GREEN HILL
SOLAR FARM

Green Hill Solar Farm

Environmental Statement
Technical Addendum to Chapter 14: Noise and Vibration

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Technical Addendum to Chapter 14: Noise and Vibration

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1 Noise and Vibration

1.1 Introduction

1.1.1 This technical addendum presents the updates and clarifications to the Environmental Impact Assessment (EIA) concerning the potential noise and vibration impacts of the Scheme during the construction, operation and maintenance, and decommissioning phases. This addendum focuses on the potential noise and vibration effects from the use of trenchless techniques, using an updated methodology, consistent with other schemes and emerging engineering information.

1.1.2 The following aspects have been updated since issuing the noise and vibration Environmental Statement (ES) chapter which have the potential to alter its conclusions:

- Horizontal Directional Drilling has been confirmed as potentially taking place during the night-time, and therefore has been assessed at all relevant locations in this report; and,
- Clarifications have been provided to the noise data used for the Battery Energy Storage Systems (BESS) operational noise assessment, which has been used to validate the assessment in the chapter.

1.1.3 For project description details, please refer to **ES Chapter 4: Scheme Description Revision A [EX1/GH6.2.4_A]**.

1.1.4 This technical addendum has been prepared by Tetra Tech (see Statement of Competence **[APP-065]**).

1.1.5 The Legislation, Planning Policy and Guidance presented in **ES Chapter 14: Noise and Vibration [APP-051]** has not changed, or been updated and are therefore still applicable.

1.1.6 The Assessment Methodology and Significance Criteria presented in **ES Chapter 14: Noise and Vibration [APP-051]** of the ES have not changed, or been updated and are therefore still applicable.

1.1.7 The Assessment Assumptions and Limitations presented in **ES Chapter 14: Noise and Vibration [APP-051]** of the ES have not changed, or been updated and are therefore still applicable.

1.1.8 The Baseline Conditions presented in **Chapter 14: Noise and Vibration [APP-051]** of the ES have not been updated and are therefore still applicable.

1.1.9 The Embedded Mitigation Measures presented in **Chapter 14: Noise and Vibration [APP-051]** of the ES have not changed, or been updated and are therefore still applicable.

1.2 Assessment of Likely Significant Effects

Construction Phase Noise

1.2.1 There are no changes or updates to the Construction Phase Noise assessment, as detailed in **Chapter 14: Noise and Vibration [APP-051]** of the ES.

Construction and Decommissioning Traffic Noise

1.2.2 There are no changes or updates to the Construction and Decommissioning Traffic Noise assessment, as detailed in **Chapter 14: Noise and Vibration [APP-051]** of the ES.

Noise from Construction Activities along the Cable Route Corridor

1.2.3 The construction activities for the Cable Route Corridor will include the following activities:

- Trenching and cable duct installation;
- Cable pulling and jointing;
- Trenchless techniques such as Horizontal Directional Drilling (HDD); and
- Installation of the cable route, which will likely include the use of excavators and dozers.

1.2.4 There are no changes or updates to the assessment of noise associated with daytime construction methodologies within the Cable Route Corridor. The assessment remains as detailed in **Chapter 14: Noise and Vibration [APP-051]**. It is summarised in this technical addendum to provide context for the nighttime assessment associated with continuous HDD working.

Trenching And Cable Duct Installation – Daytime Assessment

1.2.5 Due to the type of equipment used during the construction and enabling works, it is considered that trenching and cable duct installation activities are likely to cause the greatest impact in terms of noise and vibration along the Cable Route Corridor during construction. For this reason, noise and vibration impacts for the construction of the Cable Route Corridor have been assessed based on the activities associated with trenching and cable duct installation as a worst-case daytime scenario.

1.2.6 Further key information on these activities is detailed as follows:

- The trenching works are linear and transient in nature, whereby trench excavation, duct installation and backfilling could occur simultaneously along a 100m section at a time; and
- Along roads, breaking of the road surface is required to dig the trenches, whereas over open ground, no breaking is required.

