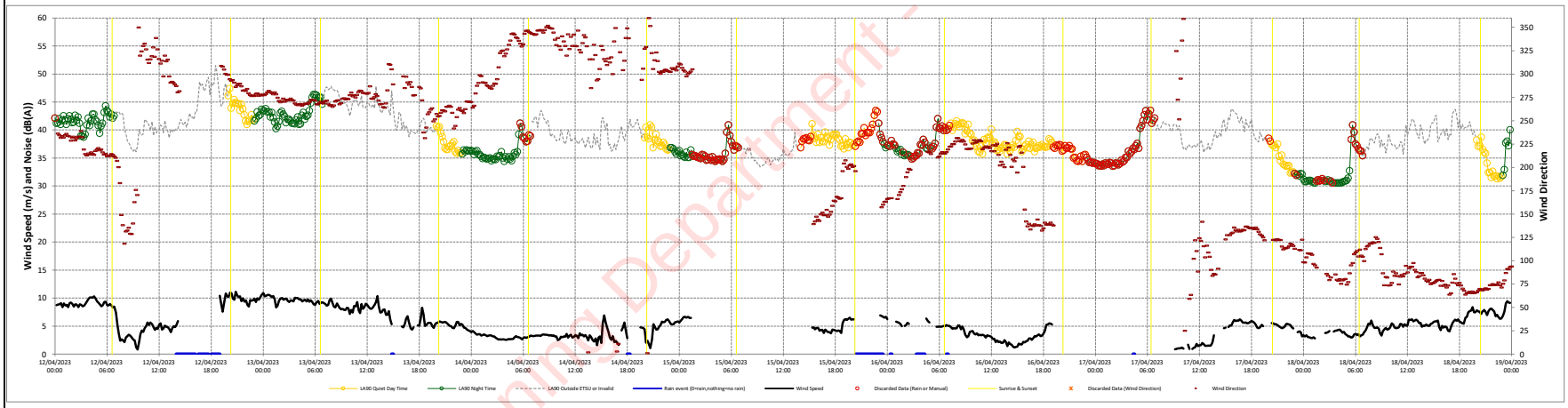

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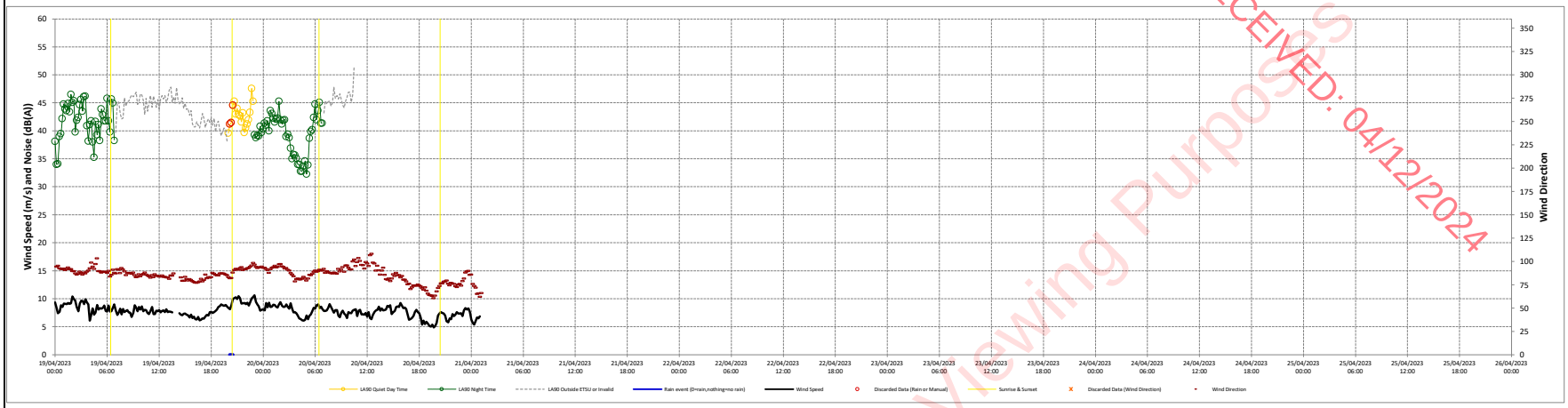

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Annex 5 – NSR Coordinates and Prediction Modelling Results

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H1	709505	784550	88	NML1	No
H2	709367	784550	88	NML1	No
H3	707206	782871	126	NML4	No
H4	707318	782870	130	NML4	No
H5	707444	781961	141	NML4	No
H6	707513	781507	160	NML4	No
H7	707383	781906	144	NML4	No
H8	705584	783319	102	NML5	No
H9	705744	783414	100	NML5	No
H10	705902	783048	120	NML5	No
H11	708134	781146	125	NML4	No
H12	706829	782649	129	NML4	No
H13	709591	783271	81	NML1	No
H14	709625	783428	82	NML1	Yes, NAL9
H15	709647	783479	83	NML1	No
H16	709657	783517	84	NML1	No
H17	709551	783895	95	NML1	No
H18	709459	783967	95	NML1	No
H19	709386	784693	83	NML1	No
H20	709354	784771	78	NML1	No
H21	709398	784820	74	NML1	No
H22	709114	784973	73	NML7	No
H23	709077	784968	74	NML7	No
H24	708564	785327	78	NML7	No
H25	709371	785841	65	NML1	No
H26	709336	785853	65	NML1	No
H27	709496	782453	88	NML3	No
H28	709526	782458	87	NML3	No
H29	709557	782461	86	NML3	No
H30	709649	782293	85	NML3	No
H31	707754	784932	85	NML7	No
H32	707338	785150	88	NML7	No
H33	707139	784828	106	NML7	No
H34	710397	782450	62	NML3	No
H35	705824	784510	82	NML6	No
H36	705550	783314	103	NML5	No
H37	705812	785050	75	NML6	No
H38	707240	781305	179	NML4	No
H39	707528	781402	161	NML4	No
H40	707291	781712	155	NML4	No
H41	707540	782027	136	NML4	No
H42	707674	782146	130	NML4	No
H43	708690	781931	115	NML4	No
H44	709175	781337	87	NML4	No
H45	707126	782653	127	NML4	No
H46	707344	782894	130	NML4	Yes, NAL14
H47	706698	782663	127	NML4	No
H48	706639	782666	126	NML4	No
H49	709674	783593	85	NML1	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H50	708565	784842	80	NML7	No
H51	707289	785222	91	NML7	No
H52	707364	785327	86	NML7	No
H53	706194	785494	87	NML6	No
H54	706039	784628	89	NML6	No
H55	707042	784741	106	NML7	No
H56	707077	784751	106	NML7	No
H57	705927	784462	80	NML6	No
H58	705705	784510	87	NML6	No
H59	705521	784573	87	NML6	No
H60	705656	784393	93	NML6	No
H61	705616	784300	99	NML6	No
H62	706612	783934	101	NML5	Yes, NAL1
H63	705816	783140	113	NML5	No
H64	706071	785473	86	NML6	No
H65	706123	785479	87	NML6	No
H66	706349	783922	92	NML5	No
H67	705540	784312	100	NML6	No
H68	705596	784822	75	NML6	No
H69	708136	785009	82	NML7	No
H70	708483	784848	80	NML7	No
H71	708669	784739	80	NML7	Yes, NAL5
H72	709294	784805	76	NML1	No
H73	709311	784893	74	NML1	No
H74	709363	785756	63	NML1	No
H75	709335	785767	64	NML1	No
H76	709291	785868	65	NML1	No
H77	707293	785144	90	NML7	No
H78	707340	784844	97	NML7	No
H79	707301	784792	99	NML7	No
H80	707252	784779	100	NML7	No
H81	709390	784492	89	NML1	No
H82	709503	783935	95	NML1	No
H83	709610	783744	93	NML1	No
H84	709573	783753	94	NML1	No
H85	709535	783765	95	NML1	No
H86	709484	783778	95	NML1	No
H87	708177	781136	123	NML4	No
H88	707792	781047	133	NML4	No
H89	707456	781117	152	NML4	No
H90	707203	781303	178	NML4	No
H91	707245	781206	170	NML4	No
H92	707415	781706	152	NML4	No
H93	709577	781624	80	NML4	No
H94	709574	781659	80	NML4	No
H95	709571	781704	82	NML4	No
H96	709565	781730	83	NML4	No
H97	709652	781734	80	NML4	No
H98	710271	782572	67	NML3	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H99	710392	782695	67	NML3	No
H100	710154	782410	71	NML3	No
H101	710096	782415	72	NML3	No
H102	709782	782400	82	NML3	No
H103	709653	782327	85	NML3	No
H104	709486	782375	89	NML3	No
H105	709265	782119	94	NML4	No
H106	709201	781889	100	NML4	No
H107	709196	781773	100	NML4	No
H108	709275	782875	91	NML2	No
H109	709266	782972	91	NML2	Yes, NAL10
H110	709289	783047	90	NML2	No
H111	710003	783760	85	NML1	No
H112	709324	783893	100	NML1	No
H113	709411	783875	100	NML1	No
H114	709463	783861	98	NML1	No
H115	709255	783893	100	NML1	Yes, NAL8
H116	709467	784495	90	NML1	No
H117	709282	784741	79	NML1	No
H118	707145	784976	104	NML7	No
H119	708308	786067	60	NML7	No
H120	705922	783376	105	NML5	No
H121	705963	783038	120	NML5	No
H122	709536	781439	79	NML4	No
H123	706804	782632	129	NML4	No
H124	706066	782611	126	NML5	No
H125	706111	785544	85	NML6	No
H126	707126	785263	95	NML7	No
H127	709426	784111	92	NML1	No
H128	709392	785462	65	NML1	No
H129	708305	782018	121	NML4	No
H130	708330	782064	123	NML4	No
H131	708379	782060	124	NML4	No
H132	708418	782035	124	NML4	No
H133	708356	782014	121	NML4	No
H134	708578	782087	121	NML4	No
H135	709648	781687	79	NML4	No
H136	709004	781720	103	NML4	No
H137	709126	781613	95	NML4	No
H138	707259	782477	127	NML4	No
H139	709611	781494	79	NML4	No
H140	707668	782062	131	NML4	No
H141	707304	781411	176	NML4	No
H142	706657	781789	156	NML4	No
H143	707054	782762	124	NML4	No
H144	709238	784049	100	NML1	No
H145	709146	784894	75	NML7	No
H146	709081	784786	78	NML7	No
H147	707624	782023	133	NML4	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H148	708458	786104	61	NML7	No
H149	709179	781738	99	NML4	No
H150	708515	785357	75	NML7	No
H151	709357	784502	87	NML1	No
H152	709311	785254	65	NML1	No
H153	708444	781087	111	NML4	No
H154	705947	782729	123	NML5	No
H155	705470	784531	89	NML6	No
H156	707342	784881	97	NML7	No
H157	707342	784908	98	NML7	No
H158	707196	784755	102	NML7	Yes, NAL3
H159	709256	785880	65	NML1	No
H160	708205	782041	120	NML4	No
H161	708510	781960	120	NML4	No
H162	707719	782168	130	NML4	No
H163	707234	784825	102	NML7	No
H164	709237	781637	94	NML4	No
H165	709111	781063	90	NML4	No
H166	709367	784069	95	NML1	No
H167	709307	784515	85	NML1	No
H168	709352	785081	70	NML1	No
H169	707979	784969	84	NML7	No
H170	709169	784987	72	NML7	No
H171	709496	785693	60	NML1	No
H172	709460	785707	60	NML1	No
H173	709467	785745	60	NML1	No
H174	709433	785761	62	NML1	No
H175	709934	784020	83	NML1	No
H176	709387	784150	93	NML1	No
H177	709340	784164	95	NML1	No
H178	709318	784178	95	NML1	No
H179	709215	784252	97	NML1	Yes, NAL7
H180	709312	784556	85	NML1	No
H181	709279	784682	81	NML1	Yes, NAL6
H182	709116	784922	74	NML7	No
H183	709082	784914	75	NML7	No
H184	709070	784913	75	NML7	No
H185	708707	785255	80	NML7	No
H186	708216	784924	83	NML7	No
H187	707874	784854	90	NML7	Yes, NAL4
H188	708178	784996	82	NML7	No
H189	708305	784969	80	NML7	No
H190	709818	785414	62	NML1	No
H191	709402	785500	65	NML1	No
H192	709405	785518	65	NML1	No
H193	709453	785665	61	NML1	No
H194	709456	785693	60	NML1	No
H195	705544	784509	90	NML6	No
H196	705680	784453	89	NML6	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H197	705657	784572	86	NML6	No
H198	705651	784873	75	NML6	No
H199	706010	785393	85	NML6	No
H200	705999	784823	92	NML6	No
H201	708974	781721	104	NML4	No
H202	708947	781729	105	NML4	No
H203	708977	781847	110	NML4	No
H204	708935	781765	106	NML4	No
H205	708905	781831	109	NML4	No
H206	708838	781781	107	NML4	No
H207	708796	781872	111	NML4	No
H208	708636	781939	116	NML4	No
H209	708397	782002	121	NML4	No
H210	708267	782013	120	NML4	No
H211	708078	782066	122	NML4	No
H212	707212	781200	169	NML4	No
H213	707323	781217	171	NML4	No
H214	707484	781251	162	NML4	No
H215	708081	781151	125	NML4	No
H216	708031	781228	128	NML4	No
H217	707920	781237	136	NML4	No
H218	707831	781155	136	NML4	No
H219	707748	781065	135	NML4	No
H220	707681	781206	148	NML4	No
H221	707513	781338	163	NML4	No
H222	707561	781590	150	NML4	No
H223	707469	781664	155	NML4	No
H224	707425	781885	143	NML4	No
H225	707542	781969	137	NML4	No
H226	707609	782297	128	NML4	Yes, NAL13
H227	707268	782879	128	NML4	No
H228	706805	782611	129	NML4	No
H229	705896	783448	104	NML5	No
H230	705841	783863	98	NML5	No
H231	705887	784475	80	NML6	No
H232	706014	784437	80	NML6	No
H233	706701	784453	95	NML6	Yes, NAL2
H234	707338	784807	98	NML7	No
H235	707506	784843	95	NML7	No
H236	707514	784845	95	NML7	No
H237	708102	782128	122	NML4	No
H238	708956	782454	110	NML3	No
H239	709290	782312	96	NML3	No
H240	709136	781735	100	NML4	No
H241	709182	781682	97	NML4	No
H242	709642	783733	92	NML1	No
H243	709515	783040	86	NML2	No
H244	709454	782822	90	NML2	No
H245	709444	782792	90	NML2	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H246	705567	784809	75	NML6	No
H247	705638	783305	103	NML5	No
H248	705640	784350	96	NML6	No
H249	705650	784374	94	NML6	No
H250	705583	784500	89	NML6	No
H251	705613	784489	89	NML6	No
H252	705712	784727	76	NML6	No
H253	705654	784815	75	NML6	No
H254	705800	784781	81	NML6	No
H255	705868	785262	74	NML6	No
H256	705937	785412	80	NML6	No
H257	705962	785280	79	NML6	No
H258	709053	781852	109	NML4	No
H259	709046	781725	103	NML4	No
H260	708843	782018	111	NML4	No
H261	708760	781877	112	NML4	No
H262	708726	781912	114	NML4	No
H263	708535	781883	114	NML4	No
H264	708421	781927	117	NML4	No
H265	708252	782077	120	NML4	Yes, NAL12
H266	708233	782021	120	NML4	No
H267	708187	782044	120	NML4	No
H268	708163	782093	120	NML4	No
H269	707974	782092	125	NML4	No
H270	707933	782103	126	NML4	No
H271	707283	781361	179	NML4	No
H272	707284	781205	170	NML4	No
H273	707360	781320	176	NML4	No
H274	707423	781321	171	NML4	No
H275	707786	781092	136	NML4	No
H276	707640	781305	153	NML4	No
H277	707609	781309	155	NML4	No
H278	707530	781439	160	NML4	No
H279	707518	781467	160	NML4	No
H280	707417	781420	171	NML4	No
H281	707445	781545	162	NML4	No
H282	707503	781557	157	NML4	No
H283	707479	781570	158	NML4	No
H284	707471	781630	156	NML4	No
H285	707466	781810	143	NML4	No
H286	707440	781835	143	NML4	No
H287	707401	781915	143	NML4	No
H288	707430	781935	142	NML4	No
H289	707570	781956	137	NML4	No
H290	707588	782057	134	NML4	No
H291	707733	782121	130	NML4	No
H292	707320	782445	126	NML4	No
H293	706989	782647	130	NML4	No
H294	706850	782679	127	NML4	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H295	706756	782676	127	NML4	No
H296	705706	783101	118	NML5	No
H297	705767	783216	109	NML5	No
H298	705798	783285	106	NML5	No
H299	705822	783531	101	NML5	No
H300	705842	783600	104	NML5	No
H301	705902	783694	103	NML5	No
H302	705896	783830	98	NML5	No
H303	705844	784342	90	NML6	No
H304	705959	784420	81	NML6	No
H305	706102	784637	88	NML6	No
H306	706407	784566	94	NML6	No
H307	706661	784461	95	NML6	No
H308	707151	784761	104	NML7	No
H309	707353	784818	97	NML7	No
H310	709200	781828	99	NML4	No
H311	709179	781595	93	NML4	No
H312	709659	783758	93	NML1	No
H313	709633	783663	88	NML1	No
H314	709653	783554	85	NML1	No
H315	709531	783091	85	NML2	No
H316	709503	783005	87	NML2	No
H317	709478	782944	88	NML2	No
H318	709508	782861	90	NML2	No
H319	709450	782849	90	NML2	No
H320	708598	781027	106	NML4	No
H321	709088	781130	89	NML4	No
H322	709157	781278	85	NML4	No
H323	708833	781031	97	NML4	No
H324	708900	781062	95	NML4	No
H325	709704	783834	95	NML1	No
H326	709694	782393	84	NML3	No
H327	709723	782432	82	NML3	No
H328	709807	782438	80	NML3	No
H329	709837	782477	78	NML3	No
H330	709987	782433	74	NML3	No
H331	710055	782422	73	NML3	No
H332	710299	782705	70	NML3	No
H333	709157	781422	90	NML4	No
H334	709700	783772	95	NML1	No
H335	709700	783800	95	NML1	No
H336	709734	783831	95	NML1	No
H337	709777	783823	94	NML1	No
H338	709888	783758	90	NML1	No
H339	709626	782417	85	NML3	No
H340	709655	782420	85	NML3	No
H341	710093	782469	72	NML3	No
H342	709164	781301	86	NML4	No
H343	709597	781764	82	NML4	No

Table A5.1: Noise Sensitive Receptors

Noise Sensitive Receptor (H)	Easting (m)	Northing (m)	Elevation (m AOD)	Background Noise Data Used	Is this NSR also an NAL?
H344	709643	781469	77	NML4	No
H345	708679	781011	104	NML4	No
H346	708399	781162	112	NML4	No
H347	706194	782621	123	NML5	No
H348	707491	781202	159	NML4	No
H349	709000	781085	92	NML4	No
H350	709665	783563	85	NML1	No
H351	708461	781151	110	NML4	No
H352	708290	782083	122	NML4	No
H353	705858	782712	124	NML5	No
H354	706252	785486	88	NML6	No
H355	705733	783152	114	NML5	No
H356	709492	783870	97	NML1	No
H357	710128	782412	71	NML3	No
H358	709404	783965	98	NML1	No
H359	709923	781772	69	NML4	No
H360	709659	781632	77	NML4	No
H361	709031	781787	107	NML4	No
H362	707629	781952	135	NML4	No
H363	709130	781697	99	NML4	No
H364	710258	783747	80	NML1	No
H365	710059	782479	72	NML3	No
H366	707240	781420	179	NML4	No
H367	709301	785032	71	NML1	No
H368	708915	781136	92	NML4	No
H369	709539	783850	95	NML1	No
H370	708323	781177	115	NML4	No
H371	708949	781069	94	NML4	No
H372	708942	781142	92	NML4	No
H373	708972	781153	91	NML4	No
H374	708781	782534	110	NML3	Yes, NAL11

*The co-ordinates presented here indicate the building centrepoint and therefore will differ from those presented within the main body of the report

