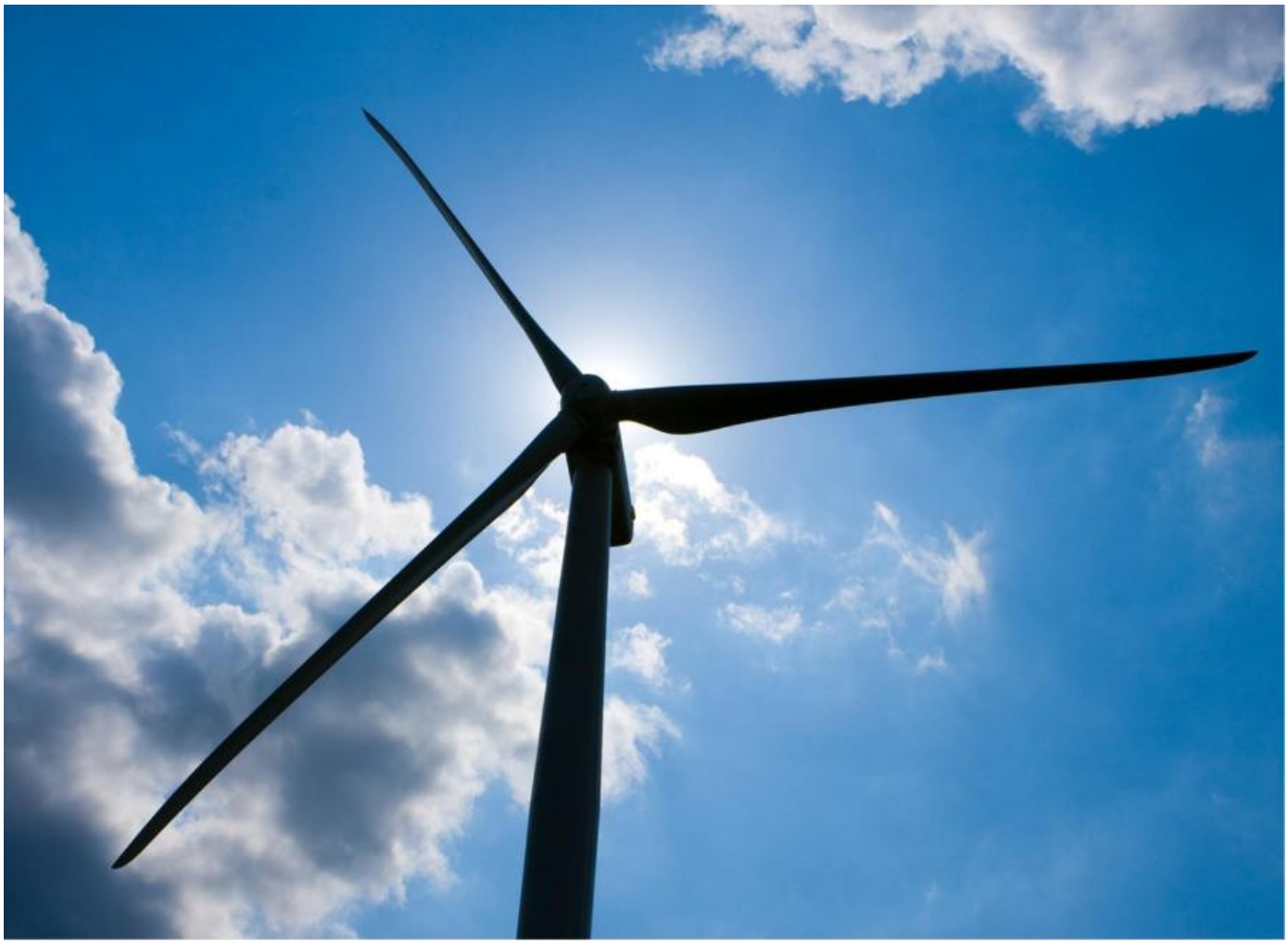

Foel Fach Wind Farm Limited.

Foel Fach Wind Farm – Environmental Statement Volume III

Appendix 10.1: Wind Turbine Construction Noise Report

Project Reference: 664094

DECEMBER 2025

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Appendix 10.1

Wind Turbine Construction Noise Report

Foel Fach Wind Farm

Foel Fach Wind Farm Limited.

16513-010-R0
25 November 2025

PRIVATE AND CONFIDENTIAL

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Document Control

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Executive Summary

TNEI Services Limited (TNEI) was commissioned by Foel Fach Wind Farm Limited to undertake a noise assessment for the construction phase of the proposed Foel Fach Wind Farm (the Proposed Development). The assessment considers the potential impact of noise attributable to the onsite construction of the Proposed Development wind turbines and associated tracks on the occupiers of nearby noise sensitive receptors.

