



APPENDIX 12-1

CONSTRUCTION NOISE REPORT



A specialist energy consultancy

Appendix 12-1

Construction Noise Report

Crumhach Wind Farm, Co. Sligo

SSE Renewables (Ireland) Ltd

IE220-007-R0
10 June 2026

COMMERCIAL IN CONFIDENCE



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Executive Summary

TNEI Services Limited (TNEI) was commissioned by MKO on behalf of SSE Renewables (Ireland) Ltd ('the Applicant') to undertake predictions of noise levels associated with the proposed Crumhach Wind Farm, Co. Sligo. The noise predictions were used to assess the potential impact of noise attributable to the construction of the proposed Crumhach Wind Farm 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*' and the calculation methodology in ISO 9613 2:2024 *Acoustics – 'Attenuation of sound during propagation outdoors: Engineering method for the prediction of sound pressure levels outdoors'*, together with noise data for appropriate construction plant.

Predictions have been made at a selection of the identified noise sensitive receptors assuming that all items of plant were operating continually to provide a precautionary scenario. In addition, the noise model assumed that noise sources would be located within the most likely activity areas closest to the receptors, whereas in reality plant would move around 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 predicted noise levels for the construction activities of the proposed Crumhach Wind Farm are below the Category A Daytime Threshold Levels detailed within BS 5228:2009, for all receptors during the proposed core hours of work. If generators are left overnight at the construction compounds, predicted levels are also below the Category A Threshold Levels. Accordingly, construction noise impacts are below the indicator for a potential significant effect.

No significant effects resulting from construction noise are predicted, nevertheless, good practice during construction is recommended following guidance from BS 5228. If occasional work is undertaken outside of core hours, this should be agreed in advance.

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1 Introduction

1.1 Brief

TNEI was commissioned by MKO to undertake a construction noise assessment for the construction phase of the proposed Crumhach Wind Farm (the Proposed Project) which includes for the removal of the existing Dunneill and Kingsmountain Wind Farm turbines, and construction of proposed 17 no. turbines and associated infrastructure on site. The following steps summarise the noise assessment process:

- Establish typical ambient noise levels at sensitive receptors located closest to the anticipated construction activities and derive appropriate noise threshold levels;
- Undertake predictions of activity noise throughout the construction period that would be incident at the nearest sensitive receptors;
- Compare the predicted noise levels across the construction period with the derived threshold values; and,
- Identify any requirements for mitigation measures, if needed.

The following terms and definitions are used throughout this report;

- **Emission** refers to the sound level emitted from a sound source, expressed as either a sound power level or a sound pressure level at a specified distance;
- **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 decibels (dB);
- **NSR** (Noise Sensitive Receptor) are identified receptors that are sensitive to noise;
- **NML** (Noise Monitoring Location) refers to any location where baseline or specific noise levels have been measured; and
- **CNAL** (Construction Noise Assessment Location) refers to any location where the noise immission levels are calculated and assessed.

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

All coordinates refer to Irish Transverse Mercator Coordinates.

For the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'the Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection Route', 'Existing Wind Farm', and 'Existing Grid Connection'. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Project is provided in Chapter 4 of this EIAR: Site Description

The Proposed Wind Farm is located in the townland of Crowagh or Dunneill Mountain in County Sligo. The area around the Proposed Wind Farm is rural, mainly comprising of areas of forestry, bogland, and land for agricultural use. The Proposed Grid Connection Route is approximately 42 km in length, originating from the proposed onsite 110 kV substation, continuing on the L6309 Local Road before joining the N59 National Road for the majority of the route. The Proposed Grid Connection Route then runs along the R290 Regional Road, the R284 and the L6234 Local Road before heading east onto the L5204 to the existing Srananagh 220 kV substation.

The Proposed Wind Farm would be accessed via five entrances. The main site entrance is located on the L6309 Local Road and a secondary entrance is also located on this road. The other three entrances are all located on the L2702 Local Road, two of which will be used to access wind farm infrastructure, and one for the proposed onsite 110 kV substation. The latter is the only entrance that does not currently exist.

Figure A1.2 in Annex 1 details the Site infrastructure.

1.2 Project Description

A detailed description of the Proposed Wind Farm and Proposed Grid Connection Route and the construction requirements can be found in Chapter 4 of the EIAR — ‘Description of the Proposed Project’.

In summary, the construction of the Proposed Wind Farm will require the establishment of four temporary construction compounds, felling of existing forestry, the laying of tracks from the Site entrance up to the construction compounds and across the Site to the wind turbine locations, removal of Existing Turbines, construction of new turbine foundations, upgrades of road junctions for turbine delivery, delivery and erection of turbines, installation of a substation, and construction of an underground grid connection to the existing Srananagh 220 kV Substation.

Up to three borrow pits may be opened. Concrete batching will not take place on-site, instead only ready-mixed concrete sourced from local batching plants will be used.

The construction period is anticipated to last for approximately 18-24 months. Table 1-1 (overleaf), which presents an indicative construction timetable based on a 24-month construction schedule, is taken from the indicative construction timetable in Chapter 4 of the EIAR and is based on TNEI's experience of construction timetables for similar developments of this size and scale. Yellow coloured cells indicate construction activities that have been included in the construction noise assessment, whereas cells shaded grey indicate construction activities that would not typically generate high levels of noise, and as such are excluded from the assessment. These are further explained below;

- The upgrade/construction of access tracks during months 9-18 would relate to low noise level activities such as the installation of drainage and water protection measures.
- The substation works pre- and post-construction of the substation itself (assumed to take place during months 13-18) would relate to low noise level activities, e.g. activities associated with cabling and electrical works.
- The ‘site landscaping’ during months 10-24 would relate to low noise level activities associated with installation of gates, signs, the removal of temporary offices etc.
- The ‘commissioning tests’ of the turbines for the final two months would relate to low level noise activities associated with testing the operation of the turbines and undertaking inspection of all equipment prior to energising the wind farm.

Construction activities are likely to be limited to core hours between 07:00 and 19:00 on weekdays and 07:00 – 13:00 on Saturdays. Typically, there will be no working outside of core hours however, it should be noted that out of necessity some activity outside of the core hours could arise, from delivery and unloading of abnormal loads or health and safety requirements, or to ensure optimal use is made of fair weather windows for concrete deliveries, the erection of turbine blades and the erection and dismantling of cranes. No working would usually be undertaken outside core hours without prior agreement with the relevant Local Authority (LA).

No night-time construction activities are expected, however, there may be requirement to run a small amount of fixed plant during the night-time, for example to provide power to site cabins or provide

lighting for health and safety reasons. The assessment, therefore, considers the potential for night-time noise impacts.

Table 1-1: Indicative Construction Timetable

Construction Activity	Month																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22-24
Site Establishment																						
Grid Connection																						
Junction/Site Entrance upgrades																						
Felling																						
Upgrade/Construction of Access Tracks																						
Removal of Existing Turbines																						
Operation of Borrow Pits																						
Turbine Hardstands																						
Turbine Foundations																						
Substation Works																						
Delivery and Erection of Turbines																						
Site Landscaping																						

Construction Activity	Month																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22-24
Commissioning tests																						

2 Noise Planning Guidance

2.1 Overview of Noise Planning Policy and Guidance

There is no published statutory Irish guidance that contains suggested noise limits for construction activities, other than a 2014 document published by the National Roads Authority (NRA), which relates to noise from road developments only. The Association of Acoustic Consultants of Ireland, however, have published Environmental Noise Guidance for Local Authority Planning & Enforcement Departments (1), which states; *“The chief guidance document applied in the assessment of construction phase noise impacts is British Standard BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites Part 1: Noise (2014).”* The assessment has therefore been undertaken in accordance with this standard, hereafter simply referred to as BS 5228.

2.2 Relevant Guidance

Part 1 of BS 5228 provides useful guidance on practical noise control and management, including 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 typical construction noise sources, noise calculation procedures, mitigation measures and their effectiveness.

3 Methodology

3.1 Considering the Potential for Noise Impacts

Noise levels from construction activities will vary over time, as activities and plant start and stop, and move around the Site. To assess the potential impacts of construction noise, a series of worst-case scenarios can be considered, where construction plant and activities are assumed to be working continually and in locations closest to the nearest sensitive receptors.

Conversely, however, it would not be appropriate to assume a particular item of mobile plant is located directly opposite a receptor for any prolonged period of time (under most circumstances). An example of this could be where an excavator is working along a line to dig a cable trench over a number of weeks, which passes close to a receptor for a few hours. Therefore, in the case of mobile plant, this can be modelled as a point source that moves along a defined path, averaging out the sound power level across the length of the line, rather than concentrating it in a single location next to the receptor. In such cases, the predicted noise level will represent an average level expected to be received for most of the activity period, however, it should be recognised that when directly opposite a receptor, noise levels would be higher than predicted for a short period of time.

Notwithstanding these discrete occasions, the overall noise level attributable to construction activities from the Proposed Wind Farm will tend to be higher in the assessment than what will actually occur for the majority of the time.