1.2.7 For the construction of the cables within the Cable Route Corridor and specifically the activities associated with trenching, the following items of vibration inducing equipment have been considered:

- A vibratory roller for re-surfacing following trenching works. It is assumed a small ride-on-roller would be used and this activity would only take place

where the Cable Route Corridor requires the removal of the existing road surface.

1.2.8 The main noise sources from construction activities along the cable routing are separated into two categories depending on the surface material of the ground (i.e. excavation on open ground, or excavation on roads) as the equipment and activities will vary between these scenarios.

1.2.9 Information regarding noise emissions from equipment used along the cable routing during the construction phase has been obtained from Annex C of BS 5228-1. This data has been obtained by field measurements for items of plant in actual use on construction and open sites in the UK. Levels quoted in this standard are based on an average (logarithmic) of measured sound levels, and where appropriate have been derived from more than one model of similarly sized plant. The noise data used in this assessment is presented below along with the assumptions used for this assessment including the percentage of the construction period that each equipment will be operating (% on time).

Table 1.1: Cable Routing Corridor Construction Noise Input Data (Daytime)

Activity	Equipment	Sound Power Level SWL [dB(A)]	No of Items	% On Time
Excavation And Duct Installation Along Roads				
Breaking road surface	Hand-Held Circular Saw	115	1	5
	Mini Excavator with Hydraulic Breaker	111	1	10
	Road Breaker (Hand-Held Pneumatic)	110	1	10
Generator	Diesel Generator	84	1	100
Trenching	Mini Tracked Excavator	93	1	10
Backfilling	Dump Truck	107	1	20
Excavation On Open Ground				
Trenching	Mini Tracked Excavator	93	1	10
	Dumper	84	1	40
Backfilling	Dump Truck	107	1	20

Noise Modelling and Results

1.2.10 Three-dimensional noise modelling has been undertaken based on the data in **Table 1.1**, to predict noise levels at a large number of locations both horizontally and vertically. CadnaA (v2024) noise modelling software has been used. This model is based on the ISO 9613 noise propagation methodology and allows for detailed prediction of noise levels to be undertaken. The modelling software

calculates noise levels based on the emission parameters and spatial settings that are entered.

1.2.11 The following parameters were used in the prediction model:

- All sources have been modelled at 1m;
- A ground absorption factor of G=0.8 (soft ground); and
- Receiver heights of 1.5m (ground floor – living rooms) and 4.0m (first floor - bedrooms).

1.2.12 The noise from construction activities along the cable route corridor has been calculated for the sensitive receptors closest to the corridor (as defined in the Assessment Methodology and Significance Criteria section in **Chapter 14: Noise and Vibration [APP-051]** of the ES) and compared against the relevant criteria from BS5228. The relevant criteria are based on construction only occurring during the weekday daytime (07:00-18:00) and Saturdays (08:00-13:00) as it is understood that this is when these construction activities will occur.

Table 1.2: Construction Noise along Cable Route Corridor Assessment Table (Daytime)

Receptor Ref	Associated Green Hill Site	Ambient Noise Level $L_{Aeq,T}$, dB	BS5228 Threshold Level, dB	Predicted Construction Noise L_{Aeq}, dB	Magnitude of Impact
A004	A	49.9	65	37.4	Negligible
A016	A2	63.0	70	30.0	Negligible
A017	A2	63.0	70	38.9	Negligible
B021	B	62.5	70	40.1	Negligible
BESS001	BESS	46.6	65	42.3	Negligible
BESS002	BESS	46.6	65	58.2	Low
BESS003	BESS	39.9	65	42.7	Low
C030	C	57.1	65	49.9	Negligible
C031	C	57.1	65	38.9	Negligible
C032	C	57.1	65	35.2	Negligible
CR01	Cable	63.0	70	60.9	Negligible
CR02	Cable	62.5	70	42.7	Negligible
CR03	Cable	62.5	70	43.3	Negligible
CR04	Cable	57.1	65	34.5	Negligible
CR05	Cable	62.4	65	50.3	Negligible
CR06	Cable	62.4	65	45.4	Negligible
CR07	Cable	62.4	65	47.1	Negligible
CR08	Cable	62.4	65	41.4	Negligible

