Light Valley Solar

Environmental Statement Volume 1

Chapter 11: Noise and Vibration

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Chapter 11: Noise and Vibration

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Contents

List of tables

11 Noise and Vibration

11.1 Introduction

11.1.1 This chapter presents the findings of the assessment of the likely significant effects arising from noise and vibration from the construction, operation (including maintenance) and decommissioning of the Proposed Development.

11.1.2 This chapter sets out the relevant legislation, policy, standards and guidance applied to the assessment process; consultation undertaken to inform the assessment; assessment methodology; the relevant baseline conditions upon which the assessment is based; embedded mitigation considered in place before the assessment is undertaken; the likely significant effects that may arise as a result of the Proposed Development considering embedded mitigation; further mitigation requirements to reduce or remove any identified likely significant effects; the remaining residual effects following further mitigation; and any monitoring required for remaining significant effects.

11.1.3 The conclusions of the following topic assessments are relevant to the receptors considered within this assessment, and are taken into account in the overall assessment for noise and vibration:

1) Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**]
2) Chapter 12: Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**]

11.1.4 This chapter is supported by the following figures:

1) Figure 11.1: Noise and Vibration Study Areas (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.01**];
2) Figure 11.2: Environmental Sound Survey and Assessment Locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**]; and
3) Figure 11.3: Operational noise modelling results - Predicted daytime sound rating level 4m above ground (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.03**].
4) Figure 11.4: Operational noise modelling results - Predicted night-time sound rating level 4m above ground (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.04**].
5) Figure 11.5: Operational noise modelling results - Predicted daytime sound rating level 1.5m above ground (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.05**].

11.1.5 This chapter is supported by the following appendices:

1) Appendix 11.1: Environmental Sound Survey (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.01**];

2) Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**]; and

3) Appendix 11.3: Operational Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].

11.2 Scope of the assessment

11.2.1 The EIA Scoping Report (available at Appendix 1.1: EIA Scoping Report (ES Volume 3) [**EN0110012/APP/LVS/06.03.01.01**]) sets out the proposed scope for the assessment of noise and vibration. The scope of the noise and vibration assessment is summarised in Table 11-1 below.

Table 11-1 Noise and vibration assessment scope

Aspect	Phase	Scoped in / out	Summary comments
Environmental sound survey	N/A	Scoped in	N/A
Traffic noise	Construction and decommissioning	Scoped in	N/A
	Operation – routine operational activities (excluding replacement of solar PV modules and batteries)	Scoped out	Operational traffic noise assumptions are outlined in Chapter 14: Traffic and Movement (ES Volume 1) [**EN0110012/APP/LVS/06.01.14**]. Operational traffic noise from routine servicing and maintenance is unlikely to result in a significant effect. This is because the anticipated increase in flows associated with the Proposed Development are expected to be minimal. Consequently, operational traffic noise for routine activities is scoped out.
Traffic noise	Operation (during replacement of solar PV modules and batteries)	Scoped in	During the replacement of solar PV modules and the battery energy storage system (BESS) there would be more traffic than during routine inspection and maintenance activities but no more than would be required during construction. A construction traffic noise assessment has been prepared, and it is considered that any operational traffic would lead to fewer effects than construction due to lower traffic numbers. As such, whilst operational traffic (replacement) effects are scoped in, a separate modelled assessment is not undertaken, as discussed in Section 11.9.

Aspect	Phase	Scoped in / out	Summary comments
Traffic vibration	Construction and decommissioning. Operation (including during replacement of solar PV modules and batteries)	Scoped out	Based on guidance provided in British Standards BS5228-2 (Ref 1) and BS7385-2, as well as the Design Manual for Roads and Bridges (DMRB) LA 111 (Ref 2), construction and operation traffic vibration, including during replacement of BESS and solar PV modules, is unlikely to be of sufficient magnitude to result in adverse impacts on people. Risk of any damage (even cosmetic damage) to any buildings, including historic structures or other structures, starts to occur at levels much higher than those that are perceptible to people and is therefore also scoped out.
Noise and vibration from construction activities	Construction	Scoped in	N/A
Noise from stationary sources and routine maintenance	Operation	Scoped in	N/A
Vibration from stationary sources and routine maintenance	Operation	Scoped out	Vibration impacts from operational stationary sources are unlikely to generate significant levels of vibration at the Proposed Development. Propagation of any vibration through the ground between the sources and sensitive receivers will further reduce any residual vibration. Therefore, operational vibration from stationary sources and maintenance activities is scoped out.
Noise and vibration from decommissioning activities	Decommissioning	Scoped in	N/A

Study Area

11.2.2 The Study Area for operational and construction noise and vibration is based on the extent of the Order Limits and the type of impact as set out below.

11.2.3 The Study Areas for construction and operational noise are presented in Figure 11.1: Noise and Vibration Study Areas (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.01**].

Direct impacts

11.2.4 For construction and decommissioning noise, a Study Area of 300 m around the Order Limits is considered sufficient to assess impacts, based on precedent from other similar projects and the limitations of prediction methods beyond this distance, as noted in BS 5228 (Ref 1). For construction and decommissioning vibration, a Study Area of 100 m is considered sufficient since it is unlikely that significant effects from vibration would occur at greater distances.

11.2.5 For operational noise, a Study Area of 1 km around the Solar Development Sites is adopted to assess impacts arising from operational sources of the Proposed Development. Sound levels are expected to be well below those likely to cause a risk of a significant effect at or beyond 1 km. Operational vibration has been scoped out of this assessment since the nature of the plant is unlikely to transmit any appreciable vibration into the ground. Moreover, the distances to any sensitive receptors will attenuate any residual vibration.

Indirect impacts

11.2.6 Indirect impacts of construction traffic noise and vibration are those arising at greater distances from the direct impact study area. Indirect impacts result from noise increases due to increases in total traffic flows from construction traffic on existing roads. Indirect impacts occur on roads which are subject to a traffic noise change of more than 1dB(A), this being the lowest perceptible change in road traffic noise. The Study Area for assessing indirect construction traffic noise impacts extends along all affected roads within the surrounding network which are outlined in Chapter 14: Traffic and Movement (ES Volume 1) [**EN0110012/APP/LVS/06.01.14**] and presented in Figure 14.4 Construction Routing (ES Volume 3) [**EN0110012/APP/LVS/06.02.14.04**]. In line with DMRB LA 111 (Ref 2), the Study Area would extend 50 m around such affected roads. This is also relevant and applicable for decommissioning.

11.2.7 Construction and decommissioning traffic routes will also be considered where a traffic noise change of more than 1dB(A) is indicated, with assessments conducted up to 50 m from the affected road.

11.2.8 There are no indirect impacts associated with operational traffic noise.

11.3 Relevant legislation, policy, standards and guidance

11.3.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for noise and vibration and have informed the assessment, including the identification of mitigation.

Legislation

Table 11-2 Noise and vibration - legislation

Legislation	Relevance to assessment
Control of Pollution Act 1974 Part III Noise (Ref 3)	Relevant for the assessment and mitigation of construction and operational noise and vibration. ▪ Section 60 allows local authorities to regulate noise from construction sites by serving notices specifying requirements on how the works should be carried out. ▪ Section 61 allows individuals intending to carry out construction works to apply for prior consent from the local authority, detailing the works and noise mitigation measures, with the authority having the power to attach conditions and applicants having the right to appeal decisions. ▪ Section 71 defines the Secretary of State's authority to issue or approve codes of practice for minimising noise, including the use of specific types of equipment. These codes can be prepared by the Secretary of State or approved if issued by others. Additionally, the Secretary of State must approve a code of practice for works covered by Section 60 of the Act. ▪ Section 72 defines "best practicable means" as methods that are reasonably practicable considering local conditions, technical knowledge and financial implications, and includes design, installation, and maintenance of plant, machinery, buildings, and acoustic structures, while ensuring compatibility with legal duties, safety, and emergency circumstances.
The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015 (Ref 4)	Section 71 of the Control of Pollution Act 1974 allows the Secretary of State to approve codes of practice for minimising noise, including vibration, on construction and open sites. The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015, effective from 6 April 2015, approves parts 1 and 2 of BS 5228 as a statutory code of practice.
Environmental Protection Act 1990 (Ref 5)	Relevant for the assessment of construction and operation noise and vibration. ▪ Section 79 states that statutory nuisance includes noise (including vibration) emitted from premises so as to be prejudicial to health or a nuisance. ▪ Section 79 defines best practicable means (BPM).