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H1	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.4	30.8	35.1	36.4	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-18.6	-14.2	-9.9	-8.6	-8.5	-9.3	-12.0	-14.9	-14.9
H2	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.3	31.7	36.0	37.3	37.5	37.5	37.5	37.5	37.5
	Exceedance Level	-	-	-	-17.7	-13.3	-9.0	-7.7	-7.5	-8.3	-11.0	-13.9	-13.9
H3	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.2	38.5	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-16.5	-12.1	-7.8	-6.5	-6.3	-7.3	-9.4	-11.4	-11.4
H4	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	38.0	39.2	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-15.8	-11.4	-7.0	-5.8	-5.6	-6.6	-8.7	-10.7	-10.7
H5	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.3	35.3	35.3	35.3	35.3
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.7	-10.7	-12.8	-14.8	-14.8
H6	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-22.1	-17.7	-13.4	-12.1	-12.0	-13.0	-15.1	-17.1	-17.1
H7	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.0	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-16.0	-11.6	-10.3	-10.2	-11.2	-13.3	-15.3	-15.3
H8	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.2	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-24.1	-19.8	-15.4	-14.1	-14.0	-14.7	-16.1	-16.1	-16.1
H9	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.3	-18.9	-14.5	-13.2	-13.1	-13.8	-15.2	-15.2	-15.2
H10	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.7	32.0	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-23.0	-18.6	-14.3	-13.0	-12.9	-13.6	-15.0	-15.0	-15.0
H11	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.8	-14.5	-13.2	-13.1	-14.1	-16.2	-18.2	-18.2
H12	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.5	29.9	34.2	35.5	35.6	35.6	35.6	35.6	35.6
	Exceedance Level	-	-	-	-19.5	-15.1	-10.8	-9.5	-9.4	-10.4	-12.5	-14.5	-14.5
H13	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.4	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-16.9	-12.6	-8.2	-6.9	-6.8	-7.6	-10.3	-13.2	-13.2
H14	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-7.0	-7.8	-10.5	-13.4	-13.4
H15	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.7	32.1	36.5	37.7	37.9	37.9	37.9	37.9	37.9
	Exceedance Level	-	-	-	-17.3	-12.9	-8.5	-7.3	-7.1	-7.9	-10.6	-13.5	-13.5
H16	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-17.4	-13.0	-8.6	-7.3	-7.2	-8.0	-10.7	-13.6	-13.6
H17	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.8	38.1	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.9	-12.5	-8.2	-6.9	-6.7	-7.5	-10.2	-13.1	-13.1
H18	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.5	38.7	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-16.3	-11.9	-7.5	-6.3	-6.1	-6.9	-9.6	-12.5	-12.5
H19	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.9	35.2	36.5	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-18.5	-14.1	-9.8	-8.5	-8.4	-9.2	-11.9	-14.8	-14.8
H20	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.3	30.7	35.0	36.3	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-18.7	-14.3	-10.0	-8.7	-8.6	-9.4	-12.1	-15.0	-15.0
H21	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.2	34.5	35.8	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-19.2	-14.8	-10.5	-9.2	-9.1	-9.9	-12.6	-15.5	-15.5
H22	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.4	30.8	35.1	36.4	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-18.6	-14.2	-9.9	-8.6	-9.2	-11.0	-12.8	-14.5	-14.5

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H23	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.6	31.0	35.3	36.6	36.8	36.8	36.8	36.8	36.8
	Exceedance Level	-	-	-	-18.4	-14.0	-9.7	-8.4	-8.9	-10.7	-12.5	-14.2	-14.2
H24	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	25.6	30.0	34.3	35.6	35.7	35.7	35.7	35.7	35.7
	Exceedance Level	-	-	-	-19.4	-15.0	-10.7	-9.4	-10.0	-11.8	-13.6	-15.3	-15.3
H25	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-24.0	-19.6	-15.3	-14.0	-13.8	-14.6	-17.3	-20.2	-20.2
H26	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-24.0	-19.6	-15.2	-13.9	-13.8	-14.6	-17.3	-20.2	-20.2
H27	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.1	30.5	34.8	36.1	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-18.9	-14.5	-10.2	-8.9	-8.8	-10.5	-12.5	-14.1	-14.1
H28	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.9	30.3	34.7	35.9	36.1	36.1	36.1	36.1	36.1
	Exceedance Level	-	-	-	-19.1	-14.7	-10.3	-9.1	-8.9	-10.6	-12.6	-14.2	-14.2
H29	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.1	34.5	35.8	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-19.2	-14.9	-10.5	-9.2	-9.1	-10.8	-12.8	-14.4	-14.4
H30	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.6	28.9	33.3	34.6	34.7	34.7	34.7	34.7	34.7
	Exceedance Level	-	-	-	-20.4	-16.1	-11.7	-10.4	-10.3	-12.0	-14.0	-15.6	-15.6
H31	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.4	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-16.6	-12.2	-7.8	-6.6	-7.1	-8.9	-10.7	-12.4	-12.4
H32	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.1	30.5	34.9	36.1	36.3	36.3	36.3	36.3	36.3
	Exceedance Level	-	-	-	-18.9	-14.5	-10.1	-8.9	-9.4	-11.2	-13.0	-14.7	-14.7
H33	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.8	-12.4	-8.1	-6.8	-7.4	-9.2	-11.0	-12.7	-12.7
H34	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.2	-14.9	-13.6	-13.5	-15.2	-17.2	-18.8	-18.8
H35	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-23.1	-18.7	-14.4	-13.1	-12.9	-12.9	-12.9	-12.9	-12.9
H36	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.4	30.7	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-24.3	-19.9	-15.6	-14.3	-14.2	-14.9	-16.3	-16.3	-16.3
H37	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.6	25.0	29.4	30.7	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-24.4	-20.0	-15.6	-14.3	-14.2	-14.2	-14.2	-14.2	-14.2
H38	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.7	-19.3	-15.0	-13.7	-13.6	-14.6	-16.7	-18.7	-18.7
H39	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.5	-13.5	-15.6	-17.6	-17.6
H40	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.3	27.7	32.1	33.4	33.5	33.5	33.5	33.5	33.5
	Exceedance Level	-	-	-	-21.7	-17.3	-12.9	-11.6	-11.5	-12.5	-14.6	-16.6	-16.6
H41	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.0	30.4	34.7	36.0	36.1	36.1	36.1	36.1	36.1
	Exceedance Level	-	-	-	-19.0	-14.6	-10.3	-9.0	-8.9	-9.9	-12.0	-14.0	-14.0
H42	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.4	31.8	36.1	37.4	37.5	37.5	37.5	37.5	37.5
	Exceedance Level	-	-	-	-17.6	-13.2	-8.9	-7.6	-7.5	-8.5	-10.6	-12.6	-12.6
H43	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-18.2	-13.8	-9.5	-8.2	-8.1	-9.1	-11.2	-13.2	-13.2
H44	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.6	31.8	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-23.2	-18.8	-14.4	-13.2	-13.0	-14.0	-16.1	-18.1	-18.1

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H45	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.5	35.8	37.1	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-17.9	-13.5	-9.2	-7.9	-7.8	-8.8	-10.9	-12.9	-12.9
H46	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	29.5	33.9	38.2	39.5	39.7	39.7	39.7	39.7	39.7
	Exceedance Level	-	-	-	-15.5	-11.1	-6.8	-5.5	-5.3	-6.3	-8.4	-10.4	-10.4
H47	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.3	33.6	34.9	35.0	35.0	35.0	35.0	35.0
	Exceedance Level	-	-	-	-20.1	-15.7	-11.4	-10.1	-10.0	-11.0	-13.1	-15.1	-15.1
H48	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.6	29.0	33.3	34.6	34.7	34.7	34.7	34.7	34.7
	Exceedance Level	-	-	-	-20.4	-16.0	-11.7	-10.4	-10.3	-11.3	-13.4	-15.4	-15.4
H49	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.9	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-17.5	-13.1	-8.8	-7.5	-7.4	-8.2	-10.9	-13.8	-13.8
H50	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.8	34.2	38.6	39.9	40.0	40.0	40.0	40.0	40.0
	Exceedance Level	-	-	-	-15.2	-10.8	-6.4	-5.1	-5.7	-7.5	-9.3	-11.0	-11.0
H51	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	25.5	29.9	34.3	35.5	35.7	35.7	35.7	35.7	35.7
	Exceedance Level	-	-	-	-19.5	-15.1	-10.7	-9.5	-10.0	-11.8	-13.6	-15.3	-15.3
H52	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.7	35.0	35.1	35.1	35.1	35.1	35.1
	Exceedance Level	-	-	-	-20.0	-15.6	-11.3	-10.0	-10.6	-12.4	-14.2	-15.9	-15.9
H53	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.4	30.7	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-24.3	-19.9	-15.6	-14.3	-14.1	-14.1	-14.1	-14.1	-14.1
H54	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.2	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-22.1	-17.8	-13.4	-12.1	-12.0	-12.0	-12.0	-12.0	-12.0
H55	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-16.4	-12.0	-7.7	-6.4	-7.0	-8.8	-10.6	-12.3	-12.3
H56	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-16.4	-12.0	-7.6	-6.3	-6.9	-8.7	-10.5	-12.2	-12.2
H57	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-22.4	-18.0	-13.7	-12.4	-12.3	-12.3	-12.3	-12.3	-12.3
H58	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.7	-19.3	-15.0	-13.7	-13.6	-13.6	-13.6	-13.6	-13.6
H59	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.3	24.7	29.1	30.3	30.5	30.5	30.5	30.5	30.5
	Exceedance Level	-	-	-	-24.7	-20.3	-15.9	-14.7	-14.5	-14.5	-14.5	-14.5	-14.5
H60	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	30.0	31.2	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.8	-19.4	-15.0	-13.8	-13.6	-13.6	-13.6	-13.6	-13.6
H61	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.1	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.9	-19.5	-15.1	-13.9	-13.7	-13.7	-13.7	-13.7	-13.7
H62	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.8	33.1	37.5	38.8	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-16.2	-11.9	-7.5	-6.2	-6.1	-6.8	-8.2	-8.2	-8.2
H63	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.3	-18.9	-14.5	-13.2	-13.1	-13.8	-15.2	-15.2	-15.2
H64	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.4	24.8	29.1	30.4	30.5	30.5	30.5	30.5	30.5
	Exceedance Level	-	-	-	-24.6	-20.2	-15.9	-14.6	-14.5	-14.5	-14.5	-14.5	-14.5
H65	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.5	24.9	29.3	30.5	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-24.5	-20.1	-15.7	-14.5	-14.3	-14.3	-14.3	-14.3	-14.3
H66	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.2	30.6	34.9	36.2	36.3	36.3	36.3	36.3	36.3
	Exceedance Level	-	-	-	-18.8	-14.4	-10.1	-8.8	-8.7	-9.4	-10.8	-10.8	-10.8

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H67	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.5	30.7	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-24.3	-19.9	-15.5	-14.3	-14.1	-14.1	-14.1	-14.1	-14.1
H68	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.2	24.6	29.0	30.2	30.4	30.4	30.4	30.4	30.4
	Exceedance Level	-	-	-	-24.8	-20.4	-16.0	-14.8	-14.6	-14.6	-14.6	-14.6	-14.6
H69	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-7.3	-9.1	-10.9	-12.6	-12.6
H70	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.9	34.3	38.7	40.0	40.1	40.1	40.1	40.1	40.1
	Exceedance Level	-	-	-	-15.1	-10.7	-6.3	-5.0	-5.6	-7.4	-9.2	-10.9	-10.9
H71	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	30.7	35.1	39.4	40.7	40.8	40.8	40.8	40.8	40.8
	Exceedance Level	-	-	-	-14.3	-9.9	-5.6	-4.3	-4.9	-6.7	-8.5	-10.2	-10.2
H72	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.8	35.2	36.5	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-18.5	-14.2	-9.8	-8.5	-8.4	-9.2	-11.9	-14.8	-14.8
H73	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	25.9	30.3	34.6	35.9	36.0	36.0	36.0	36.0	36.0
	Exceedance Level	-	-	-	-19.1	-14.7	-10.4	-9.1	-9.0	-9.8	-12.5	-15.4	-15.4
H74	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.7	-19.3	-15.0	-13.7	-13.5	-14.3	-17.0	-19.9	-19.9
H75	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-23.6	-19.2	-14.9	-13.6	-13.4	-14.2	-16.9	-19.8	-19.8
H76	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-24.0	-19.6	-15.2	-13.9	-13.8	-14.6	-17.3	-20.2	-20.2
H77	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.1	30.5	34.8	36.1	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-18.9	-14.5	-10.2	-8.9	-9.5	-11.3	-13.1	-14.8	-14.8
H78	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.4	38.6	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-16.4	-12.0	-7.6	-6.4	-6.9	-8.7	-10.5	-12.2	-12.2
H79	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.0	33.4	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-16.0	-11.6	-7.2	-5.9	-6.5	-8.3	-10.1	-11.8	-11.8
H80	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.0	33.4	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-16.0	-11.6	-7.2	-5.9	-6.5	-8.3	-10.1	-11.8	-11.8
H81	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.4	31.8	36.1	37.4	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-17.6	-13.2	-8.9	-7.6	-7.4	-8.2	-10.9	-13.8	-13.8
H82	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.4	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-16.6	-12.2	-7.8	-6.6	-6.4	-7.2	-9.9	-12.8	-12.8
H83	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-7.0	-7.8	-10.5	-13.4	-13.4
H84	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.8	-12.4	-8.1	-6.8	-6.7	-7.5	-10.2	-13.1	-13.1
H85	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.2	38.5	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-16.5	-12.1	-7.8	-6.5	-6.3	-7.1	-9.8	-12.7	-12.7
H86	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-16.1	-11.7	-7.3	-6.0	-5.9	-6.7	-9.4	-12.3	-12.3
H87	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.1	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.9	-14.5	-13.2	-13.1	-14.1	-16.2	-18.2	-18.2
H88	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-24.0	-19.6	-15.3	-14.0	-13.8	-14.8	-16.9	-18.9	-18.9

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H89	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-24.1	-19.7	-15.4	-14.1	-14.0	-15.0	-17.1	-19.1	-19.1
H90	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.8	-19.4	-15.1	-13.8	-13.7	-14.7	-16.8	-18.8	-18.8
H91	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.2	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-24.1	-19.8	-15.4	-14.1	-14.0	-15.0	-17.1	-19.1	-19.1
H92	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.7	28.1	32.4	33.7	33.8	33.8	33.8	33.8	33.8
	Exceedance Level	-	-	-	-21.3	-16.9	-12.6	-11.3	-11.2	-12.2	-14.3	-16.3	-16.3
H93	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-23.0	-18.6	-14.2	-12.9	-12.8	-13.8	-15.9	-17.9	-17.9
H94	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	30.9	32.2	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-22.8	-18.4	-14.1	-12.8	-12.7	-13.7	-15.8	-17.8	-17.8
H95	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.5	-13.5	-15.6	-17.6	-17.6
H96	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.5	26.9	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-22.5	-18.1	-13.7	-12.4	-12.3	-13.3	-15.4	-17.4	-17.4
H97	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.8	-18.4	-14.0	-12.7	-12.6	-13.6	-15.7	-17.7	-17.7
H98	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	31.0	32.2	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.8	-18.4	-14.0	-12.8	-12.6	-14.3	-16.3	-17.9	-17.9
H99	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-23.1	-18.7	-14.4	-13.1	-13.0	-14.7	-16.7	-18.3	-18.3
H100	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.6	32.6	32.6	32.6	32.6
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.4	-14.1	-16.1	-17.7	-17.7
H101	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.4	32.6	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-22.4	-18.0	-13.6	-12.4	-12.2	-13.9	-15.9	-17.5	-17.5
H102	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.3	28.6	33.0	34.3	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-20.7	-16.4	-12.0	-10.7	-10.6	-12.3	-14.3	-15.9	-15.9
H103	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-11.9	-13.9	-15.5	-15.5
H104	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.2	34.5	35.8	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-19.2	-14.8	-10.5	-9.2	-9.1	-10.8	-12.8	-14.4	-14.4
H105	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.1	34.4	35.7	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-19.3	-14.9	-10.6	-9.3	-9.1	-10.1	-12.2	-14.2	-14.2
H106	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-11.2	-13.3	-15.3	-15.3
H107	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.1	28.4	32.8	34.1	34.2	34.2	34.2	34.2	34.2
	Exceedance Level	-	-	-	-20.9	-16.6	-12.2	-10.9	-10.8	-11.8	-13.9	-15.9	-15.9
H108	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.6	34.0	38.3	39.6	39.8	39.8	39.8	39.8	39.8
	Exceedance Level	-	-	-	-15.4	-11.0	-6.7	-5.4	-5.2	-6.6	-8.5	-10.2	-10.2
H109	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	30.2	34.5	38.9	40.2	40.3	40.3	40.3	40.3	40.3
	Exceedance Level	-	-	-	-14.8	-10.5	-6.1	-4.8	-4.7	-6.1	-8.0	-9.7	-9.7
H110	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	30.3	34.7	39.0	40.3	40.4	40.4	40.4	40.4	40.4
	Exceedance Level	-	-	-	-14.7	-10.3	-6.0	-4.7	-4.6	-6.0	-7.9	-9.6	-9.6

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H111	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.3	33.7	35.0	35.1	35.1	35.1	35.1	35.1
	Exceedance Level	-	-	-	-20.1	-15.7	-11.3	-10.0	-9.9	-10.7	-13.4	-16.3	-16.3
H112	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	30.2	34.6	38.9	40.2	40.3	40.3	40.3	40.3	40.3
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-4.7	-5.5	-8.2	-11.1	-11.1
H113	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	29.4	33.8	38.1	39.4	39.5	39.5	39.5	39.5	39.5
	Exceedance Level	-	-	-	-15.6	-11.2	-6.9	-5.6	-5.5	-6.3	-9.0	-11.9	-11.9
H114	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-16.1	-11.7	-7.3	-6.0	-5.9	-6.7	-9.4	-12.3	-12.3
H115	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	30.9	35.2	39.6	40.9	41.0	41.0	41.0	41.0	41.0
	Exceedance Level	-	-	-	-14.1	-9.8	-5.4	-4.1	-4.0	-4.8	-7.5	-10.4	-10.4
H116	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.6	36.9	37.0	37.0	37.0	37.0	37.0
	Exceedance Level	-	-	-	-18.2	-13.8	-9.4	-8.1	-8.0	-8.8	-11.5	-14.4	-14.4
H117	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.9	31.3	35.6	36.9	37.0	37.0	37.0	37.0	37.0
	Exceedance Level	-	-	-	-18.1	-13.7	-9.4	-8.1	-8.0	-8.8	-11.5	-14.4	-14.4
H118	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.9	31.3	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-18.1	-13.7	-9.3	-8.0	-8.6	-10.4	-12.2	-13.9	-13.9
H119	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.2	-14.9	-13.6	-14.2	-16.0	-17.8	-19.5	-19.5
H120	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.7	27.0	31.4	32.7	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-22.3	-18.0	-13.6	-12.3	-12.2	-12.9	-14.3	-14.3	-14.3
H121	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.7	-18.3	-14.0	-12.7	-12.6	-13.3	-14.7	-14.7	-14.7
H122	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.2	-14.9	-13.6	-13.5	-14.5	-16.6	-18.6	-18.6
H123	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.3	29.7	34.0	35.3	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-19.7	-15.3	-11.0	-9.7	-9.6	-10.6	-12.7	-14.7	-14.7
H124	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.8	-14.5	-13.2	-13.1	-13.8	-15.2	-15.2	-15.2
H125	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.3	24.7	29.0	30.3	30.4	30.4	30.4	30.4	30.4
	Exceedance Level	-	-	-	-24.7	-20.3	-16.0	-14.7	-14.6	-14.6	-14.6	-14.6	-14.6
H126	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.2	33.6	34.9	35.0	35.0	35.0	35.0	35.0
	Exceedance Level	-	-	-	-20.1	-15.8	-11.4	-10.1	-10.7	-12.5	-14.3	-16.0	-16.0
H127	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-16.4	-12.0	-7.7	-6.4	-6.3	-7.1	-9.8	-12.7	-12.7
H128	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	22.7	27.0	31.4	32.7	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-22.3	-18.0	-13.6	-12.3	-12.2	-13.0	-15.7	-18.6	-18.6
H129	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-16.8	-12.4	-8.1	-6.8	-6.6	-7.6	-9.7	-11.7	-11.7
H130	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-16.3	-11.9	-7.6	-6.3	-6.2	-7.2	-9.3	-11.3	-11.3
H131	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-16.4	-12.0	-7.6	-6.3	-6.2	-7.2	-9.3	-11.3	-11.3
H132	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.7	-12.3	-7.9	-6.6	-6.5	-7.5	-9.6	-11.6	-11.6