Receptor Ref	Associated Green Hill Site	Ambient Noise Level $L_{Aeq,T}$, dB	BS5228 Threshold Level, dB	Predicted Construction Noise L_{Aeq}, dB	Magnitude of Impact
CR09	Cable	48.3	65	45.1	Negligible
CR10	Cable	42.5	65	37.6	Negligible
CR11	Cable	63.5	70	27.3	Negligible
CR12	Cable	63.0	70	47.0	Negligible
D042	D	53.6	65	39.0	Negligible
D045	D	57.1	65	40.6	Negligible
E051	E	62.0	65	45.5	Negligible
F073	F	56.3	65	45.1	Negligible
F078	F	49.4	65	29.0	Negligible
F079	F	49.4	65	27.6	Negligible
F083	F	57.0	65	38.1	Negligible
G090	G	65.4	70	38.0	Negligible

Significance of Effects

1.2.13 The assessment results in **Table 1.2** shows that noise levels from the construction activities along the cable route are below background levels at all receptors in the daytime, except BESS002 and BESS003 where construction noise is above background levels but below the BS5228 threshold. This is therefore below the Significand Observed Adverse Effect Level (SOAEL) at all the above receptors, and below the Lowest Observable Adverse Effect Level (LOAEL) at all but two of the receptors, as per the methodology outlined above and **Chapter 14: Noise and Vibration [APP-051]** of the ES. The construction noise is therefore predicted to be Negligible at all receptors except for BESS002 and BESS003 where it is predicted to be a Low magnitude of impact. This is an indication of Moderate/Minor and Moderate effects and **not significant**.

Horizontal Directional Drilling (HDD) – Night-time Assessment

1.2.14 It is understood that HDD activities may also occur in the night-time (unlike the other construction activities along the cable routing). Therefore, this section provides an assessment of the potential noise from HDD activities along the cable route during the night. The assessment has focused on receptors near to locations where HDD is required, typically in order to mitigate other environmental effects, or where a decision on how to cross the feature will be made as part of detailed design. However, it should be noted that the embedded mitigation measures identified to reduce and avoid significant adverse effects are not location-specific and will be applied in any location where HDD is to be utilised following the detailed design of the Scheme.

1.2.15 HDD activities will only take place during the construction phase and will not occur during the operation or decommissioning phases.

1.2.16 Information regarding noise emissions from equipment used for HDD along the cable routing during the night-time of the construction phase has been obtained from Annex C of BS 5228-1. This data has been obtained by field measurements for items of plant in actual use on construction and open sites in the UK. Levels quoted in this standard are based on an average (logarithmic) of measured sound levels, and where appropriate have been derived from more than one model of similarly sized plant. The noise data used in this assessment is presented below along with the assumptions used for this assessment including the percentage of the construction period that each equipment will be operating (% on time).

Table 1.3: Cable Routing Corridor Construction Noise Input Data (Night-time)

Activity	Equipment	Sound Power Level SWL [dB(A)]	No of Items	% On Time
Horizontal Directional Drilling				
Generator	Directional Drill (Generator)	105	1	100
Pump	Water Pump	93	1	100
Trenching	Tracked Excavator	107	1	100
Drilling	Drilling Rig	110	1	100

1.2.17 For the assessment of construction noise, it is assumed that trenchless crossing may require continuous drilling into the night-time period for all identified areas, which is the most sensitive period in terms of noise impacts. As the drilling activities at the entry pit will generate the highest level of noise, calculations of noise have been based on a reasonable worst-case assumption that all potential HDD sites are entry pits.

1.2.18 The start and end points of trenchless technologies for the whole of the cable route corridor will not be confirmed until the detailed design stage. Therefore, the approach to the EIA is to commit to 'Avoidance Areas' where the cable installation method will use trenchless technologies rather than open cut trenches. The launch and reception pits associated with trenchless technology will be located outside of Avoidance Areas to minimise impacts in these locations. The Avoidance Area is an 80m radius from each residential receptor.