Policy

Table 11-3 Noise and vibration - policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2025 (Ref 6)	This document discusses the potential impacts of noise and vibration from energy infrastructure projects. It emphasises the importance of assessing and mitigating these impacts to protect human health and quality of life. It outlines the need for developers to provide noise assessments, consider noise mitigation measures,

Policy	Relevance to assessment
	and comply with relevant regulations and guidelines to minimise adverse effects on nearby communities and environments. Section 5.12.17 reflects NPSE (see below) which provides that the Secretary of State must only award consent if satisfied that the proposals will meet the following aims, through the effective management and control of noise: ▪ Avoid significant adverse impacts on health and quality of life from noise; ▪ Mitigate and minimise other adverse impacts on health and quality of life from noise; and ▪ Where possible, contribute to improvements to health and quality of life through the effective management and control of noise.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2025 (Ref 7)	Provides policy for decisions by the Secretary of State on applications for nationally significant renewable energy infrastructure. With regards to solar photovoltaic generation projects, it notes that noise and vibration impacts may arise from construction activities and construction traffic.
National Policy Statement for electricity networks infrastructure (EN-5), 2025 (Ref 8)	NPS EN-5 notes that audible noise effects can arise from substation equipment such as transformers and may generate low frequency hum. The policy refers to relevant British Standards which are adopted for this assessment.
National Planning Policy Framework (NPPF), 2024 (Ref 9)	Relevant for the assessment of construction and operational noise and vibration, as NPPF contains key information regarding the assessment of environmental noise. NPPF also considers how planning policies and decisions should ensure that new developments take into account likely significant effects of noise, as well as mitigation measures to minimise potential adverse impacts.
Noise Policy Statement for England (NPSE) (Ref 10)	Sets out the following noise policy aims for new developments: ▪ Avoid significant adverse effects on health and quality of life; ▪ Mitigate and minimise adverse effects on health and quality of life; and ▪ Where possible, contribute to the improvement of health and quality of life.
Selby District Core Strategy Local Plan, adopted 2013 (Ref 11)	Relevant policies to the noise and vibration assessment will be adopted for this assessment, including Policy SP19 Design Quality, which notes that new developments are required not to contribute to unacceptable levels of noise.
Selby District Local Plan, adopted 2005 (Ref 12)	Paragraph 4.15 states "*The extent to which proposals would impact on the character of an area and the amenity of adjoining occupiers is an important consideration. Particular attention will be paid to the effects of increased vehicular and pedestrian movements and associated car parking. There may also be occasions when otherwise compatible uses would not be acceptable because of the likely effects of noise and other forms of pollution. Where appropriate, the District Council will make a careful assessment of potential noise levels and other sources of pollution before*

Policy	Relevance to assessment
	determining planning applications. Conditions may be imposed to help regulate and minimise the impact." Paragraph 4.39 states that "*The District Council attaches great importance to controlling and minimising pollution under available Environmental Health legislation and through the planning system. Where appropriate, the advice of relevant pollution control agencies, including the Environment Agency, will be sought.* *Development proposals likely to give rise to an unacceptable level of environmental pollution will be resisted, unless it can be demonstrated that adequate, enforceable measures will be taken to ensure environmental acceptability. Similarly, residential and other sensitive forms of development will not be permitted in locations where they are likely to be affected by existing sources of environmental pollution to an unacceptable degree, unless satisfactory mitigating measures are proposed*." Chapter 4 presents policy ENV 6. It notes that proposals for the development of renewable energy will be permitted providing that: *"…3) The proposal would not give rise to nuisance by virtue of noise, vehicular movements, emissions and electromagnetic interference;… "* Therefore, the potential effects of noise are relevant and are considered in this EIA.

Standards and Guidance

Table 11-4 Noise and vibration - standards and guidance

Standards and guidance	Relevance to assessment
Planning Practice Guidance Noise (Ref 13)	Guidance notes that noise needs to be considered when development may create additional noise, and that good acoustic design should be considered early in the planning process. It reflects the need to take into account the three tests set out in NPSE (see above) and provides a semantic scale to define observed effect levels in a noise exposure hierarchy table. Requirements for the applicant (or agent of change), including providing mitigation of noise, are described.
British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142) (Ref 14)	Relevant for the assessment of operational noise and for the environmental sound survey methodology.

Standards and guidance	Relevance to assessment
British Standard 8233 Guidance on sound insulation and noise reduction for buildings, 2014 (Ref 15)	Relevant for the assessment of operational noise and assessment of amenity spaces.
British Standard 5228:2014 Part 1 (Noise) and Part 2 (Vibration): Code of practice for noise and vibration control on construction and open sites (BS 5228) (Ref 15)	Describes methodologies and assessment criteria for the assessment of construction noise and vibration.
British Standard 7445-1 Description and measurement of environmental noise – Part 1; Guide to quantities and procedures (BS 7445-1) (Ref 16)	Defines how an environmental sound survey should be carried out.
British Standard 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings – vibration sources other than blasting (Ref 17)	Relevant for the assessment of vibration impacts.
British Standard 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from groundborne vibration (BS 7385-2) (Ref 18)	Defines criteria for assessing vibration damage risk to buildings.
ISO 9613-2:2024 Acoustics-Attenuation of sound during propagation outdoors (Ref 19)	Defines how propagation of sound should be calculated.
Highways England (2018) Design Manual for Road and Bridges (DMRB) LA 111 Noise and vibration (Ref 2)	Defines the assessment methodology for construction traffic and operational road traffic noise.
Department for Transport (1988) Calculation of Road Traffic Noise (CRTN) (Ref 20)	Sets out the assessment methodology for operational road traffic noise.
World Health Organization (WHO) Guidelines for Community Noise (1999) (Ref 21) , Environmental Noise Guidelines for the European Region (2018) (Ref 22) and Night Noise Guidelines for Europe (2009) (Ref 23)	Relevant to establishing criteria to determine significance of effects associated with the operation of the Proposed Development.
Institute of Environmental Management and Assessment - Guidelines for Environmental Noise Impact Assessment (Ref 24)	Relevant to the assessment methodology for likely significant effects.
Environmental sound measurement guide – ANC (Ref 25)	Provides guidance about measurement and analysis of environmental sound.
Procedure for the assessment of low frequency noise disturbance NANR45 (Ref 26)	Provides guidance about low frequency noise impacts.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table (Ref 27)	The Planning Inspectorate provides non-statutory guidance on the scope of Nationally Significant Infrastructure Project (NSIP) solar projects. It presents the following examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows:

Standards and guidance	Relevance to assessment
	▪ anticipated noise generating activities and locations during each phase of the development, for example piling, removal of piles, trenching, if tracker panels are proposed; ▪ anticipated maximum duration of construction activities and timing across all phases; ▪ anticipated plant and non-road mobile machinery types for all phases; ▪ vehicle routing including access locations (where known); ▪ vehicle type and number of movements for all phases; ▪ likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (for example Institute of Environmental Management and Assessment (IEMA (now known as Institute of Sustainability and Environmental Professionals (ISEP))) guidance); ▪ identification of the locations of any sensitive receptors. The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register: ▪ best practice noise management measures set out in an Outline Construction Environment Management Plan (oCEMP) [**EN0110012/APP/LVS/07.02**], Outline Operational Environmental Management Plan (oOEMP) [**EN0110012/APP/LVS/07.03**] and Outline Decommissioning Environmental Management Plan (oDEMP) [**EN0110012/APP/LVS/07.02**].. ▪ buffer zones and/ or screening measures.

11.4 Stakeholder engagement and consultation

Scoping Opinion

11.4.1 An EIA Scoping Report (Appendix 1.1: EIA Scoping Report (ES Volume 3) [**EN0110012/APP/LVS/06.03.01.01**]) was submitted to the Planning Inspectorate (PINS) on 11 November 2024 and a Scoping Opinion was received on 19 December 2024 (Appendix 1.2: EIA Scoping Opinion (ES Volume 3)

[**EN0110012/APP/LVS/06.03.01.02**]). A summary of key comments and how these have been addressed is presented in Table 11-5 below.