3.2 Study Area

Noise Sensitive Receptors (NSRs) are properties/people that are sensitive to noise and, therefore, may require protection from nearby noise sources. The Study Area for the construction noise assessment is defined through the identification of the closest NSRs to the Proposed Wind Farm, on the assumption that if noise levels are acceptable at the closest receptors, then they should also be acceptable at more distant locations.

Figure A1.1 (Annex 1) details the location of the nearest identified NSRs.

A sample of Construction Noise Assessment Locations (CNALs) have been chosen to represent the closest NSR or group of NSRs to anticipated construction activities. The CNALs were chosen on the assumption that if noise levels are within acceptable levels at the closest NSRs, it is reasonable to assume they would also be acceptable at more distant NSRs in the same locality. Nevertheless, noise level predictions for all identified NSRs in the Study Area are provided in Annex 4 for completeness.

Table 3-1 details the CNALs considered within the assessment, which are also shown on Figure A1.2 (Annex 1), along with the Site infrastructure.

Table 3-1: Construction Noise Assessment Locations

CNAL	Coordinates		Associated Dwellings List Number
	ITM X	ITM Y	
CNAL01	543341	829184	NSR015
CNAL02	543819	830001	NSR027
CNAL03	544723	830052	NSR020

CNAL	Coordinates		Associated Dwellings List Number
	ITM X	ITM Y	
CNAL04	545239	829418	NSR004
CNAL05	545914	829099	NSR002
CNAL06	546618	829694	NSR013
CNAL07	547834	829917	NSR008
CNAL08	544758	822431	NSR103

3.3 Methodology for the Prediction of Noise

To predict the noise immission levels attributable to the construction of the Proposed Wind Farm, a noise propagation model has 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, including BS 5228 and *ISO 9613 2:2024 Acoustics - Attenuation of sound during propagation outdoors: General method of calculation*.

For this assessment, noise modelling was undertaken using the ISO 9613 propagation model, which 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 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 greater distances.

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

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. Soft ground ($G=1$) attenuation has been assumed at all locations except for water bodies, construction compounds, turbine bases and similar areas of hardstanding, which have been modelled with a ground attenuation of $G=0$ (hard ground).

Air absorption based on a temperature of 10°C and 70 % relative humidity has been assumed.

3.4 Limitations of the Noise Model

The noise propagation models are intended to give a good approximation of the construction noise level and the contribution of each individual noise 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 modelled scenarios assume all noise sources are operating continuously and simultaneously, estimating a worst-case noise level; and
- 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.

3.5 Methodology for the Assessment of Noise

Annex E, part E.3.2 of BS 5228-1, provides example methods for assessing the significance of construction noise effects and gives examples of acceptable limits for construction noise. Notably Table E.1 contains an example of the significance criteria that can be used to assess construction noise for residential receptors, it is reproduced as Table 3-2 below.

Three categories of thresholds are provided for varying time periods. The appropriate category for any given receptor can be chosen after quantifying the existing ambient noise levels (rounded to the nearest 5 dB) at that location. BS 5228 provides the following advice regarding the thresholds:

“Note 1: A potential significant effect is indicated if the $L_{Aeq,T}$ 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 $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise.

Note 3: Applied to residential receptors only.”

Table 3-2: Example of Threshold of Potential Significant Effect at Dwellings

Assessment Category and Threshold Value Period	Threshold Value $L_{Aeq,T}$ 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) & Saturdays (07:00 to 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.			

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”*.

3.6 Determining the Threshold Levels

A baseline noise survey was undertaken as part of the Proposed Wind Farm’s operational noise assessment and this is detailed in Technical Appendix 12-2.

Data from seven Noise Monitoring Locations (NMLs) has been used in order to set the appropriate BS 5228 threshold levels. The NMLs can be seen on Figure 1.1 (Annex 1).

Table 3-3 below details the average $L_{Aeq(t)}$ noise level at each NML, after filtering for rainfall events and windspeeds of 5m/s and above¹. The data were also filtered prior to analysis to account for periods when the existing Dunneill and Kingsmountain Wind Farms were shut down to avoid any influence on the measurements (as per Technical Appendix 12-2). The levels were calculated for each of the periods defined in BS 5228 for weekday and weekend daytime, evening and night-time.

Annex 2 includes a table of the measured noise levels at all NMLs, for all assessment periods.

¹ It should be noted that the windspeed was sourced as part of the operational noise survey for the proposed development, which references wind speed at standardised 10 m height (see TA12-2 for further detail). Whilst wind speed would usually be measured at the height of the sound level meter microphone, it is considered that standardised 10 m height would result in higher wind speed occurrence and is therefore a more conservative assessment method.

Table 3-3: Typical Ambient Noise Levels, $L_{Aeq(t)}$ for each NML.

Noise Monitoring Location	Daytime M – F	Daytime Sat	Evenings	Weekend	Night-time
	Weekdays 07:00 – 19:00	Saturday 07:00 – 13:00	Weekdays 19:00 – 23:00	Saturday 13:00 – 23:00 Sunday 07:00 to 23:00	All days 23:00 – 07:00
NML01	44	42	44	43	35
NML02	39	36	39	36	32
NML03	45	45	37	46	36
NML04	35	37	36	39	32
NML05	53	44	48	50	35
NML06	42	40	42	38	39
NML07	39	44	36	35	37

With due regard to the ambient noise levels at NSRs around the Proposed Wind Farm, the BS 5228 Category A threshold levels have been adopted for all receptors and during all periods. These represent the most stringent threshold levels in BS 5228.

4 Noise Impact Assessment

4.1 Modelling of Individual Sound Sources

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 an assessment under a precautionary scenario.

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 3: Noise Model Data.

For tree felling activities, broadband noise level data for a harvester, a forwarder and a skidder has been taken from *Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment* (2) (Forestry Commission). No octave band data is available therefore modelling has been undertaken using the 500 Hz octave band data, as recommended in ISO 9613. Noise levels for the Harvester and Forwarder are given at the operator position inside a Q Cab. To estimate external levels, 10 dB has been added to the quoted levels and the sound power level for each item of plant has been calculated within CadnaA assuming the quoted sound pressure levels (SPLs) have been measured at a distance of 1 m.

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

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.

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.

All static 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.

Construction works related to alterations in infrastructure of the local road network along the proposed turbine delivery route will be required to allow for delivery of the turbines. These are seen in the four isolated green EIAR Site Boundary areas to the north west of the Proposed Wind Farm, in figure A1.1A. These locations are described as part of Section 4.5.3.1 of Chapter 4, and summarised below;

- Location 16: alteration required to existing streetscape and private lands for blade and truck oversail, including removal of private wall;
- Location 17: requirement for removal of hedgerow vegetation. An existing overrun hardstand area will be required to be cleared and prepared for vehicle axle load to pass over. A temporary run-over area and visibility splays will also be required at this junction;

- Location 18: requirement for temporary alterations of existing streetscape and adjacent private lands for blade and truck body oversail, including removal of a private wall and vegetation; and,
- Location 19: requirement for temporary alterations of existing streetscape and adjacent private lands for blade and truck body oversail, including removal of vegetation.

There are several NSRs in close proximity at each of the locations (particularly locations 16 and 18 where there are NSRs adjacent to the local roads), and noise from proposed activities could have the potential at times to exceed the guideline levels. However, it should be noted that this will be a short-term, temporary impact (over a few days) and significant effects are therefore not anticipated. Once complete the roads will be reinstated following delivery of the turbines. Good practice during construction is recommended and will reduce noise levels from these short-term works to minimum levels.

4.2 Modelling of Construction Activities

For the purposes of this assessment noise modelling has been undertaken for months 1-21 only (when the main construction activities are likely to occur) and an additional modelling scenario has been included to consider the night-time. The modelled scenarios represent the following construction activities:

- **Months 1-3 (Daytime)** – The existing southerly Kingsmountain and existing Dunneill turbines near the main site entrance are decommissioned. Site establishment commences with construction of the temporary construction compounds (TCCs). The junctions at each site entrance are upgraded and access tracks upgraded for both construction compounds on the main wind farm site. Forestry felling is completed at the new substation site as well as around the new proposed turbine locations.
- **Months 4-9 (Daytime)** – Operation at the borrow pits commences with materials transported back to the nearest TCCs. Tree felling is completed at the proposed turbine locations in Kingsmountain Wind Farm. Access tracks are upgraded for this portion of the wind farm. Access tracks to T1 and T2 are also completed. Turbine hardstandings are completed for turbines T6 to T13. Decommissioning of the rest of the Dunneill turbines is completed.
- **Months 10-12 (Daytime)** – Delivery of ready-mixed concrete facilitates the creation of turbine foundations at T6 to T13. Construction of the substation is completed during this period. Turbine hardstandings are created for the new proposed turbines along the L2702 (T1-T5).
- **Months 13-17 (Daytime)** – The final turbine hardstandings are completed for T14-T17. Turbine foundations completed for T1 to T5 as well as T14-T17. Cranes and components for turbine erection are delivered to the hardstands at T2, T4, and T6-T13. Subsequent erection of these turbines.
- **Months 18-21 (Daytime)** – Turbine erection cranes are moved from T2 to the track leading towards T1. Turbine T1, T3, T5 erected and cranes removed off site. Cranes also moved in the main site from T13 towards T16. The two TCCs on the west side of the development are decommissioned in M19, and the other two are removed in M21. Remaining turbines (T14-T17) are erected and the cranes are removed from site.
- **Night-time Scenario** – Generators and lights operational at all TCCs.