The noise impact assessment was undertaken using guidance contained in BS 5228: Part 1 2009+A1:2014 *'Noise and vibration control on construction and open sites- Noise'*, especially the ABC method of Annex E which defines potential thresholds depending on existing noise levels.

Nine residential receptors were identified as the nearest noise sensitive receptors to the proposed construction activities. Predictions have been made for various construction scenarios assuming that all items of plant are operating continually throughout the assessment period to provide worst-case scenarios. In addition, the noise model assumes that noise sources would be located within the most likely activity areas closest to the receptors, whereas in reality, plant would move around the Application Site (herein "the Site") and only a proportion of the plant may be operating at any one time. As such, the predictions are inherently likely to over-predict the actual sound levels that are likely to be experienced.

The results show that the predicted construction noise levels are below the Category A daytime Threshold Levels at all receptors for all daytime scenarios. No construction works are typically anticipated to take place in the evenings and night-time, however a scenario of a generator kept on at the construction compound was considered and predictions are shown to be well below the evening and weekend, and night-time threshold levels.

Accordingly, the assessment concludes that there would be no significant construction noise effects. Nevertheless, mitigation in the form of good practice during construction is recommended to keep noise to a minimum and recommendations in accordance with BS5228 have been made in this report.

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1 Introduction

1.1 Brief

1.1.1 TNEI Services Ltd was commissioned by Foel Fach Wind Farm Limited to assess onsite construction noise for the proposed Foel Fach Wind Farm (hereinafter referred to as the Proposed Development) wind turbines, infrastructure and associated tracks.

1.1.2 This report considers onsite work on the proposed tracks, substation, borrow pit and wind turbines. Onsite here is defined as being noise from plant on the Site mostly along access tracks from B4501 to the proposed wind turbines foundations.

1.1.3 The following steps summarise the noise assessment process:

- Identify the receptors near potential construction activities and select representative Construction Noise Assessment Locations (CNALs);
- Establish typical ambient noise levels at sensitive receptors located closest to the anticipated construction activities and derive appropriate noise threshold levels, in accordance with the ABC method of Annex E of BS 5228-1:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites. Noise'* (British Standards Institute, 2014)[i]
- Undertake predictions of noise from different construction activities that would be incident at the nearest sensitive receptors;
- Compare the predicted noise levels with the derived threshold values; and
- Identify any requirements for mitigation measures, if needed.

1.2 Nomenclature

1.2.1 The following terms and definitions are used throughout this report:

- **Immission** refers to the sound pressure level received at a specific location from a noise source(s).
- **SWL** indicates the sound power level in decibels (dB).
- **SPL** indicates the sound pressure level in dB.
- **NSR** (Noise Sensitive Receptor) are identified receptors that are sensitive to noise.
- **CNAL** (Construction Noise Assessment Location) refers to any location where the noise immission levels are calculated and assessed.

1.2.2 Unless otherwise stated, all noise levels refer to free field levels i.e. noise levels without influence from any nearby reflective surfaces.

1.3 Site Description

1.3.1 The Proposed Development is located approximately 3.1 km north-east of Bala, Gwynedd, North Wales. The proposed layout for the construction of the turbines and auxiliary infrastructure, inclusive of the access tracks, is shown on Figure A1.1 in **Annex 1**.

1.3.2 The Site would be accessed from the B4501, near the property Glan-yr-afon initially following the existing access track to residential property of Llaithgwm.

1.3.3 Construction of the wind turbines would require the laying of tracks across the Site, establishing a construction compound, excavation of turbine foundations, concrete batching, construction of turbine bases, installation of wind turbines. The Environmental Statement **(ES) Volume II, Chapter 2: Description of the Proposed Development** can be referred to for a detailed description of the Proposed Development and the construction requirements.

1.3.4 Construction is anticipated to last for 21 months, and the indicative construction timetable is shown as **Table 1.1.** TNEI has undertaken noise propagation modelling for scenarios which involve construction work on the assumption that activities undertaken during these periods would generate the highest noise levels. Blue shading indicates activities which are expected to generate the most noise and therefore the activities have been modelled, grey shading indicates activities where noise is expected to be low.