Table 11-5 Noise and vibration - Scoping Opinion comments

Scoping Opinion I.D	Scoping Opinion comment	How is this addressed
PINS [ID 3.12.1]	The Scoping Report proposes to scope out an assessment of noise impacts from operational traffic on the basis that minimal road traffic movements (five per month) would occur during operation (except during replacement of solar PV modules and batteries). On this basis, the Inspectorate is content that this matter can be scoped out of further assessment. However, the ES should confirm the operational vehicle types and numbers (with reference to thresholds within guidance) to justify this position.	There has been no change to the operational traffic numbers presented in Chapter 18 of the EIA Scoping Report (Appendix 1.1 [**EN0110012/APP/LVS/06.03.01.01**]). Road traffic noise for operational routine activities remains scoped out of the assessment. During the replacement of solar PV modules and the BESS there would be more traffic than during routine inspection and maintenance activities, therefore operational noise during these activities is scoped in and is presented in Section 11.9.
PINS [ID 3.12.2]	The Scoping Report states that construction and operation traffic vibration would be minimal in terms of impacts on people and risk of damage to buildings or other structures. Subject to confirmation within the ES that construction traffic would not pass in proximity to large numbers of properties or any heritage receptors, the Inspectorate agrees this matter can be scoped out. Should the final traffic routes pass in proximity to large numbers of properties or heritage receptors, the ES should provide an assessment of effects from construction traffic vibration. The Inspectorate is content that minimal road traffic movements would occur during operation and that significant effects associated with traffic vibration are unlikely. On this basis, this matter can be scoped out of further assessment. However, the ES should confirm the operational vehicle types and	Construction and operational traffic vibration has been reviewed. As noted in DMRB LA 111, operational vibration is scoped out of the assessment methodology as the maintained road surface that would be used by construction or maintenance vehicles should be free of irregularities. Furthermore, construction vehicles will be similar to existing vehicles operating on public roads so any vibration arising would be similar. Operational and construction traffic vibration will therefore not have the potential to lead to significant adverse effects. The assessment of construction traffic, is presented in Section 11.9.

Scoping Opinion I.D	Scoping Opinion comment	How is this addressed
	numbers (with reference to thresholds within guidance) to justify this position.	
PINS [ID 3.12.3]	The Scoping Report states that vibration impacts from operational stationary sources are unlikely to generate significant levels of vibration at the Proposed Development. The Inspectorate agrees that significant effects are not likely, and this matter can be scoped out of the ES. However, the detailed description of the Proposed Development within the ES should demonstrate that operational plant and equipment (e.g. substations, battery storage infrastructure and tracker panel mechanisms) is of a type, and to be used in locations, that would be unlikely to result in significant vibration effects on sensitive receptors.	The noise and vibration assessment in this report presents the relevant equipment for the Proposed Development in Section 11.9. The proposed locations of infrastructure within the Solar Development Sites have been carefully selected to ensure that there would be no likely significant vibration effects on sensitive receptors.
PINS [ID 3.12.4]	The Scoping Report states that noise receptors will be defined within the PEIR and ES in consultation with the relevant local authorities. The ES should explain how receptors have been identified and provide a figure showing their location.	Consultation with North Yorkshire Council has been undertaken to discuss sensitive receptors included within the assessment, as well as locations for environmental sound survey. These receptors have been assessed and identified on Figure 11.2: Environmental Sound Survey and Assessment Locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**] and Appendix 11.1: Environmental Sound Survey (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.01**].
Appendix 2 – Canal and River Trust	Canal and River Trust: Works to install cables below the canal and River Ouse would need to be carefully managed to avoid any significant vibration or loading that could adversely impact the stability of the canal or river structure above. We request that methodology and associated risk mitigation details should be submitted prior to the	The assessment of vibration impacts upon buildings and receptors resulting from construction activities has been considered as part of the EIA and presented in Section 11.9. The assessment has been undertaken in line with BS5228 Part 2: Vibration (Ref 1). The predicted vibration levels have been used to screen the requirement for further investigation using BS7385-2 (Ref 18).

Scoping Opinion I.D	Scoping Opinion comment	How is this addressed
	commencement of development on site. We advise that we do not believe this information need to be incorporated into the EIA. However, we would request that the need for this is addressed in any subsequent submission.	This has been carried out for the proposed HDD crossing under the River Ouse but not for Selby Canal as this is no longer a crossing point for the Cable Route Corridor.
Appendix 2 – North Yorkshire Council	North Yorkshire Council: There is potential for significant adverse noise effects associated with construction, decommissioning activities, and operational noise arising from static plant installations (inverter stations and energy storage containers). Consideration should be given to assessment of tranquillity and effect on local character and setting, particularly in relation to heritage and other local sensitive receptors such as residential properties, PRoW and local farmsteads. We would wish to agree a methodology and approach for this.	Consultation with North Yorkshire Council has been undertaken to discuss the methodology of assessment and in particular the locations for environmental sound survey. The ES presents the assessment of construction, operational and decommissioning impacts upon sensitive receptors such as residential properties, schools, care homes, hospitals and PRoW, amongst others. Consideration has been given to tranquil areas as defined by the Campaign to Protect Rural England (CPRE) (Ref 29). Details of impacts upon tranquillity, taking account of the conclusions in this chapter, are presented in Chapter 10: Landscape and Visual (ES Volume 1) [**EN0110012/APP/LVS/06.01.10**] and Appendix 10.2: Landscape Baseline and Effects (ES Volume 3) [**EN0110012/APP/LVS/06.03.10.02**].

Statutory consultation

11.4.2 A period of statutory consultation took place between 26 June to 7 August 2025 wherein consultees were able to respond to preliminary environmental information set out in the Preliminary Environmental Information Report (PEIR).

11.4.3 Table 11-6 outlines the main statutory consultation responses relating to noise and vibration and how these have been addressed through the ES. The responses within this table are those which required a response.

11.4.4 Further details, including responses which do not require a response, are presented in the Consultation Report [**EN0110012/APP/LVS/05.01**].

Table 11-6 Statutory consultation comments

Consultee	Comments	How has this comment been addressed	Location of response in this ES
Monk Fryston Parish Council	Noise from construction traffic and noise from the operation of the battery storage cooling equipment affecting local properties.	The assessment of construction traffic noise and operational noise from the battery storage systems (BESS) has been undertaken and reported in this Environmental Statement (ES). For operational noise from the BESS, the assessment methodology has been undertaken in accordance with the relevant British Standard (BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound).	The construction traffic noise assessment methodology, in line with DMRB and CRTN, is set out in Section 11.5, with the assessment of likely impacts and effects provided in Section 11.9. For operational noise, methodology is presented in Section 11.5. The assessment of likely impacts and effects is given in Section 11.9.
Thorpe Willoughby Parish Council	The noise levels will pose a significant impact on our community in both the construction phase and also once operational. The environmental report states that the noise impact has been assessed and will be minimal but as the topography of the area is very flat with minimal barriers between fields we believe that sound will travel a significant distance and even more so on windy days.	The assessment of construction noise and vibration is undertaken in accordance with the methodologies outlined in Section 11.5 Methodology of this chapter, which references BS5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (Part 1) and Vibration (Part 2). The assessment indicates that significant effects are unlikely at the closest sensitive receptors. The assessment is based on a 3D noise prediction model using topographical information from the National LiDAR	The construction noise assessment methodology is presented in Section 11.5 and results of assessment in Section 11.9. The operational noise assessment methodology is set out in Section 11.5 with the assessment of likely impacts and effects provided in Section 11.9.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
		Programme 2023 (Defra Survey open data). This includes local topography and any intervening ground or structures. The Study Area extends 1 km from the main Solar Development Sites as predicted sound levels beyond this distance are unlikely to result in a significant effect. Noise propagation has been modelled using proprietary software in accordance with BS ISO 9613-2:2024 Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors. This standard assumes downwind propagation conditions, i.e. wind blowing from the source to the receiver, representing a cautious assumption for meteorological conditions.	
North Yorkshire Council	It is recommended that the ES includes further detail and justification for the representativeness of these locations, particularly in relation to the finalised layout and the inclusion of receptors along the Cable Corridor Options Area, which are currently deferred to the ES stage.	Where applicable, reference to the environmental sound survey undertaken for the Solar Development Sites has been given to determine noise impact thresholds for construction noise. However, as a worst-case scenario, the construction noise assessment for the Cable Route Corridors assumes the most stringent threshold under the ABC methodology by applying Category A to identify potential significant effects at all	The baseline methodology is presented in Section 11.5. The summary of baseline results are outlined in Section 11.7, and details are presented in Appendix 11.1 Environmental sound survey (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.01**]. Further information about the survey location and assessed receptors (including those located within the