Other construction activities associated with the Proposed Wind Farm not included in the noise models would occur, however, the noise output from these would likely be less than those considered above.

The construction noise impact results accounting for the above are summarised in Table 4-1 below:

Table 4-1: Predicted Construction Noise Immission Levels dB LAeq, t

CNAL	Daytime Monthly predictions																					Night-time: M1-M21
	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	
CNAL01	56	56	53	40	40	40	41	38	51	55	56	56	59	58	51	59	55	60	57	51	52	38
CNAL02	42	40	39	42	45	45	50	39	41	42	43	44	44	42	40	43	41	43	40	37	34	24
CNAL03	44	41	41	46	49	50	48	43	44	44	44	44	45	44	43	44	43	43	40	39	35	24
CNAL04	55	54	53	57	57	57	57	57	57	58	59	58	57	57	57	57	56	58	53	53	45	34
CNAL05	45	44	45	48	48	49	49	49	49	50	49	49	48	48	46	45	44	45	43	43	42	30
CNAL06	40	40	42	43	43	45	45	46	44	45	46	44	45	46	46	41	41	42	40	39	35	23
CNAL07	34	35	36	37	37	40	38	42	37	38	42	37	38	42	42	35	35	36	34	34	30	18
CNAL08	24	27	26	26	26	26	27	27	27	27	28	29	29	30	27	26	29	28	26	25	18	11

The construction noise impact results summarised in Table 4-1 above show that the predicted construction noise levels during core hours are below the Daytime Category A Threshold Levels of 65 dB at all CNALs for all assessment scenarios (months 1-21).

No construction works are planned during night-time periods, however there may be some static plant operating overnight such as generators for lighting the compounds. Predicted night-time noise levels from such potential activity are shown in Table 4-1 and are below the Night-time Category A Threshold Level of 45dB at all CNALs.

There are no construction works planned during the Evening and Weekend and periods. The predicted construction noise levels exceed the Evening and Weekend Category A Threshold Levels during certain months at CNAL01 and CNAL04. Some occasional construction activities such as deliveries of concrete for turbine foundations and delivery of turbine components may be required during the Evening and Weekend Period. Whilst this is unlikely to result in a significant impact, as duration of exposure will be limited, no construction activities will be undertaken in proximity to these properties outside of normal daytime working hours (Mon-Fri 07:00 to 19:00 and Saturday 07:00 to 13:00). Any activities to be undertaken outside these periods will require agreement with the relevant Local Authority (LA).

In conclusion, construction noise impacts are below the threshold for a potential significant effect. However, 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.

4.3 Proposed Grid Connection Route

For the Proposed Grid Connection Route, the amount of required plant is relatively small, typically being based around an excavator for trenching and backfill activities. As such, construction activities in any one location will be limited in duration and adverse noise effects are anticipated to be negligible. Section 4.3.3 in Chapter 4 of the EIAR describes the construction of the underground electrical cable trench in more detail.

Where construction activities occur directly besides a dwelling the noise levels at that location are likely to be in the region of 75 – 80 dBA for a short period of time. This noise level is deemed representative of any receptor that lies adjacent to the 41.6 km Proposed Grid Connection Route. It should be noted, however, that this would only occur where construction activities are directly opposite a dwelling i.e. within approximately 20 m. To put this into context, trenching and backfill activities are anticipated to move along the underground electrical cabling route at approximately 150 m to 300 m a day, therefore, the length of time when construction activities will be occurring adjacent to any given receptor is only likely to be for a few hours. For the majority of the time, plant and equipment will be located at greater distances and noise levels will be lower.

Although noise levels from trenching and backfill operations may occasionally exceed the BS 5228 threshold levels during the daytime, this would only occur for a short period of time at any one location. Accordingly, the impact is not deemed significant.

There are thirty-six identified watercourse crossings along the proposed cable route. The cable route will primarily seek to use culverts, however, if this is not suitable there may be a requirement for Horizontal Directional Drilling (HDD). HDD typically requires the use of multiple items of plant including pumps, mud recyclers, drilling rigs and generators, however, due to the relatively small size of the watercourses the plant is anticipated to be a Vermeer D36 x 50 Directional Drill (or similar), which is much smaller than many DD rigs and requires less associated plant. Additionally, for small crossings, the work would likely be completed within 1 to 2 weeks, therefore is considered a short-term activity.

Calculations of the Vermeer DD rig, assuming a source noise level of 94 dBA at 1 m, and a tracked excavator (using data from BS5228), indicates that noise levels would be below the 65dBA threshold

from a distance of approximately 30 m. Should any of the thirty-six identified watercrossings be identified as having a dwelling within 30 m, noise mitigation measures should be considered in line with the guidance presented in BS 5228 to lessen the impact. This could include the erection of temporary boarding alongside the drilling rig or use of 'acoustic blanket panels' to hang from temporary fencing ('Heras' or similar). This should be installed as close to the drilling rig as is practicable and fitted so as to interrupt any direct line of site between the drilling rig and the closest receptors. Examples of appropriate products include Echo Noise Defender and Soundex DeciBloc.

5 Noise Mitigation Measures

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

The hours for the proposed works will be limited to core construction hours 07:00 to 19:00 on weekdays and 07:00-13:00 on Saturdays. There will be no working on Sundays and Public Holidays, however, it should be noted that out of necessity some activity outside of the core hours could arise, from delivery and unloading of abnormal loads for health and safety requirements, or to ensure optimal use is made of fair weather windows for concrete deliveries, the removal and erection of turbine blades and the erection and dismantling of cranes. If occasional work is undertaken outside of core hours, especially during construction of access tracks at the Site entrance, this should be agreed in advance.

Good site practices for construction of the Proposed Wind Farm and Proposed Grid Connection Route will be implemented to minimise the likely effects. Particular care will be taken at watercourse crossings along the Proposed Grid Connection Route. 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 taking place outside of standard working hours (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 on site, 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.
- At any location within 20m of a residential receptor, where directional drilling activities are required for the Proposed Grid Connection Route, the installation of temporary boarding alongside the drilling rig or 'acoustic blanket panels' hanging from heras fencing (or similar) may be used to mitigate noise emissions.

6 Summary

A noise impact assessment was undertaken to consider the construction of the Proposed Wind Farm and Proposed Grid Connection Route. The guidance used was largely contained in BS 5228: Part 1 2009+A1:2014 '*Noise and vibration control on construction and open sites- Noise*', specifically the '*ABC method*' example method of Annex E which defines potential thresholds depending on existing noise levels at local residential receptors.

Eight residential receptors neighbouring the Proposed Wind Farm (not including the Proposed Grid Connection Route) were identified as the nearest noise sensitive receptors to the Proposed Wind Farm construction activities.

Noise propagation modelling has been undertaken in the CadnaA noise modelling software in accordance with ISO 9613-2:2024 and the anticipated noise immission levels presented for scenarios likely to occur throughout the construction period of the Proposed Wind Farm. 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 noise sensitive receptors.

The predicted levels are below the Category A Threshold Levels, as detailed within BS 5228, during the proposed core hours of work (Mon-Fri 07:00 to 19:00 and Saturday 07:00 to 13:00). Any activities to be undertaken outside these periods will require agreement with the relevant Local Authority (LA). If generators were to be left operating overnight at the construction compounds, predicted levels will also be below the Category A Threshold Levels. Accordingly, construction noise impacts are below the indicator for a potential significant effect.

During the construction of the Proposed Grid Connection Route there will be short periods of time where noise levels may exceed the BS 5228 threshold levels, however, this will only occur when associated activities occur directly adjacent to a residential property. The duration of such activities at any given receptor is anticipated to be short, therefore no significant impacts are anticipated. Where Horizontal Directional Drilling (HDD) activities are required for watercourse crossings, temporary noise barriers, or similar, should be installed to reduce noise levels at the nearest dwellings and best practice mitigation measures should be employed in line with recommendations made in BS 5228.