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H133	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.5	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.8	-12.5	-8.1	-6.8	-6.7	-7.7	-9.8	-11.8	-11.8
H134	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-16.5	-12.1	-7.7	-6.4	-6.3	-7.3	-9.4	-11.4	-11.4
H135	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.4	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-22.9	-18.6	-14.2	-12.9	-12.8	-13.8	-15.9	-17.9	-17.9
H136	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.4	28.8	33.1	34.4	34.5	34.5	34.5	34.5	34.5
	Exceedance Level	-	-	-	-20.6	-16.2	-11.9	-10.6	-10.5	-11.5	-13.6	-15.6	-15.6
H137	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.4	27.8	32.1	33.4	33.5	33.5	33.5	33.5	33.5
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-11.5	-12.5	-14.6	-16.6	-16.6
H138	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.8	37.0	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-18.0	-13.6	-9.2	-8.0	-7.8	-8.8	-10.9	-12.9	-12.9
H139	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.2	-14.9	-13.6	-13.5	-14.5	-16.6	-18.6	-18.6
H140	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-18.2	-13.8	-9.5	-8.2	-8.1	-9.1	-11.2	-13.2	-13.2
H141	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-23.1	-18.7	-14.4	-13.1	-12.9	-13.9	-16.0	-18.0	-18.0
H142	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-23.4	-19.0	-14.7	-13.4	-13.3	-14.3	-16.4	-18.4	-18.4
H143	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.5	35.9	37.2	37.3	37.3	37.3	37.3	37.3
	Exceedance Level	-	-	-	-17.9	-13.5	-9.1	-7.8	-7.7	-8.7	-10.8	-12.8	-12.8
H144	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	30.5	34.9	39.2	40.5	40.6	40.6	40.6	40.6	40.6
	Exceedance Level	-	-	-	-14.5	-10.1	-5.8	-4.5	-4.4	-5.2	-7.9	-10.8	-10.8
H145	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.7	31.1	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-18.3	-13.9	-9.5	-8.2	-8.8	-10.6	-12.4	-14.1	-14.1
H146	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	27.8	32.2	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-17.2	-12.8	-8.4	-7.1	-7.7	-9.5	-11.3	-13.0	-13.0
H147	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.3	30.7	35.0	36.3	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-18.7	-14.3	-10.0	-8.7	-8.5	-9.5	-11.6	-13.6	-13.6
H148	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.9	-19.5	-15.1	-13.8	-14.4	-16.2	-18.0	-19.7	-19.7
H149	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.9	28.3	32.7	33.9	34.1	34.1	34.1	34.1	34.1
	Exceedance Level	-	-	-	-21.1	-16.7	-12.3	-11.1	-10.9	-11.9	-14.0	-16.0	-16.0
H150	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	25.4	29.8	34.1	35.4	35.6	35.6	35.6	35.6	35.6
	Exceedance Level	-	-	-	-19.6	-15.2	-10.9	-9.6	-10.1	-11.9	-13.7	-15.4	-15.4
H151	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.3	37.6	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-17.4	-13.0	-8.7	-7.4	-7.2	-8.0	-10.7	-13.6	-13.6
H152	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	24.0	28.3	32.7	34.0	34.1	34.1	34.1	34.1	34.1
	Exceedance Level	-	-	-	-21.0	-16.7	-12.3	-11.0	-10.9	-11.7	-14.4	-17.3	-17.3
H153	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.5	25.9	30.2	31.5	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-23.5	-19.1	-14.8	-13.5	-13.4	-14.4	-16.5	-18.5	-18.5
H154	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.5	25.9	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-23.5	-19.1	-14.7	-13.4	-13.3	-14.0	-15.4	-15.4	-15.4

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H155	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.1	24.5	28.9	30.2	30.3	30.3	30.3	30.3	30.3
	Exceedance Level	-	-	-	-24.9	-20.5	-16.1	-14.8	-14.7	-14.7	-14.7	-14.7	-14.7
H156	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-7.3	-9.1	-10.9	-12.6	-12.6
H157	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.0	32.4	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-17.0	-12.6	-8.2	-6.9	-7.5	-9.3	-11.1	-12.8	-12.8
H158	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-15.9	-11.5	-7.2	-5.9	-6.5	-8.3	-10.1	-11.8	-11.8
H159	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-23.9	-19.5	-15.2	-13.9	-13.8	-14.6	-17.3	-20.2	-20.2
H160	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.6	-12.2	-7.9	-6.6	-6.5	-7.5	-9.6	-11.6	-11.6
H161	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.8	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-17.5	-13.2	-8.8	-7.5	-7.4	-8.4	-10.5	-12.5	-12.5
H162	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.8	32.2	36.5	37.8	37.9	37.9	37.9	37.9	37.9
	Exceedance Level	-	-	-	-17.2	-12.8	-8.5	-7.2	-7.1	-8.1	-10.2	-12.2	-12.2
H163	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-16.5	-12.1	-7.7	-6.4	-7.0	-8.8	-10.6	-12.3	-12.3
H164	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.6	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-12.7	-14.8	-16.8	-16.8
H165	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.4	30.7	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-24.3	-19.9	-15.6	-14.3	-14.2	-15.2	-17.3	-19.3	-19.3
H166	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	37.9	39.2	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-15.8	-11.4	-7.1	-5.8	-5.6	-6.4	-9.1	-12.0	-12.0
H167	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-7.0	-7.8	-10.5	-13.4	-13.4
H168	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-11.0	-13.7	-16.6	-16.6
H169	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.5	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-16.6	-12.2	-7.8	-6.5	-7.1	-8.9	-10.7	-12.4	-12.4
H170	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.0	30.4	34.8	36.1	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-19.0	-14.6	-10.2	-8.9	-9.5	-11.3	-13.1	-14.8	-14.8
H171	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.1	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.7	-19.3	-14.9	-13.7	-13.5	-14.3	-17.0	-19.9	-19.9
H172	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.7	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.3	-14.9	-13.6	-13.5	-14.3	-17.0	-19.9	-19.9
H173	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.8	-19.4	-15.1	-13.8	-13.7	-14.5	-17.2	-20.1	-20.1
H174	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.8	-19.4	-15.1	-13.8	-13.7	-14.5	-17.2	-20.1	-20.1
H175	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	25.1	29.5	33.8	35.1	35.2	35.2	35.2	35.2	35.2
	Exceedance Level	-	-	-	-19.9	-15.5	-11.2	-9.9	-9.8	-10.6	-13.3	-16.2	-16.2
H176	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.8	33.2	37.5	38.8	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-16.2	-11.8	-7.5	-6.2	-6.1	-6.9	-9.6	-12.5	-12.5

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H177	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.9	39.1	39.3	39.3	39.3	39.3	39.3
	Exceedance Level	-	-	-	-15.9	-11.5	-7.1	-5.9	-5.7	-6.5	-9.2	-12.1	-12.1
H178	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	29.3	33.7	38.0	39.3	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-15.7	-11.3	-7.0	-5.7	-5.6	-6.4	-9.1	-12.0	-12.0
H179	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	29.9	34.3	38.6	39.9	40.0	40.0	40.0	40.0	40.0
	Exceedance Level	-	-	-	-15.1	-10.7	-6.4	-5.1	-5.0	-5.8	-8.5	-11.4	-11.4
H180	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.7	32.1	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-17.3	-12.9	-8.6	-7.3	-7.2	-8.0	-10.7	-13.6	-13.6
H181	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.2	31.6	36.0	37.2	37.4	37.4	37.4	37.4	37.4
	Exceedance Level	-	-	-	-17.8	-13.4	-9.0	-7.8	-7.6	-8.4	-11.1	-14.0	-14.0
H182	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.7	31.1	35.5	36.7	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-18.3	-13.9	-9.5	-8.3	-8.8	-10.6	-12.4	-14.1	-14.1
H183	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	26.9	31.3	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-18.1	-13.7	-9.3	-8.0	-8.6	-10.4	-12.2	-13.9	-13.9
H184	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-18.0	-13.6	-9.3	-8.0	-8.5	-10.3	-12.1	-13.8	-13.8
H185	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.2	34.6	35.9	36.0	36.0	36.0	36.0	36.0
	Exceedance Level	-	-	-	-19.2	-14.8	-10.4	-9.1	-9.7	-11.5	-13.3	-15.0	-15.0
H186	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.9	39.2	39.3	39.3	39.3	39.3	39.3
	Exceedance Level	-	-	-	-15.9	-11.5	-7.1	-5.8	-6.4	-8.2	-10.0	-11.7	-11.7
H187	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	38.0	39.3	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-15.8	-11.4	-7.0	-5.7	-6.3	-8.1	-9.9	-11.6	-11.6
H188	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.5	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-16.6	-12.2	-7.8	-6.5	-7.1	-8.9	-10.7	-12.4	-12.4
H189	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.5	38.8	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-16.3	-11.9	-7.5	-6.2	-6.8	-8.6	-10.4	-12.1	-12.1
H190	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.2	31.4	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-23.6	-19.2	-14.8	-13.6	-13.4	-14.2	-16.9	-19.8	-19.8
H191	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.2	32.5	32.6	32.6	32.6	32.6	32.6
	Exceedance Level	-	-	-	-22.6	-18.2	-13.8	-12.5	-12.4	-13.2	-15.9	-18.8	-18.8
H192	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.7	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-22.6	-18.3	-13.9	-12.6	-12.5	-13.3	-16.0	-18.9	-18.9
H193	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	25.9	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-23.4	-19.1	-14.7	-13.4	-13.3	-14.1	-16.8	-19.7	-19.7
H194	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.2	31.4	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-23.6	-19.2	-14.8	-13.6	-13.4	-14.2	-16.9	-19.8	-19.8
H195	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.5	24.9	29.2	30.5	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-24.5	-20.1	-15.8	-14.5	-14.3	-14.3	-14.3	-14.3	-14.3
H196	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.6	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.7	-19.4	-15.0	-13.7	-13.6	-13.6	-13.6	-13.6	-13.6
H197	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.0	-19.6	-15.3	-14.0	-13.9	-13.9	-13.9	-13.9	-13.9
H198	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.4	24.8	29.1	30.4	30.5	30.5	30.5	30.5	30.5
	Exceedance Level	-	-	-	-24.6	-20.2	-15.9	-14.6	-14.5	-14.5	-14.5	-14.5	-14.5

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H199	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.4	24.8	29.1	30.4	30.6	30.6	30.6	30.6	30.6
	Exceedance Level	-	-	-	-24.6	-20.2	-15.9	-14.6	-14.4	-14.4	-14.4	-14.4	-14.4
H200	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.8	32.1	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-22.9	-18.5	-14.2	-12.9	-12.7	-12.7	-12.7	-12.7	-12.7
H201	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.5	28.8	33.2	34.5	34.6	34.6	34.6	34.6	34.6
	Exceedance Level	-	-	-	-20.5	-16.2	-11.8	-10.5	-10.4	-11.4	-13.5	-15.5	-15.5
H202	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.6	29.0	33.3	34.6	34.7	34.7	34.7	34.7	34.7
	Exceedance Level	-	-	-	-20.4	-16.0	-11.7	-10.4	-10.3	-11.3	-13.4	-15.4	-15.4
H203	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.3	29.6	34.0	35.3	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-19.7	-15.4	-11.0	-9.7	-9.6	-10.6	-12.7	-14.7	-14.7
H204	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.2	33.6	34.9	35.0	35.0	35.0	35.0	35.0
	Exceedance Level	-	-	-	-20.1	-15.8	-11.4	-10.1	-10.0	-11.0	-13.1	-15.1	-15.1
H205	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.4	29.8	34.1	35.4	35.5	35.5	35.5	35.5	35.5
	Exceedance Level	-	-	-	-19.6	-15.2	-10.9	-9.6	-9.5	-10.5	-12.6	-14.6	-14.6
H206	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	34.0	35.3	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-19.8	-15.4	-11.0	-9.7	-9.6	-10.6	-12.7	-14.7	-14.7
H207	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.0	30.4	34.7	36.0	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-19.0	-14.6	-10.3	-9.0	-8.8	-9.8	-11.9	-13.9	-13.9
H208	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-18.0	-13.6	-9.3	-8.0	-7.9	-8.9	-11.0	-13.0	-13.0
H209	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.0	32.4	36.7	38.0	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-17.0	-12.6	-8.3	-7.0	-6.8	-7.8	-9.9	-11.9	-11.9
H210	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.9	-12.5	-8.1	-6.8	-6.7	-7.7	-9.8	-11.8	-11.8
H211	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.6	-12.2	-7.9	-6.6	-6.5	-7.5	-9.6	-11.6	-11.6
H212	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.8	25.2	29.5	30.8	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-24.2	-19.8	-15.5	-14.2	-14.1	-15.1	-17.2	-19.2	-19.2
H213	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-23.9	-19.5	-15.2	-13.9	-13.8	-14.8	-16.9	-18.9	-18.9
H214	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.5	25.9	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-23.5	-19.1	-14.7	-13.4	-13.3	-14.3	-16.4	-18.4	-18.4
H215	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.8	-14.5	-13.2	-13.1	-14.1	-16.2	-18.2	-18.2
H216	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	30.9	32.2	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-22.8	-18.4	-14.1	-12.8	-12.7	-13.7	-15.8	-17.8	-17.8
H217	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.9	32.2	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-22.9	-18.5	-14.1	-12.8	-12.7	-13.7	-15.8	-17.8	-17.8
H218	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-23.4	-19.0	-14.7	-13.4	-13.3	-14.3	-16.4	-18.4	-18.4
H219	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.4	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-23.9	-19.6	-15.2	-13.9	-13.8	-14.8	-16.9	-18.9	-18.9
H220	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.4	31.7	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-23.3	-18.9	-14.6	-13.3	-13.2	-14.2	-16.3	-18.3	-18.3

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H221	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.8	32.0	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-23.0	-18.6	-14.2	-13.0	-12.8	-13.8	-15.9	-17.9	-17.9
H222	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.5	27.9	32.2	33.5	33.6	33.6	33.6	33.6	33.6
	Exceedance Level	-	-	-	-21.5	-17.1	-12.8	-11.5	-11.4	-12.4	-14.5	-16.5	-16.5
H223	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.6	28.0	32.4	33.6	33.8	33.8	33.8	33.8	33.8
	Exceedance Level	-	-	-	-21.4	-17.0	-12.6	-11.4	-11.2	-12.2	-14.3	-16.3	-16.3
H224	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-11.2	-13.3	-15.3	-15.3
H225	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.6	30.0	34.4	35.7	35.8	35.8	35.8	35.8	35.8
	Exceedance Level	-	-	-	-19.4	-15.0	-10.6	-9.3	-9.2	-10.2	-12.3	-14.3	-14.3
H226	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-16.9	-12.5	-8.2	-6.9	-6.8	-7.8	-9.9	-11.9	-11.9
H227	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-16.1	-11.7	-7.3	-6.0	-5.9	-6.9	-9.0	-11.0	-11.0
H228	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.6	-10.6	-12.7	-14.7	-14.7
H229	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-22.4	-18.0	-13.7	-12.4	-12.2	-12.9	-14.3	-14.3	-14.3
H230	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-22.4	-18.0	-13.7	-12.4	-12.3	-13.0	-14.4	-14.4	-14.4
H231	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.1	32.3	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-22.7	-18.3	-13.9	-12.7	-12.5	-12.5	-12.5	-12.5	-12.5
H232	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	23.1	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-21.9	-17.5	-13.1	-11.8	-11.7	-11.7	-11.7	-11.7	-11.7
H233	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.1	38.3	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.7	-12.3	-7.9	-6.7	-6.5	-6.5	-6.5	-6.5	-6.5
H234	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	29.0	33.4	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-16.0	-11.6	-7.3	-6.0	-6.6	-8.4	-10.2	-11.9	-11.9
H235	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.7	-7.4	-6.1	-6.7	-8.5	-10.3	-12.0	-12.0
H236	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.7	-7.4	-6.1	-6.7	-8.5	-10.3	-12.0	-12.0
H237	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-15.9	-11.5	-7.2	-5.9	-5.8	-6.8	-8.9	-10.9	-10.9
H238	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.8	34.2	38.5	39.8	39.9	39.9	39.9	39.9	39.9
	Exceedance Level	-	-	-	-15.2	-10.8	-6.5	-5.2	-5.1	-6.8	-8.8	-10.4	-10.4
H239	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.6	31.0	35.4	36.6	36.8	36.8	36.8	36.8	36.8
	Exceedance Level	-	-	-	-18.4	-14.0	-9.6	-8.4	-8.2	-9.9	-11.9	-13.5	-13.5
H240	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.0	28.4	32.8	34.1	34.2	34.2	34.2	34.2	34.2
	Exceedance Level	-	-	-	-21.0	-16.6	-12.2	-10.9	-10.8	-11.8	-13.9	-15.9	-15.9
H241	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.6	28.0	32.3	33.6	33.7	33.7	33.7	33.7	33.7
	Exceedance Level	-	-	-	-21.4	-17.0	-12.7	-11.4	-11.3	-12.3	-14.4	-16.4	-16.4
H242	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.4	37.6	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-17.4	-13.0	-8.6	-7.4	-7.2	-8.0	-10.7	-13.6	-13.6

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H243	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.8	-12.4	-8.1	-6.8	-6.7	-8.1	-10.0	-11.7	-11.7
H244	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.7	37.9	38.1	38.1	38.1	38.1	38.1
	Exceedance Level	-	-	-	-17.1	-12.7	-8.3	-7.1	-6.9	-8.3	-10.2	-11.9	-11.9
H245	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-7.0	-8.4	-10.3	-12.0	-12.0
H246	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.1	24.5	28.9	30.1	30.3	30.3	30.3	30.3	30.3
	Exceedance Level	-	-	-	-24.9	-20.5	-16.1	-14.9	-14.7	-14.7	-14.7	-14.7	-14.7
H247	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-23.9	-19.5	-15.2	-13.9	-13.8	-14.5	-15.9	-15.9	-15.9
H248	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.8	-19.4	-15.1	-13.8	-13.7	-13.7	-13.7	-13.7	-13.7
H249	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.8	-19.4	-15.1	-13.8	-13.6	-13.6	-13.6	-13.6	-13.6
H250	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.5	30.7	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-24.3	-19.9	-15.5	-14.3	-14.1	-14.1	-14.1	-14.1	-14.1
H251	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-24.1	-19.7	-15.4	-14.1	-14.0	-14.0	-14.0	-14.0	-14.0
H252	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.1	-19.7	-15.3	-14.0	-13.9	-13.9	-13.9	-13.9	-13.9
H253	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.5	24.9	29.2	30.5	30.6	30.6	30.6	30.6	30.6
	Exceedance Level	-	-	-	-24.5	-20.1	-15.8	-14.5	-14.4	-14.4	-14.4	-14.4	-14.4
H254	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.8	-19.4	-15.0	-13.7	-13.6	-13.6	-13.6	-13.6	-13.6
H255	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.3	24.7	29.0	30.3	30.4	30.4	30.4	30.4	30.4
	Exceedance Level	-	-	-	-24.7	-20.3	-16.0	-14.7	-14.6	-14.6	-14.6	-14.6	-14.6
H256	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.1	24.5	28.8	30.1	30.2	30.2	30.2	30.2	30.2
	Exceedance Level	-	-	-	-24.9	-20.5	-16.2	-14.9	-14.8	-14.8	-14.8	-14.8	-14.8
H257	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.6	25.0	29.3	30.6	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-24.4	-20.0	-15.7	-14.4	-14.3	-14.3	-14.3	-14.3	-14.3
H258	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.8	35.0	35.2	35.2	35.2	35.2	35.2
	Exceedance Level	-	-	-	-20.0	-15.6	-11.2	-10.0	-9.8	-10.8	-12.9	-14.9	-14.9
H259	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.3	28.7	33.0	34.3	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-20.7	-16.3	-12.0	-10.7	-10.6	-11.6	-13.7	-15.7	-15.7
H260	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-18.0	-13.6	-9.3	-8.0	-7.9	-8.9	-11.0	-13.0	-13.0
H261	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.2	30.5	34.9	36.2	36.3	36.3	36.3	36.3	36.3
	Exceedance Level	-	-	-	-18.8	-14.5	-10.1	-8.8	-8.7	-9.7	-11.8	-13.8	-13.8
H262	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.9	35.3	36.5	36.7	36.7	36.7	36.7	36.7
	Exceedance Level	-	-	-	-18.5	-14.1	-9.7	-8.5	-8.3	-9.3	-11.4	-13.4	-13.4
H263	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.7	31.1	35.5	36.7	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-18.3	-13.9	-9.5	-8.3	-8.1	-9.1	-11.2	-13.2	-13.2
H264	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.3	31.6	36.0	37.3	37.4	37.4	37.4	37.4	37.4
	Exceedance Level	-	-	-	-17.7	-13.4	-9.0	-7.7	-7.6	-8.6	-10.7	-12.7	-12.7