1.2.19 The closest receptors to the proposed construction activities are shown in **Table 1.4** along with the predicted noise level from HDD activities and the magnitude of impact (see Table 14.5 of **ES Chapter 14: Noise and Vibration [APP-051]**). Embedded mitigation, including the Avoidance Areas, has been included in this assessment in order to understand the effects of nighttime HDD activities and the extent to which additional mitigation may be required.

1.2.20 This assessment has focused on the receptors located near to known HDD crossing locations. Accordingly, receptors CR07, CR10, D042 and F073 have not been included in this assessment as no HDD works are proposed to take place near these receptors. In the event HDD were utilised, this would be subject to the same Avoidance Area, requiring the HDD launch and receptor pits to be located at least 80m away from the receptors, with any additional mitigation applying as necessary, depending on the expected noise levels at the receptors.

Table 1.4: Construction Noise along Cable Route Corridor Assessment Table (Night-time)

Receptor	Distance to HDD activities, m	Ambient Noise Level in Night LAeq,T, dB (LOAEL)	BS5228 Threshold Level, dB (SOAEL)	Predicted HDD noise level, LAeq,T dB	Magnitude of impact
A017	365	50.1	55	53	Low
CR01	80	50.1	55	67	High
CR02	326	52.9	55	54	Low
CR03	280	52.9	55	56	Medium
CR04	834	47.6	55	46	Negligible
CR05	101	53.5	55	65	High
CR06	211	53.5	55	58	Medium
CR08	255	53.5	55	56	Medium
CR09	142	40.5	45	62	High
CR11	598	55.4	55	49	Negligible
CR12	110	50.1	55	64	High
F083	930	46.2	50	45	Negligible
BESS001	147	40.5	45	61	High
BESS002	80	40.5	45	67	High
BESS003	200	35.5	45	59	High
BESS004	747	35.5	45	47	Medium
BESS005	880	35.5	45	46	Medium
BESS006	1264	35.5	45	43	Low

1.2.21 The Unacceptable Adverse Effect Level (UAEL) for construction works is set as the trigger level for temporary rehousing as set out in Section E.4 of BS 5228-1:2014. At night-time, the limit for temporary re-housing is 65 dB $L_{Aeq,T}$. All receptors are calculated to be 65 dB $L_{Aeq,T}$ or below, with the exception of CR01 and BESS002. With embedded mitigation alone, both of these receptors could experience noise levels requiring temporary rehousing to be offered. For the

receptors experiencing a Medium or High magnitude of impact, a **significant** effect is identified. Therefore, additional mitigation will be required.

Additional Mitigation

1.2.22 Additional mitigation must be considered for any receptor identified as experiencing an impact magnitude of Medium or High, as set out in the **Outline Construction Environmental Management Plan (OCEMP) Revision A [EX1/GH7.1_A]**. Additional mitigation measures focus on reducing the noise level experienced at the receptor, supported by a detailed and bespoke communication strategy, and will be bespoke to each HDD location and the effects to nearby receptors.

1.2.23 Measures to reduce the noise levels at the receptor are likely to include a combination of increasing the distance between the HDD activity (e.g. entrance and exit pit) and the receptor, selection of quieter equipment where practicable, and the use of noise reduction measures such as temporary acoustic fencing. Acoustic fencing could provide 10dB of attenuation where the noise screen completely hides the sources from the receiver.

1.2.24 The precise mitigation to be implemented will be explored by the contractor based on the detailed design of the Scheme, and will ensure that noise levels are predicted to be below 65 dB $L_{Aeq,T}$ at all receptors, with noise levels reduced to not significant levels where practicable to do so. This is secured in the **OCEMP Revision A [EX1/GH7.1_A]**.

1.2.25 A bespoke communications strategy will be used in the event that the implementation of practical mitigation measures is not able to reduce the impact of nighttime HDD noise to levels that are not significant. This could occur due to the exceptionally quiet ambient background nighttime noise at some receptors, as even low levels of construction noise may exceed the thresholds identified in BS 5228-1:2009+A1:2014. The strategy will inform the occupants of the affected receptor of the precise timing and duration of the construction activity that could lead to high noise levels for a temporary period, as well as explain the need for the works, the expected noise levels at the property, and a brief summary of the mitigation measures being implemented to reduce noise levels. This is considered to be effective mitigation as the residents of residential receptors are generally well able to tolerate short-term disruption and noise where they are kept well informed about the works and the likely effects.