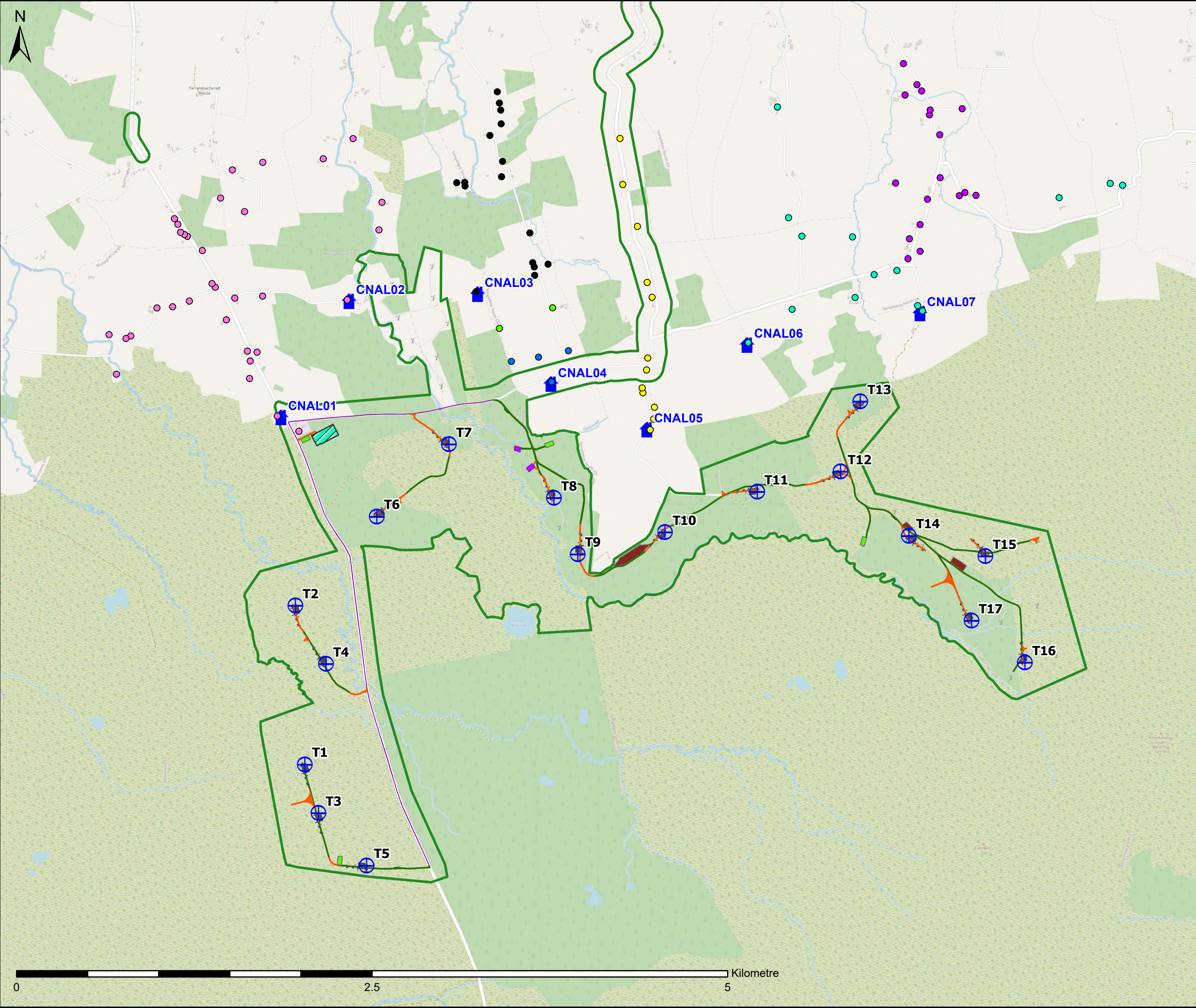
No significant effects resulting from construction noise are predicted, nevertheless, good practice during construction is recommended following guidance from BS5228. If occasional work is undertaken outside of core hours, this should be agreed in advance.

7 References

1. **Ireland, Association of Acoustic Consultants of.** *Association of Acoustic Consultants of Ireland*. [Online] 2021. [Cited: 06 June 2024.] <http://aaci.ie/wp-content/uploads/2022/07/Noise-Guidelines-for-Local-Authorities-v1.pdf>.
2. **Forestry Commission.** *Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment*. Edinburgh : The Crown, 2003.
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5. **British Standards Institute.** *Noise and Vibration Control on Construction and Open Sites. Code of Practice for Basic Information and Procedures for Noise and Vibration Control*. s.l. : BSI, 1997. BS 5228:1997-Parts 1-5.
6. **(ISO), International Organisation for Standardisation.** *Acoustics – Attenuation of Sound During Propagation Outdoors: Part 2: Engineering method for the prediction of sound pressure levels outdoors*. Geneva : ISO, 2024. ISO 9613-2:2024.
7. **UK Government.** Control of Pollution Act 1974. *legislation.gov.uk*. [Online] [Cited: 21 4 2025.] <https://www.legislation.gov.uk/ukpga/1974/40/contents>.
8. —. The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015. *legislation.gov.uk*. [Online] [Cited: 25 4 2025.] <https://www.legislation.gov.uk/uksi/2015/227>.
9. **British Standards Institute.** *5228 Part 2: Code of practice for noise and vibration control on construction and open sites. Vibration*. UK : BSI, 2014. BS 5228-2:2009+A1:2014.
10. —. *5228 Part 1: Code of Practice for Noise and Vibration Control on Construction and Open Sites. Noise*. s.l. : BSI, 2014. BS 5228:2009 +A1:2014.
11. **Ministry of Housing, Communities and Local Government.** National Planning Policy Framework (NPPF). *gov.uk*. [Online] [Cited: 25 4 25.] <https://www.gov.uk/guidance/national-planning-policy-framework>.
12. **Department for Environment, Food and Rural Affairs DEFRA.** *Noise Policy Statement for England (NPSE)*. UK : The Crown, 2010.

Annex 1 – Figures

- Figure A1.1 – Study Area
- Figure A1.2 – Construction Noise Assessment Locations



LEGEND

EIAR Site Boundary

Crumhach Wind Farm

Construction Noise Assessment Locations (CNALs)

Noise Sensitive Receptors (NSRs) Represented By:

NML1

NML2

NML3

NML4

NML5

NML6

NML7

NML8

Temporary Construction Compounds

Borrow Pits

Decommissioned Turbine Laydown Area

Turbine Hardstands

Upgrades to Existing Roads

New Roads

Upgrades to Public Roads

Onsite 110kV Substation

Rev.	Date	Amendment Details	Drawn	Approved
3	10/06/2026	REVISION	MT	JB
2	03/06/2026	REVISION	MT	JB
1	18/03/2026	REVISION	MT	JB
0	10/03/2026	FIRST ISSUE	JCM	MT

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Client:

FOR INFORMATION

Project Title:

CRUMHACH WIND FARM

Drawing Title:

FIGURE A1.2: CONSTRUCTION NOISE ASSESSMENT LOCATIONS

Scale:

1:25,000

Original Size:

A3

Spatial Reference:

IRENET95 Irish Transverse Mercator

Drawing Number:

IE00220-014

Annex 2 – Baseline Data

- Ambient Sound Levels

Cells shaded green to indicate data which has been used in the calculation of the average values. Unshaded cells indicate periods where noise data has been filtered out and not used for calculation of the averages, e.g. where measurement periods are overtly short in duration to be representative of a full BS 5228–defined assessment period.

NML01	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
15/06/2024			41.7	230					24.6	20
16/06/2024										
17/06/2024	42.5	30							32	30
18/06/2024									41.2	300
19/06/2024	44.8	670			43.8	230			36.9	360
20/06/2024	47.6	110								
21/06/2024										
22/06/2024										
23/06/2024							36.1	30		
24/06/2024										
25/06/2024	38.8	20			40.5	190			28.6	170
26/06/2024										
27/06/2024										
28/06/2024					43.4	130			28.8	330
29/06/2024										
30/06/2024										
01/07/2024										
02/07/2024										
03/07/2024										
04/07/2024										
05/07/2024					53.5	90			31.1	10
06/07/2024									37.8	120
07/07/2024							38.9	120		
08/07/2024	57.8	50								
09/07/2024										
10/07/2024										
11/07/2024										
12/07/2024										
13/07/2024			38	10			40.9	20	36.8	340
14/07/2024							43.2	890	38.6	50
15/07/2024	40	290			47.6	140				
16/07/2024	40.4	130								
17/07/2024										
18/07/2024	39.3	130			43.5	140				
19/07/2024										
20/07/2024										
21/07/2024							38	20	26.9	120
22/07/2024	41.5	220			37.7	10				
23/07/2024	45	330			42.9	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			38	20			38.6	30	36.9	330
28/07/2024										
29/07/2024										
30/07/2024	40.5	390							34.3	350
31/07/2024	42.5	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							35.8	100	34.3	230
11/08/2024										
12/08/2024										
13/08/2024	42.4	10			42.7	190			31.9	480
14/08/2024	34.8	20								
15/08/2024	42.6	120								

NML01	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>
16/08/2024										
17/08/2024										
18/08/2024										
19/08/2024	45.7	10								
Mean of Valid Periods (dBA)	44		42		44		43		35	