Consultee	Comments	How has this comment been addressed	Location of response in this ES
		receptors. The assessment of construction noise has therefore been based on Category A of the ABC methodology which are the most onerous criteria for the assessment of construction noise irrespective of the baseline ambient sound level. This was discussed with the Council prior to the environmental sound survey.	Study Area for the Cable Route Corridor) can also be found in Figure 11.2: Environmental Sound Survey and Assessment Locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**].
North Yorkshire Council	The Council welcomes the application of a +4 dB feature correction in the operational noise assessment to account for potential acoustic characteristics such as tonality, impulsivity, or intermittency. This is consistent with BS4142 and provides a precautionary approach in the absence of detailed operational data. The Council would expect this approach to be maintained and refined in the ES, with justification for any adjustments to the applied penalties based on further information about the acoustic character of the plant.	The operational noise assessment has been updated for the ES, and any feature corrections have been applied in line with BS 4142. The approach has been reviewed and refined as more detailed operational data became available.	Details about the operational noise methodology for stationary sources is presented in Section 11.5. The results of the assessment including justification for any penalty are presented in Section 11.9, and further details are presented in Appendix 11.3: Operational Noise Modelling Assumptions (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].
North Yorkshire Council	It is also noted that the operational noise assessment is based on indicative layouts and assumed plant locations. This is appropriate at the PEIR stage; however, we would expect the ES to provide updated modelling based on the finalised layout and plant	For the ES, the operational noise model has been updated using the most detailed layout and plant specifications available at the time of writing. Where information is not readily available due to the design stage, conservative assumptions have	Details about the operational noise methodology for stationary sources is presented in Section 11.5. The results of the assessment including details of the plant and Proposed Development layout are presented in Section 11.9, and further details are presented in

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	specifications. This should include a reassessment of noise impacts and any necessary adjustments to penalties for acoustic characteristics, to ensure that the conclusions remain robust and that residential amenity is adequately protected.	been applied to assess a realistic worst-case scenario.	Appendix 11.3: Operational noise modelling assumptions (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**]. Assumptions and limitations of the assessments are also presented in Section 11.6.
North Yorkshire Council	The assessment concludes that construction noise may result in temporary adverse impacts at sensitive receptors, particularly during high-noise activities such as piling. However, these are expected to be short-term and mitigated through the implementation BPM as outlined in the draft Outline Construction Environmental Management Plan (oCEMP). The commitment to BPM, including the use of quieter plant, acoustic screening, and careful scheduling of works, is appropriate and should be secured through the DCO.	A detailed assessment of construction noise impacts and effects, including predictions of noise levels at sensitive receptors, has been undertaken for this ES. The assessment considers implementation of BPM which have been outlined accordingly and included in the oCEMP [**EN0110012/APP/LVS/07.02]**.	The construction noise assessment methodology is presented in Section 11.5 and results of assessment in Section 11.9. Further information about the assumptions and results of the construction noise assessment is presented in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**] Mitigation measures to control construction noise and vibration are presented in Section 11.8.
North Yorkshire Council	Construction traffic noise is generally predicted to have negligible impacts, with the exception of Fryston Common Lane, where a moderate adverse impact is identified. While this is not considered significant in EIA terms, it may still be perceptible to local residents. It is therefore recommended	The assessment of construction traffic noise has been updated for the ES. Fryston Common Lane is no longer proposed for construction traffic and only used as secondary access in an emergency.	The construction traffic noise assessment methodology, in line with DMRB and CRTN, is set out in Section 11.5, and the assessment of likely impacts and effects provided in Section 11.9.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	that the final ES considers additional mitigation or traffic management measures for this route to further reduce potential amenity impacts.		Details about the results of construction traffic, including all the links anticipated to be subject to adverse impacts are presented in Table 11-20.
North Yorkshire Council	Operational noise from stationary sources, including transformers, BESS containers, and Conversion Units, has been assessed using a 3D noise model. The results indicate that most receptors will experience noise levels below or only marginally above background levels, with exceedances generally limited to less than 5 dB. Where exceedances of 5-10 dB are predicted, these are still below WHO guideline thresholds and are not expected to result in significant adverse effects. Nonetheless, the assessment would benefit from further contextualisation of these exceedances, particularly in relation to façade insulation, window orientation, and receptor sensitivity. The commitment to design mitigation, such as plant orientation, acoustic enclosures, and bunding, is welcomed and should be secured through the DCO to ensure operational noise remains within acceptable limits	For the ES, the operational noise model has been updated using the most detailed layout and plant specifications available at the time of writing. Where exceedances are predicted at sensitive receptors, these have been contextualised and likelihood of significant effects justified, including consideration of likely façade insulation, the location of sensitive rooms, and receptor sensitivity. Relevant embedded mitigation measures, such as plant orientation and site layout, as well as onsite measures such as acoustic enclosures or barriers, have been presented as part of the ES.	Details about the operational noise methodology for stationary sources are presented in Section 11.5. The results of the assessment including contextualisation of any predicted exceedances, are presented in Section 11.9. Further details are presented in Appendix 11.3: Operational Noise Modelling Assumptions (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].

Consultee	Comments	How has this comment been addressed	Location of response in this ES
North Yorkshire Council	To further strengthen the approach in favour of residential amenity, it would be beneficial for the applicant to commit to a design criterion whereby operational noise emissions do not exceed the representative background sound level (L_{A90}) at the nearest residential receptors. This would align with BS4142 guidance and provide a clear, enforceable benchmark for low impact.	Operational noise emissions from the project aim to not exceed the typical measured $L_{A90,T}$ for day and night, as presented in this chapter. However, in determining likely significant effects, absolute noise levels have also been considered in line with consideration of context required by BS 4142. The standard advises that the initial estimate of impact should take all pertinent factors into account, including the absolute sound level. As noted in the standard and the methodology section, "*where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night*". Reference to WHO guidelines and BS 8233 has therefore been provided when assessing likely significant effects.	Details about the operational noise methodology for stationary sources is presented in Section 11.5. Information about embedded mitigation is presented in Section 11.8 and includes proposed measures to control operational noise. The results of the assessment are presented in Section 11.9. Further details are presented in Appendix 11.3 Operational Noise Modelling Assumptions (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].
North Yorkshire Council	In addition, a post-construction verification survey should be secured through a DCO requirement to confirm that operational noise levels remain within the predicted bounds and allow for remedial action if necessary. The applicant should also commit to an acoustic design review during detailed design, ensuring that plant layout, orientation, and mitigation measures	Where required, the ES considers mitigation measures such as post-construction monitoring as well as a consideration of noise impacts during detailed design.	Monitoring requirements for the project from a noise and vibration perspective are presented in Section 11.12.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	such as bunds, barriers, or enclosures are optimised to minimise noise at source and at receptor locations.		
North Yorkshire Council	Finally, both the Construction and Operational Environmental Management Plans should include a clear community liaison strategy, with a named contact for noise complaints, a transparent investigation protocol, and a commitment to take remedial action where noise exceeds agreed thresholds. These measures would provide additional assurance that residential amenity will be protected throughout the lifecycle of the development.	The detailed Construction Environmental Management Plans will include a clear community liaison strategy, a named contact for noise complaints, a transparent investigation protocol, and a commitment to take remedial action where noise exceeds agreed thresholds. An outline Operational Environmental Management Plan (oOEMP) has been prepared for the Proposed Development, setting out commitments for the operator to minimise potential noise impacts at sensitive receptors, including a community liaison strategy.	Outline Construction Environmental Management Plan (oCEMP) [**EN0110012/APP/LVS/07.02**] and Outline Operational Environmental Management Plan (oOEMP) [**EN0110012/APP/LVS/07.03**].
North Yorkshire Council	The assessment of decommissioning impacts appropriately mirrors the construction phase, and the conclusion that impacts will be similar or lesser is reasonable. However, it would be prudent to include a commitment to update the oCEMP at the decommissioning stage to reflect any changes in baseline conditions or receptor sensitivity. The cumulative assessment is thorough and considers a wide range of nearby developments,	A commitment to update the oDEMP to reflect any changes in baseline conditions or receptor sensitivity has been provided within the oDEMP.	The Outline Decommissioning Environmental Management Plan (oDEMP) **[EN0110012/APP/LVS/07.04]** has been submitted as part of the DCO Application and includes a commitment for the detailed DEMPs to account for new sensitive receptors or changes to baseline conditions. The assessment of cumulative effects is presented in Section 11.14.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	concluding that significant cumulative effects are unlikely due to the temporary nature of construction and the expectation that other developments will also adhere to BPM.		
North Yorkshire Council	To strengthen the assessment further, it is recommended that the ES includes more detailed justification for operational noise exceedances, considers additional mitigation for construction traffic on Fryston Common Lane, and commits to monitoring during peak construction periods. These enhancements, alongside the recommendations above, would provide greater assurance that residential amenity will be protected throughout the lifecycle of the development.	The measures have been considered for the ES. The assessment of operational noise presents a justification for the results of the impact assessment at closest receptors considering various factors which are presented in Section 11.4.	Details about the operational noise methodology for stationary sources is presented in Section 11.5. The results of the assessment are presented in Section 11.9. Further details are presented in Appendix 11.3: Operational Noise Modelling Assumptions (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**]. The construction traffic noise assessment methodology, in line with DMRB and CRTN, is set out in Section 11.5, and the assessment of likely impacts and effects provided in Section 11.9. Details about the results of construction traffic, including all the links anticipated to be subject to adverse impacts are presented in Table 11-20. The Outline Construction Environmental Management Plan (oCEMP)