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H265	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.8	33.2	37.5	38.8	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.2	-11.8	-7.5	-6.2	-6.0	-7.0	-9.1	-11.1	-11.1
H266	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.8	-12.4	-8.1	-6.8	-6.7	-7.7	-9.8	-11.8	-11.8
H267	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.6	-12.2	-7.9	-6.6	-6.5	-7.5	-9.6	-11.6	-11.6
H268	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.2	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.8	-7.4	-6.1	-6.0	-7.0	-9.1	-11.1	-11.1
H269	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-6.6	-7.6	-9.7	-11.7	-11.7
H270	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-16.8	-12.4	-8.0	-6.7	-6.6	-7.6	-9.7	-11.7	-11.7
H271	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.4	31.7	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-23.4	-19.0	-14.6	-13.3	-13.2	-14.2	-16.3	-18.3	-18.3
H272	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.1	-19.7	-15.3	-14.0	-13.9	-14.9	-17.0	-19.0	-19.0
H273	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.4	31.6	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-23.4	-19.0	-14.6	-13.4	-13.2	-14.2	-16.3	-18.3	-18.3
H274	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.8	-14.5	-13.2	-13.1	-14.1	-16.2	-18.2	-18.2
H275	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	30.0	31.2	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-23.8	-19.4	-15.0	-13.8	-13.6	-14.6	-16.7	-18.7	-18.7
H276	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-22.9	-18.5	-14.2	-12.9	-12.8	-13.8	-15.9	-17.9	-17.9
H277	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-22.9	-18.5	-14.2	-12.9	-12.8	-13.8	-15.9	-17.9	-17.9
H278	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-22.4	-18.0	-13.7	-12.4	-12.3	-13.3	-15.4	-17.4	-17.4
H279	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.7	27.1	31.4	32.7	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-22.3	-17.9	-13.6	-12.3	-12.2	-13.2	-15.3	-17.3	-17.3
H280	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	31.0	32.2	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.8	-18.4	-14.0	-12.8	-12.6	-13.6	-15.7	-17.7	-17.7
H281	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.7	32.9	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.3	-12.1	-11.9	-12.9	-15.0	-17.0	-17.0
H282	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.1	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-21.9	-17.5	-13.1	-11.8	-11.7	-12.7	-14.8	-16.8	-16.8
H283	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-21.8	-17.5	-13.1	-11.8	-11.7	-12.7	-14.8	-16.8	-16.8
H284	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.4	27.8	32.2	33.5	33.6	33.6	33.6	33.6	33.6
	Exceedance Level	-	-	-	-21.6	-17.2	-12.8	-11.5	-11.4	-12.4	-14.5	-16.5	-16.5
H285	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.4	28.8	33.2	34.4	34.6	34.6	34.6	34.6	34.6
	Exceedance Level	-	-	-	-20.6	-16.2	-11.8	-10.6	-10.4	-11.4	-13.5	-15.5	-15.5
H286	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.5	28.9	33.2	34.5	34.6	34.6	34.6	34.6	34.6
	Exceedance Level	-	-	-	-20.5	-16.1	-11.8	-10.5	-10.4	-11.4	-13.5	-15.5	-15.5

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H287	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.8	29.2	33.5	34.8	34.9	34.9	34.9	34.9	34.9
	Exceedance Level	-	-	-	-20.2	-15.8	-11.5	-10.2	-10.1	-11.1	-13.2	-15.2	-15.2
H288	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.7	35.0	35.1	35.1	35.1	35.1	35.1
	Exceedance Level	-	-	-	-20.0	-15.6	-11.3	-10.0	-9.9	-10.9	-13.0	-15.0	-15.0
H289	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.0	34.4	35.7	35.8	35.8	35.8	35.8	35.8
	Exceedance Level	-	-	-	-19.3	-15.0	-10.6	-9.3	-9.2	-10.2	-12.3	-14.3	-14.3
H290	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.4	30.8	35.1	36.4	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-18.6	-14.2	-9.9	-8.6	-8.5	-9.5	-11.6	-13.6	-13.6
H291	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.9	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-17.5	-13.1	-8.8	-7.5	-7.4	-8.4	-10.5	-12.5	-12.5
H292	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	27.2	31.6	35.9	37.2	37.4	37.4	37.4	37.4	37.4
	Exceedance Level	-	-	-	-17.8	-13.4	-9.1	-7.8	-7.6	-8.6	-10.7	-12.7	-12.7
H293	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	26.3	30.7	35.0	36.3	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-18.7	-14.3	-10.0	-8.7	-8.6	-9.6	-11.7	-13.7	-13.7
H294	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.1	34.4	35.7	35.8	35.8	35.8	35.8	35.8
	Exceedance Level	-	-	-	-19.3	-14.9	-10.6	-9.3	-9.2	-10.2	-12.3	-14.3	-14.3
H295	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.6	-10.6	-12.7	-14.7	-14.7
H296	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.9	-19.5	-15.1	-13.8	-13.7	-14.4	-15.8	-15.8	-15.8
H297	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-23.4	-19.0	-14.7	-13.4	-13.2	-13.9	-15.3	-15.3	-15.3
H298	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-23.1	-18.7	-14.4	-13.1	-13.0	-13.7	-15.1	-15.1	-15.1
H299	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.7	-18.3	-14.0	-12.7	-12.6	-13.3	-14.7	-14.7	-14.7
H300	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.2	32.5	32.6	32.6	32.6	32.6	32.6
	Exceedance Level	-	-	-	-22.6	-18.2	-13.8	-12.5	-12.4	-13.1	-14.5	-14.5	-14.5
H301	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.8	27.2	31.6	32.8	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-22.2	-17.8	-13.4	-12.2	-12.0	-12.7	-14.1	-14.1	-14.1
H302	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.6	32.9	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.4	-12.1	-11.9	-12.6	-14.0	-14.0	-14.0
H303	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.7	-18.3	-14.0	-12.7	-12.6	-12.6	-12.6	-12.6	-12.6
H304	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	22.8	27.2	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-22.2	-17.8	-13.4	-12.1	-12.0	-12.0	-12.0	-12.0	-12.0
H305	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.6	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-11.7	-11.7	-11.7	-11.7
H306	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	25.4	29.8	34.1	35.4	35.5	35.5	35.5	35.5	35.5
	Exceedance Level	-	-	-	-19.6	-15.2	-10.9	-9.6	-9.5	-9.5	-9.5	-9.5	-9.5
H307	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.1	38.1	38.1	38.1	38.1
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-6.9	-6.9	-6.9	-6.9	-6.9
H308	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.7	-7.4	-6.1	-6.7	-8.5	-10.3	-12.0	-12.0

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H309	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.5	49.3	51.0	51.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.7	-7.4	-6.1	-6.7	-8.5	-10.3	-12.0	-12.0
H310	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.3	28.7	33.1	34.4	34.5	34.5	34.5	34.5	34.5
	Exceedance Level	-	-	-	-20.7	-16.3	-11.9	-10.6	-10.5	-11.5	-13.6	-15.6	-15.6
H311	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.1	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-21.9	-17.5	-13.1	-11.8	-11.7	-12.7	-14.8	-16.8	-16.8
H312	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.8	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-17.5	-13.2	-8.8	-7.5	-7.4	-8.2	-10.9	-13.8	-13.8
H313	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.8	32.2	36.5	37.8	37.9	37.9	37.9	37.9	37.9
	Exceedance Level	-	-	-	-17.2	-12.8	-8.5	-7.2	-7.1	-7.9	-10.6	-13.5	-13.5
H314	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.7	32.1	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-17.3	-12.9	-8.6	-7.3	-7.2	-8.0	-10.7	-13.6	-13.6
H315	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.8	-12.4	-8.1	-6.8	-6.7	-8.1	-10.0	-11.7	-11.7
H316	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.9	-12.5	-8.1	-6.8	-6.7	-8.1	-10.0	-11.7	-11.7
H317	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.9	38.1	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-16.9	-12.5	-8.1	-6.9	-6.7	-8.1	-10.0	-11.7	-11.7
H318	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-17.4	-13.0	-8.6	-7.3	-7.2	-8.6	-10.5	-12.2	-12.2
H319	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.4	48.3	50.0	50.0
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.4	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-16.9	-12.6	-8.2	-6.9	-6.8	-8.2	-10.1	-11.8	-11.8
H320	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.9	-19.5	-15.2	-13.9	-13.7	-14.7	-16.8	-18.8	-18.8
H321	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-24.0	-19.6	-15.3	-14.0	-13.8	-14.8	-16.9	-18.9	-18.9
H322	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-23.4	-19.0	-14.7	-13.4	-13.3	-14.3	-16.4	-18.4	-18.4
H323	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.6	30.9	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.1	-19.7	-15.4	-14.1	-13.9	-14.9	-17.0	-19.0	-19.0
H324	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.0	-19.6	-15.3	-14.0	-13.9	-14.9	-17.0	-19.0	-19.0
H325	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-18.0	-13.6	-9.3	-8.0	-7.9	-8.7	-11.4	-14.3	-14.3
H326	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.9	34.9	34.9	34.9	34.9
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.1	-11.8	-13.8	-15.4	-15.4
H327	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-11.9	-13.9	-15.5	-15.5
H328	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.2	28.6	33.0	34.3	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-20.8	-16.4	-12.0	-10.7	-10.6	-12.3	-14.3	-15.9	-15.9
H329	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.2	28.6	33.0	34.2	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-20.8	-16.4	-12.0	-10.8	-10.6	-12.3	-14.3	-15.9	-15.9
H330	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.6	32.0	33.3	33.4	33.4	33.4	33.4	33.4
	Exceedance Level	-	-	-	-21.8	-17.4	-13.0	-11.7	-11.6	-13.3	-15.3	-16.9	-16.9

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H331	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.6	32.9	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.4	-12.1	-11.9	-13.6	-15.6	-17.2	-17.2
H332	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-22.7	-18.3	-13.9	-12.6	-12.5	-14.2	-16.2	-17.8	-17.8
H333	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-22.7	-18.3	-14.0	-12.7	-12.6	-13.6	-15.7	-17.7	-17.7
H334	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.5	35.8	37.1	37.3	37.3	37.3	37.3	37.3
	Exceedance Level	-	-	-	-17.9	-13.5	-9.2	-7.9	-7.7	-8.5	-11.2	-14.1	-14.1
H335	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.4	35.8	37.1	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-17.9	-13.6	-9.2	-7.9	-7.8	-8.6	-11.3	-14.2	-14.2
H336	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-18.2	-13.8	-9.5	-8.2	-8.1	-8.9	-11.6	-14.5	-14.5
H337	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.8	35.2	36.5	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-18.5	-14.2	-9.8	-8.5	-8.4	-9.2	-11.9	-14.8	-14.8
H338	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.1	34.5	35.7	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-19.3	-14.9	-10.5	-9.3	-9.1	-9.9	-12.6	-15.5	-15.5
H339	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.3	35.3	35.3	35.3	35.3
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.7	-11.4	-13.4	-15.0	-15.0
H340	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.8	35.0	35.2	35.2	35.2	35.2	35.2
	Exceedance Level	-	-	-	-20.0	-15.6	-11.2	-10.0	-9.8	-11.5	-13.5	-15.1	-15.1
H341	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.8	27.2	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-22.2	-17.8	-13.4	-12.1	-12.0	-13.7	-15.7	-17.3	-17.3
H342	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.4	31.7	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-23.3	-18.9	-14.6	-13.3	-13.2	-14.2	-16.3	-18.3	-18.3
H343	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-22.4	-18.0	-13.7	-12.4	-12.3	-13.3	-15.4	-17.4	-17.4
H344	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.8	-19.4	-15.1	-13.8	-13.7	-14.7	-16.8	-18.8	-18.8
H345	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.0	-19.6	-15.3	-14.0	-13.9	-14.9	-17.0	-19.0	-19.0
H346	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-23.1	-18.7	-14.4	-13.1	-12.9	-13.9	-16.0	-18.0	-18.0
H347	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.5	-13.2	-14.6	-14.6	-14.6
H348	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.1	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.7	-19.3	-14.9	-13.7	-13.5	-14.5	-16.6	-18.6	-18.6
H349	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.1	-19.7	-15.3	-14.0	-13.9	-14.9	-17.0	-19.0	-19.0
H350	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.3	37.6	37.7	37.7	37.7	37.7	37.7
	Exceedance Level	-	-	-	-17.4	-13.0	-8.7	-7.4	-7.3	-8.1	-10.8	-13.7	-13.7
H351	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.6	31.8	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-23.2	-18.8	-14.4	-13.2	-13.0	-14.0	-16.1	-18.1	-18.1
H352	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-16.1	-11.7	-7.4	-6.1	-6.0	-7.0	-9.1	-11.1	-11.1

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H353	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.1	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-23.9	-19.5	-15.1	-13.9	-13.7	-14.4	-15.8	-15.8	-15.8
H354	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.1	-19.7	-15.3	-14.0	-13.9	-13.9	-13.9	-13.9	-13.9
H355	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	47.1	47.1	47.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.7	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.3	-14.9	-13.6	-13.5	-14.2	-15.6	-15.6	-15.6
H356	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-16.3	-11.9	-7.6	-6.3	-6.2	-7.0	-9.7	-12.6	-12.6
H357	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.5	26.9	31.2	32.5	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-22.5	-18.1	-13.8	-12.5	-12.3	-14.0	-16.0	-17.6	-17.6
H358	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	37.9	39.2	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-15.8	-11.4	-7.1	-5.8	-5.6	-6.4	-9.1	-12.0	-12.0
H359	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.6	-19.2	-14.9	-13.6	-13.5	-14.5	-16.6	-18.6	-18.6
H360	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.8	-14.5	-13.2	-13.1	-14.1	-16.2	-18.2	-18.2
H361	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-11.2	-13.3	-15.3	-15.3
H362	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	25.9	30.3	34.6	35.9	36.0	36.0	36.0	36.0	36.0
	Exceedance Level	-	-	-	-19.1	-14.7	-10.4	-9.1	-9.0	-10.0	-12.1	-14.1	-14.1
H363	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	23.8	28.2	32.6	33.9	34.0	34.0	34.0	34.0	34.0
	Exceedance Level	-	-	-	-21.2	-16.8	-12.4	-11.1	-11.0	-12.0	-14.1	-16.1	-16.1
H364	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	23.4	27.7	32.1	33.4	33.5	33.5	33.5	33.5	33.5
	Exceedance Level	-	-	-	-21.6	-17.3	-12.9	-11.6	-11.5	-12.3	-15.0	-17.9	-17.9
H365	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	23.0	27.4	31.8	33.0	33.2	33.2	33.2	33.2	33.2
	Exceedance Level	-	-	-	-22.0	-17.6	-13.2	-12.0	-11.8	-13.5	-15.5	-17.1	-17.1
H366	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-23.2	-18.8	-14.5	-13.2	-13.1	-14.1	-16.2	-18.2	-18.2
H367	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.3	35.3	35.3	35.3	35.3
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.7	-10.5	-13.2	-16.1	-16.1
H368	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.7	-19.3	-15.0	-13.7	-13.5	-14.5	-16.6	-18.6	-18.6
H369	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.8	48.5	51.4	51.4
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-6.5	-7.3	-10.0	-12.9	-12.9
H370	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.7	32.0	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-23.0	-18.6	-14.3	-13.0	-12.9	-13.9	-16.0	-18.0	-18.0
H371	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-24.1	-19.7	-15.3	-14.0	-13.9	-14.9	-17.0	-19.0	-19.0
H372	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.7	-19.3	-15.0	-13.7	-13.5	-14.5	-16.6	-18.6	-18.6
H373	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	48.1	50.1	50.1
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-23.7	-19.3	-15.0	-13.7	-13.5	-14.5	-16.6	-18.6	-18.6
H374	WEDG Noise Limit LA90	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	46.7	48.7	50.3	50.3
	Predicted Wind Turbine Noise LA90	-	-	-	32.0	36.4	40.7	42.0	42.2	42.2	42.2	42.2	42.2
	Exceedance Level	-	-	-	-13.0	-8.6	-4.3	-3.0	-2.8	-4.5	-6.5	-8.1	-8.1

Table A5.2 WEDG Noise Limits Compliance Table – Daytime

Location	Wind Speed (ms^{-1}) as standardised to 10 m height											
	1	2	3	4	5	6	7	8	9	10	11	12

*The predictions presented here are calculated for the building centrepoint and therefore will differ from those presented within the main body of the report

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H1	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.4	30.8	35.1	36.4	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-16.6	-12.2	-7.9	-6.6	-6.5	-7.5	-10.9	-14.4	-17.8
H2	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.3	31.7	36.0	37.3	37.5	37.5	37.5	37.5	37.5
	Exceedance Level	-	-	-	-15.7	-11.3	-7.0	-5.7	-5.5	-6.5	-9.9	-13.4	-16.8
H3	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.2	38.5	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-14.5	-10.1	-5.8	-4.5	-4.3	-4.3	-6.8	-9.2	-11.5
H4	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	38.0	39.2	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-13.8	-9.4	-5.0	-3.8	-3.6	-3.6	-6.1	-8.5	-10.8
H5	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.3	35.3	35.3	35.3	35.3
	Exceedance Level	-	-	-	-17.8	-13.4	-9.1	-7.8	-7.7	-7.7	-10.2	-12.6	-14.9
H6	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-20.1	-15.7	-11.4	-10.1	-10.0	-10.0	-12.5	-14.9	-17.2
H7	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.0	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-14.0	-9.6	-8.3	-8.2	-8.2	-10.7	-13.1	-15.4
H8	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.2	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-22.7	-18.4	-14.2	-13.3	-13.9	-14.4	-14.7	-14.7	-14.7
H9	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.9	-17.5	-13.3	-12.4	-13.0	-13.5	-13.8	-13.8	-13.8
H10	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.7	32.0	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-21.6	-17.2	-13.1	-12.2	-12.8	-13.3	-13.6	-13.6	-13.6
H11	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.2	-16.8	-12.5	-11.2	-11.1	-11.1	-13.6	-16.0	-18.3
H12	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.5	29.9	34.2	35.5	35.6	35.6	35.6	35.6	35.6
	Exceedance Level	-	-	-	-17.5	-13.1	-8.8	-7.5	-7.4	-7.4	-9.9	-12.3	-14.6
H13	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.4	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-14.9	-10.6	-6.2	-4.9	-4.8	-5.8	-9.2	-12.7	-16.1
H14	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-15.1	-10.7	-6.4	-5.1	-5.0	-6.0	-9.4	-12.9	-16.3
H15	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.7	32.1	36.5	37.7	37.9	37.9	37.9	37.9	37.9
	Exceedance Level	-	-	-	-15.3	-10.9	-6.5	-5.3	-5.1	-6.1	-9.5	-13.0	-16.4
H16	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-15.4	-11.0	-6.6	-5.3	-5.2	-6.2	-9.6	-13.1	-16.5
H17	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.8	38.1	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.9	-10.5	-6.2	-4.9	-4.7	-5.7	-9.1	-12.6	-16.0
H18	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.5	38.7	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-14.3	-9.9	-5.5	-4.3	-4.1	-5.1	-8.5	-12.0	-15.4
H19	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.9	35.2	36.5	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-16.5	-12.1	-7.8	-6.5	-6.4	-7.4	-10.8	-14.3	-17.7
H20	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.3	30.7	35.0	36.3	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-6.6	-7.6	-11.0	-14.5	-17.9
H21	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.2	34.5	35.8	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-17.2	-12.8	-8.5	-7.2	-7.1	-8.1	-11.5	-15.0	-18.4
H22	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.4	30.8	35.1	36.4	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-16.6	-12.2	-7.9	-6.6	-7.0	-9.4	-11.8	-14.1	-16.1