NML02	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>
15/06/2024			36.3	230					34.5	20
16/06/2024										
17/06/2024	36.8	30							26.2	30
18/06/2024									35.4	300
19/06/2024	41.3	670			44.1	230			30	360
20/06/2024	39.6	110								
21/06/2024										
22/06/2024										
23/06/2024							45.8	30		
24/06/2024										
25/06/2024	34.1	20			37.5	190			37.2	170
26/06/2024										
27/06/2024										
28/06/2024					40.3	130			28.1	330
29/06/2024										
30/06/2024										
01/07/2024										
02/07/2024										
03/07/2024										
04/07/2024										
05/07/2024					37.9	90			35.9	10
06/07/2024									35.5	120
07/07/2024							32.8	120		
08/07/2024	33.9	50								
09/07/2024										
10/07/2024										
11/07/2024										
12/07/2024										
13/07/2024			38.1	10			30.5	20	34.6	340
14/07/2024							36.4	890	32.3	50
15/07/2024	35.2	290			34.7	140				
16/07/2024	37	130								
17/07/2024										
18/07/2024	33.5	130			37.5	140				
19/07/2024										
20/07/2024										
21/07/2024							35	20	31.7	120
22/07/2024	40.9	220			32.6	10				
23/07/2024	39	330			33.5	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			37.8	20			34.4	30	33.9	330
28/07/2024										
29/07/2024										
30/07/2024	37.5	390							33.9	350
31/07/2024	36.5	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							33.1	100	27.5	230
11/08/2024										
12/08/2024										
13/08/2024	64.8	10			38.3	190			30.3	480
14/08/2024	35.6	20								
15/08/2024	39.1	120								
16/08/2024										

NML02	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>
17/08/2024										
18/08/2024										
19/08/2024	41.7	10								
Mean of Valid Periods (dBA)	39		36		39		36		32	

NML03	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
15/06/2024			44.6	230					24.4	20
16/06/2024										
17/06/2024	39.2	30							24.9	30
18/06/2024									47	300
19/06/2024	47.6	670			37.9	230			43.5	360
20/06/2024	47.7	110								
21/06/2024										
22/06/2024										
23/06/2024							45.5	30		
24/06/2024										
25/06/2024	35	20			45.5	190			27.7	170
26/06/2024										
27/06/2024										
28/06/2024					30	130			30.8	330
29/06/2024										
30/06/2024										
01/07/2024										
02/07/2024										
03/07/2024										
04/07/2024										
05/07/2024					37.3	90			31.1	10
06/07/2024									41.8	120
07/07/2024							39	120		
08/07/2024	38.3	50								
09/07/2024										
10/07/2024										
11/07/2024										
12/07/2024										
13/07/2024			40.5	10			38	20	35.6	340
14/07/2024							45.6	890	38.5	50
15/07/2024	50.1	290			40.8	140				
16/07/2024	38.5	130								
17/07/2024										
18/07/2024	31.2	130			36.6	140				
19/07/2024										
20/07/2024										
21/07/2024							36.1	20	27	120
22/07/2024	39.8	220			36.9	10				
23/07/2024	59	330			36.9	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			37.7	20			31.2	30	32.6	330
28/07/2024										
29/07/2024										
30/07/2024	38.3	390							27.3	350
31/07/2024	37.6	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							33.7	100	31.2	230
11/08/2024										
12/08/2024										
13/08/2024	39.3	10			33.3	190			33.5	480
14/08/2024	40.5	20								
15/08/2024	51.2	120								
16/08/2024										

NML03	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
17/08/2024										
18/08/2024										
19/08/2024	41.5	10								
Mean of Valid Periods (dBA)	45		45		37		46		36	

NML04	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
17/06/2024	48.6	30							24.2	30
18/06/2024									37.1	300
19/06/2024	36.6	670			32.8	230			30.1	360
20/06/2024	35.9	110								
21/06/2024										
22/06/2024										
23/06/2024							44	30		
24/06/2024										
25/06/2024	40.9	20			39.8	190			23.3	170
26/06/2024										
27/06/2024										
28/06/2024					33.1	130			30.2	330
29/06/2024										
30/06/2024										
01/07/2024										
02/07/2024										
03/07/2024										
04/07/2024										
05/07/2024					36.9	90			29.1	10
06/07/2024									38.4	120
07/07/2024							32.4	120		
08/07/2024	33.4	50								
09/07/2024										
10/07/2024										
11/07/2024										
12/07/2024										
13/07/2024			37.8	10			28.9	20	33.9	340
14/07/2024							39.1	890	30.2	50
15/07/2024	39.7	290			45	140				
16/07/2024	36.4	130								
17/07/2024										
18/07/2024	31.7	130			31	140				
19/07/2024										
20/07/2024										
21/07/2024							35.2	20	25.1	120
22/07/2024	33.9	220			34.1	10				
23/07/2024	41.2	330			32.1	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			36.5	20			28.7	30	32.8	330
28/07/2024										
29/07/2024										
30/07/2024	33.5	390							32.8	350
31/07/2024	34.7	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							35.7	100	24	230
11/08/2024										
12/08/2024										
13/08/2024	36	10			33.6	190			28.7	480
14/08/2024	28.7	20								
15/08/2024	38.8	120								
16/08/2024										
17/08/2024										
18/08/2024										

NML04	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>
19/08/2024	32.9	10								
Mean of Valid Periods (dBA)	35		37		36		39		32	

NML05	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
15/06/2024			43.9	230					31.2	20
16/06/2024										
17/06/2024	44.7	30							42.4	30
18/06/2024									38.9	300
19/06/2024	51.8	670			52	230			35.6	360
20/06/2024	48.4	110								
21/06/2024										
22/06/2024										
23/06/2024							41.1	30		
24/06/2024										
25/06/2024	52.4	20			50.9	190			39	170
26/06/2024										
27/06/2024										
28/06/2024					39.8	130			32.8	330
29/06/2024										
30/06/2024										
01/07/2024										
02/07/2024										
03/07/2024										
04/07/2024										
05/07/2024					47.3	90			38.1	10
06/07/2024									37.9	120
07/07/2024							37.9	120		
08/07/2024	52.2	50								
09/07/2024										
10/07/2024										
11/07/2024										
12/07/2024										
13/07/2024			39.6	10			30.6	20	34.5	340
14/07/2024							61.8	890	35.7	50
15/07/2024	59.4	290			50.8	140				
16/07/2024	64.2	130								
17/07/2024										
18/07/2024	53.4	130			49.6	140				
19/07/2024										
20/07/2024										
21/07/2024							49	20	36.5	120
22/07/2024	59.4	220			40.4	10				
23/07/2024	47.1	330			52.7	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			59.8	20			33.2	30	33.3	330
28/07/2024										
29/07/2024										
30/07/2024	58.2	390							33.7	350
31/07/2024	52	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							50.8	100	31.7	230
11/08/2024										
12/08/2024										
13/08/2024	44.7	10			46	190			37.7	480
14/08/2024	42.3	20								
15/08/2024	47.6	120								
16/08/2024										
17/08/2024										
18/08/2024										
19/08/2024	63.8	10								

NML05	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>
Mean of Valid Periods (dBA)	53		44		48		50		35	

NML06	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
18/07/2024	42.2	130			40.6	140				
19/07/2024										
20/07/2024										
21/07/2024							45.7	20	47.8	120
22/07/2024	46	220			48.5	10				
23/07/2024	44.9	330			50.9	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			39.5	20			35.6	30	37.5	330
28/07/2024										
29/07/2024										
30/07/2024	40.6	390							38.2	350
31/07/2024	39.5	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							37.5	100	35.8	230
11/08/2024										
12/08/2024										
13/08/2024	46.2	10			43.6	190			41.8	480
14/08/2024	42.7	20								
15/08/2024	53.4	120								
16/08/2024										
17/08/2024										
18/08/2024										
19/08/2024	52.6	10								
Mean of Valid Periods (dBA)	42		40		42		38		39	

NML07	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)	LAeq	t (min)
15/06/2024			43.6	230					32.7	20
16/06/2024										
17/06/2024	45.3	30							32.1	30
18/06/2024									39.2	300
19/06/2024	37.8	670			35.8	230			40.8	360
20/06/2024	42	110								
21/06/2024										
22/06/2024										
23/06/2024							35.1	30		
24/06/2024										
25/06/2024	37.5	20			37.6	190			26.9	170
26/06/2024										
27/06/2024										
28/06/2024					41	130			30.4	330
29/06/2024										
30/06/2024										
01/07/2024										
02/07/2024										
03/07/2024										
04/07/2024										
05/07/2024					40.9	90			41.1	10
06/07/2024									38	120
07/07/2024							34.9	120		
08/07/2024	35.3	50								
09/07/2024										
10/07/2024										
11/07/2024										
12/07/2024										
13/07/2024			38	10			31	20	31.6	340
14/07/2024							35.1	890	36.7	50
15/07/2024	35	290			34.2	140				
16/07/2024	37	130								
17/07/2024										
18/07/2024	34.8	130			31.8	140				
19/07/2024										
20/07/2024										
21/07/2024							39.7	20	37.6	120
22/07/2024	36.9	220			38.3	10				
23/07/2024	40	330			35.1	40				
24/07/2024										
25/07/2024										
26/07/2024										
27/07/2024			37.3	20			33.8	30	31.3	330
28/07/2024										
29/07/2024										
30/07/2024	37.4	390							48.3	350
31/07/2024	35.1	350								
01/08/2024										
02/08/2024										
03/08/2024										
04/08/2024										
05/08/2024										
06/08/2024										
07/08/2024										
08/08/2024										
09/08/2024										
10/08/2024							34	100	29.6	230
11/08/2024										
12/08/2024										
13/08/2024	45.8	10			34.9	190			34.9	480
14/08/2024	41.3	20								
15/08/2024	43.2	120								
16/08/2024										
17/08/2024										
18/08/2024										
19/08/2024	41.5	10								