Consultee	Comments	How has this comment been addressed	Location of response in this ES
			[**EN0110012/APP/LVS/07.02**] includes consideration of monitoring during construction as well as communication strategy which includes a point of contact for the Principal Contractor for any queries or complaints.

Targeted consultation

11.4.5 A period of targeted consultation took place between 16th October 2025 and 20 November 2025, during which feedback was encouraged to comment on minor changes to the development boundary area, in relation to access points during construction and operation; visibility splays to ensure safe sightlines for vehicles entering and exiting the Proposed Development; passing places on narrow roads; access requirements for abnormal indivisible loads (less frequent but large delivery vehicles that have wider turner circles); cable route adjustments to avoid environmental and engineering constraints; and permissive paths to enable increased public access routes within the Solar Development Sites. There were no targeted consultation comments relating to noise and vibration.

Stakeholder engagement

11.4.6 The following stakeholders have been engaged with regards to noise and vibration as part of the assessment process and separately from Statutory Consultation:

1) Environmental Health Officer of NYC.

11.4.7 The outputs of the engagement undertaken are presented in Table 11-7.

Table 11-7 Noise and vibration - engagement undertaken

Stakeholder	Date engaged	Summary of engagement
Environmental Health Officer of NYC	23 Jan 2025 (meeting)	▪ NYC was presented with the locations and methodology of the environmental sound survey ▪ NYC provided feedback with regards to methodology and the locations of the survey ▪ NYC presented with the methodology of assessment for noise and vibration impacts arising from construction and operation of the project, including operational noise limits
Environmental Health Officer of NYC	27 Jan 2025 (e-mail)	▪ Meeting minutes shared via e-mail with NYC ▪ Confirmation on location for environmental sound survey
Environmental Health Officer of NYC	20 March 2025 (e-mail)	▪ Comment raised within environmental scoping opinion with regards to tranquillity and noise impacts. ▪ Environmental Health Officer confirmed tranquillity comment was relevant for the “Landscape and visual” section. ▪ It was also confirmed that tranquillity and noise impacts is not something that Environmental Protection directly considers.
Environmental Health Officer of NYC	2 July 2025, 8 September and 12 September (e-mail)	See Table 11-6 for the first round of comments received for the published PEIR.

Stakeholder	Date engaged	Summary of engagement
		In addition, the following points were raised in correspondence by the NYC, which are considered in this ES: ▪ Finalised Layout and Plant Specifications: It is reassuring to see that the operational noise model will be updated using the most detailed layout and specifications available at the time of writing. Where conservative assumptions are necessary due to design uncertainties, these should be clearly stated and justified in the ES to ensure the conclusions remain robust and defensible. ▪ Design Criterion for Operational Noise: We acknowledge the intention to aim for operational noise emissions not exceeding the representative $L_{A90,T}$ values. However, we continue to recommend that the ES adopts a clear design criterion whereby operational noise does not exceed background levels at the nearest residential receptors. This aligns with BS4142 guidance and provides a transparent and enforceable benchmark for low impact. While contextual factors are relevant, the margin above background remains a key indicator of potential adverse effect, particularly during night-time periods when sensitivity is heightened. The use of absolute noise levels as a contextual consideration is noted, but this should not override the importance of maintaining a low rating level relative to background sound.

11.5 Methodology

Baseline methodology

Desktop sources

11.5.1 The following sources have been used to inform the existing baseline conditions of the Study Area:

1) Strategic noise mapping Round 4 Defra website (Ref 30);
2) OS Address Base Plus dataset (Ref 32);
3) Google Maps website; and
4) Environmental sound survey.

11.5.2 The future baseline is described in Section 11.7.

Environmental sound survey

11.5.3 Environmental sound level surveying has been undertaken at locations representative of existing sensitive receptors. NYC was consulted and agreed on the locations of surveys as noted in Section 11.4. Details of the Environmental Sound Survey and its methodology are presented in Appendix 11.1:

Environmental Sound Survey (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.01**].

11.5.4 Surveys have been undertaken in accordance with BS 7445-1:2003 (Ref 16) and follow the guidance presented in the ANC Environmental Noise Measurement Guide (Ref 25). Average wind speeds, wind direction and precipitation measurements have been taken in parallel with the sound level measurements to ensure that meteorological conditions were suitable for the surveys.

Sensitive receptors

11.5.5 Noise sensitive receptors assessed in this report include residential properties, sensitive commercial and community uses (such as educational premises, medical facilities, places of worship) and public open spaces, including PRoW. Information about ecology receptors is presented in Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**] and information about heritage assets is presented in Chapter 8: Cultural Heritage (Volume 1) [**EN0110012/APP/LVS/06.01.08**].

11.5.6 The closest noise sensitive receptors most at risk of any impact from the construction and operation of the Proposed Development are located in areas near Escrick, Chapel Haddlesey, Birkin, Hillam, Monk Fryston, South Milford, Sherburn in Elmet and Hambleton.

11.5.7 Details of the assessed receptors are presented in Figure 11.2: Environmental Sound Survey and Assessment Locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**]. Table 11-8 below presents the assessment locations and respective representative receptors.

Table 11-8 Sensitive receptors

Reference	Site / Cable Route Corridor	Receptor name
S1_R1	Solar Development Site 1	Mount Pleasant Farmhouse by Skipwith Road, Escrick
S1_R2	Solar Development Site 1	Residential receptors by Wheldrake Lane, Escrick (Gilbertson House, Gilbertson Farm Cottage, and The Granary)
S1_R3	Solar Development Site 1	Residential receptors by Skipwith Road/Mill Hill, Escrick (Wheldrake Lodge, 1 East Lodge, and 2 East Lodge)
S1_R4	Solar Development Site 1	Residential receptors by Skipwith Road, Escrick (1 Whinchat Cottages, 2 Whinchat Cottages, and 3 Whinchat Cottages)
S1_R5	Solar Development Site 1	Residential receptors by Skipwith Road, Escrick (Whinchat Hall, Whinchat Hall - The Pallion, and Whinchat Hall Stables)
S1_R6	Solar Development Site 1	Residential receptors by Skipwith Road, Skipwith (Bridge Farm Farmhouse and Four Oaks)