1.2.26 In such circumstances, the contractor may also submit an application for prior consent to carry out noisy works under Section 61 of the Control of Pollution Act 1974, in order to demonstrate to the local authority that noise levels have been reduced as far as reasonably practicable.

1.2.27 In order to illustrate the efficacy of the additional mitigation measures, the assessment has been updated to reflect the use of an acoustic fence to reduce noise levels at the receptors. In practice, the additional mitigation to apply will be selected based on the location and anticipated noise levels at each receptor, and a range of mitigation measures may be used. **Table 1.5** shows the effect of the use of only one such measure, an acoustic fence, as it can be reliably assessed as providing (at least) a 10dB reduction of noise levels, whilst measures such as

a greater offset will vary depending on the location of the receptor and engineering requirements of the Scheme.

Table 1.5: Construction Noise (Night-time) with Additional 10dB Mitigation

Receptor	Distance to HDD activities, m	Ambient Noise Level in Night LAeq,T, dB (LOAEL)	BS5228 Threshold Level, dB (SOAEL)	Predicted HDD noise level, LAeq,T dB	Magnitude of impact
A017	365	50.1	55	43	Negligible
CR01	80	50.1	55	57	Medium
CR02	326	52.9	55	44	Negligible
CR03	280	52.9	55	46	Negligible
CR04	834	47.6	55	36	Negligible
CR05	101	53.5	55	55	Medium
CR06	211	53.5	55	48	Negligible
CR08	255	53.5	55	46	Negligible
CR09	142	40.5	45	52	High
CR11	598	55.4	55	39	Negligible
CR12	110	50.1	55	54	Low
F083	930	46.2	50	35	Negligible
BESS001	147	40.5	45	51	High
BESS002	80	40.5	45	57	High
BESS003	200	35.5	45	49	Medium
BESS004	747	35.5	45	37	Low
BESS005	880	35.5	45	36	Low
BESS006	1264	35.5	45	33	Negligible

1.2.28 Based on the results above, it can be seen that the magnitude of impact has been reduced. However, some receptors are still predicted to experience a medium or high magnitude of impact and further additional mitigation measures (e.g. increasing the distance between the HDD activity and the receptor, alongside selection of quieter plant where possible) would be investigated to reduce the impact further.

Residual Effects

1.2.29 As noted above, the additional mitigation to be applied to each HDD crossing will be selected in order to reduce significant effects as far as practicable. For any effects that remain at significant levels based on the assessment criteria, it is noted that these will be short term in nature and a bespoke communication

strategy will be implemented. A section 61 consent may also be obtained to confirm that noise impacts are being appropriately managed and are acceptable. Taken together, the additional mitigation secured in the **OCEMP Revision A [EX1/GH7.1_A]** will reduce the effects on receptors to no more than moderate/minor impact which is **not significant**.

Construction Vibration

1.2.30 The potential for differing construction vibration effects to arise from the use of HDD, as opposed to open trenching, has also been considered. Consideration of the potential for vibration impacts from open trenching and other activities including traffic remains as set out in **ES Chapter 14: Noise and Vibration [APP-051]**, from paragraph 14.8.26.

1.2.31 BS 5228-2 refers to the Transport Research Laboratory (TRL) (Ref 14.1) report 429 'Groundborne Vibration Caused by Mechanised Construction Works' (2000). Figure 50 of the TRL report indicates that ground vibration from miscellaneous vehicle operations on construction sites (including scrapers, rollers, dumpers, breakers, dozers and HGVs) are in the region of 1 mm/s Peak Particle Velocity (PPV) at approximately 10m, decreasing to the region of 0.1 mm/s PPV at approximately 50m.

1.2.32 Actual vibration levels from works are dependent on a number of factors including ground conditions, plant or vehicle size, the nature of the works (in particular piling methods), the speed of HGV movements and the quality of surface of haul or other temporary roads. Vibration from vehicles on the access roads will be minimised through regular maintenance of access route road surfaces and reduced HGV speeds on access routes, as will be detailed in the **Outline Construction Traffic Management Plan Revision A [EX1/GH7.9_A]** and can be secured by condition, if required.