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H23	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.6	31.0	35.3	36.6	36.8	36.8	36.8	36.8	36.8
	Exceedance Level	-	-	-	-16.4	-12.0	-7.7	-6.4	-6.7	-9.1	-11.5	-13.8	-15.8
H24	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.6	30.0	34.3	35.6	35.7	35.7	35.7	35.7	35.7
	Exceedance Level	-	-	-	-17.4	-13.0	-8.7	-7.4	-7.8	-10.2	-12.6	-14.9	-16.9
H25	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-22.0	-17.6	-13.3	-12.0	-11.8	-12.8	-16.2	-19.7	-23.1
H26	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-22.0	-17.6	-13.2	-11.9	-11.8	-12.8	-16.2	-19.7	-23.1
H27	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.1	30.5	34.8	36.1	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-16.9	-12.5	-8.2	-6.9	-6.8	-8.5	-11.5	-14.1	-16.4
H28	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.9	30.3	34.7	35.9	36.1	36.1	36.1	36.1	36.1
	Exceedance Level	-	-	-	-17.1	-12.7	-8.3	-7.1	-6.9	-8.6	-11.6	-14.2	-16.5
H29	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.1	34.5	35.8	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-17.2	-12.9	-8.5	-7.2	-7.1	-8.8	-11.8	-14.4	-16.7
H30	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.6	28.9	33.3	34.6	34.7	34.7	34.7	34.7	34.7
	Exceedance Level	-	-	-	-18.4	-14.1	-9.7	-8.4	-8.3	-10.0	-13.0	-15.6	-17.9
H31	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.4	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-14.6	-10.2	-5.8	-4.6	-4.9	-7.3	-9.7	-12.0	-14.0
H32	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.1	30.5	34.9	36.1	36.3	36.3	36.3	36.3	36.3
	Exceedance Level	-	-	-	-16.9	-12.5	-8.1	-6.9	-7.2	-9.6	-12.0	-14.3	-16.3
H33	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-5.2	-7.6	-10.0	-12.3	-14.3
H34	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-11.5	-13.2	-16.2	-18.8	-21.1
H35	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-21.1	-16.7	-12.4	-11.1	-10.9	-10.9	-13.7	-13.7	-13.7
H36	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.4	30.7	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-22.9	-18.5	-14.4	-13.5	-14.1	-14.6	-14.9	-14.9	-14.9
H37	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.6	25.0	29.4	30.7	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-22.4	-18.0	-13.6	-12.3	-12.2	-12.2	-15.0	-15.0	-15.0
H38	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.7	-17.3	-13.0	-11.7	-11.6	-11.6	-14.1	-16.5	-18.8
H39	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-20.6	-16.2	-11.9	-10.6	-10.5	-10.5	-13.0	-15.4	-17.7
H40	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.3	27.7	32.1	33.4	33.5	33.5	33.5	33.5	33.5
	Exceedance Level	-	-	-	-19.7	-15.3	-10.9	-9.6	-9.5	-9.5	-12.0	-14.4	-16.7
H41	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.0	30.4	34.7	36.0	36.1	36.1	36.1	36.1	36.1
	Exceedance Level	-	-	-	-17.0	-12.6	-8.3	-7.0	-6.9	-6.9	-9.4	-11.8	-14.1
H42	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.4	31.8	36.1	37.4	37.5	37.5	37.5	37.5	37.5
	Exceedance Level	-	-	-	-15.6	-11.2	-6.9	-5.6	-5.5	-5.5	-8.0	-10.4	-12.7
H43	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-16.2	-11.8	-7.5	-6.2	-6.1	-6.1	-8.6	-11.0	-13.3
H44	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.6	31.8	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-21.2	-16.8	-12.4	-11.2	-11.0	-11.0	-13.5	-15.9	-18.2

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H45	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.5	35.8	37.1	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-15.9	-11.5	-7.2	-5.9	-5.8	-5.8	-8.3	-10.7	-13.0
H46	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	29.5	33.9	38.2	39.5	39.7	39.7	39.7	39.7	39.7
	Exceedance Level	-	-	-	-13.5	-9.1	-4.8	-3.5	-3.3	-3.3	-5.8	-8.2	-10.5
H47	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.3	33.6	34.9	35.0	35.0	35.0	35.0	35.0
	Exceedance Level	-	-	-	-18.1	-13.7	-9.4	-8.1	-8.0	-8.0	-10.5	-12.9	-15.2
H48	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.6	29.0	33.3	34.6	34.7	34.7	34.7	34.7	34.7
	Exceedance Level	-	-	-	-18.4	-14.0	-9.7	-8.4	-8.3	-8.3	-10.8	-13.2	-15.5
H49	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.9	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-15.5	-11.1	-6.8	-5.5	-5.4	-6.4	-9.8	-13.3	-16.7
H50	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.8	34.2	38.6	39.9	40.0	40.0	40.0	40.0	40.0
	Exceedance Level	-	-	-	-13.2	-8.8	-4.4	-3.1	-3.5	-5.9	-8.3	-10.6	-12.6
H51	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.5	29.9	34.3	35.5	35.7	35.7	35.7	35.7	35.7
	Exceedance Level	-	-	-	-17.5	-13.1	-8.7	-7.5	-7.8	-10.2	-12.6	-14.9	-16.9
H52	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.7	35.0	35.1	35.1	35.1	35.1	35.1
	Exceedance Level	-	-	-	-18.0	-13.6	-9.3	-8.0	-8.4	-10.8	-13.2	-15.5	-17.5
H53	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.4	30.7	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-22.3	-17.9	-13.6	-12.3	-12.1	-12.1	-14.9	-14.9	-14.9
H54	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.2	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-20.1	-15.8	-11.4	-10.1	-10.0	-10.0	-12.8	-12.8	-12.8
H55	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-14.4	-10.0	-5.7	-4.4	-4.8	-7.2	-9.6	-11.9	-13.9
H56	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-14.4	-10.0	-5.6	-4.3	-4.7	-7.1	-9.5	-11.8	-13.8
H57	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-20.4	-16.0	-11.7	-10.4	-10.3	-10.3	-13.1	-13.1	-13.1
H58	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.7	-17.3	-13.0	-11.7	-11.6	-11.6	-14.4	-14.4	-14.4
H59	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.3	24.7	29.1	30.3	30.5	30.5	30.5	30.5	30.5
	Exceedance Level	-	-	-	-22.7	-18.3	-13.9	-12.7	-12.5	-12.5	-15.3	-15.3	-15.3
H60	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	30.0	31.2	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.8	-17.4	-13.0	-11.8	-11.6	-11.6	-14.4	-14.4	-14.4
H61	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.1	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.9	-17.5	-13.1	-11.9	-11.7	-11.7	-14.5	-14.5	-14.5
H62	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	28.8	33.1	37.5	38.8	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-14.8	-10.5	-6.3	-5.4	-6.0	-6.5	-6.8	-6.8	-6.8
H63	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.9	-17.5	-13.3	-12.4	-13.0	-13.5	-13.8	-13.8	-13.8
H64	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.4	24.8	29.1	30.4	30.5	30.5	30.5	30.5	30.5
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.5	-12.5	-15.3	-15.3	-15.3
H65	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.5	24.9	29.3	30.5	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-22.5	-18.1	-13.7	-12.5	-12.3	-12.3	-15.1	-15.1	-15.1
H66	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	26.2	30.6	34.9	36.2	36.3	36.3	36.3	36.3	36.3
	Exceedance Level	-	-	-	-17.4	-13.0	-8.9	-8.0	-8.6	-9.1	-9.4	-9.4	-9.4

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H67	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.5	30.7	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-22.3	-17.9	-13.5	-12.3	-12.1	-12.1	-14.9	-14.9	-14.9
H68	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.2	24.6	29.0	30.2	30.4	30.4	30.4	30.4	30.4
	Exceedance Level	-	-	-	-22.8	-18.4	-14.0	-12.8	-12.6	-12.6	-15.4	-15.4	-15.4
H69	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-14.7	-10.3	-6.0	-4.7	-5.1	-7.5	-9.9	-12.2	-14.2
H70	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.9	34.3	38.7	40.0	40.1	40.1	40.1	40.1	40.1
	Exceedance Level	-	-	-	-13.1	-8.7	-4.3	-3.0	-3.4	-5.8	-8.2	-10.5	-12.5
H71	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	30.7	35.1	39.4	40.7	40.8	40.8	40.8	40.8	40.8
	Exceedance Level	-	-	-	-12.3	-7.9	-3.6	-2.3	-2.7	-5.1	-7.5	-9.8	-11.8
H72	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.8	35.2	36.5	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-16.5	-12.2	-7.8	-6.5	-6.4	-7.4	-10.8	-14.3	-17.7
H73	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.9	30.3	34.6	35.9	36.0	36.0	36.0	36.0	36.0
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-7.0	-8.0	-11.4	-14.9	-18.3
H74	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.7	-17.3	-13.0	-11.7	-11.5	-12.5	-15.9	-19.4	-22.8
H75	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-11.4	-12.4	-15.8	-19.3	-22.7
H76	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-22.0	-17.6	-13.2	-11.9	-11.8	-12.8	-16.2	-19.7	-23.1
H77	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.1	30.5	34.8	36.1	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-16.9	-12.5	-8.2	-6.9	-7.3	-9.7	-12.1	-14.4	-16.4
H78	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.4	38.6	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-14.4	-10.0	-5.6	-4.4	-4.7	-7.1	-9.5	-11.8	-13.8
H79	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.0	33.4	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-14.0	-9.6	-5.2	-3.9	-4.3	-6.7	-9.1	-11.4	-13.4
H80	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.0	33.4	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-14.0	-9.6	-5.2	-3.9	-4.3	-6.7	-9.1	-11.4	-13.4
H81	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.4	31.8	36.1	37.4	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-15.6	-11.2	-6.9	-5.6	-5.4	-6.4	-9.8	-13.3	-16.7
H82	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.4	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-14.6	-10.2	-5.8	-4.6	-4.4	-5.4	-8.8	-12.3	-15.7
H83	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-15.1	-10.7	-6.4	-5.1	-5.0	-6.0	-9.4	-12.9	-16.3
H84	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-4.7	-5.7	-9.1	-12.6	-16.0
H85	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.2	38.5	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-14.5	-10.1	-5.8	-4.5	-4.3	-5.3	-8.7	-12.2	-15.6
H86	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-14.1	-9.7	-5.3	-4.0	-3.9	-4.9	-8.3	-11.8	-15.2
H87	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.1	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.2	-16.9	-12.5	-11.2	-11.1	-11.1	-13.6	-16.0	-18.3
H88	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-22.0	-17.6	-13.3	-12.0	-11.8	-11.8	-14.3	-16.7	-19.0

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H89	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-22.1	-17.7	-13.4	-12.1	-12.0	-12.0	-14.5	-16.9	-19.2
H90	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-11.7	-14.2	-16.6	-18.9
H91	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.2	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-22.1	-17.8	-13.4	-12.1	-12.0	-12.0	-14.5	-16.9	-19.2
H92	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.7	28.1	32.4	33.7	33.8	33.8	33.8	33.8	33.8
	Exceedance Level	-	-	-	-19.3	-14.9	-10.6	-9.3	-9.2	-9.2	-11.7	-14.1	-16.4
H93	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-21.0	-16.6	-12.2	-10.9	-10.8	-10.8	-13.3	-15.7	-18.0
H94	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	30.9	32.2	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-20.8	-16.4	-12.1	-10.8	-10.7	-10.7	-13.2	-15.6	-17.9
H95	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-20.6	-16.2	-11.9	-10.6	-10.5	-10.5	-13.0	-15.4	-17.7
H96	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.5	26.9	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-20.5	-16.1	-11.7	-10.4	-10.3	-10.3	-12.8	-15.2	-17.5
H97	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-20.8	-16.4	-12.0	-10.7	-10.6	-10.6	-13.1	-15.5	-17.8
H98	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	31.0	32.2	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-20.8	-16.4	-12.0	-10.8	-10.6	-12.3	-15.3	-17.9	-20.2
H99	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-21.1	-16.7	-12.4	-11.1	-11.0	-12.7	-15.7	-18.3	-20.6
H100	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.6	32.6	32.6	32.6	32.6
	Exceedance Level	-	-	-	-20.6	-16.2	-11.9	-10.6	-10.4	-12.1	-15.1	-17.7	-20.0
H101	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.4	32.6	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-20.4	-16.0	-11.6	-10.4	-10.2	-11.9	-14.9	-17.5	-19.8
H102	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.3	28.6	33.0	34.3	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-18.7	-14.4	-10.0	-8.7	-8.6	-10.3	-13.3	-15.9	-18.2
H103	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.2	-9.9	-12.9	-15.5	-17.8
H104	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.2	34.5	35.8	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-17.2	-12.8	-8.5	-7.2	-7.1	-8.8	-11.8	-14.4	-16.7
H105	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.1	34.4	35.7	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-17.3	-12.9	-8.6	-7.3	-7.1	-7.1	-9.6	-12.0	-14.3
H106	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.2	-8.2	-10.7	-13.1	-15.4
H107	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.1	28.4	32.8	34.1	34.2	34.2	34.2	34.2	34.2
	Exceedance Level	-	-	-	-18.9	-14.6	-10.2	-8.9	-8.8	-8.8	-11.3	-13.7	-16.0
H108	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	29.6	34.0	38.3	39.6	39.8	39.8	39.8	39.8	39.8
	Exceedance Level	-	-	-	-13.4	-9.0	-4.7	-3.4	-3.2	-4.7	-7.3	-10.1	-12.9
H109	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	30.2	34.5	38.9	40.2	40.3	40.3	40.3	40.3	40.3
	Exceedance Level	-	-	-	-12.8	-8.5	-4.1	-2.8	-2.7	-4.2	-6.8	-9.6	-12.4
H110	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	30.3	34.7	39.0	40.3	40.4	40.4	40.4	40.4	40.4
	Exceedance Level	-	-	-	-12.7	-8.3	-4.0	-2.7	-2.6	-4.1	-6.7	-9.5	-12.3

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H111	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.3	33.7	35.0	35.1	35.1	35.1	35.1	35.1
	Exceedance Level	-	-	-	-18.1	-13.7	-9.3	-8.0	-7.9	-8.9	-12.3	-15.8	-19.2
H112	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	30.2	34.6	38.9	40.2	40.3	40.3	40.3	40.3	40.3
	Exceedance Level	-	-	-	-12.8	-8.4	-4.1	-2.8	-2.7	-3.7	-7.1	-10.6	-14.0
H113	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.4	33.8	38.1	39.4	39.5	39.5	39.5	39.5	39.5
	Exceedance Level	-	-	-	-13.6	-9.2	-4.9	-3.6	-3.5	-4.5	-7.9	-11.4	-14.8
H114	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-14.1	-9.7	-5.3	-4.0	-3.9	-4.9	-8.3	-11.8	-15.2
H115	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	30.9	35.2	39.6	40.9	41.0	41.0	41.0	41.0	41.0
	Exceedance Level	-	-	-	-12.1	-7.8	-3.4	-2.1	-2.0	-3.0	-6.4	-9.9	-13.3
H116	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.6	36.9	37.0	37.0	37.0	37.0	37.0
	Exceedance Level	-	-	-	-16.2	-11.8	-7.4	-6.1	-6.0	-7.0	-10.4	-13.9	-17.3
H117	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.9	31.3	35.6	36.9	37.0	37.0	37.0	37.0	37.0
	Exceedance Level	-	-	-	-16.1	-11.7	-7.4	-6.1	-6.0	-7.0	-10.4	-13.9	-17.3
H118	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.9	31.3	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-16.1	-11.7	-7.3	-6.0	-6.4	-8.8	-11.2	-13.5	-15.5
H119	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-12.0	-14.4	-16.8	-19.1	-21.1
H120	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.7	27.0	31.4	32.7	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-20.9	-16.6	-12.4	-11.5	-12.1	-12.6	-12.9	-12.9	-12.9
H121	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-21.3	-16.9	-12.8	-11.9	-12.5	-13.0	-13.3	-13.3	-13.3
H122	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-11.5	-11.5	-14.0	-16.4	-18.7
H123	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.3	29.7	34.0	35.3	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-17.7	-13.3	-9.0	-7.7	-7.6	-7.6	-10.1	-12.5	-14.8
H124	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.8	-17.4	-13.3	-12.4	-13.0	-13.5	-13.8	-13.8	-13.8
H125	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.3	24.7	29.0	30.3	30.4	30.4	30.4	30.4	30.4
	Exceedance Level	-	-	-	-22.7	-18.3	-14.0	-12.7	-12.6	-12.6	-15.4	-15.4	-15.4
H126	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.2	33.6	34.9	35.0	35.0	35.0	35.0	35.0
	Exceedance Level	-	-	-	-18.1	-13.8	-9.4	-8.1	-8.5	-10.9	-13.3	-15.6	-17.6
H127	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-14.4	-10.0	-5.7	-4.4	-4.3	-5.3	-8.7	-12.2	-15.6
H128	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.7	27.0	31.4	32.7	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-20.3	-16.0	-11.6	-10.3	-10.2	-11.2	-14.6	-18.1	-21.5
H129	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-4.6	-4.6	-7.1	-9.5	-11.8
H130	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-14.3	-9.9	-5.6	-4.3	-4.2	-4.2	-6.7	-9.1	-11.4
H131	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.6	33.0	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-14.4	-10.0	-5.6	-4.3	-4.2	-4.2	-6.7	-9.1	-11.4
H132	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.7	-10.3	-5.9	-4.6	-4.5	-4.5	-7.0	-9.4	-11.7

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H133	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.5	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.8	-10.5	-6.1	-4.8	-4.7	-4.7	-7.2	-9.6	-11.9
H134	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-14.5	-10.1	-5.7	-4.4	-4.3	-4.3	-6.8	-9.2	-11.5
H135	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.4	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-20.9	-16.6	-12.2	-10.9	-10.8	-10.8	-13.3	-15.7	-18.0
H136	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.4	28.8	33.1	34.4	34.5	34.5	34.5	34.5	34.5
	Exceedance Level	-	-	-	-18.6	-14.2	-9.9	-8.6	-8.5	-8.5	-11.0	-13.4	-15.7
H137	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.4	27.8	32.1	33.4	33.5	33.5	33.5	33.5	33.5
	Exceedance Level	-	-	-	-19.6	-15.2	-10.9	-9.6	-9.5	-9.5	-12.0	-14.4	-16.7
H138	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.8	37.0	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-16.0	-11.6	-7.2	-6.0	-5.8	-5.8	-8.3	-10.7	-13.0
H139	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-11.5	-11.5	-14.0	-16.4	-18.7
H140	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-16.2	-11.8	-7.5	-6.2	-6.1	-6.1	-8.6	-11.0	-13.3
H141	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-21.1	-16.7	-12.4	-11.1	-10.9	-10.9	-13.4	-15.8	-18.1
H142	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-21.4	-17.0	-12.7	-11.4	-11.3	-11.3	-13.8	-16.2	-18.5
H143	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.5	35.9	37.2	37.3	37.3	37.3	37.3	37.3
	Exceedance Level	-	-	-	-15.9	-11.5	-7.1	-5.8	-5.7	-5.7	-8.2	-10.6	-12.9
H144	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	30.5	34.9	39.2	40.5	40.6	40.6	40.6	40.6	40.6
	Exceedance Level	-	-	-	-12.5	-8.1	-3.8	-2.5	-2.4	-3.4	-6.8	-10.3	-13.7
H145	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.7	31.1	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-16.3	-11.9	-7.5	-6.2	-6.6	-9.0	-11.4	-13.7	-15.7
H146	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	27.8	32.2	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-15.2	-10.8	-6.4	-5.1	-5.5	-7.9	-10.3	-12.6	-14.6
H147	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.3	30.7	35.0	36.3	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-6.5	-6.5	-9.0	-11.4	-13.7
H148	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.9	-17.5	-13.1	-11.8	-12.2	-14.6	-17.0	-19.3	-21.3
H149	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.9	28.3	32.7	33.9	34.1	34.1	34.1	34.1	34.1
	Exceedance Level	-	-	-	-19.1	-14.7	-10.3	-9.1	-8.9	-8.9	-11.4	-13.8	-16.1
H150	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.4	29.8	34.1	35.4	35.6	35.6	35.6	35.6	35.6
	Exceedance Level	-	-	-	-17.6	-13.2	-8.9	-7.6	-7.9	-10.3	-12.7	-15.0	-17.0
H151	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.3	37.6	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-15.4	-11.0	-6.7	-5.4	-5.2	-6.2	-9.6	-13.1	-16.5
H152	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.0	28.3	32.7	34.0	34.1	34.1	34.1	34.1	34.1
	Exceedance Level	-	-	-	-19.0	-14.7	-10.3	-9.0	-8.9	-9.9	-13.3	-16.8	-20.2
H153	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.5	25.9	30.2	31.5	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-21.5	-17.1	-12.8	-11.5	-11.4	-11.4	-13.9	-16.3	-18.6
H154	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.5	25.9	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-22.1	-17.7	-13.5	-12.6	-13.2	-13.7	-14.0	-14.0	-14.0