Table 1.1 Indicative Construction Timetable

Activities	Month						
	1-3	4-6	7-9	10-12	13-15	16-18	19-21
Site Establishment							
Construction of New Access Tracks and Crane Hardstanding							
Turbine Foundation Construction							
Substation, Energy Storage and Electrical Works							
Cable Trenching and Installation							
Crane Delivery and Demobilisation							
Turbine Delivery, Erection and Commissioning							
Site Reinstatement and Demobilisation							

1.3.5 The core hours for construction activity are anticipated to follow Gwynedd Council's preferred core hours of 08:00 - 18:00 Monday to Friday and 08:30 – 13:00 on Saturdays. No regular work is proposed in the evenings/nights or on Sundays or Public Holidays, unless agreed with Gwynedd Council.

1.3.6 No scheduled construction is anticipated during the night-time, although, there may be a requirement for some plant to regularly be operational during night-time, for example, a portable generator to provide lighting. To consider such potential

occurrence, an evening / night-time scenario has been modelled with noise from generators at the construction compound.

2 Noise Planning Policy and Guidance

2.1 Overview of Noise Planning Policy and Guidance

2.1.1 The scope of the assessment has been informed mostly by the following guidelines/policies:

- Future Wales: The National Plan 2040 and Planning Policy Wales (Welsh Government, 2021)
- Planning Policy Wales (Welsh Government, 2024)
- Welsh Noise and Soundscape Action Plan (Welsh Government, 2018), and
- British Standard (BS) 5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open developments – Noise' (British Standards Institute, 2014).

2.2 Planning Policy

2.2.1 Future Wales: The national plan 2040 was published in February 2021, it is the national development framework for Wales and has Development Plan status. Page 87 states:

"Planning Policy Wales contains the planning policy framework for addressing air quality, soundscape and noise. When proposing new transport infrastructure or new development, average population exposure to air and noise pollution should be reduced and soundscapes improved where it is practical and feasible to do so. At the very least, exposure to pollution should be minimised. This will include taking into account the long-term effects of current and predicted levels of air and noise pollution on individuals, society and the environment arising as a result of proposals for transport infrastructure or development."

2.2.2 Planning Policy Wales (PPW) (February 2021) details the land use planning policies of the Welsh Government. Chapter 5.9 of this guidance relates to 'Renewable and Low Carbon Energy', which states:

"Local authorities should facilitate all forms of renewable and low carbon energy development and should seek cross-department co-operation to achieve this. In doing so, planning authorities should seek to ensure their area's full potential for renewable and low carbon energy generation is maximised and renewable energy targets are achieved. Planning authorities should seek to maximise the potential of renewable energy by linking the development plan with other local authority strategies, including Local Well-being plans and Economic/ Regeneration strategies."

2.2.3 The Technical Advice Note (TAN) 11 is currently being revised with a draft submitted in October 2023, and that draft include reference to the latest 2014 version of BS5228.

2.2.4 The Welsh Government, in December 2023, published the Noise and Soundscape Action Plan 2023–2028 (NSAP) sector's strategic policy direction in relation to noise and soundscape management. The document notes a number of guidance documents relevant to the control of noise in industrial and commercial activities, in particular the latest 2014 version of BS 5228-1.

2.3 BS 5228

2.3.1 BS 5228 1:2009+A1:2014 *'Code of practice for noise and vibration control on construction and open sites. Noise'* standard provides useful guidance on practical noise control. Part 1 provides recommendations for basic methods of noise control including sections on community relations, training, occupational noise effects, neighbourhood nuisance and project supervision. The annexes provide information on noise sources, noise calculation procedures, mitigation measures and their effectiveness.

2.3.2 Part 1 also contains sound power level data for a variety of construction plant. This data was obtained from field measurements of actual plant operating on construction and open sites in the United Kingdom and is therefore appropriate to use as source level data for construction noise predictions.

3 Potential Impacts

3.1 Construction Noise Sources

3.1.1 Noise levels from construction activities would vary continually over time as activities and plant start and stop and move around the Site. To assess the potential impacts of construction noise, worst-case scenarios have been considered, where all construction plant and activities are assumed to be working continually and in locations closest to the nearest Noise Sensitive Receptor (NSRs).

3.2 Construction Phases

3.2.1 Although an indicative timetable has been provided, a specific construction schedule has not been determined at this stage. **ES Volume II, Chapter 2: Description of the Proposed Development** does, however, provide descriptions of some of the likely construction activities that would be undertaken and the type of plant that would be used.

3.2.2 A series of construction scenarios have been modelled based on the combination of tasks detailed in the indicative timetable (see **Table 1.1**) and TNEI's knowledge and experience of other similar sites and construction schedules.