1.2.33 BS 5228-2 indicates that impact or vibratory piling activities generally only generate vibration impacts when they are located less than 20m from sensitive locations. The impact depends on the type of piling, ground conditions, and receptor distance. Vibration from smaller scale push piling techniques, which are proposed be used for the installation of solar module mounting structures, are generally limited to 1mm/s for distances up to 10m.

1.2.34 For HDD activities, similar levels of vibration will be generated to piling activities. Therefore, for the ‘worst-case’ receptor CR01, located 80m away from the HDD activities, the level of vibration is predicted to be below the 0.3 mm/s threshold for the LOAEL. HDD vibration activities are predicted to be negligible at this distance.

1.2.35 For clarity, if the HDD activities (i.e. the launch or receptor pits) were to be located on the Order Limits at the closest point to the receptor (i.e. 12.5m away from CR01), the levels of vibration are predicted to be around 3.4 mm/s. This would be above the SOAEL, but is still significantly below the level at which cosmetic damage may occur (as defined in Table B.2 of BS 5228-2:2014). As the actual distance to these works is much greater, at a minimum of 80m, the risk of cosmetic damage to buildings is therefore considered negligible, which is **not significant**.

Operational Phase

Validation of the Assessment of Noise from Proposed BESS Equipment

1.2.36 The key sources of noise from the operational phase of the Scheme are the inverters and transformers serving the solar panels, the substation, and the inverters serving the Battery Energy Storage units. In order to validate the assessment in ES Chapter 14: Noise and Vibration, the potential for noise to originate from other sources (e.g. BESS battery containers) has been included in the noise modelling, to confirm the cumulative noise levels from all potential equipment noise sources at the receptors.

Inverters and Transformers (Serving the Solar Panels)

1.2.37 This technical addendum presents no changes or clarifications to the noise sources or assessment of operational noise from the solar panel sites (i.e. Sites A to G).

Inverters and Transformers (Serving the BESS)

1.2.38 The Scheme will accommodate a Battery Energy Storage System (BESS).

1.2.39 The main noise source from the BESS units are the inverters that service them. The octave-band source data used within the modelling is derived from manufacturer data and is presented below and was considered in the assessment in **ES Chapter 14: Noise and Vibration [APP-051]**.

Table 1.6: BESS Storage Inverter Input Data

Unit	Sound Power Level SWL [dB]	Octave Band Centre Frequency Hz							
		63	125	250	500	1000	2000	4000	8000
SMA inverter with silencer (4600 kVA)	83.4	60.1	66.8	72.1	69.2	68.2	72.8	81.0	75.5

1.2.40 This technical addendum also uses the same noise data for transformers as in ES Chapter 14: Noise and Vibration to model the transformers on the BESS sites.

Table 1.7: Transformer Input Data

Unit	Sound Power Level SWL [dB(A)]	Octave Band Centre Frequency Hz							
		63	125	250	500	1000	2000	4000	8000
Transformer	88.0	88.0	94.0	93.0	86.0	80.0	62.0	60.0	54.0

1.2.41 This technical addendum additionally considers that the Battery Containers themselves may produce noise (often associated with the integrated cooling/ventilation equipment). For the purposes of this assessment, noise data

for these units has been based on a Solbank battery container and is presented below.

Table 1.8: BESS Battery Container Input Data

Unit	Sound Power Level SWL [dB]	Octave Band Centre Frequency Hz							
		63	125	250	500	1000	2000	4000	8000
Solbank BESS battery container	75.9	44.6	61.0	59.7	67.2	67.5	70.1	70.9	64.9

Assessment

1.2.42 The noise levels from the BESS Battery Containers is significantly lower than the noise levels from the inverters and transformers. The inclusion of the BESS Battery Container noise in the modelling does not materially affect the assessment reported in **ES Chapter 14: Noise and Vibration [APP-051]**, as the impacts identified correspond with the louder outputs from the inverters and transformers. No further updates or clarifications are required to the operational noise assessment, as the clarifications above do not represent any material change to the results or conclusions presented in **ES Chapter 14: Noise and Vibration [APP-051]** of the ES.