NML07	Measured Sound Pressure Level (Filtered) dB LAeq (t)									
Assessment Period	Daytime _{M - F}		Daytime _{Sat}		Evenings		Weekend		Night-time	
	Weekdays 07:00 - 19:00		Saturday 07:00 - 13:00		Weekdays 19:00 - 23:00		Saturday 13:00 – 23:00 & Sunday 07:00 to 23:00		All days 23:00 - 07:00	
	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>	LAeq	<i>t (min)</i>
Mean of Valid Periods (dBA)	39		44		36		35		37	

Annex 3 – Noise Model Data

- Table A3.1 – Noise Modelling Data breakdown by month
- Table A3.2 – Sound Power Level Data

Scenario & Activity Description	Plant	Data Source	Location	No.
Month 1				
Road junction upgrades - Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Main site and T7 entrance	2
Material deliveries for road junction upgrades - Point Source	Road lorry (full)	BS 5228 ref C6.21	Along L6309 to Main site and T7 entrance	1
Construction of TCC on existing hardstanding - Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	TCC3	1
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Upgrade of the L6309 towards the substation site	2
Removal of Existing Turbines – Line Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Turbine at TCC3 to laydown area	1
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Existing turbine beyond T8	1 of each
Deliveries - Line Source from site entrance to TCC	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3	1
Month 2				
Forestry Felling – Line Source	Forwarder, Harvester, Skidder	TNEI Library	Track leading to T6, and at the substation	1
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Road leading down to T5 entrance	2
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavator	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3	1
Road junction upgrades - Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Site access for substation, T4 and T5 entrances	3
Material deliveries for road junction upgrades - Point Source	Road lorry (full)	BS 5228 ref C6.21	Along L6309 to Main site and T7 entrance	1
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Furthest two existing turbines either side of T16	2 of each
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Pair of existing turbines near T17 and turbine approaching T17	2 of each
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Access track from TCC3 to the first borrow pit	1
Deliveries - Line Source	Road lorry (full)	BS 5228 ref C6.21	Corner of L6309 to TCC3	1
Month 3				
Deliveries - Line Source	Road lorry (full)	BS 5228 ref C6.21	Coner of L6309 to TCC3	1
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavator	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3	1
Forestry Felling – Line Source	Forwarder, Harvester, Skidder	TNEI Library	Around T9, T10, and T11	2
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Track leading to T6	1
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Access track from main borrow pit to TCC4	1
Construction of TCC on existing hardstanding	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	TCC4	1
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Two existing turbines near T15	2 of each

Scenario & Activity Description	Plant	Data Source	Location	No.
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Two existing turbines near T14	2 of each
Construction of TCC - Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	TCC1 and TCC2	2
Month 4				
Deliveries - Line Source	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3 as well as TCC4	2
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavator	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3 and TCC4	2
Borrow pit in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pit next to T10	1
Forestry Activities – Line Source	Forwarder, Harvester, Skidder	TNEI Library	Around T14	1
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Northerly existing Dunneill Turbines (Dunneill: T7 and T8)	2 of each
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Track leading to T14 and T15	2
Month 5				
Deliveries - Line Source	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3 as well as TCC4	2
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavator	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3 and TCC4	2
Borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pit next to T10	1
Transport of materials - Line Source	Dumper	BS5228 ref C4.3 respectively	Borrow Pit at T10 to TCC3	1
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Track leading to T16 and T17	2
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Northerly existing Dunneill Turbines (Dunneill: T5 and T6)	2 of each
Forestry Activities – Line Source	Forwarder, Harvester, Skidder	TNEI Library	To and around T17	1
Month 6				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3 as well as TCC4	2
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavator	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3 and TCC4	2
Borrow Pit – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10 and T14, T15	3
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	All borrow pits to respective TCCs	3
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Northerly existing Dunneill Turbines (Dunneill: T4 and T2)	2 of each
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Track leading to T13	1

Scenario & Activity Description	Plant	Data Source	Location	No.
Month 7				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3 as well as TCC4	3
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3 and TCC4	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	All borrow pits to respective TCCs	3
Borrow Pit – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10, T14, T15	3
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Track from T4 to T2	1
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T9 and T10	2
Removal of Existing Turbines – Line Source and Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Northerly existing Dunneill Turbines (Dunneill: T1 and T3)	2 of each
Construction of turbine hardstanding on reused foundations – Point Source	Dumper, Dozer, Vibratory roller	BS 5228 ref C4.3, C2.12, C5.20 respectively	T8	1
Month 8				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3 as well as TCC4	3
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3 and TCC4	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	All borrow pits to respective TCCs	3
Borrow Pit – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10, T14, T15	3
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T11-T13	3
Removal of Existing Turbines – Point Source	Mobile Telescopic Crane	BS 5228 ref C4.45	Removal of the two turbines around the main site entrance to the laydown areas	2
Upgrade of Access track – Line Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	Track from T5 to T1	1
Month 9				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3 and TCC4 and TCC2	3
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC3 and TCC4	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	All borrow pits to respective TCCs	3
Borrow Pit – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10, T14, T15	3

Scenario & Activity Description	Plant	Data Source	Location	No.
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T6, T7	2
Month 10				
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC2, TCC3, TCC4	3
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC3, TCC4 and TCC2	4
Concrete Delivery – Line Source	Concrete mixer truck	BS 5228 ref C4.20	From the corner of the L6309 to TCC3	2
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC3 and at substation site	6
Both borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10, T14, T15	3
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Both borrow pits to respective TCCs	3
Construction of substation – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator, Mobile telescopic crane	BS 5228 ref C4.32, C6.21, C2.14, C4.45 respectively	At the substation site	1
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T9 and T10	2
Month 11				
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC2, TCC3, TCC4	3
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs	5
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	From corner of L6309 to TCC3 and TCC4	4
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC3, TCC4	6
Both borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10, T14, T15	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Both borrow pits to respective TCCs as well as from borrow pits to TCC1	4
Construction of substation – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator, Mobile telescopic crane	BS 5228 ref C4.32, C6.21, C2.14, C4.45 respectively	At the substation site	1
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T2, T4	2
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T11-T13	3
Month 12				

Scenario & Activity Description	Plant	Data Source	Location	No.
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	All TCCs	4
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs except for TCC4	3
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	TCC3 and to T6	4
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC3, and entrance to T6	6
Both borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits next to T10, T14, T15	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Both borrow pits to respective TCCs as well as from borrow pits to TCC1	4
Construction of substation– Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator, Mobile telescopic crane	BS 5228 ref C4.32, C6.21, C2.14, C4.45 respectively	At the substation site	1
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T1, T3, T5	3
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T6, T7, T8	3
Month 13				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs	5
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	All TCCs	4
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	To T2	2
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	Entrance to T2	3
Borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15 to TCC4 as well as from borrow pits to TCC1	3
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T2, T4	2
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T14	1

Scenario & Activity Description	Plant	Data Source	Location	No.
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	From off-site on the L2702 to T8, T9 and T10	3
Month 14				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs	5
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	All TCCs	4
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	TCC1	2
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC1	3
Borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15 to TCC4 as well as from borrow pits to TCC1	3
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T15	1
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T1, T3, T5	3
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	To T11, T12 and T13	2
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T8, T9 and T10	3
Month 15				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs except TCC1	4
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC2, TCC3, TCC4	3
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	TCC4	2
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC4	3
Borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15	2

Scenario & Activity Description	Plant	Data Source	Location	No.
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15 to TCC4	2
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T17	1
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T14, T15	2
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T11, T12 and T13	3
Month 16				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs except TCC1	4
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC2, TCC3, TCC4	3
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	TCC4	2
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC4	3
Borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15 to TCC4	2
Construction of turbine hardstanding – Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	T16	1
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T17	1
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	To T6 and T7	1
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T6 and T7	2
Month 17				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs	5
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	All TCCs	4
Concrete Delivery – Line Source	Water pump (diesel), Concrete mixer truck, Diesel generator	BS 5228 ref C4.88, C4.20, C4.84 respectively	TCC4	2