3.2.3 Each scenario has been assessed against a set of threshold levels to determine the likely temporary noise impacts.

3.2.4 The assessment does not specifically consider the noise impacts associated with decommissioning, as the plant and activities used for that phase are assumed to be similar in nature (and noise output) to those already considered in the modelled construction scenarios. Accordingly, if noise levels during the construction phases are acceptable, they should also be acceptable during decommissioning.

4 Methodology

4.1 Methodology for the Prediction of Noise

4.1.1 To calculate the noise immission levels, noise propagation models have been produced using the propriety noise modelling software CadnaA. Within the software, complex models can be used to simulate the propagation of noise according to a range of international calculation standards.

4.1.2 For each Construction Noise Assessment Location (CNAL), the LAeq(t) levels have been predicted in accordance with ISO 9613-2:2024 *'Acoustics – Attenuation of sound during propagation outdoors' – Part 2: General method of calculation'*.[6]

4.1.3 The ISO 9613 propagation model was chosen in preference to the calculation method presented in BS 5228, primarily because of some of the significant distances from source to receptor evident on this Site. Specifically, BS 5228 notes in F 2.2.2.2, that at distances over 300 metres (m) noise predictions using the BS 5228 methodology should be treated with caution, especially where a soft ground correction factor has been applied because of the increasing importance of meteorological effects; whereas ISO 9613-2 provides equations that have been validated up to 1 kilometre (km).

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

- Geometric divergence
- Air absorption
- Reflecting obstacles
- Screening
- Vegetation, and
- Ground reflections.

4.1.5 The model uses the octave band sound power output of the proposed plant as its acoustic input data, and calculates on an octave band basis, attenuation due to geometric spreading, atmospheric absorption and ground effects.

4.1.6 For the purposes of this assessment, all noise level predictions have been undertaken using a receiver height of 1.5 m above local ground level. Mixed ground (G=0.5) attenuation has been assumed at all locations. Air absorption based on a temperature of 10 °C and 70 % relative humidity have been assumed.

4.2 Limitations of the Noise Model

4.2.1 The noise propagation models are intended to give a good approximation of the specific noise level and the contribution of each individual source. However, it is expected that actual levels are unlikely to be matched exactly with modelled values and the following limitations in the model should be considered:

- In accordance with ISO 9613-2, all assessment locations are modelled as downwind of all noise sources and propagation calculations are based on a

moderate ground-based temperature inversion, such as commonly occurs at night.

- The predicted barrier attenuation provided by local topography, embankments, walls, buildings and other structures in the intervening ground between source and receiver can only be approximated and not all barrier attenuation will have been accounted for.
- Unless specifically stated, the models assume all noise sources are operating continuously and simultaneously, estimating a worst-case source noise level.
- All mobile plant assumed to be working on tracks (excavators, dozers, rollers etc) have been modelled as moving point sources along their anticipated movement paths and the sound power level of the source is effectively averaged out across the length of the entire line. This will give an approximation of the overall noise levels from mobile plant at receptor locations. However, in reality, noise levels would fluctuate as construction plant and activities move around in their activity areas.

4.3 Assessing Construction Noise Effects

4.3.1 Annex E, part E.3.2 of BS 5228 provides example threshold values for assessing the significance of construction noise effects.

4.3.2 Table E.1 of BS 5228 (represented here as **Table 4.1**) contains an example of the ABC method threshold values that can be used to assess construction activities.

Table 4.1 Example of Threshold of Potential Significant Effect at Dwellings ($dB_{(A)}$)

Assessment Category and Threshold Value Period	Threshold Value LAeq,t dB		
	Category $A_{(A)}$	Category $B_{(B)}$	Category $C_{(C)}$
Night-Time (23:00 – 07:00)	45	50	55
Evenings and Weekends D)	55	60	65
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	70	75

(A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.

(B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.

(C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values.

(D) 19:00-23:00 weekdays, 13:00-23:00 Saturdays and 07:00-23:00 Sundays.

4.3.3 The values can be considered thresholds for the construction noise levels (quantified using the LAeq noise metric). The values in each category are to be used where the

existing noise level at each location, rounded to the nearest 5 dB, is below the level given for a particular time of day. BS 5228 provides the following advice regarding the threshold levels:

"Note 1: A potential significant effect is indicated if the LAeq,T noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.

Note 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total LAeq,T noise level for the period increases by more than 3 dB due to site noise.

Note 3: Applied to residential receptors only."