1.3 Summary

1.3.1 **Table 1.9** sets out a summary of the noise and vibration environmental effects from this technical addendum and **ES Chapter 14: Noise and Vibration [APP-051]**.

Table 1.9: Summary of Residual Effects for Noise and Vibration

Description of effect	Magnitude of Impact	Sensitivity of Receptor	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Likely Significant Effects	Additional Mitigation Measures	Residual Effect (with additional mitigation)
Construction Phase							
Construction and decommissioning phase traffic noise	Negligible to Neutral	High	CEMP and BPM	Moderate/Minor or Neutral	Not Significant	N/A	Moderate/Minor or Neutral (not significant)
Construction noise at receptors along the Cable Route Corridor	Negligible to High	High	CEMP and BPM	Moderate/Minor For night-time HDD noise: Major to Major/Moderate	Not Significant For night-time HDD noise: Significant	N/A For night-time HDD noise: increase distance, reduce noise with acoustic barrier, use of quieter equipment, and/or obtaining Section 61 prior consent (CEMP)	Moderate/Minor (not significant)
Construction vibration	Negligible to Medium	High	CEMP and BPM	Minor to Moderate	Not Significant	N/A	Minor to Moderate (not significant)
Operational Phase							
Noise from Solar Panels and BESS Equipment on nearest sensitive receptors	Negligible	High	Selection of Plant and acoustic barrier	Moderate/ Minor	Not Significant	N/A	Moderate/ Minor (not significant)

Description of effect	Magnitude of Impact	Sensitivity of Receptor	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Likely Significant Effects	Additional Mitigation Measures	Residual Effect (with additional mitigation)
Noise from Replacement of Equipment on nearest sensitive receptors	Negligible to Low	High	CEMP and BPM	Moderate/ Minor to Moderate	Not Significant	N/A	Moderate/ Minor to Moderate (not significant)

2 Human Health

2.1 Summary

2.1.1 The assessment of human health and wellbeing effects as a result of the construction, operation, and decommissioning of the Scheme was undertaken in **ES Chapter 18: Human Health [APP-055]**. Therein, physical and mental health effects with respect to noise and vibration were considered in the assessment of biophysical environmental effects.

2.1.2 Section 18.6 of **ES Chapter 18: Human Health [APP-055]** identified that subsections of the population may be more vulnerable to noise and vibration, principally those living closest to noise sources, those where the contrast between existing baseline and projected noise and vibrations is greatest, but additionally those with sensory sensitivities and impairments to whom additional noise impacts would have a disproportionate effect on amenity.

2.1.3 Section 18.8 of **ES Chapter 18: Human Health [APP-055]** identified that subject to embedded and additional mitigation measures, the residual effects from noise and vibration on health and wellbeing were no greater than a short- to medium-term minor/negligible adverse effect (**not significant**) during construction, and no greater than a long-term minor/negligible adverse effect (**not significant**) to the most sensitive receptors during the Scheme's operation.

2.2 Updated Noise and Vibration Information

2.2.1 As set out in **Section 1** of this Technical Addendum to Chapter 14: Noise and Vibration, additional information on night-time HDD works and updated clarification on BESS noise data have been provided, and as such are considered for their potential additions to health and wellbeing effects.

2.2.2 As outlined in **Section 1.2** above the assessment identifies that, due to the proximity and circumstances where high-sensitivity residential receptors are located, notably in areas with extremely low background noise levels, nighttime HDD activities may result in residual significant noise effects.

2.2.3 Additional mitigation measures to reduce the noise levels at the receptor include use of quieter machinery, micro-siting HDD activities as far from receptors as practicable (and at least 80m away from residential receptors), and using acoustic barriers. Where significant noise effects are anticipated to occur, the Applicant commits to a bespoke communication strategy to give prior notice and information about upcoming noisy works and how residents can prepare for it, and where required, apply for Section 61 prior consent.

2.2.4 Subject to the implementation of these mitigation measures, and in the context of the short-term nature of the effects described, it is considered that there would be no greater than a short-term **minor adverse effect** to the highest sensitivity residents affected by nighttime HDD works. This effect is **not significant** to health and wellbeing.