Scenario & Activity Description	Plant	Data Source	Location	No.
Concrete Delivery Trucks Idling – Point Source	Concrete pump + concrete mixer truck (idling)	BS 5228 ref C4.26	TCC4	3
Borrow pits in operation – Point Source	Excavator mounted rock breaker, Tracked semi-mobile crusher, Dumper, Dozer, Tracked Excavator	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15	2
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15 to TCC4	2
Construction of turbine foundations – Point Source	Concrete mixer truck + truck mounted concrete pump + boom arm x2, Road lorry (full), Tracked Excavator	BS 5228 ref C4.32, C6.21, C2.14 respectively	T16	1
Removal of Cranes– Line Source	Mobile Telescopic Crane X2	BS 5228 ref C4.45	Removal from T6 and T7 to off-site on the L2702	1
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	To T2 and T4	1
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T2, T4	2
Month 18				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to all TCCs	5
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	All TCCs	4
Transport of materials - Line Source	Dumper	BS5228 ref C9.12, C9.15, C4.3, C2.12, C2.14 respectively	Borrow pits at T14 and T15 to TCC4	2
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	Road lorry delivery from off site to T1, cranes moved from T2 to T1 path	2
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T1, T3, T5	3
Month 19				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC4	2
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC4	1
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	Cranes moved rom T12 to T14 and T15, Lorry deliveries from L2702 to T15	2
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T14 and T15	2
Decommisioning of Temporary Construction Compound - Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	TCC1 and TCC2	2
Removal of Cranes – Line Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	Removal from T1 to off-site	1
Month 20				
Deliveries - Line Source from site entrance to TCC (for both site accesses)	Road lorry (full)	BS 5228 ref C6.21	From corner of L6309 to TCC4	2

Scenario & Activity Description	Plant	Data Source	Location	No.
Operation of TCC - Point Source	Diesel generator, Diesel generator-lights, Wheeled Excavtor	BS5228 ref C4.84, C4.86, C.4.10 respectively	TCC4	1
Delivery of Cranes and Turbine Components – Line Source	Mobile Telescopic Crane x2, Road Lorry (full) x2	BS 5228 ref C4.45 and C6.21 respectively	Cranes moved from T14 to T16 and T17. Lorry deliveries from L2702	3
Erection of turbines – Point Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	T16 and T17	2
Month 21				
Decommisioning of Temporary Construction Compound - Point Source	Dumper, Dozer, Tracked Excavator, Vibratory roller	BS 5228 ref C4.3, C2.12, C2.14, C5.20 respectively	TCC3 and TCC4	2
Removal of Cranes – Line Source	Mobile Telescopic Crane x2	BS 5228 ref C4.45	Removal from T16 to off site on the L2702	1
Night				
Generators at TCCs – Point Source	Diesel generator, Diesel generator-lights	BS5228 ref C4.84, C4.86 respectively	All TCCs	4

Table A3.2

Name	Octave Band Centre Frequency (Hz) & Sound Power Level (dB)											Source
	31.5	63	125	250	500	1000	2000	4000	8000	A	Linear	
Tracked Excavator	28	113	106	105	105	101	99	96	91	107	115	BS 5228 C2. 14
Dumper	28	112	109	102	101	100	96	89	81	104	115	BS 5228 C4. 3
Dozer		113	102	104	101	100	106	90	84	109	115	BS 5228 C2. 12
Concrete mixer truck + truck mounted concrete pump + boom arm	28	101	101	105	104	100	98	93	90	106	110	BS 5228 C4. 32
Mixing concrete: Concrete mixer truck		111	102	94	97	98	106	88	83		108	BS 5228 C4. 20
Mobile telescopic crane	28	118	109	106	102	105	104	97	89	109	119	BS 5228 C4. 45
Diesel generator	28	103	100	104	98	97	93	84	75	102	108	BS 5228 C4. 84
Diesel generator - lights	28	106	99	94	90	87	83	84	77	94	107	BS 5228 C4. 86
Vibratory roller	28	118	110	101	100	98	93	87	82	103	119	BS 5228 C5. 20
Excavator mounted rock breaker	28	119	117	113	117	115	115	112	108	121	125	BS 5228 C9. 12
Tracked semi-mobile crusher	28	119	119	116	115	113	111	106	96	118	124	BS 5228 C9. 15
Water pump (diesel)	28	98	93	94	92	92	91	84	74	97	102	BS 5228 C4. 88
Road Lorry (full)		124	110	102	101	105	100	99	92		109	BS 5228 C6.21
Wheeled Excavator	28	92	88	91	92	90	85	79	73	94	98	BS 5228 C4. 10

Table A3.2

Name	Octave Band Centre Frequency (Hz) & Sound Power Level (dB)											Source
	31.5	63	125	250	500	1000	2000	4000	8000	A	Linear	
Harvester					103					103		Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment
Forwarder					101					101		Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment
Skidder					108					108		Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment

Annex 4 – Noise Sensitive Receptor Results

- Table A4.1 – Noise Sensitive Receptor Results

Table A4.1

NSR	ITM X	ITM Y	Noise Immission Level, dB LAeq(t)																					
			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	NIGHT
1	544958	829578	52	47	47	51	51	51	51	50	50	51	51	51	51	50	50	50	49	50	46	46	42	30
2	545934	829097	45	44	45	48	48	49	49	49	49	50	49	49	48	48	46	45	44	45	43	43	41	30
3	545958	829173	45	44	45	48	48	48	49	49	48	49	49	48	48	48	47	45	45	46	43	43	41	29
4	545241	829434	58	56	56	59	59	59	59	59	59	61	61	60	60	60	60	60	59	60	55	55	45	34
5	543464	829087	63	64	64	40	40	40	41	38	55	64	62	62	59	58	57	58	58	60	63	46	46	45
6	547375	830027	36	36	38	38	38	42	41	43	40	41	44	40	41	43	44	37	37	38	36	36	32	20
7	545149	829608	51	48	47	51	51	51	51	50	50	51	52	51	51	51	50	51	50	51	47	47	42	30
8	547849	829933	34	35	36	37	37	40	38	42	37	38	42	36	38	41	42	35	35	36	34	34	30	18
9	547815	829970	34	35	36	37	37	40	38	42	37	38	42	37	38	41	42	36	35	36	34	34	30	18
10	546932	829944	38	38	40	41	41	43	43	44	42	43	45	42	43	44	44	39	39	40	38	37	33	21
11	544874	829810	47	43	43	48	49	49	48	46	46	47	47	47	47	46	45	46	45	46	42	42	38	27
12	545964	829256	46	45	45	48	48	48	49	49	48	49	49	48	48	48	47	46	45	46	43	43	40	29
13	546624	829710	40	40	42	43	43	45	44	46	44	45	46	44	44	46	46	41	41	42	40	39	35	23
14	545883	829358	48	47	47	49	50	50	50	50	50	51	51	50	50	50	50	49	48	49	45	45	41	29
15	543312	829194	54	54	51	39	40	39	40	37	49	54	54	54	56	54	49	55	52	57	54	48	48	37
16	547509	830188	35	36	37	38	38	40	39	41	39	39	42	38	39	41	42	36	36	37	35	35	31	19
17	545878	829392	48	48	47	50	50	50	51	51	50	52	52	51	51	51	50	50	49	50	46	46	40	29
18	545359	829653	50	48	48	51	51	51	51	51	51	52	52	51	51	51	51	51	50	51	47	47	41	30
19	547669	830217	35	35	36	37	37	39	38	41	38	38	41	37	38	41	41	36	35	36	34	34	30	18
20	544709	830068	44	41	40	46	49	51	48	43	43	44	44	44	45	44	43	44	42	43	40	39	35	24
21	545909	829518	59	59	58	61	61	61	61	61	61	63	63	62	62	62	62	61	61	62	56	56	39	28
22	547747	830300	34	35	36	37	37	39	38	40	37	38	40	36	38	40	40	35	35	36	34	34	29	17
23	545248	829955	45	43	43	46	46	47	47	46	46	47	47	46	47	46	46	45	45	46	42	42	37	26
24	545917	829602	56	56	55	58	58	58	58	58	58	60	61	60	60	60	60	58	57	59	53	53	38	27
25	547832	830352	34	34	35	36	36	38	37	39	37	37	40	36	38	40	39	35	35	36	33	33	29	17
26	547357	830453	36	36	37	38	38	40	40	41	39	40	41	39	40	41	41	37	36	37	35	35	30	18
27	543804	830011	42	40	39	42	44	45	50	38	41	42	43	44	44	42	40	43	41	43	40	37	34	24
28	547757	830440	34	34	35	36	36	38	38	39	37	38	40	36	38	40	39	35	35	36	33	33	29	17
29	543117	829458	45	46	42	38	38	38	40	36	42	46	47	48	52	49	41	51	47	51	49	45	44	30
30	547001	830458	37	37	38	40	40	41	41	42	41	41	42	40	41	42	42	38	38	39	36	36	30	19
31	545122	830183	44	42	41	45	45	46	45	44	44	45	45	44	45	45	44	44	43	44	40	40	35	24
32	545119	830242	43	41	41	44	45	46	45	44	44	44	45	44	45	44	44	43	43	43	40	39	34	23
33	545108	830272	43	41	41	44	45	45	45	44	44	44	45	44	45	44	43	43	43	43	40	39	34	23
34	543122	829581	43	44	41	38	39	38	40	36	41	44	50	50	57	53	40	57	51	56	55	51	51	28
35	547832	830540	34	34	35	36	36	37	37	39	37	37	39	36	37	39	39	35	35	35	33	33	26	14
36	543170	829643	43	44	41	38	39	38	40	36	41	44	49	49	56	52	40	55	50	54	52	49	49	27
37	545216	830261	43	42	41	44	45	45	45	44	44	45	45	44	45	45	44	43	43	44	40	40	34	23
38	546907	830588	38	38	38	40	40	41	41	42	41	41	42	40	41	42	42	38	38	39	36	36	30	18
39	543102	829650	43	44	41	38	39	38	40	36	41	44	53	53	61	57	40	60	54	61	59	55	55	28
40	545948	830029	56	56	55	58	58	58	58	58	58	60	61	59	60	60	60	57	57	58	52	52	34	23
41	545088	830481	42	40	40	43	44	45	44	43	43	43	44	43	44	44	43	42	42	42	39	38	32	21
42	547884	830718	34	34	34	36	36	37	37	38	36	37	38	35	37	38	38	34	34	35	33	33	28	16
43	544027	830502	39	38	37	40	42	45	46	38	39	40	40	41	41	41	39	41	39	40	37	36	31	21
44	545913	830133	55	55	54	57	57	57	57	57	57	59	60	59	59	59	59	56	56	57	51	51	34	23