4.3.4 Therefore, the assessment of construction noise reflects a specific noise threshold per receptor set relative to existing ambient noise levels with a fixed minimum applicable (i.e. as an example, Category A threshold of 65 dB daytime will apply for receptors with existing very low ambient levels of 20 dB and up to as high as 65 dB in Daytime).

4.3.5 It should be noted that exceedance of the threshold does not in itself indicate a significant effect, rather, the standard states: *"If the site noise level exceeds the appropriate category value, then a potential significant effect is indicated. The assessor then needs to consider other project-specific factors, such as the number of receptors affected and the duration and character of the impact, to determine if there is a significant effect."*

4.4 Study Area

4.4.1 NSRs are properties, people or fauna which are sensitive to noise and, therefore, may require protection from nearby noise sources. The study area for the noise assessment has been defined through the identification of the closest residential NSRs to the Proposed Development. Of the NSRs identified, a representative sample of CNALs have been chosen to represent the closest receptor or group of receptors.

4.4.2 The CNALs were chosen on the assumption that if noise levels are within acceptable levels at the closest receptors, it is reasonable to assume they would also be acceptable at more distant locations.

4.4.3 **Table 4.2** details the CNALs considered within the assessment, which are also shown on Figure A1.1 included in **Annex 1**.

Table 4.2 Construction Noise Assessment Locations

CNAL Name	Coordinates	
	Easting	Northing
CNAL01 – Greigwen	292970	342354
CNAL02 –Ty'n-y-Ddol Uchaf	292439	342182

CNAL Name	Coordinates	
	Easting	Northing
CNAL03 – Maespyllan	292377	341785
CNAL04 – Llwyn-y-brain	291459	341346
CNAL05 - Llaithgwm	292098	341041
CNAL06 - Ty Capel Glan yr Afon	291036	341027
CNAL07 - Ty'r Neuadd	291036	340933
CNAL08 - Wern Fawr	291373	340664
CNAL09 - Pentre-tai-yn-y-cwm	295563	340272

4.5 Baseline Noise Levels and Construction Noise Level Thresholds

4.5.1 Baseline noise level monitoring was undertaken as part of the wind turbines operational noise assessment for Foel Fach Wind Farm. Details of the survey can be found in the **ES Volume III, Appendix 10.2: Wind Turbine Operational Noise Report**.

4.5.2 Having due regard to the existing ambient noise levels at NSRs around the Proposed Development, the BS 5228 Category A Threshold Values have been used for all receptors. These are the most stringent threshold values and reflect the low ambient noise levels measured in the area during the baseline survey.

4.5.3 Accordingly, given the core construction hours and Category A Threshold values, the assessment was made against the following noise level limits for all NALs:

- 65 dB LAeq(t) for Daytime weekdays 08:00 – 18:00 and Saturday 08:30 – 13:00. This is within core construction hours for this Proposed Development.

- 55 dB LAeq(t) for Weekday evenings 19:00 – 23:00, Saturday 13:00 – 23:00 and Sunday 07:00 – 23:00. This is outside of core construction hours for the Proposed Development but considered nevertheless against predictions of a potential scenario of generators at the construction compound.

- 45 dB LAeq(t) for Night-time 23:00 – 07:00. This is outside of core construction hours for the Proposed Development but considered nevertheless against predictions of a potential scenario of generators at the construction compound.

5 Noise Impact Assessment

5.1 Modelling of Individual Sound Sources

5.1.1 Noise immission levels would vary throughout the construction period as construction activities, plant and locations vary. For much of the working day the noise associated with construction activities would be less than predicted, as the assessment assumes all equipment is continually operating at full power and in locations closest to the NSRs, whereas in practice, equipment load, and precise location may vary throughout the day. This approach has been adopted to represent a worst-case assessment.

5.1.2 At this stage a detailed plant list is not available, therefore, a generic plant list based upon experience of similar projects has been used. All modelled noise sources and associated sound power level (SWL) and sound pressure level (SPL) data is included in **Annex .**

5.1.3 For all construction activities, source noise level data was taken from Annex C of BS 5228, which provides octave band SPL levels for a wide variety of construction plant and activities suitable for the estimation of noise immission levels.

5.1.4 Construction noise sources for any given activity will generally comprise a mix of both moving and static sources. Mobile sources include mobile construction plant and Heavy Goods Vehicles (HGVs), while static construction plant could include piling rigs and pumps. Static equipment is usually located at a fixed location for an extended period of time.

5.1.5 For both mobile and static plant, activity noise levels would be transient in nature due to changes in location, on/off periods, and fluctuations of load on any individual machine.