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H155	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.1	24.5	28.9	30.2	30.3	30.3	30.3	30.3	30.3
	Exceedance Level	-	-	-	-22.9	-18.5	-14.1	-12.8	-12.7	-12.7	-15.5	-15.5	-15.5
H156	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-14.7	-10.3	-6.0	-4.7	-5.1	-7.5	-9.9	-12.2	-14.2
H157	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.0	32.4	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-15.0	-10.6	-6.2	-4.9	-5.3	-7.7	-10.1	-12.4	-14.4
H158	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-13.9	-9.5	-5.2	-3.9	-4.3	-6.7	-9.1	-11.4	-13.4
H159	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-21.9	-17.5	-13.2	-11.9	-11.8	-12.8	-16.2	-19.7	-23.1
H160	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.6	-10.2	-5.9	-4.6	-4.5	-4.5	-7.0	-9.4	-11.7
H161	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.8	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-15.5	-11.2	-6.8	-5.5	-5.4	-5.4	-7.9	-10.3	-12.6
H162	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.8	32.2	36.5	37.8	37.9	37.9	37.9	37.9	37.9
	Exceedance Level	-	-	-	-15.2	-10.8	-6.5	-5.2	-5.1	-5.1	-7.6	-10.0	-12.3
H163	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.5	32.9	37.3	38.6	38.7	38.7	38.7	38.7	38.7
	Exceedance Level	-	-	-	-14.5	-10.1	-5.7	-4.4	-4.8	-7.2	-9.6	-11.9	-13.9
H164	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.6	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.7	-9.7	-12.2	-14.6	-16.9
H165	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.4	30.7	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-22.3	-17.9	-13.6	-12.3	-12.2	-12.2	-14.7	-17.1	-19.4
H166	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	37.9	39.2	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-13.8	-9.4	-5.1	-3.8	-3.6	-4.6	-8.0	-11.5	-14.9
H167	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-15.1	-10.7	-6.4	-5.1	-5.0	-6.0	-9.4	-12.9	-16.3
H168	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.2	-9.2	-12.6	-16.1	-19.5
H169	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.5	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-14.6	-10.2	-5.8	-4.5	-4.9	-7.3	-9.7	-12.0	-14.0
H170	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.0	30.4	34.8	36.1	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-17.0	-12.6	-8.2	-6.9	-7.3	-9.7	-12.1	-14.4	-16.4
H171	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.1	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.7	-17.3	-12.9	-11.7	-11.5	-12.5	-15.9	-19.4	-22.8
H172	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.7	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.6	-17.3	-12.9	-11.6	-11.5	-12.5	-15.9	-19.4	-22.8
H173	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-12.7	-16.1	-19.6	-23.0
H174	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-12.7	-16.1	-19.6	-23.0
H175	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.1	29.5	33.8	35.1	35.2	35.2	35.2	35.2	35.2
	Exceedance Level	-	-	-	-17.9	-13.5	-9.2	-7.9	-7.8	-8.8	-12.2	-15.7	-19.1
H176	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.8	33.2	37.5	38.8	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-14.2	-9.8	-5.5	-4.2	-4.1	-5.1	-8.5	-12.0	-15.4

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H177	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.9	39.1	39.3	39.3	39.3	39.3	39.3
	Exceedance Level	-	-	-	-13.9	-9.5	-5.1	-3.9	-3.7	-4.7	-8.1	-11.6	-15.0
H178	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.3	33.7	38.0	39.3	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-13.7	-9.3	-5.0	-3.7	-3.6	-4.6	-8.0	-11.5	-14.9
H179	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.9	34.3	38.6	39.9	40.0	40.0	40.0	40.0	40.0
	Exceedance Level	-	-	-	-13.1	-8.7	-4.4	-3.1	-3.0	-4.0	-7.4	-10.9	-14.3
H180	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.7	32.1	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-15.3	-10.9	-6.6	-5.3	-5.2	-6.2	-9.6	-13.1	-16.5
H181	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.2	31.6	36.0	37.2	37.4	37.4	37.4	37.4	37.4
	Exceedance Level	-	-	-	-15.8	-11.4	-7.0	-5.8	-5.6	-6.6	-10.0	-13.5	-16.9
H182	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.7	31.1	35.5	36.7	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-16.3	-11.9	-7.5	-6.3	-6.6	-9.0	-11.4	-13.7	-15.7
H183	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.9	31.3	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-16.1	-11.7	-7.3	-6.0	-6.4	-8.8	-11.2	-13.5	-15.5
H184	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-16.0	-11.6	-7.3	-6.0	-6.3	-8.7	-11.1	-13.4	-15.4
H185	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.8	30.2	34.6	35.9	36.0	36.0	36.0	36.0	36.0
	Exceedance Level	-	-	-	-17.2	-12.8	-8.4	-7.1	-7.5	-9.9	-12.3	-14.6	-16.6
H186	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.9	39.2	39.3	39.3	39.3	39.3	39.3
	Exceedance Level	-	-	-	-13.9	-9.5	-5.1	-3.8	-4.2	-6.6	-9.0	-11.3	-13.3
H187	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	38.0	39.3	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-13.8	-9.4	-5.0	-3.7	-4.1	-6.5	-8.9	-11.2	-13.2
H188	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.2	38.5	38.6	38.6	38.6	38.6	38.6
	Exceedance Level	-	-	-	-14.6	-10.2	-5.8	-4.5	-4.9	-7.3	-9.7	-12.0	-14.0
H189	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.5	38.8	38.9	38.9	38.9	38.9	38.9
	Exceedance Level	-	-	-	-14.3	-9.9	-5.5	-4.2	-4.6	-7.0	-9.4	-11.7	-13.7
H190	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.2	31.4	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-21.6	-17.2	-12.8	-11.6	-11.4	-12.4	-15.8	-19.3	-22.7
H191	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.2	32.5	32.6	32.6	32.6	32.6	32.6
	Exceedance Level	-	-	-	-20.6	-16.2	-11.8	-10.5	-10.4	-11.4	-14.8	-18.3	-21.7
H192	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.7	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-20.6	-16.3	-11.9	-10.6	-10.5	-11.5	-14.9	-18.4	-21.8
H193	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	25.9	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-21.4	-17.1	-12.7	-11.4	-11.3	-12.3	-15.7	-19.2	-22.6
H194	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.2	31.4	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-	-21.6	-17.2	-12.8	-11.6	-11.4	-12.4	-15.8	-19.3	-22.7
H195	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.5	24.9	29.2	30.5	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-22.5	-18.1	-13.8	-12.5	-12.3	-12.3	-15.1	-15.1	-15.1
H196	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.6	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.7	-17.4	-13.0	-11.7	-11.6	-11.6	-14.4	-14.4	-14.4
H197	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.0	-17.6	-13.3	-12.0	-11.9	-11.9	-14.7	-14.7	-14.7
H198	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.4	24.8	29.1	30.4	30.5	30.5	30.5	30.5	30.5
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.5	-12.5	-15.3	-15.3	-15.3

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H199	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.4	24.8	29.1	30.4	30.6	30.6	30.6	30.6	30.6
	Exceedance Level	-	-	-	-22.6	-18.2	-13.9	-12.6	-12.4	-12.4	-15.2	-15.2	-15.2
H200	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.8	32.1	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-20.9	-16.5	-12.2	-10.9	-10.7	-10.7	-13.5	-13.5	-13.5
H201	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.5	28.8	33.2	34.5	34.6	34.6	34.6	34.6	34.6
	Exceedance Level	-	-	-	-18.5	-14.2	-9.8	-8.5	-8.4	-8.4	-10.9	-13.3	-15.6
H202	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.6	29.0	33.3	34.6	34.7	34.7	34.7	34.7	34.7
	Exceedance Level	-	-	-	-18.4	-14.0	-9.7	-8.4	-8.3	-8.3	-10.8	-13.2	-15.5
H203	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.3	29.6	34.0	35.3	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-17.7	-13.4	-9.0	-7.7	-7.6	-7.6	-10.1	-12.5	-14.8
H204	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.9	29.2	33.6	34.9	35.0	35.0	35.0	35.0	35.0
	Exceedance Level	-	-	-	-18.1	-13.8	-9.4	-8.1	-8.0	-8.0	-10.5	-12.9	-15.2
H205	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.4	29.8	34.1	35.4	35.5	35.5	35.5	35.5	35.5
	Exceedance Level	-	-	-	-17.6	-13.2	-8.9	-7.6	-7.5	-7.5	-10.0	-12.4	-14.7
H206	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	34.0	35.3	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-17.8	-13.4	-9.0	-7.7	-7.6	-7.6	-10.1	-12.5	-14.8
H207	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.0	30.4	34.7	36.0	36.2	36.2	36.2	36.2	36.2
	Exceedance Level	-	-	-	-17.0	-12.6	-8.3	-7.0	-6.8	-6.8	-9.3	-11.7	-14.0
H208	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-16.0	-11.6	-7.3	-6.0	-5.9	-5.9	-8.4	-10.8	-13.1
H209	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.0	32.4	36.7	38.0	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-15.0	-10.6	-6.3	-5.0	-4.8	-4.8	-7.3	-9.7	-12.0
H210	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.9	-10.5	-6.1	-4.8	-4.7	-4.7	-7.2	-9.6	-11.9
H211	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.6	-10.2	-5.9	-4.6	-4.5	-4.5	-7.0	-9.4	-11.7
H212	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.8	25.2	29.5	30.8	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-22.2	-17.8	-13.5	-12.2	-12.1	-12.1	-14.6	-17.0	-19.3
H213	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-21.9	-17.5	-13.2	-11.9	-11.8	-11.8	-14.3	-16.7	-19.0
H214	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.5	25.9	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-21.5	-17.1	-12.7	-11.4	-11.3	-11.3	-13.8	-16.2	-18.5
H215	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.2	-16.8	-12.5	-11.2	-11.1	-11.1	-13.6	-16.0	-18.3
H216	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	30.9	32.2	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-20.8	-16.4	-12.1	-10.8	-10.7	-10.7	-13.2	-15.6	-17.9
H217	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.9	32.2	32.3	32.3	32.3	32.3	32.3
	Exceedance Level	-	-	-	-20.9	-16.5	-12.1	-10.8	-10.7	-10.7	-13.2	-15.6	-17.9
H218	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-21.4	-17.0	-12.7	-11.4	-11.3	-11.3	-13.8	-16.2	-18.5
H219	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.4	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-21.9	-17.6	-13.2	-11.9	-11.8	-11.8	-14.3	-16.7	-19.0
H220	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.4	31.7	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-21.3	-16.9	-12.6	-11.3	-11.2	-11.2	-13.7	-16.1	-18.4

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H221	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.8	32.0	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-21.0	-16.6	-12.2	-11.0	-10.8	-10.8	-13.3	-15.7	-18.0
H222	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.5	27.9	32.2	33.5	33.6	33.6	33.6	33.6	33.6
	Exceedance Level	-	-	-	-19.5	-15.1	-10.8	-9.5	-9.4	-9.4	-11.9	-14.3	-16.6
H223	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.6	28.0	32.4	33.6	33.8	33.8	33.8	33.8	33.8
	Exceedance Level	-	-	-	-19.4	-15.0	-10.6	-9.4	-9.2	-9.2	-11.7	-14.1	-16.4
H224	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.2	-8.2	-10.7	-13.1	-15.4
H225	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.6	30.0	34.4	35.7	35.8	35.8	35.8	35.8	35.8
	Exceedance Level	-	-	-	-17.4	-13.0	-8.6	-7.3	-7.2	-7.2	-9.7	-12.1	-14.4
H226	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-14.9	-10.5	-6.2	-4.9	-4.8	-4.8	-7.3	-9.7	-12.0
H227	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-14.1	-9.7	-5.3	-4.0	-3.9	-3.9	-6.4	-8.8	-11.1
H228	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-17.8	-13.4	-9.1	-7.8	-7.6	-7.6	-10.1	-12.5	-14.8
H229	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-21.0	-16.6	-12.5	-11.6	-12.1	-12.6	-12.9	-12.9	-12.9
H230	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-21.0	-16.6	-12.5	-11.6	-12.2	-12.7	-13.0	-13.0	-13.0
H231	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.1	32.3	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-20.7	-16.3	-11.9	-10.7	-10.5	-10.5	-13.3	-13.3	-13.3
H232	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	23.1	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-19.9	-15.5	-11.1	-9.8	-9.7	-9.7	-12.5	-12.5	-12.5
H233	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.1	38.3	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.7	-10.3	-5.9	-4.7	-4.5	-4.5	-7.3	-7.3	-7.3
H234	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.0	33.4	37.7	39.0	39.1	39.1	39.1	39.1	39.1
	Exceedance Level	-	-	-	-14.0	-9.6	-5.3	-4.0	-4.4	-6.8	-9.2	-11.5	-13.5
H235	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.1	-9.7	-5.4	-4.1	-4.5	-6.9	-9.3	-11.6	-13.6
H236	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.1	-9.7	-5.4	-4.1	-4.5	-6.9	-9.3	-11.6	-13.6
H237	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	29.1	33.5	37.8	39.1	39.2	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-13.9	-9.5	-5.2	-3.9	-3.8	-3.8	-6.3	-8.7	-11.0
H238	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	29.8	34.2	38.5	39.8	39.9	39.9	39.9	39.9	39.9
	Exceedance Level	-	-	-	-13.2	-8.8	-4.5	-3.2	-3.1	-4.8	-7.8	-10.4	-12.7
H239	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	26.6	31.0	35.4	36.6	36.8	36.8	36.8	36.8	36.8
	Exceedance Level	-	-	-	-16.4	-12.0	-7.6	-6.4	-6.2	-7.9	-10.9	-13.5	-15.8
H240	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.0	28.4	32.8	34.1	34.2	34.2	34.2	34.2	34.2
	Exceedance Level	-	-	-	-19.0	-14.6	-10.2	-8.9	-8.8	-8.8	-11.3	-13.7	-16.0
H241	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.6	28.0	32.3	33.6	33.7	33.7	33.7	33.7	33.7
	Exceedance Level	-	-	-	-19.4	-15.0	-10.7	-9.4	-9.3	-9.3	-11.8	-14.2	-16.5
H242	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.4	37.6	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-15.4	-11.0	-6.6	-5.4	-5.2	-6.2	-9.6	-13.1	-16.5

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H243	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-4.7	-6.2	-8.8	-11.6	-14.4
H244	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.7	37.9	38.1	38.1	38.1	38.1	38.1
	Exceedance Level	-	-	-	-15.1	-10.7	-6.3	-5.1	-4.9	-6.4	-9.0	-11.8	-14.6
H245	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.0	38.0	38.0	38.0	38.0
	Exceedance Level	-	-	-	-15.1	-10.7	-6.4	-5.1	-5.0	-6.5	-9.1	-11.9	-14.7
H246	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.1	24.5	28.9	30.1	30.3	30.3	30.3	30.3	30.3
	Exceedance Level	-	-	-	-22.9	-18.5	-14.1	-12.9	-12.7	-12.7	-15.5	-15.5	-15.5
H247	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-22.5	-18.1	-14.0	-13.1	-13.7	-14.2	-14.5	-14.5	-14.5
H248	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-11.7	-14.5	-14.5	-14.5
H249	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.6	-11.6	-14.4	-14.4	-14.4
H250	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.7	25.1	29.5	30.7	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-22.3	-17.9	-13.5	-12.3	-12.1	-12.1	-14.9	-14.9	-14.9
H251	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.6	30.9	31.0	31.0	31.0	31.0	31.0
	Exceedance Level	-	-	-	-22.1	-17.7	-13.4	-12.1	-12.0	-12.0	-14.8	-14.8	-14.8
H252	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.3	-12.0	-11.9	-11.9	-14.7	-14.7	-14.7
H253	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.5	24.9	29.2	30.5	30.6	30.6	30.6	30.6	30.6
	Exceedance Level	-	-	-	-22.5	-18.1	-13.8	-12.5	-12.4	-12.4	-15.2	-15.2	-15.2
H254	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	30.0	31.3	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.8	-17.4	-13.0	-11.7	-11.6	-11.6	-14.4	-14.4	-14.4
H255	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.3	24.7	29.0	30.3	30.4	30.4	30.4	30.4	30.4
	Exceedance Level	-	-	-	-22.7	-18.3	-14.0	-12.7	-12.6	-12.6	-15.4	-15.4	-15.4
H256	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.1	24.5	28.8	30.1	30.2	30.2	30.2	30.2	30.2
	Exceedance Level	-	-	-	-22.9	-18.5	-14.2	-12.9	-12.8	-12.8	-15.6	-15.6	-15.6
H257	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.6	25.0	29.3	30.6	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-22.4	-18.0	-13.7	-12.4	-12.3	-12.3	-15.1	-15.1	-15.1
H258	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.8	35.0	35.2	35.2	35.2	35.2	35.2
	Exceedance Level	-	-	-	-18.0	-13.6	-9.2	-8.0	-7.8	-7.8	-10.3	-12.7	-15.0
H259	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.3	28.7	33.0	34.3	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-18.7	-14.3	-10.0	-8.7	-8.6	-8.6	-11.1	-13.5	-15.8
H260	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-16.0	-11.6	-7.3	-6.0	-5.9	-5.9	-8.4	-10.8	-13.1
H261	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.2	30.5	34.9	36.2	36.3	36.3	36.3	36.3	36.3
	Exceedance Level	-	-	-	-16.8	-12.5	-8.1	-6.8	-6.7	-6.7	-9.2	-11.6	-13.9
H262	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.9	35.3	36.5	36.7	36.7	36.7	36.7	36.7
	Exceedance Level	-	-	-	-16.5	-12.1	-7.7	-6.5	-6.3	-6.3	-8.8	-11.2	-13.5
H263	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.7	31.1	35.5	36.7	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-16.3	-11.9	-7.5	-6.3	-6.1	-6.1	-8.6	-11.0	-13.3
H264	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.3	31.6	36.0	37.3	37.4	37.4	37.4	37.4	37.4
	Exceedance Level	-	-	-	-15.7	-11.4	-7.0	-5.7	-5.6	-5.6	-8.1	-10.5	-12.8

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H265	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.8	33.2	37.5	38.8	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.2	-9.8	-5.5	-4.2	-4.0	-4.0	-6.5	-8.9	-11.2
H266	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-4.7	-4.7	-7.2	-9.6	-11.9
H267	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.4	32.8	37.1	38.4	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.6	-10.2	-5.9	-4.6	-4.5	-4.5	-7.0	-9.4	-11.7
H268	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.2	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.1	-9.8	-5.4	-4.1	-4.0	-4.0	-6.5	-8.9	-11.2
H269	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-14.7	-10.3	-6.0	-4.7	-4.6	-4.6	-7.1	-9.5	-11.8
H270	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	37.0	38.3	38.4	38.4	38.4	38.4	38.4
	Exceedance Level	-	-	-	-14.8	-10.4	-6.0	-4.7	-4.6	-4.6	-7.1	-9.5	-11.8
H271	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.4	31.7	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-21.4	-17.0	-12.6	-11.3	-11.2	-11.2	-13.7	-16.1	-18.4
H272	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.3	-12.0	-11.9	-11.9	-14.4	-16.8	-19.1
H273	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.4	31.6	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-21.4	-17.0	-12.6	-11.4	-11.2	-11.2	-13.7	-16.1	-18.4
H274	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.2	-16.8	-12.5	-11.2	-11.1	-11.1	-13.6	-16.0	-18.3
H275	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	30.0	31.2	31.4	31.4	31.4	31.4	31.4
	Exceedance Level	-	-	-	-21.8	-17.4	-13.0	-11.8	-11.6	-11.6	-14.1	-16.5	-18.8
H276	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-20.9	-16.5	-12.2	-10.9	-10.8	-10.8	-13.3	-15.7	-18.0
H277	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.1	26.5	30.8	32.1	32.2	32.2	32.2	32.2	32.2
	Exceedance Level	-	-	-	-20.9	-16.5	-12.2	-10.9	-10.8	-10.8	-13.3	-15.7	-18.0
H278	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-20.4	-16.0	-11.7	-10.4	-10.3	-10.3	-12.8	-15.2	-17.5
H279	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.7	27.1	31.4	32.7	32.8	32.8	32.8	32.8	32.8
	Exceedance Level	-	-	-	-20.3	-15.9	-11.6	-10.3	-10.2	-10.2	-12.7	-15.1	-17.4
H280	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.2	26.6	31.0	32.2	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-20.8	-16.4	-12.0	-10.8	-10.6	-10.6	-13.1	-15.5	-17.8
H281	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.7	32.9	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-	-20.1	-15.7	-11.3	-10.1	-9.9	-9.9	-12.4	-14.8	-17.1
H282	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.1	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-19.9	-15.5	-11.1	-9.8	-9.7	-9.7	-12.2	-14.6	-16.9
H283	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-19.8	-15.5	-11.1	-9.8	-9.7	-9.7	-12.2	-14.6	-16.9
H284	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.4	27.8	32.2	33.5	33.6	33.6	33.6	33.6	33.6
	Exceedance Level	-	-	-	-19.6	-15.2	-10.8	-9.5	-9.4	-9.4	-11.9	-14.3	-16.6
H285	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.4	28.8	33.2	34.4	34.6	34.6	34.6	34.6	34.6
	Exceedance Level	-	-	-	-18.6	-14.2	-9.8	-8.6	-8.4	-8.4	-10.9	-13.3	-15.6
H286	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.5	28.9	33.2	34.5	34.6	34.6	34.6	34.6	34.6
	Exceedance Level	-	-	-	-18.5	-14.1	-9.8	-8.5	-8.4	-8.4	-10.9	-13.3	-15.6