Reference	Site / Cable Route Corridor	Receptor name
S1_R7	Solar Development Site 1	Residential receptors by Roth Hill Lane, Thorganby (Mallard Lodge and Holly Grange)
S1_R8	Solar Development Site 1	Residential receptors by Common Lane, Thorganby (Common Bottom Farm, Annex at Common Bottom Farm)
S1_R9	Solar Development Site 1	Residential receptors by Wheldrake Lane, Escrick (Chequer Hall Cottage, Keepers Cottage, Gamekeepers Cottage, Tile Shed Cottage)
S1_R10	Solar Development Site 1	Receptor located to the south of Wheldrake Lane (Tileshed Farm)
S1_R11	Solar Development Site 1	Receptor located to the north of Southmoor Road and to the west of Sandhole Lane (The Stables and Common Farm)
S1_R12	Solar Development Site 1	Receptor located by Skipwith Road (Manor Farm)
S2_R1	Solar Development Site 2	Brexhaven by A63-Monk Fryston to Hambleton, Hambleton
S2_R2	Solar Development Site 2	Breckswood on Breckswood Lane by A63-Monk Fryston to Hambleton, Hambleton
S2_R3	Solar Development Site 2	Residential receptor and commercial receptors on Green Lane by A63-Monk Fryston to Hambleton, Monk Fryston (Oakwood Cottage and B&B Fireplaces)
S2_R4	Solar Development Site 2	Receptor located by Southern bridleway at midpoint of Fryston Common Lane
S2_R5	Solar Development Site 2	Receptor located by Northern bridleway at midpoint of Fryston Common Lane (Oak Tree Farm)
S2_R6	Solar Development Site 2	Receptor located at end of Fryston Common Lane where it meets Brecks Farm Lane (Siddle Farm)
S2_R7	Solar Development Site 2	Residential receptors by Common Lane, Hambleton (Dunroamin, and Hagg Bush Farm Cottage)
S2_R8	Solar Development Site 2	Brecks Farm Cottage on Causeway Dike to Brecks Farm, by A63-Monk Fryston to Hambleton, Monk Fryston
S3_R1	Solar Development Site 3	Residential receptors by Hillam Common Lane, Hillam (Silverfields, and mobile home at Meadow Farm)
S4_R1	Solar Development Site 4	Location not associated with any receptors — located on land bound by Hillam Common Lane and Pighill Nook Road

Reference	Site / Cable Route Corridor	Receptor name
S4_R2	Solar Development Site 4	Representative of 6 residential receptors by Tinkler's Lane off of Haddlesey Road, Birkin (Birkin House, Barkhouse Farm, White Cottage, Park View)
S4_R3	Solar Development Site 4	Residential receptors by Roe Lane, Birkin (1 Hawthorn Cottages, 2 Hawthorn Cottages)
S4_R4	Solar Development Site 4	Milefield by Pighill Nook Road, Hillam
S4_R5	Solar Development Site 4	Roe Lane Nursery, by Roe Lane, Hillam
S4_R6	Solar Development Site 4	Receptor located at end of Pighill Nook Road (Bowers House Farm)
S4_R7	Solar Development Site 4	Representative of receptors by Hillam Common Lane, Hillam (Shelton Firs, Botany Bay, Mayfield, Hillam Lodge, and Hillgate House)
S4_R8	Solar Development Site 4	Receptor located by Wood Lane off of Haddlesey Road, Birkin (Woodhouse Farm)
S4_R9	Solar Development Site 4	Representative of the community of Gateforth (residential dwellings by Hillam Road, Pale Lane, Landing Road, Gateforth New Road)
S4_R11	Solar Development Site 4	Woodlands property by Haddlesey Road/Tinkler's Lane, Birkin
S6_R1	Solar Development Site 6	Residential receptors by Turpin Lane, South Milford (The Granary at Milford Grange, and The Old Stables at Milford Grange)
S6_R2	Solar Development Site 6	Milford Lodge Farm by Common Lane, South Milford
S6_R3	Solar Development Site 6	Milford Lodge Cottage by Common Lane, South Milford
S6_R4	Solar Development Site 6	Representative of residential receptors located at Northern end of Ingthorpe Lane/Westbourne Terrace, Monk Fryston
S6_R5	Solar Development Site 6	Fryston Grange Farm by Fryston Common Lane, Monk Fryston
S7_R1	Solar Development Site 7	Woodhaven by Common Lane, South Milford
S8_R1	Solar Development Site 8	Hollybank Forge by Philip Lane, Hambleton
S8_R2	Solar Development Site 8	Melton Lays by Bishopdyke Road, Sherburn in Elmet
S8_R3	Solar Development Site 8	Residential receptors by Bishopdyke Road, Sherburn in Elmet (Fairview Boarding Kennels, and Low Rest Park)
CRC_R1	Cable Route Corridor (CRC) 1-4	Residential receptors by Glade Road, Skipwith (The Holmes, Little Barn)
CRC_R2	CRC 1-4	Representative of the community of Riccall, by A19

Reference	Site / Cable Route Corridor	Receptor name
CRC_R3	CRC 1-4	Representative of properties on Selby Road, Riccall
CRC_R4	CRC 1-4	Residential receptors by Lordship Lane, Wistow (Ouse Cottage, April Cottage, Mulberry Farm Cottage, Parks Farm Cottages)
CRC_R5	CRC 1-4	Residential receptors by Lordship Lane, Wistow (Ladyship Barn, Lordship Lodge, Paddock View)
CRC_R6	CRC 1-4	Lordship Farm by Black Fen Lane, Wistow
CRC_R7	CRC 1-4	Residential receptors by B1223 Wistow Road, Selby (Abbey View, The Granary)
CRC_R8	CRC 1-4	Representative of Elfhole Farm at end of Northern bridleway to the north of Sherburn Road
CRC_R9	CRC 1-4	Receptors located by West end of Sherburn Road, Selby
CRC_R10	CRC 1-4	Godfrey Cottages by Second Common Lane / Flaxley Road, Selby
CRC_R11	CRC 1-4	Safari House by Hospital Lane, Selby
CRC_R12	CRC 1-4	Representative of community of Thorpe Wood, by Dam Lane, Thorpe Willoughby
CRC_R13	CRC 1-4	Representative of properties at Thorpe Hall Farm, by Dam Lane, Thorpe Willoughby
CRC_R14	CRC 1-4	Representative of the community of Thorpe-Willoughby, located north of A1238 by Fir Tree Lane
CRC_R15	CRC 1-4	Residential receptor by Harry Moor Lane/Leeds Road, Thorpe Willoughby (Oaklands Farm)
CRC_R16	CRC 1-4	Representative of the community of Thorpe-Willoughby, located on the West side of the town between A63 and A1238
CRC_R17	CRC 1-4	Representative of the community of Hambleton, located South of town near Field Lane
CRC_R18	CRC 1-4	Gateforth Hall and properties between Meadows Park and Church Lane, by Haugh Lane, Gateforth
CRC_R19	CRC 1-4	Old Orchard Farm by Hillam Road, Gateforth
CRC_R20	CRC 1-4	Maspin Grange Farm and Old Mill House by Hillam Common Lane/Fox Lane intersection, Hillam
CRC_R21	CRC 2-4	Residential receptor by Hillam Common Lane, Hillam (Maspin House)

Reference	Site / Cable Route Corridor	Receptor name
CRC_R22	CRC 2-8	Residential receptors by Common Lane, Hambleton (Foxgrove Lodge and nearby caravan)
CRC_R23	CRC 2-6	Residential receptors by Ingthorne Lane, South Milford (Meadow Croft)
CRC_R24	CRC 2-6	Representative community of Monk Fryston, located by Fryston Common Lane, North-East of Monk Fryston
CRC_R25	CRC 4-POC	Residential receptor by Roe Lane, Birkin (Northfield Farm)
CRC_R26	CRC 4-POC	Burton Common Farm Cottage by Burton Common Lane, Burton Salmon
CRC_R27	CRC 4-POC	Located on Hillam Lane, Hillam (nearest receptor is nearby property Ten Acres)
CRC_R28	CRC 4-POC	Residential receptors by Hillam Lane / Ledgate Lane, Hillam (Railway Cottages, The Sycamores, Chylowan) and one non residential receptor (Burton Salmon war memorial)
CRC_R29	CRC 4-POC	Fryston Lodge Farmhouse and Bungalow, by Selby Road, Monk Fryston

11.5.8 The locations identified above are considered sufficient to assess potential impacts at receptors most likely to be affected during both the construction and operational phases of the project. Receptors situated in close proximity to the Order Limits associated with Highways Improvement Areas (HIA) have not been included, as these works are short-term and temporary in nature and are therefore unlikely to result in significant effects.