5.1.6 All static items of plant and activities have been modelled as single point sources. All mobile plant (excavators, dozers, dumpers etc.) have been modelled as either a moving point source (line source) along their anticipated movement paths or as a stationary point source located at the closest point of its anticipated work area to any given CNAL.

5.2 Modelling of Construction Activities.

5.2.1 The modelled scenarios represent the following construction activities:

- **Scenario 01 (Daytime) – Construction of tracks from site entrance to compound:** The noise model assumes the mobile plant is working for the earthwork associated with building tracks from the Site entrance to the construction compound, and inclusive of earthwork for the construction compound. This scenario is aimed at considering the five CNALs which are near to the Site entrance (along the B4501) and the construction compound (200 m east from the B4501).
- **Scenario 02 (Daytime) – Construction of all tracks from compound to wind turbines:** The noise model assumes the mobile plant is working for the earthwork associated with building tracks from the construction compound to all turbines. It also assumes that the construction compound is in operation with

generators constantly on. This scenario is aimed at considering primarily the receptor at Llaithgwm which is along the access track.

- **Scenario 03 (Daytime) - Construction of turbine foundations:** The noise model also assumes that foundations and crane hardstanding's are constructed at all turbines, and mobile plant is working for the earthwork associated with the substation compound. In addition, HGV are assumed along the access tracks for concrete delivery. It also assumes that the construction compound is in operation with generators constantly on. This scenario is aimed at considering a phase of construction where most of the work is done at the base of the turbines, and relatively distant from all CNALs.
- **Scenario 04 (Daytime) – Turbine delivery and erection:** The noise model assumes that there are turbine deliveries occurring with HGV along the access tracks and that all turbines are being erected. It also assumes that the construction compound is in operation with generators constantly on. This scenario is aimed at considering a phase of construction where most of the work is done at the base of the turbines, and relatively distant from all CNALs.
- **Scenario 05 (Daytime) – Borrow pit works:** The noise model assumes that plant such as dozers and dumper trucks are working at the borrow pit east of the construction compound and west of the property Llaithgwm (CNAL05). This scenario is aimed at considering noise from the borrow pit, and especially the two closest receptors Llaithgwm and Wern Fawr.
- **Scenario 06 (Evening/Night-time) – Generator at compound:** To consider potential occurrence of noise in evening / night-time outside of core hours, a scenario has been modelled with noise from generators constantly on at the construction compound. This scenario is aimed at considering the five CNALs which are near to the construction compound.

5.2.2 These scenarios were modelled to try to represent some of the 'noisiest' anticipated scenarios. Other construction activities not included in the noise models would occur, however, the noise output from these would likely be less than those considered above.

5.3 Calculated Noise Immission Levels

5.3.1 **Table 5.1** presents the calculated noise immission levels at each CNAL for all modelled scenarios.

Table 5.1 Predicted Construction Noise per Scenario

CNAL	Immission Noise Level, dB LAeq, for each Scenario					
	S1-Day	S2-Day	S3-Day	S4-Day	S5-Day	S6-Evening / Night
CNAL01 – Greigwen	19	28	29	28	19	14
CNAL02 –Ty'n-y-Ddol Uchaf	21	31	30	30	19	17
CNAL03 – Maespyllan	19	37	34	35	23	11
CNAL04 – Llwyn-y-brain	44	40	39	40	31	39

CNAL	Immission Noise Level, dB LAeq, for each Scenario					
	S1-Day	S2-Day	S3-Day	S4-Day	S5-Day	S6-Evening / Night
CNAL05 – Llaithgwm	25	55	29	51	46	13
CNAL06 - Ty Capel Glan yr Afon	51	41	40	42	52	40
CNAL07 - Ty'r Neuadd	61	41	39	46	52	39
CNAL08 - Wern Fawr	43	40	34	39	50	33
CNAL09 - Pentre-tai-yn-y-cwm	4	27	35	32	16	Nil

5.3.2 The Scenario S1 has the highest predicted levels of all daytime Scenarios S1-S5 due to the earthwork associated with building the tracks at the Site entrance along the B4501 immediately near CNAL07-Ty'r Neuadd. However, this work is temporary, and levels are still predicted to be below the Category A daytime Threshold Levels of 65 dB(A). The results show that the predicted construction noise levels are below the Threshold Levels at all CNALs for all daytime scenarios S1-S5.

5.3.3 The predicted noise levels for the evening / night scenario S6 are well below the evening and weekend threshold level of 55 dB(A) and night-time threshold level of 45 dB(A).

5.3.4 Accordingly, construction noise impacts are below the indicator for a potential significant effect. Nevertheless, mitigation in the form of good practice during construction is recommended to keep noise to a minimum and recommendations in accordance with BS5228 are discussed below.