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H287	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.8	29.2	33.5	34.8	34.9	34.9	34.9	34.9	34.9
	Exceedance Level	-	-	-	-18.2	-13.8	-9.5	-8.2	-8.1	-8.1	-10.6	-13.0	-15.3
H288	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.7	35.0	35.1	35.1	35.1	35.1	35.1
	Exceedance Level	-	-	-	-18.0	-13.6	-9.3	-8.0	-7.9	-7.9	-10.4	-12.8	-15.1
H289	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.0	34.4	35.7	35.8	35.8	35.8	35.8	35.8
	Exceedance Level	-	-	-	-17.3	-13.0	-8.6	-7.3	-7.2	-7.2	-9.7	-12.1	-14.4
H290	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.4	30.8	35.1	36.4	36.5	36.5	36.5	36.5	36.5
	Exceedance Level	-	-	-	-16.6	-12.2	-7.9	-6.6	-6.5	-6.5	-9.0	-11.4	-13.7
H291	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.9	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-15.5	-11.1	-6.8	-5.5	-5.4	-5.4	-7.9	-10.3	-12.6
H292	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	27.2	31.6	35.9	37.2	37.4	37.4	37.4	37.4	37.4
	Exceedance Level	-	-	-	-15.8	-11.4	-7.1	-5.8	-5.6	-5.6	-8.1	-10.5	-12.8
H293	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	26.3	30.7	35.0	36.3	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-16.7	-12.3	-8.0	-6.7	-6.6	-6.6	-9.1	-11.5	-13.8
H294	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.1	34.4	35.7	35.8	35.8	35.8	35.8	35.8
	Exceedance Level	-	-	-	-17.3	-12.9	-8.6	-7.3	-7.2	-7.2	-9.7	-12.1	-14.4
H295	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.4	35.4	35.4	35.4	35.4
	Exceedance Level	-	-	-	-17.8	-13.4	-9.1	-7.8	-7.6	-7.6	-10.1	-12.5	-14.8
H296	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-22.5	-18.1	-13.9	-13.0	-13.6	-14.1	-14.4	-14.4	-14.4
H297	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-22.0	-17.6	-13.5	-12.6	-13.1	-13.6	-13.9	-13.9	-13.9
H298	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-21.7	-17.3	-13.2	-12.3	-12.9	-13.4	-13.7	-13.7	-13.7
H299	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-21.3	-16.9	-12.8	-11.9	-12.5	-13.0	-13.3	-13.3	-13.3
H300	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.2	32.5	32.6	32.6	32.6	32.6	32.6
	Exceedance Level	-	-	-	-21.2	-16.8	-12.6	-11.7	-12.3	-12.8	-13.1	-13.1	-13.1
H301	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.8	27.2	31.6	32.8	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-20.8	-16.4	-12.2	-11.4	-11.9	-12.4	-12.7	-12.7	-12.7
H302	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.6	32.9	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-	-20.7	-16.3	-12.2	-11.3	-11.8	-12.3	-12.6	-12.6	-12.6
H303	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-20.7	-16.3	-12.0	-10.7	-10.6	-10.6	-13.4	-13.4	-13.4
H304	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	22.8	27.2	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-20.2	-15.8	-11.4	-10.1	-10.0	-10.0	-12.8	-12.8	-12.8
H305	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.6	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-19.8	-15.4	-11.1	-9.8	-9.7	-9.7	-12.5	-12.5	-12.5
H306	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	25.4	29.8	34.1	35.4	35.5	35.5	35.5	35.5	35.5
	Exceedance Level	-	-	-	-17.6	-13.2	-8.9	-7.6	-7.5	-7.5	-10.3	-10.3	-10.3
H307	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	27.9	32.3	36.6	37.9	38.1	38.1	38.1	38.1	38.1
	Exceedance Level	-	-	-	-15.1	-10.7	-6.4	-5.1	-4.9	-4.9	-7.7	-7.7	-7.7
H308	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	45.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.1	-9.7	-5.4	-4.1	-4.5	-6.9	-9.3	-11.6	-13.6

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H309	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	43.9	48.3	50.6	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.1	-9.7	-5.4	-4.1	-4.5	-6.9	-9.3	-11.6	-13.6
H310	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.3	28.7	33.1	34.4	34.5	34.5	34.5	34.5	34.5
	Exceedance Level	-	-	-	-18.7	-14.3	-9.9	-8.6	-8.5	-8.5	-11.0	-13.4	-15.7
H311	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.1	27.5	31.9	33.2	33.3	33.3	33.3	33.3	33.3
	Exceedance Level	-	-	-	-19.9	-15.5	-11.1	-9.8	-9.7	-9.7	-12.2	-14.6	-16.9
H312	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.5	31.8	36.2	37.5	37.6	37.6	37.6	37.6	37.6
	Exceedance Level	-	-	-	-15.5	-11.2	-6.8	-5.5	-5.4	-6.4	-9.8	-13.3	-16.7
H313	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.8	32.2	36.5	37.8	37.9	37.9	37.9	37.9	37.9
	Exceedance Level	-	-	-	-15.2	-10.8	-6.5	-5.2	-5.1	-6.1	-9.5	-13.0	-16.4
H314	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.7	32.1	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-15.3	-10.9	-6.6	-5.3	-5.2	-6.2	-9.6	-13.1	-16.5
H315	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	28.2	32.6	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.8	-10.4	-6.1	-4.8	-4.7	-6.2	-8.8	-11.6	-14.4
H316	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.9	38.2	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.9	-10.5	-6.1	-4.8	-4.7	-6.2	-8.8	-11.6	-14.4
H317	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.5	36.9	38.1	38.3	38.3	38.3	38.3	38.3
	Exceedance Level	-	-	-	-14.9	-10.5	-6.1	-4.9	-4.7	-6.2	-8.8	-11.6	-14.4
H318	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.4	37.7	37.8	37.8	37.8	37.8	37.8
	Exceedance Level	-	-	-	-15.4	-11.0	-6.6	-5.3	-5.2	-6.7	-9.3	-12.1	-14.9
H319	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.5	47.1	49.9	52.7
	Predicted Wind Turbine Noise LA90	-	-	-	28.1	32.4	36.8	38.1	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-14.9	-10.6	-6.2	-4.9	-4.8	-6.3	-8.9	-11.7	-14.5
H320	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.8	31.1	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.9	-17.5	-13.2	-11.9	-11.7	-11.7	-14.2	-16.6	-18.9
H321	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.2	31.2	31.2	31.2	31.2
	Exceedance Level	-	-	-	-22.0	-17.6	-13.3	-12.0	-11.8	-11.8	-14.3	-16.7	-19.0
H322	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.6	26.0	30.3	31.6	31.7	31.7	31.7	31.7	31.7
	Exceedance Level	-	-	-	-21.4	-17.0	-12.7	-11.4	-11.3	-11.3	-13.8	-16.2	-18.5
H323	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.6	30.9	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.4	-12.1	-11.9	-11.9	-14.4	-16.8	-19.1
H324	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.0	-17.6	-13.3	-12.0	-11.9	-11.9	-14.4	-16.8	-19.1
H325	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.0	31.4	35.7	37.0	37.1	37.1	37.1	37.1	37.1
	Exceedance Level	-	-	-	-16.0	-11.6	-7.3	-6.0	-5.9	-6.9	-10.3	-13.8	-17.2
H326	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.9	34.9	34.9	34.9	34.9
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.1	-9.8	-12.8	-15.4	-17.7
H327	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.2	-9.9	-12.9	-15.5	-17.8
H328	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.2	28.6	33.0	34.3	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-18.8	-14.4	-10.0	-8.7	-8.6	-10.3	-13.3	-15.9	-18.2
H329	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	24.2	28.6	33.0	34.2	34.4	34.4	34.4	34.4	34.4
	Exceedance Level	-	-	-	-18.8	-14.4	-10.0	-8.8	-8.6	-10.3	-13.3	-15.9	-18.2
H330	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	23.2	27.6	32.0	33.3	33.4	33.4	33.4	33.4	33.4
	Exceedance Level	-	-	-	-19.8	-15.4	-11.0	-9.7	-9.6	-11.3	-14.3	-16.9	-19.2

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H331	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.9	27.3	31.6	32.9	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-	-20.1	-15.7	-11.4	-10.1	-9.9	-11.6	-14.6	-17.2	-19.5
H332	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-20.7	-16.3	-11.9	-10.6	-10.5	-12.2	-15.2	-17.8	-20.1
H333	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.3	26.7	31.0	32.3	32.4	32.4	32.4	32.4	32.4
	Exceedance Level	-	-	-	-20.7	-16.3	-12.0	-10.7	-10.6	-10.6	-13.1	-15.5	-17.8
H334	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.5	35.8	37.1	37.3	37.3	37.3	37.3	37.3
	Exceedance Level	-	-	-	-15.9	-11.5	-7.2	-5.9	-5.7	-6.7	-10.1	-13.6	-17.0
H335	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.1	31.4	35.8	37.1	37.2	37.2	37.2	37.2	37.2
	Exceedance Level	-	-	-	-15.9	-11.6	-7.2	-5.9	-5.8	-6.8	-10.2	-13.7	-17.1
H336	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.8	31.2	35.5	36.8	36.9	36.9	36.9	36.9	36.9
	Exceedance Level	-	-	-	-16.2	-11.8	-7.5	-6.2	-6.1	-7.1	-10.5	-14.0	-17.4
H337	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	26.5	30.8	35.2	36.5	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-16.5	-12.2	-7.8	-6.5	-6.4	-7.4	-10.8	-14.3	-17.7
H338	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.7	30.1	34.5	35.7	35.9	35.9	35.9	35.9	35.9
	Exceedance Level	-	-	-	-17.3	-12.9	-8.5	-7.3	-7.1	-8.1	-11.5	-15.0	-18.4
H339	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.3	35.3	35.3	35.3	35.3
	Exceedance Level	-	-	-	-17.8	-13.4	-9.1	-7.8	-7.7	-9.4	-12.4	-15.0	-17.3
H340	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	25.0	29.4	33.8	35.0	35.2	35.2	35.2	35.2	35.2
	Exceedance Level	-	-	-	-18.0	-13.6	-9.2	-8.0	-7.8	-9.5	-12.5	-15.1	-17.4
H341	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.8	27.2	31.6	32.9	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-	-20.2	-15.8	-11.4	-10.1	-10.0	-11.7	-14.7	-17.3	-19.6
H342	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.7	26.1	30.4	31.7	31.8	31.8	31.8	31.8	31.8
	Exceedance Level	-	-	-	-21.3	-16.9	-12.6	-11.3	-11.2	-11.2	-13.7	-16.1	-18.4
H343	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.6	27.0	31.3	32.6	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-20.4	-16.0	-11.7	-10.4	-10.3	-10.3	-12.8	-15.2	-17.5
H344	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.2	25.6	29.9	31.2	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-21.8	-17.4	-13.1	-11.8	-11.7	-11.7	-14.2	-16.6	-18.9
H345	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.0	25.4	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.0	-17.6	-13.3	-12.0	-11.9	-11.9	-14.4	-16.8	-19.1
H346	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.9	26.3	30.6	31.9	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-21.1	-16.7	-12.4	-11.1	-10.9	-10.9	-13.4	-15.8	-18.1
H347	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	22.4	26.8	31.1	32.4	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-21.2	-16.8	-12.7	-11.8	-12.4	-12.9	-13.2	-13.2	-13.2
H348	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.1	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.7	-17.3	-12.9	-11.7	-11.5	-11.5	-14.0	-16.4	-18.7
H349	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.3	-12.0	-11.9	-11.9	-14.4	-16.8	-19.1
H350	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	27.6	32.0	36.3	37.6	37.7	37.7	37.7	37.7	37.7
	Exceedance Level	-	-	-	-15.4	-11.0	-6.7	-5.4	-5.3	-6.3	-9.7	-13.2	-16.6
H351	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.6	31.8	32.0	32.0	32.0	32.0	32.0
	Exceedance Level	-	-	-	-21.2	-16.8	-12.4	-11.2	-11.0	-11.0	-13.5	-15.9	-18.2
H352	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	28.9	33.3	37.6	38.9	39.0	39.0	39.0	39.0	39.0
	Exceedance Level	-	-	-	-14.1	-9.7	-5.4	-4.1	-4.0	-4.0	-6.5	-8.9	-11.2

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location		Wind Speed (ms^{-1}) as standardised to 10 m height											
		1	2	3	4	5	6	7	8	9	10	11	12
H353	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.1	25.5	29.9	31.1	31.3	31.3	31.3	31.3	31.3
	Exceedance Level	-	-	-	-22.5	-18.1	-13.9	-13.1	-13.6	-14.1	-14.4	-14.4	-14.4
H354	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.8	45.8	45.8
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.3	-12.0	-11.9	-11.9	-14.7	-14.7	-14.7
H355	WEDG Noise Limit LA90	43.6	43.6	43.6	43.6	43.6	43.8	44.2	44.9	45.4	45.7	45.7	45.7
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.7	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-22.2	-17.9	-13.7	-12.8	-13.4	-13.9	-14.2	-14.2	-14.2
H356	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.7	33.1	37.4	38.7	38.8	38.8	38.8	38.8	38.8
	Exceedance Level	-	-	-	-14.3	-9.9	-5.6	-4.3	-4.2	-5.2	-8.6	-12.1	-15.5
H357	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	22.5	26.9	31.2	32.5	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-	-20.5	-16.1	-11.8	-10.5	-10.3	-12.0	-15.0	-17.6	-19.9
H358	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	29.2	33.6	37.9	39.2	39.4	39.4	39.4	39.4	39.4
	Exceedance Level	-	-	-	-13.8	-9.4	-5.1	-3.8	-3.6	-4.6	-8.0	-11.5	-14.9
H359	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.4	25.8	30.1	31.4	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.6	-17.2	-12.9	-11.6	-11.5	-11.5	-14.0	-16.4	-18.7
H360	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.2	-16.8	-12.5	-11.2	-11.1	-11.1	-13.6	-16.0	-18.3
H361	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	24.7	29.1	33.4	34.7	34.8	34.8	34.8	34.8	34.8
	Exceedance Level	-	-	-	-18.3	-13.9	-9.6	-8.3	-8.2	-8.2	-10.7	-13.1	-15.4
H362	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	25.9	30.3	34.6	35.9	36.0	36.0	36.0	36.0	36.0
	Exceedance Level	-	-	-	-17.1	-12.7	-8.4	-7.1	-7.0	-7.0	-9.5	-11.9	-14.2
H363	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	23.8	28.2	32.6	33.9	34.0	34.0	34.0	34.0	34.0
	Exceedance Level	-	-	-	-19.2	-14.8	-10.4	-9.1	-9.0	-9.0	-11.5	-13.9	-16.2
H364	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	23.4	27.7	32.1	33.4	33.5	33.5	33.5	33.5	33.5
	Exceedance Level	-	-	-	-19.6	-15.3	-10.9	-9.6	-9.5	-10.5	-13.9	-17.4	-20.8
H365	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	23.0	27.4	31.8	33.0	33.2	33.2	33.2	33.2	33.2
	Exceedance Level	-	-	-	-20.0	-15.6	-11.2	-10.0	-9.8	-11.5	-14.5	-17.1	-19.4
H366	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.8	26.2	30.5	31.8	31.9	31.9	31.9	31.9	31.9
	Exceedance Level	-	-	-	-21.2	-16.8	-12.5	-11.2	-11.1	-11.1	-13.6	-16.0	-18.3
H367	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	25.2	29.6	33.9	35.2	35.3	35.3	35.3	35.3	35.3
	Exceedance Level	-	-	-	-17.8	-13.4	-9.1	-7.8	-7.7	-8.7	-12.1	-15.6	-19.0
H368	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.7	-17.3	-13.0	-11.7	-11.5	-11.5	-14.0	-16.4	-18.7
H369	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	47.4	50.9	54.3
	Predicted Wind Turbine Noise LA90	-	-	-	28.3	32.7	37.0	38.3	38.5	38.5	38.5	38.5	38.5
	Exceedance Level	-	-	-	-14.7	-10.3	-6.0	-4.7	-4.5	-5.5	-8.9	-12.4	-15.8
H370	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	22.0	26.4	30.7	32.0	32.1	32.1	32.1	32.1	32.1
	Exceedance Level	-	-	-	-21.0	-16.6	-12.3	-11.0	-10.9	-10.9	-13.4	-15.8	-18.1
H371	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	20.9	25.3	29.7	31.0	31.1	31.1	31.1	31.1	31.1
	Exceedance Level	-	-	-	-22.1	-17.7	-13.3	-12.0	-11.9	-11.9	-14.4	-16.8	-19.1
H372	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.7	-17.3	-13.0	-11.7	-11.5	-11.5	-14.0	-16.4	-18.7
H373	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.5	47.9	50.2
	Predicted Wind Turbine Noise LA90	-	-	-	21.3	25.7	30.0	31.3	31.5	31.5	31.5	31.5	31.5
	Exceedance Level	-	-	-	-21.7	-17.3	-13.0	-11.7	-11.5	-11.5	-14.0	-16.4	-18.7
H374	WEDG Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.7	47.7	50.3	52.6
	Predicted Wind Turbine Noise LA90	-	-	-	32.0	36.4	40.7	42.0	42.2	42.2	42.2	42.2	42.2
	Exceedance Level	-	-	-	-11.0	-6.6	-2.3	-1.0	-0.8	-2.5	-5.5	-8.1	-10.4

Table A5.3 WEDG Noise Limits Compliance Table – Night time

Location	Wind Speed (ms^{-1}) as standardised to 10 m height											
	1	2	3	4	5	6	7	8	9	10	11	12

*The predictions presented here are calculated for the building centrepoint and therefore will differ from those presented within the main body of the report

Annex 6 – Topographical Corrections / Turbine Coordinates

Table A6.1: Turbine Coordinates

Wind Farm	Easting	Northing	Height	Hub Height Modelled
Kellystown Wind Farm -T01	708057	783557	100	98.5
Kellystown Wind Farm -T02	708686	783447	91	98.5
Kellystown Wind Farm -T03	708319	782834	110	98.5
Kellystown Wind Farm -T04	707338	784036	115	98.5
Kellystown Wind Farm -T05	708442	784164	103	98.5

Topographical (concave ground/ barrier) Noise Prediction Adjustment Table

Notes/Comments:

- Requirement to include a concave ground profile correction of +3dB has been calculated in accordance with section 4.3.9 of the IOA GPG (July 2011)
- A barrier correction of -2dB is included where the landform completely obscures a turbine at the noise assessment location
- Where analysis indicates that both are required the barrier correction take precedence and a correction of -2dB is applied