11.5.9 Noise Important Areas (NIAs) are locations in England where Defra strategic noise mapping has identified that the population is exposed to high levels of noise and are therefore more sensitive to any increase in noise. The following road traffic NIAs are within approximately 1 km of the Proposed Development:

1) 6579 and 10207 A19 within Escrick, to the west of Solar Development Site 1.

2) 6520 by Selby to the south the Cable Route Corridor 1-4

11.5.10 There are no railway NIAs in close proximity to the Proposed Development.

11.5.11 Information about the location of ecological receptors is presented in Figures 6.1 to Figures 6.12 (ES Volume 2) [**EN0110012/APP/LVS/06.02.06[.01-12]**], described within Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**] and Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**].

Construction and decommissioning noise

11.5.12 The assessment of construction and decommissioning noise is undertaken in line with the methodologies presented in BS5228-1 (Ref 1). The assessment is carried out for the construction and decommissioning works that may cause the greatest impact within each phase of works at the closest sensitive receptors.

11.5.13 This includes site preparation activities, installation of solar PV panels, construction of electrical infrastructure, construction of electrical cables and joint bays, construction of energy storage units, fencing, security and lighting during construction, and the removal of relevant infrastructure (as per the assumptions in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**]). Activities also include trenched works for Cable Route Corridor construction.

11.5.14 The assessment is based on information available at the time of writing, including the likely sound power level of construction plant items (which would likely also be used for decommissioning), percentage of on-time operation, number of items and any partial screening that could be implemented. In the absence of detailed information, assumptions are made based on benchmarking and experience from other similar projects.

11.5.15 Annex E of BS 5228-1 describes the 'ABC' method, which defines thresholds of potential significant noise effects at dwellings. Under this approach, the potentially significant effect threshold is determined using the existing ambient sound level, rounded to the nearest 5dB and evaluated in relation to the thresholds set out in Table 11-9.

Table 11-9 BS5228-1 – ABC method for determining the threshold of potential significant effect at dwellings

Assessment category and threshold value period	Threshold values in decibels (dB), $L_{Aeq,T}$		
	Category A	Category B	Category C
Night-time for both Weekdays and Weekends (23:00 – 07:00)	45	50	55
Daytime Weekdays (07:00 – 19:00) Saturdays (07:00 – 13:00)	65	70	75
Other: Weekday evenings (19:00 – 23:00) Saturdays (13:00 – 23:00) Sundays (07:00 – 23:00)	55	60	65
Where: Category A: threshold values to use when ambient sound levels (rounded to the nearest 5dB) are less than these values. Category B: threshold values to use when ambient sound levels (rounded to the nearest 5dB) are the same as category A values. Category C: threshold values to use when ambient noise levels (rounded to the nearest 5dB) are higher than category A values.			

11.5.16 BS 5228 notes that a potential significant effect is indicated where the construction site noise ($L_{Aeq,T}$) level exceeds the threshold level for the category appropriate to the ambient noise level. The standard also notes that if the ambient sound level exceeds the Category C threshold values given in Table 11-9, i.e. the ambient sound level is higher than the Category C values, then a potential significant effect is identified if the total $L_{Aeq,T}$ level for the period increases by more than 3dB due to site noise.

11.5.17 It is noted that the potential impacts associated with decommissioning activities are likely to be comparable to those for construction activities.

11.5.18 Having established whether there is a potential significant effect using the 'ABC' method, the final assessment of significance is made by considering the following:

1) Exceedance over the established thresholds of potential significant effect;
2) The levels of noise exposure and character of the existing sound environment;
3) Combined exposure to construction noise and vibration;
4) The duration of the construction impact;
5) Effectiveness of mitigation measures that may be provided; and
6) Professional judgement.

11.5.19 Additionally, the effect levels have been defined in Government policy terms, that is Lowest Observed Adverse Effect Level (LOAEL) and the Significant Observed Adverse Effect Level (SOAEL) and are based upon the ABC method described above. The thresholds are presented in Table 11-10.

Table 11-10 Thresholds of potential effects of construction noise in policy terms

Level of effect	Threshold value, 1 m in front of the relevant façade
LOAEL	Day: 65dB$L_{Aeq,T}$ Evening: 55dB$L_{Aeq,T}$ Night: 45dB$L_{Aeq,T}$
SOAEL	Day: 75dB$L_{Aeq,T}$ Evening: 65dB$L_{Aeq,T}$ Night: 55dB$L_{Aeq,T}$
Note: Day is 07:00 to 19:00, evening is 19:00 to 23:00 and night is 23:00 to 07:00	

11.5.20 The prediction of construction noise levels for the assessment of ecology receptors is based on the methodology outlined above and presented in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**].

Construction vibration

11.5.21 Vibration from construction activities is predicted according to established empirical calculation methods described in BS 5228-2:2009+A1:2014 (Ref 1). An

initial assessment of likely significance of vibration is based on Table B.1 of this standard and is presented in Table 11-11. A first indication of a potential significant effect occurs when predicted vibration levels experienced in residential environments are above 0.3 mm/s.

Table 11-11 Guidance of the effect of vibration levels

Vibration level	Effect
0.14mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequences associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

11.5.22 Where potential significant effects are identified, further assessment is undertaken using BS 6472-1:2008 (Ref 17) for potential disturbance of people and BS 7385-2:1993 (Ref 18) to assess risk of building damage.

11.5.23 BS 5228, which refers to BS7385-2, differentiates between transient and continuous vibration. For transient vibration, the standard notes that the risk of cosmetic damage to residential buildings starts at a peak particle velocity (PPV) of 15 mm/s at 4 Hz. The standard also notes that below 12.5 mm/s PPV, the risk of damage diminishes towards zero. When considering continuous vibration, the standard recommends that the guide values are reduced by 50%.

11.5.24 Guidance of vibration levels for the assessment of buildings is based on below.

Table 11-12 Transient vibration guide values for cosmetic damage

Type of building	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
▪ Reinforced or framed structures ▪ Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
▪ Unreinforced or light framed structures ▪ Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
From BS 5228-2 (Ref 20) section B.4.4, for underground services, conservative criteria are recommended as follows: *• Maximum PPV for intermittent or transient vibration of 30 mm/s.* *• Maximum PPV for continuous vibration of 15 mm/s.* *For older and/or dilapidated brickwork sewers, these values should be halved*		

11.5.25 The identification of likely significant effects is based upon:

1) Likelihood of exceedance over the established thresholds of significant effect;
2) The levels of vibration exposure;
3) The duration of the construction vibration impact;
4) Combined exposure to construction noise and vibration;
5) Effectiveness of mitigation measures that may be provided; and
6) Professional judgement.

11.5.26 In Government policy terms, for residential receptors the LOAEL is defined as a PPV of 0.3 mm/s and the SOAEL is defined as a PPV of 1 mm/s.

Construction traffic noise

11.5.27 Construction traffic noise predictions are undertaken in accordance with the methodology defined in CRTN (Ref 20) and in DMRB LA 111 (DMRB) (Ref 2). The results of the predictions are used to determine whether changes in traffic flow and composition during construction works are likely to give rise to a noise level change of more than 1dB(A), this being the lowest perceptible change in road traffic noise. The noise level change is estimated by comparing the Basic Noise Level (BNL), as defined in CRTN, for the baseline year without construction traffic against the BNL for the baseline year with construction traffic flows.

11.5.28 The magnitude of impact from noise of construction traffic on the public highways is determined using Table 11-13.

Table 11-13 Magnitude of impact from construction traffic noise

Magnitude of impact	Increase in BNL of closest public road used for construction traffic (dB)
Major	Greater than or equal to 5.0
Moderate	Greater than or equal to 3.0 and less than 5.0
Minor	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0

11.5.29 Noise from construction traffic would constitute a potential significant effect where the impact is major or moderate and occurs for a duration exceeding:

1) 10 or more days or nights in any 15 consecutive days or nights;
2) a total number of days exceeding 40 in any 6 consecutive months

11.5.30 Where a major or moderate impact has been predicted the absolute noise level has also been compared to the LOAEL and SOAEL values set out in Table 11-10.