6 Noise Mitigation Measures

6.1.1 **No significant effects** resulting from construction noise are predicted. Nevertheless, a range of good practice measures would be employed to minimise noise impacts.

6.1.2 The core hours are anticipated to follow Gwynedd Council's preferred core hours of 08:00 - 18:00 Monday to Friday and 08:30 – 13:00 on Saturdays. No regular work is proposed in the evenings / nights or on Sundays. The requirement for out-of-hours work could arise, for example, from delivery and unloading of abnormal loads, foundation concrete pours, health and safety requirements, or to ensure optimal use is made of fair-weather windows for the erection of turbine blades and the erection and dismantling of cranes. No scheduled construction is anticipated during the night-time, although, there may be a requirement for some plant to be operational during night-time, for example, a portable generator to provide lighting.

6.1.3 Good site practices for construction will be implemented to minimise the likely effects. Section 8 of BS5228-1:2009+A1:2014 recommends a number of simple control measures as summarised below that can be employed onsite:

- Keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern.
- Ensure that any extraordinary site work continuing throughout 24 hours of a day (for example, crane operations lifting components onto the tower) would be programmed, when appropriate, so that haulage vehicles would not arrive at or leave the Site outside of core hours or other specific delivery hours, with the exception of abnormal loads that would be scheduled to avoid significant traffic flows.
- Ensure all vehicles and mechanical plant would be fitted with effective exhaust silencers and be subject to programmed maintenance.
- Select inherently quiet plant where appropriate - all major compressors would be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use.
- Ensure all ancillary pneumatic percussive tools would be fitted with mufflers or silencers of the type recommended by the manufacturers.
- Instruct that machines would be shut down between work periods or throttled down to a minimum.
- Regularly maintain all equipment used onsite, including maintenance related to noise emissions.
- Vehicles would be loaded carefully to ensure minimal drop heights so as to minimise noise during this operation.
- Ensure all ancillary plant such as generators and pumps would be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures should be provided.

7 Summary

7.1.1 This noise impact assessment was undertaken to consider the wind turbines and access tracks onsite construction activities. The guidance used was contained in BS 5228: Part 1 2009+A1:2014 'Noise and vibration control on construction and open sites- Noise', specifically the ABC method of Annex E which defines potential thresholds depending on existing noise levels at local residential receptors.

7.1.2 Nine residential receptors neighbouring the Proposed Development were identified as the nearest noise sensitive receptors to the proposed onsite construction activities.

7.1.3 Noise propagation modelling has been undertaken in the CadnaA noise modelling software and the anticipated noise emission levels presented for scenarios likely to occur throughout the construction period of the Proposed Development. The modelled scenarios consider a representative selection of activities throughout the indicative construction timetable and the modelling assumes that the construction activities are occurring at locations within the development site that are closest to the receptors.

7.1.4 The results show that the predicted construction noise levels are below the Category A daytime Threshold Levels of 65 dB(A) at all receptors for all daytime scenarios. No construction works are typically anticipated in evenings and night-time, however a scenario of a generator kept on at the construction compound was considered and predictions are shown to be significantly below the evening and weekend threshold level of 55 dB(A) and night-time threshold level of 45 dB(A).

7.1.5 Accordingly, onsite construction noise impacts are below the indicator for a potential significant effect. Nevertheless, mitigation in the form of good practice during construction is recommended to keep noise to a minimum and recommendations in accordance with BS5228 have been made in this report.

8 References

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Annex 1: Figure

N

CNAL01-Greigwen
CNAL02-Ty'n-y-Ddol Uchaf
CNAL03-Maespyllan
CNAL04-Llwyn-y-brain
CNAL05-Llaithgwm (FI)
CNAL06-Ty Capel Glan yr Afon
CNAL07-Ty'r Neuadd
CNAL08-Wern Fawr
CNAL09-Pentre-tai-yn-y-cwm
NML01
NML02
NML03
NML04
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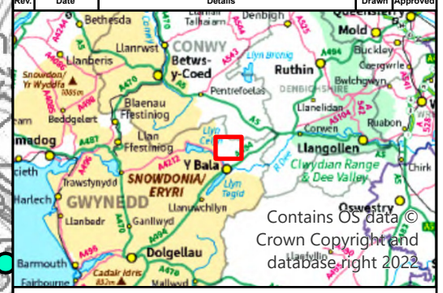
Kilometre
0 0.5 1