2.2.5 Commitments for construction noise monitoring as set out in the **OCEMP Revision A [EX1/GH7.1_A]** should be implemented in all locations where nighttime works are proposed to take place. Furthermore, as part of the bespoke communication strategy, affected residents should be provided the contact details

of the Community Liaison Manager to ensure that any complaints or questions are immediately communicated and addressed.

2.2.6 The clarification of BESS noise data does not affect the noise levels from the operational Scheme. Accordingly, this does not result in any changes to the assessment of impacts from operational noise to human health. Effects during the operation of the Scheme remain as set out in section 18.8 of **ES Chapter 18: Human Health [APP-055]**, being **not significant**.

References

Ref 14.1 Green Hill Solar Farm (2024) Scoping Report. Available at: EN010170-000012-GHSF - Scoping Report.pdf

Ref 14.2 The Control of Pollution Act (1974). Available at: Control of Pollution Act 1974

Ref 14.3 The Environmental Protection Act (1990). Available at: Environmental Protection Act 1990

Ref 14.4 National Policy Statement (NPS) for Energy EN-1 (2024). Available at: Overarching National Policy Statement for energy (EN-1) - GOV.UK

Ref 14.5 National Policy Statement (NPS) for Energy EN-3 (2024). Available at: National Policy Statement for renewable energy infrastructure (EN-3) - GOV.UK

Ref 14.6 National Policy Statement (NPS) for Energy EN-5 (2024). Available at: National Policy Statement for electricity networks infrastructure (EN-5) - GOV.UK

Ref 14.7 National Planning Policy Framework (NPPF) (2024). Available at: National Planning Policy Framework - Guidance - GOV.UK

Ref 14.8 Planning Policy Guidance (PPG) - Noise (2019). Available at: Planning practice guidance: Noise - GOV.UK

Ref 14.9 The Noise Policy Statement for England (2010). Available at: Noise policy statement for England - GOV.UK

Ref 14.10 North Northamptonshire Local Plan 2011 - 2031 (2016). Available at: North Northamptonshire Local Plan | North Northamptonshire Council

Ref 14.11 West Northamptonshire Joint Core Strategy Local Plan (2014). Available at: West Northamptonshire Joint Core Strategy Local Plan (Part 1) | West Northamptonshire Council

Ref 14.12 Milton Keynes City Plan 2016 – 2031 (2019). Available at: Plan:MK 2016-2031

Ref 14.13 Bedford Borough Council Local Plan 2030 (2020). Available at: Local Plan 2030 | Bedford Borough Council

Ref 14.14 British Standards (BS) 4142:2014+A1:2019 Methods for rating and assessing Industrial and commercial sound (BS 4142) (June 2019). Available at: BS 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound

Ref 14.15 BS 8233:2014 Guidance on sound Insulation and noise reduction for buildings (BS 8233:2014). Available at: BS 8233:2014 - Guidance on sound insulation and noise reduction for buildings

Ref 14.16 BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise). Available at: BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites. Noise

Ref 14.17 BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 2 (Vibration). Available at: BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites. Vibration

Ref 14.18 Calculation of Road Traffic Noise (CRTN). Available at: Design Manual for Roads and Bridges (DMRB) Volume 11

Ref 14.19 Design Manual for Roads and Bridges (DMRB) LA 111 (May 2020). Available at: Design Manual for Roads and Bridges (DMRB) LA 111

Ref 14.20 World Health Organization (WHO) – Guidelines for Community Noise (1999). Available at: Guidelines for community noise

Ref 14.21 BRE (various) - BRE Controlling particles, vapour and noise pollution from construction sites, Parts 1 to 5, (November 2003). Available at: Controlling particles, vapour and noise pollution from construction sites - set of five Pollution Control Guides(AP 160) DOWNLOAD

Ref 14.22 HILLER D. M. and CRABB G. I. Groundborne vibration caused by mechanised construction works. TRL Report 429. Wokingham: TRL, 2000. Available at: Groundborne vibration caused by mechanised construction works