Table A4.1

NSR	ITM X	ITM Y	Noise Immission Level, dB LAeq(t)																					
			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	NIGHT
45	547660	830832	34	34	35	36	36	38	37	38	37	37	39	36	38	39	38	35	35	36	33	33	28	16
46	548108	830743	33	33	34	35	35	36	36	37	35	36	37	34	36	38	37	34	34	34	32	32	27	15
47	543209	830037	40	39	37	37	39	39	40	36	39	41	43	43	47	44	38	46	42	47	44	40	39	23
48	548147	830765	33	33	34	35	35	36	36	37	35	36	37	34	36	37	37	34	34	34	32	32	27	15
49	542954	829870	39	40	37	36	37	37	39	35	38	41	49	49	56	52	37	55	50	57	53	49	50	24
50	548225	830745	32	33	33	34	34	36	35	37	35	35	37	34	36	37	37	33	33	34	31	31	27	15
51	547973	830869	33	33	34	35	35	36	36	37	36	36	38	35	37	38	37	34	34	35	32	32	27	15
52	544048	830696	38	37	36	39	41	43	43	38	39	39	40	40	41	40	38	40	38	40	36	35	30	19
53	544632	830811	39	38	37	41	41	43	42	40	40	41	41	40	42	41	40	40	39	40	37	36	30	19
54	543013	830023	39	39	37	36	37	37	39	35	38	40	45	46	52	49	37	51	46	52	49	45	45	23
55	544574	830834	39	38	37	40	41	43	42	40	40	40	41	40	41	41	40	40	39	40	36	36	30	19
56	544630	830836	39	38	37	40	41	43	42	40	40	41	41	40	41	41	40	40	39	40	37	36	30	19
57	544889	830876	40	39	38	41	42	43	42	41	41	42	42	41	42	42	41	40	40	41	37	37	30	19
58	542876	830100	39	42	37	36	37	37	38	35	38	40	51	51	59	55	37	61	55	62	59	55	55	24
59	545844	830527	55	55	54	57	57	57	57	57	57	59	60	59	59	59	59	56	56	57	51	51	31	20
60	542853	830125	39	41	37	36	37	37	38	35	38	40	51	51	59	55	37	62	55	63	59	56	56	24
61	542694	830002	37	38	35	35	36	36	37	34	37	38	42	42	47	44	36	47	43	48	44	41	40	21
62	544896	830984	40	39	38	41	42	43	42	41	41	42	42	41	42	42	41	40	40	41	37	36	29	18
63	547970	831171	33	33	33	35	35	36	36	37	36	36	37	35	36	37	37	34	34	34	32	32	26	15
64	542576	829962	37	37	35	35	35	35	36	34	36	38	41	41	45	42	35	44	41	45	42	39	37	21
65	542181	829488	36	36	34	33	34	34	35	33	35	37	38	38	40	39	34	39	37	40	37	34	30	20
66	548810	830729	31	31	31	33	33	34	33	35	33	33	35	32	34	35	34	32	32	32	30	30	25	13
67	542466	829954	36	37	34	34	35	35	36	34	36	37	40	40	44	41	35	43	40	44	41	38	35	20
68	542282	829757	36	36	34	34	34	34	35	33	36	37	39	39	42	40	34	40	38	41	38	35	32	20
69	542248	829739	35	36	34	33	34	34	35	33	35	37	38	39	41	39	34	40	38	41	38	35	32	20
70	547898	831311	33	33	33	35	35	36	36	37	36	36	37	35	37	37	37	34	34	34	32	32	26	14
71	545742	830821	55	55	54	57	57	57	57	57	57	59	60	59	59	59	59	56	56	57	52	52	30	19
72	544807	831166	39	38	38	40	41	42	41	40	40	41	41	40	41	41	41	39	39	40	36	36	28	17
73	547903	831345	33	33	33	35	35	36	36	37	36	36	37	35	37	37	37	34	34	34	32	32	26	14
74	543082	830631	36	36	34	36	36	37	38	35	36	37	39	40	44	41	35	43	39	43	40	38	35	19
75	543635	831002	36	35	34	37	37	39	39	36	37	37	38	38	40	39	36	39	37	39	36	34	29	17
76	542785	830357	36	37	34	35	36	36	37	34	36	37	49	49	57	53	35	54	50	56	52	49	49	19
77	546829	831366	37	37	37	39	39	40	40	40	40	40	41	39	40	41	40	37	38	38	35	35	27	15
78	547726	831450	34	34	34	36	36	37	37	37	36	37	37	35	37	38	37	34	34	35	32	32	25	13
79	542129	829766	35	35	33	33	33	34	35	33	35	36	38	38	40	39	34	39	37	40	37	34	31	19
80	548128	831354	32	33	33	34	34	35	35	36	35	35	36	34	36	37	36	33	33	34	31	31	26	14
81	543845	831144	36	35	34	37	38	39	39	36	37	37	38	38	39	39	37	38	37	38	35	34	28	17
82	544886	831248	39	39	38	41	41	42	41	41	41	41	42	40	42	42	41	39	40	40	36	36	28	17
83	547843	831479	33	33	33	35	35	36	36	37	36	36	37	35	37	37	37	34	34	35	32	32	26	14
84	541316	828860	32	33	31	31	31	31	32	31	32	33	35	35	36	35	31	34	34	36	32	30	25	16
85	547810	831523	33	33	33	35	35	36	36	37	36	36	37	35	37	37	37	34	34	35	32	32	25	14
86	542680	830457	37	40	35	35	35	36	37	34	37	38	54	54	62	59	35	61	55	63	59	55	55	21
87	544883	831344	39	39	38	41	41	41	41	41	41	41	42	40	42	42	41	39	40	40	36	36	28	16
88	542659	830470	36	36	34	35	35	36	37	34	36	37	52	52	59	56	35	58	52	60	56	53	53	19

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NSR	ITM X	ITM Y	Noise Immission Level, dB LAeq(t)																					
			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	NIGHT
89	542913	830726	35	35	33	35	35	36	37	34	36	36	40	40	45	42	35	44	40	45	41	39	37	18
90	549169	830829	30	30	30	32	32	32	32	33	32	32	34	31	33	34	33	31	31	31	29	29	24	12
91	543210	830977	35	35	33	35	36	37	37	35	36	36	38	38	41	39	35	40	37	40	37	35	32	17
92	542632	830485	35	36	33	34	35	35	36	34	35	36	49	49	56	53	35	56	50	58	54	50	50	18
93	544874	831394	39	38	38	41	41	41	41	41	41	41	42	40	42	41	41	39	40	40	36	36	27	16
94	545722	831145	58	58	58	61	61	61	61	61	61	62	63	62	62	62	62	59	60	61	55	55	28	17
95	549256	830816	30	30	30	31	31	32	32	33	32	32	33	31	33	34	33	31	31	31	29	28	23	11
96	542613	830542	35	35	33	34	35	35	36	34	36	36	51	51	59	55	35	59	53	62	58	54	53	18
97	547715	831671	34	33	33	35	35	36	36	37	36	36	37	35	37	37	37	34	34	35	32	32	25	13
98	542996	830924	35	34	33	35	35	36	37	34	35	36	38	38	42	40	35	41	38	42	39	37	34	17
99	544859	831473	39	38	38	40	41	41	41	40	40	41	41	40	41	41	41	39	39	40	36	36	27	16
100	542589	830581	35	35	33	34	35	35	36	34	35	36	51	51	58	55	34	59	55	61	57	53	53	18
101	539650	827977	27	28	27	27	27	27	28	28	28	29	30	30	31	31	28	29	30	30	27	25	19	11
102	539390	826329	25	27	25	25	26	26	27	27	27	27	29	29	30	30	26	27	29	29	26	24	18	9
103	544770	822404	24	27	26	26	26	26	27	27	27	27	28	29	29	30	27	26	29	28	26	25	18	11
104	552943	827305	22	24	24	25	25	26	26	27	26	26	27	26	27	28	27	25	24	25	24	24	18	6
105	550450	830461	27	27	27	29	29	30	29	30	29	29	31	28	30	31	30	28	28	29	26	26	20	9