LEGEND

- Site Boundary
- Wind Turbine
- Construction Noise Assessment Locations (CNALs)
- Noise Sensitive Receptors (NSRs)
- Noise Monitoring Locations (NMLs)
- Substation and BESS
- Construction Compound
- Batching Compound
- Hardstands
- Borrow Pit
- Tracks
- Access Track Verges
- Bridge Temporary Working Area

Rev.	Date	Details	Drawn	Approved
0	25/11/2025	FIRST ISSUE	MR	MC



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Client: Coriolis Energy

Drawing Status: FOR INFORMATION

Project Title: FOEL FACH WIND FARM

Drawing Title: ANNEX 1 - FIGURE A1.1 - NOISE ASSESSMENT LOCATIONS FOR CONSTRUCTION OF WIND TURBINES

Scale:	Original Size:	Spatial Reference:
1:16,000	A3	British National Grid

Drawing Number: 16513-014

Annex 2: Noise Model Data

Onsite Construction Noise Scenarios – Noise sources assumed per scenario

Assumed working location	Plant	Data Source
Scenario 01		
Line source zig zagging from junction with road to construction compound, for earthwork. 1.5 m height	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS5228 ref C4_3, C2_12, C2_14, C5_20
Point source at junction with road. 1.5 m height.	Tracked Excavator	BS5228 ref C2_14
Line source zig zagging from junction with road to construction compound, for earthwork. 1.5 m height	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS5228 ref C4_3, C2_12, C2_14, C5_20
Scenario 02		
Long line source for construction tracks earthworks, from compound to all turbines.	Dumper, Dozer, Tracked Excavator, Vibratory roller, ,	BS5228 ref C4_3, C2_12, C2_14, C5_20
Generators and activities at entrance compound - point source at 3 m	Diesel generator (C_84), Diesel generator-lights(C_86)	BS5228 ref C4_84, C4_86
Scenario 03		
Construction of crane hardstanding and turbine foundations at all turbines - point source at 1.5 m	Tracked Excavator, Concrete mixer truck + truck mounted concrete pump + boom arm, Vibratory roller, Dozer, Dumper	BS5228 ref C2_14, C4_32, C5_20, C2_12, C4_3
Substation earthworks - Line source zig zagging on the substation compound. 1.5 m height	Wheeled Excavator, Dozer	BS5228 ref C4_10, C2_12
Scenario 04		
Turbine delivery - Long line source HGV delivering cranes and turbines from road to all turbines 1.5 m height	Road lorry (full)	BS5228 ref C6_21
Turbine Erection - point source at 3 m	Mobile telescopic crane	BS5228 ref C4_45
Generators and activities at entrance compound - point source at 3 m	Diesel generator (C_84), Diesel generator-lights(C_86)	BS5228 ref C4_84, C4_86
Scenario 05		
Borrow pit works. Point source at 3 m	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9_12, C9_15, C4_3, C2_12, C2_14
Scenario 06		
Generators and activities at construction compound - point source at 3 m	Diesel generator (C_84), Diesel generator-lights(C_86)	BS5228 ref C4_84, C4_86

Noise Source Library – Sound Power Levels

Name	31.5	63	125	250	500	1k	2k	4k	8k	A	lin	Source
Tracked Excavator	28	113	106	105	105	101	99	96	91	107	115	BS5228 C2. 14
Dumper	28	112	109	102	101	100	96	89	81	104	115	BS5228 C4. 3
Dozer	-	113	102	104	101	100	106	90	84	109	115	BS5228 C2.12

Name	31.5	63	125	250	500	1k	2k	4k	8k	A	lin	Source
Concrete mixer truck + truck mounted concrete pump + boom arm	28	101	101	105	104	100	98	93	90	106	110	BS5228 C4. 32
Mobile telescopic crane	28	118	109	106	102	105	104	97	89	109	119	BS5228 C4. 45
Diesel generator	28	103	100	104	98	97	93	84	75	102	108	BS5228 C4. 84
Diesel generator - lights	28	106	99	94	90	87	83	84	77	94	107	BS5228 C4. 86
Vibratory roller	28	118	110	101	100	98	93	87	82	103	119	BS5228 C5. 20
Excavator mounted rock breaker	28	119	117	113	117	115	115	112	108	121	125	BS5228 C9. 12
Tracked semi-mobile crusher	28	119	119	116	115	113	111	106	96	118	124	BS5228 C9. 15
Water pump (diesel)	28	98	93	94	92	92	91	84	74	97	102	BS5228 C4.88
Lorry	28	121	107	104	102	101	100	97	94	107	121	BS5228 C11. 14