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	NAL1	NAL2	NAL3	NAL4	NAL5	NAL6	NAL7	NAL8	NAL9	NAL10	NAL11	NAL12
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	NAL13	NAL14
Kellystown	1	98.50	180.00	0	0
Kellystown	2	98.50	180.00	0	0
Kellystown	3	98.50	180.00	0	0
Kellystown	4	98.50	180.00	0	0
Kellystown	5	98.50	180.00	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H13	H14	H15	H16	H17	H18	H19	H20	H21	H22	H23	H24
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H25	H26	H27	H28	H29	H30	H31	H32	H33	H34	H35	H36
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H37	H38	H39	H40	H41	H42	H43	H44	H45	H46	H47	H48
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H49	H50	H51	H52	H53	H54	H55	H56	H57	H58	H59	H60
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H49	H50	H51	H52	H53	H54	H55	H56	H57	H58	H59	H60
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H61	H62	H63	H64	H65	H66	H67	H68	H69	H70	H71	H72
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H73	H74	H75	H76	H77	H78	H79	H80	H81	H82	H83	H84
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H85	H86	H87	H88	H89	H90	H91	H92	H93	H94	H95	H96
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H97	H98	H99	H100	H101	H102	H103	H104	H105	H106	H107	H108
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H109	H110	H111	H112	H113	H114	H115	H116	H117	H118	H119	H120
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H121	H122	H123	H124	H125	H126	H127	H128	H129	H130	H131	H132
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H133	H134	H135	H136	H137	H138	H139	H140	H141	H142	H143	H144
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H133	H134	H135	H136	H137	H138	H139	H140	H141	H142	H143	H144
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H145	H146	H147	H148	H149	H150	H151	H152	H153	H154	H155	H156
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H157	H158	H159	H160	H161	H162	H163	H164	H165	H166	H167	H168
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H169	H170	H171	H172	H173	H174	H175	H176	H177	H178	H179	H180
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H181	H182	H183	H184	H185	H186	H187	H188	H189	H190	H191	H192
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H193	H194	H195	H196	H197	H198	H199	H200	H201	H202	H203	H204
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H205	H206	H207	H208	H209	H210	H211	H212	H213	H214	H215	H216
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H217	H218	H219	H220	H221	H222	H223	H224	H225	H226	H227	H228
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H217	H218	H219	H220	H221	H222	H223	H224	H225	H226	H227	H228
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H229	H230	H231	H232	H233	H234	H235	H236	H237	H238	H239	H240
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H241	H242	H243	H244	H245	H246	H247	H248	H249	H250	H251	H252
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H253	H254	H255	H256	H257	H258	H259	H260	H261	H262	H263	H264
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H265	H266	H267	H268	H269	H270	H271	H272	H273	H274	H275	H276
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H277	H278	H279	H280	H281	H282	H283	H284	H285	H286	H287	H288
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H289	H290	H291	H292	H293	H294	H295	H296	H297	H298	H299	H300
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H301	H302	H303	H304	H305	H306	H307	H308	H309	H310	H311	H312
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H301	H302	H303	H304	H305	H306	H307	H308	H309	H310	H311	H312
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H313	H314	H315	H316	H317	H318	H319	H320	H321	H322	H323	H324
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H325	H326	H327	H328	H329	H330	H331	H332	H333	H334	H335	H336
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H337	H338	H339	H340	H341	H342	H343	H344	H345	H346	H347	H348
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H349	H350	H351	H352	H353	H354	H355	H356	H357	H358	H359	H360
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H361	H362	H363	H364	H365	H366	H367	H368	H369	H370	H371	H372
Kellystown	1	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	2	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	3	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	4	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0
Kellystown	5	98.50	180.00	0	0	0	0	0	0	0	0	0	0	0	0

Wind Farm	SRC_ID	Hub Height (m)	Tip Height (m)	H373	H374
Kellystown	1	98.50	180.00	0	0
Kellystown	2	98.50	180.00	0	0
Kellystown	3	98.50	180.00	0	0
Kellystown	4	98.50	180.00	0	0
Kellystown	5	98.50	180.00	0	0

Annex 7 – Suggested Operational Noise Conditions

Noise

1) The rating level of noise immission from the combined effects of the wind turbines hereby permitted (including the application of any tonal penalty), when determined in accordance with the attached Guidance Notes, shall not exceed the values for the relevant integer wind speeds set out in or derived from Tables 1 and 2 attached to these conditions and:

    A) Prior to the First Export Date, the wind farm operator shall submit to the Local Authority for written approval a list of proposed independent consultants who may undertake compliance measurements in accordance with this condition. Amendments to the list of approved consultants shall be made only with the prior written approval of the Local Authority.

    B) Within 21 days from receipt of a written request of the Local Authority, following a complaint to it alleging noise disturbance at a dwelling, the wind farm operator shall, at its expense, employ an independent consultant approved by the Local Authority to assess the level of noise immission from the wind farm at the complainant's property (or a suitable alternative location agreed in writing with the Local Authority) in accordance with the procedures described in the attached Guidance Notes. The written request from the Local Authority shall set out at least the date, time and location that the complaint relates to. Within 14 days of receipt of the written request of the Local Authority made under this paragraph (B), the wind farm operator shall provide the information relevant to the complaint logged in accordance with paragraph (H) to the Local Authority in the format set out in Guidance Note 1(e).

    C) Where there is more than one property at a location specified in Tables 1 and 2 attached to this condition, the noise limits set for that location shall apply to all dwellings at that location. Where a dwelling to which a complaint is related is not identified by name or location in the Tables attached to these conditions, the wind farm operator shall submit to the Local Authority for written approval proposed noise limits selected from those listed in the Tables to be adopted at the complainant's dwelling for compliance checking purposes. The proposed noise limits are to be those limits selected from the Tables specified for a listed location which the independent consultant considers as being likely to experience the most similar background noise environment to that experienced at the complainant's dwelling. The submission of the proposed noise limits to the Local Authority shall include a written justification of the choice of the representative background noise environment provided by the independent consultant. The rating level of noise immission resulting from the combined effects of the wind turbines when determined in accordance with the attached Guidance Notes shall not exceed the noise limits approved in writing by the Local Authority for the complainant's dwelling.

    D) Prior to the commencement of any measurements by the independent consultant to be undertaken in accordance with these conditions, the wind farm operator shall submit to the Local Authority for written approval the proposed measurement location identified in accordance with the Guidance Notes where measurements for compliance checking purposes shall be undertaken. Where the proposed measurement location is close to the wind turbines, rather than at the complainants property (to improve the signal to noise ratio), then the operators submission shall include a method to calculate the noise level from the wind turbines at the complainants property based on the noise levels measured at the agreed location (the alternative method). Details of the alternative method together with any associated guidance notes deemed necessary, shall be submitted to and agreed

in writing by the Local Authority prior to the commencement of any measurements. Measurements to assess compliance with the noise limits set out in the Tables attached to these conditions or approved by the Local Authority pursuant to paragraph (C) of this condition shall be undertaken at the measurement location approved in writing by the Local Authority.

E) Prior to the submission of the independent consultant's assessment of the rating level of noise immission pursuant to paragraph (F) of this condition, the wind farm operator shall submit to the Local Authority for written approval a proposed assessment protocol setting out the following:

i) the range of meteorological and operational conditions (the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise immission.

ii) a reasoned assessment as to whether the noise giving rise to the complaint contains or is likely to contain a tonal component.

The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the information provided in the written request of the Local Authority under paragraph (B), and such others as the independent consultant considers necessary to fully assess the noise at the complainant's property. The assessment of the rating level of noise immission shall be undertaken in accordance with the assessment protocol approved in writing by the Local Authority and the attached Guidance Notes.

F) The wind farm operator shall provide to the Local Authority the independent consultant's assessment of the rating level of noise immission undertaken in accordance with the Guidance Notes within 2 months of the date of the written request of the Local Authority made under paragraph (B) of this condition unless the time limit is extended in writing by the Local Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Local Authority with the independent consultant's assessment of the rating level of noise immission.

G) Where a further assessment of the rating level of noise immission from the wind farm is required pursuant to Guidance Note 4(c) of the attached Guidance Notes, the wind farm operator shall submit a copy of the further assessment within 21 days of submission of the independent consultant's assessment pursuant to paragraph (F) above unless the time limit for the submission of the further assessment has been extended in writing by the Local Authority.

H) The wind farm operator shall continuously log power production, wind speed and wind direction, all in accordance with Guidance Note 1(d) of the attached Guidance Notes. The data shall be retained for a period of not less than 24 months. The wind farm operator shall provide this information in the format set out in Guidance Note 1(e) of the attached Guidance Notes to the Local Authority on its request within 14 days of receipt in writing of such a request.

Note: For the purposes of this condition, a "dwelling" is a residential building which lawfully exists or had planning permission at the date of this permission.

Table 1 - Between 07:00 and 23:00 - Noise level dB $L_{A90, 10\text{-minute}}$

Location (easting, northing grid coordinates)	Standardised wind speed at 10 metres height (m/s) within the site averaged over 10-minute periods											
	1	2	3	4	5	6	7	8	9	10	11	12
	L_{A90} Decibel Levels											
NAL1 (706620, 783942)	45	45	45	45	45	45	45	45	46	47	47	47
NAL2 (706708, 784461)	45	45	45	45	45	45	45	45	45	45	45	45
NAL3 (707198, 784739)	45	45	45	45	45	45	45	46	48	49	51	51
NAL4 (707878, 784833)	45	45	45	45	45	45	45	46	48	49	51	51
NAL5 (708655, 784720)	45	45	45	45	45	45	45	46	48	49	51	51
NAL6 (709261, 784688)	45	45	45	45	45	45	45	45	46	49	51	51
NAL7 (709203, 784231)	45	45	45	45	45	45	45	45	46	49	51	51
NAL8 (709235, 783884)	45	45	45	45	45	45	45	45	46	49	51	51
NAL9 (709600, 783414)	45	45	45	45	45	45	45	45	46	49	51	51
NAL10 (709198, 783016)	45	45	45	45	45	45	45	45	46	48	50	50
NAL11 (708769, 782531)	45	45	45	45	45	45	45	45	47	49	50	50
NAL12 (708257, 782112)	45	45	45	45	45	45	45	45	46	48	50	50
NAL13 (707618, 782312)	45	45	45	45	45	45	45	45	46	48	50	50
NAL14 (707377, 782884)	45	45	45	45	45	45	45	45	46	48	50	50

Table 2 - Between 23:00 and 07:00 - Noise level dB $L_{A90, 10\text{-minute}}$

Location (easting, northing grid coordinates)	Standardised wind speed at 10 metres height (m/s) within the site averaged over 10-minute periods											
	1	2	3	4	5	6	7	8	9	10	11	12
	L_{A90} Decibel Levels											
NAL1 (706620, 783942)	44	44	44	44	44	44	44	45	45	46	46	46
NAL2 (706708, 784461)	43	43	43	43	43	43	43	43	43	46	46	46
NAL3 (707198, 784739)	43	43	43	43	43	43	43	44	46	48	51	53
NAL4 (707878, 784833)	43	43	43	43	43	43	43	44	46	48	51	53
NAL5 (708655, 784720)	43	43	43	43	43	43	43	44	46	48	51	53
NAL6 (709261, 784688)	43	43	43	43	43	43	43	43	44	47	51	54
NAL7 (709203, 784231)	43	43	43	43	43	43	43	43	44	47	51	54
NAL8 (709235, 783884)	43	43	43	43	43	43	43	43	44	47	51	54
NAL9 (709600, 783414)	43	43	43	43	43	43	43	43	44	47	51	54
NAL10 (709198, 783016)	43	43	43	43	43	43	43	43	45	47	50	53
NAL11 (708769, 782531)	43	43	43	43	43	43	43	43	45	48	50	53
NAL12 (708257, 782112)	43	43	43	43	43	43	43	43	43	46	48	50
NAL13 (707618, 782312)	43	43	43	43	43	43	43	43	43	46	48	50
NAL14 (707377, 782884)	43	43	43	43	43	43	43	43	43	46	48	50

Note to Tables 1 & 2: The geographical coordinates references set out in these tables are provided for the purpose of identifying the general location of dwellings to which a given set of noise limits applies. The standardised wind speed at 10 metres height within the site refers to wind speed at 10 metres height derived from those measured at hub height, calculated in accordance with the method given in the Guidance Notes.

Note 2 to Tables 1 and 2: Any update to the noise limits shall be submitted to and approved in writing by, the Planning Authority. The development shall operate in accordance with the limits contained in this Condition unless the Planning Authority gives it written consent to an updated set of noise limits.

Guidance Notes for Noise Condition

These notes are to be read with and form part of the noise condition. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immission from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Note 3 with any necessary correction for residual background noise levels in accordance with Note 4. Reference to ETSU-R-97 refers to the publication entitled "The Assessment and Rating of Noise from Wind Farms" (1997) published by the Energy Technology Support unit (ETSU) for the Department of Trade and Industry (DTI).

Note 1

(a) Values of the $L_{A90,10\text{-minute}}$ noise statistic should be measured at the complainant's property (or an approved alternative representative location as detailed in Note 1(b)), using a sound level meter of EN 60651/BS EN 60804 Type 1, or BS EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in BS EN 60651/BS EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated before and after each set of measurements, using a calibrator meeting BS EN 60945:2003 "Electroacoustics – sound calibrators" Class 1 with PTB Type Approval (or the equivalent UK adopted standard in force at the time of the measurements) and the results shall be recorded. Measurements shall be undertaken in such a manner to enable a tonal penalty to be calculated and applied in accordance with Guidance Note 3.

(b) The microphone shall be mounted at 1.2 - 1.5 metres above ground level, fitted with a two-layer windshield or suitable equivalent approved in writing by the Local Authority, and placed outside the complainant's dwelling. Measurements should be made in "free field" conditions. To achieve this, the microphone shall be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the wind farm operator shall submit for the written approval of the Local Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.

(c) The $L_{A90,10\text{-minute}}$ measurements should be synchronised with measurements of the 10-minute arithmetic mean wind speed and wind direction data and with operational data logged in accordance with Guidance Note 1(d) and rain data logged in accordance with Note 1(f).

(d) To enable compliance with the conditions to be evaluated, the wind farm operator shall continuously log arithmetic mean wind speed in metres per second (m/s) and arithmetic mean wind direction in degrees from north in each successive 10-minutes period in a manner to be agreed in writing with the planning authority. Each 10 minute arithmetic average mean wind speed data as measured or calculated at turbine hub height shall be 'standardised' to a reference height of 10 metres as described in ETSU-R-97 at page 120 using a reference roughness length of 0.05 metres. It is this standardised 10 metre height wind speed data which is correlated with the noise measurements determined as valid in accordance with Note 2(b), such correlation to be undertaken in the manner described in Note 2(c). All 10-minute periods shall commence on the hour and in 10-minute increments thereafter synchronised with Greenwich Mean Time and adjusted to British Summer Time where necessary.

(e) Data provided to the Local Authority in accordance with paragraphs (E) (F) (G) and (H) of the noise condition shall be provided in comma separated values in electronic format with the exception of data collected to asses tonal noise (if required) which shall be provided in a format to be agreed in writing with the Local Authority.

(f) A data logging rain gauge shall be installed in the course of the independent consultant undertaking an assessment of the level of noise immission. The gauge shall record over

successive 10-minute periods synchronised with the periods of data recorded in accordance with Note 1(d).

Note 2

(a) The noise measurements should be made so as to provide not less than 20 valid data points as defined in Note 2 paragraph (b).

(b) Valid data points are those measured during the conditions set out in the assessment protocol approved by the Local Authority under paragraph (E) of the noise condition but excluding any periods of rainfall measured in accordance with Note 1(f).

(c) Values of the $L_{A90,10\text{-minute}}$ noise measurements and corresponding values of the 10-minute standardised ten metre height wind speed for those data points considered valid in accordance with Note 2(b) shall be plotted on an XY chart with noise level on the Y-axis and wind speed on the X-axis. A least squares, "best fit" curve of an order deemed appropriate by the independent consultant (but which may not be higher than a fourth order) shall be fitted to the data points to define the wind farm noise level at each integer speed.

Note 3

(a) Where, in accordance with the approved assessment protocol under paragraph (E) of the noise condition, noise immission at the location or locations where compliance measurements are being undertaken contain or are likely to contain a tonal component, a tonal penalty shall be calculated and applied using the following rating procedure.

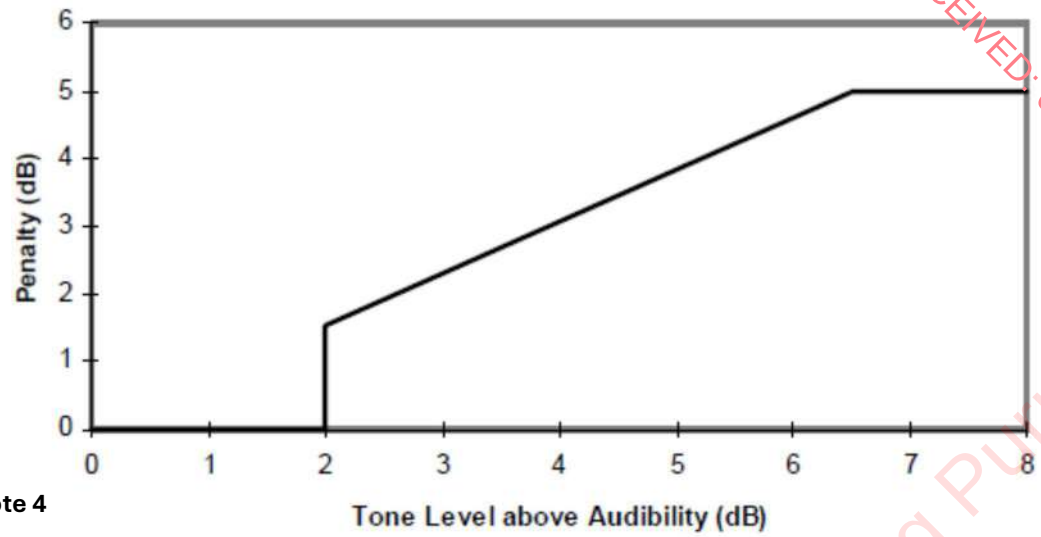
(b) For each 10-minute interval for which $L_{A90,10\text{-minute}}$ data have been determined as valid in accordance with Note 2, a tonal assessment shall be performed on noise immission during 2-minutes of each 10-minute period. The 2-minute periods should be spaced at 10-minute intervals provided that uninterrupted uncorrupted data are available ("the standard procedure"). Where uncorrupted data are not available, the first available uninterrupted clean 2-minute period out of the affected overall 10-minute period shall be selected. Any such deviations from the standard procedure shall be reported.

(c) For each of the 2-minute samples the tone level above audibility shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104 -109 of ETSU-R-97.

(d) The tone level above audibility shall be plotted against wind speed for each of the 2-minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be substituted.

(e) A least squares "best fit" linear regression shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the "best fit" line fitted to values within ± 0.5m/s of each integer wind speed. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in Note 2.

(f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below derived from the average tone level above audibility for each integer wind speed.



Note 4

(a) If a tonal penalty is to be applied in accordance with Note 3 the rating level of the turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Note 2 and the penalty for tonal noise as derived in accordance with Note 3 at each integer wind speed within the range set out in the approved assessment protocol under paragraph (E) of the noise condition.

(b) If no tonal penalty is to be applied then the rating level of the turbine noise at each wind speed is equal to the measured noise level as determined from the best fit curve described in Note 2.

(c) If the rating level at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits approved by the Local Authority for a complainant's dwelling in accordance with paragraph (C) of the noise condition then no further action is necessary. In the event that the rating level is above the limit(s) set out in the Tables attached to the noise conditions or the noise limits for a complainant's dwelling approved in accordance with paragraph (C) of the noise condition, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rating level relates to wind turbine noise immission only.

(d) The wind farm operator shall ensure that all the wind turbines in the development are turned off for such period as the independent consultant requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:

i. Repeating the steps in Note 2, with the wind farm switched off, and determining the background noise (L_3) at each integer wind speed within the range set out in the approved noise assessment protocol under paragraph (E) of this condition.

ii. The wind farm noise (L_1) at this speed shall then be calculated as follows where L_2 is the measured level with turbines running but without the addition of any tonal penalty:

$$L_1 = 10\log\left[10^{L_2/10} - 10^{L_3/10}\right]$$

iii. The rating level shall be re-calculated by adding the tonal penalty (if any is applied in accordance with Note 3) to the derived wind farm noise L_1 at that integer wind speed.

iv. If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note (iii) above) at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits approved by the Local Authority for a complainant's dwelling in accordance

with paragraph (C) of the noise condition then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in the tables attached to the conditions or the noise limits approved by the Local Authority for a complainant's dwelling in accordance with paragraph (C) of the noise condition then the development fails to comply with the conditions.