11.5.31 The identification of likely significant effects is based upon:

1) The change in traffic noise levels resulting at assessed receptors;
2) The levels of noise exposure and character of existing sound environment;

3) The duration of the construction traffic impact;
4) Combined exposure to construction noise and vibration;
5) Effectiveness of mitigation measures that may be provided; and
6) Professional judgement.

Operational noise from stationary sources

11.5.32 The Proposed Development plant items most likely to give rise to adverse impacts upon nearby sensitive receptors have been inputted into a 3D noise prediction model. These noise sources, which are presented in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**] include Conversion Units for Solar Development Sites and the BESS Compound, BESS Enclosures, and Transformers for the 275kV Substations. The Proposed Development may also include Tracking Solar PV Tables in the Solar Development Sites which emit a low level of noise during the day and do not operate during the night.

11.5.33 The noise model includes details of intervening structures, ground attenuation and topography of the site and surroundings. Information on the topography of the Site and its surroundings is taken from the National LiDAR Programme 2023 (Ref 31) published by Defra Survey open data. Details such as existing building layout, type of ground (reflective or absorptive), location of receptors and other geo-spatial information, are taken from OS OpenData, OS MasterMap Topography Layer, OS Address Base and from site visits. The proprietary noise modelling software calculates the attenuation of noise emissions of the plant items in accordance with ISO 9613-2:2024. This standard assumes downwind propagation conditions, i.e. wind blowing from the source to the receiver, representing a cautious assumption for meteorological conditions.

11.5.34 An assessment of the potential impacts arising from operational noise sources has been undertaken in line with BS4142:2014+A1:2019 (Ref 14) at the residential receptors closest to the Proposed Development (for consideration of ecological and ornithological receptors please see Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**] and Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**]. The standard assesses the impact of industrial noise based upon the difference between the measured background sound level without the sound of the Proposed Development, and the 'rating level' of the Proposed Development at the receiver location. The assessment is undertaken for the day and the night-time.

11.5.35 The 'background sound level' ($L_{A90,T}$) is defined in BS4142 as the typical sound level existing in the absence of the 'specific sound level' at the receiver location. The 'specific sound level' ($L_{Aeq,T}$) from the industrial source can be subject to a certain weighting (penalty) where it displays an identifiable character (such as tonality, impulsivity, intermittency or otherwise distinctive character) to provide a 'rating level' ($L_{Ar,T}$). The 'background sound level' is subtracted from the rating level and the difference used to inform the assessment of the effects.

11.5.36 BS4142 states: "*The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs*".

11.5.37 An initial estimate of the impact of the specific sound is conducted by subtracting the measured background sound level from the rating level. The standard notes the following:

1) *"Typically, the greater this difference, the greater the magnitude of the impact;*
2) *A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
3) *A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and*
4) *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

11.5.38 Importantly BS4142 advises that where the initial estimate of the impact needs to be modified due to the context, taking all pertinent factors into consideration, including the absolute level of sound:

> *"For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low. Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night".*

11.5.39 The significance of effects has been determined at both day and night time based on the methodology presented above and other factors including:

1) Exceedance over the established thresholds of potential significant effect;
2) The levels of noise exposure and character of the existing sound environment;
3) Combined exposure to construction noise and vibration;
4) The duration of the construction impact;
5) Effectiveness of mitigation measures that may be provided; and
6) Professional judgement.

11.5.40 In terms of assessment relating to Government policy, depending on the absolute sound levels in consideration, the SOAELs have been defined as a rating level of 10dB above representative background sound level (except where baseline

sound levels are very low) and the LOAELs as 5dB above representative background sound level.

Consideration of context and absolute sound levels

11.5.41 The WHO Environmental Noise Guidelines for the European Region 2018 (Ref 22) provides recommendations to protect human health from noise resulting from transportation, wind turbines and leisure. The guidelines also recommend external daytime and evening environmental noise limits, and internal night-time limits to avoid sleep disturbance. These guidelines do not cover industrial noise, however, recommend that Guidelines for Community Noise 1999 (Ref 21) should remain valid. Table 11-14 presents a summary of the guidelines, which are also referred to in BS8233 (Ref 15).

Table 11-14 Extract from WHO Guidelines for community noise

Specific environment	Critical health effect(s)	L_{Aeq}	Time base (hours)	$L_{Amax,F}$
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16	- -
Dwelling, indoor Inside bedrooms	Speech intelligibility and moderate annoyance, daytime and evening Sleep disturbance, night-time	35 30	16 8	- 45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

11.5.42 Additionally, the WHO Night Noise Guidelines for Europe 2009 (Ref 23) recommend guidelines on night-time noise limits to avoid sleep disturbance. These guidelines indicate that the lowest observed adverse effect level (LOAEL) is 40dB$L_{night,outside}$[1].

11.5.43 While the WHO guidelines referenced above are primarily based on research into transportation noise sources and may therefore have limited direct applicability to industrial noise, they provide a useful benchmark for assessing absolute noise levels in the absence of more specific guidance for determining likely significant adverse effects.

11.5.44 For the purposes of this assessment, the predicted rating levels from the Proposed Development, which account for an acoustic identifiable character, are compared against the criteria of Table 11-14 to determine significance of effects.

11.5.45 As noted in BS8223, for traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dB$L_{Aeq,T}$, with an upper guideline value of 55dB$L_{Aeq,T}$ which

[1] $L_{night,outside}$ is equivalent to $L_{Aeq,8hr}$ outside

would be acceptable in noisier environments. For the purpose of the assessment of impacts upon PRoWs[2] users, consideration is given to these guidelines.

Operational road traffic noise

11.5.46 The assessment of road traffic noise is undertaken following the methodologies presented in CRTN and DMRB. The CRTN methodology predicts noise emissions from road traffic taking account of traffic volume, average speed, road surface type and composition of traffic.

11.5.47 For the assessment of increased road traffic noise associated with operation of the Proposed Development, the change in noise exposure of affected road links is calculated with the BNL. An affected road link is identified whenever there is an increase of 1dB(A) or more. The affected road link is determined by comparing the BNL in the Do-Minimum scenario (without Proposed Development) for the opening year against the Do-Something scenario (with Proposed Development).

11.5.48 DMRB assigns magnitude of change descriptors to different levels of noise change in the short and long term. DMRB defines short-term as the noise change based on parallel assessment year (for example Do-Minimum Opening Year against Do-Something Opening Year). Long-term is defined as the noise change based on the +15-year assessment (for example Do-Minimum Opening Year against Do-Something Future Year). These descriptors are shown in Table 11-15 and Table 11-16.

Table 11-15 Classification of magnitude of change in the short-term

Short term magnitude	Short term noise change (dB $L_{A10,18hr}$ or L_{night})
Major	Greater than or equal to 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	Less than 1.0

Table 11-16 Classification of magnitude of change in the long-term

Long term magnitude	Long term noise change (dB $L_{A10,18hr}$ or L_{night})
Major	Greater than or equal to 10.0
Moderate	5.0 to 9.9
Minor	3.0 to 4.9
Negligible	Less than 3.0

11.5.49 The identification of likely significant effects is made by considering the factors presented in Table 3.60 of DMRB LA 111 which include noise level change, consideration of long and short-term impact, absolute noise level, location of sensitive parts of receptor, acoustic context and likely perception of change by residents.

[2] For the purpose of this assessment, permissive paths are considered to be PRoWs

11.5.50 In line with DMRB, adverse effect levels in Government policy terms for road traffic noise associated with the Proposed Development are shown in Table 11-17.

Table 11-17 Adverse effect levels from operational road traffic noise in policy terms

Time period	Effect level	
	LOAEL	SOAEL
Day	55dB$L_{A10,18hr}$ (façade level) 50dB$L_{Aeq,16hr}$ (free-field)	68dB$L_{A10,18hr}$ (façade level) 63dB$L_{Aeq,16hr}$ (free-field)
Night	40dB$L_{night,outside}$ (free-field)	55dB$L_{night,\ outside}$ (free-field)

Operational noise from maintenance and replacement activities

11.5.51 The assessment of operational noise arising from maintenance and replacement activities has been undertaken using the same methodologies as those applied for the construction noise assessment, as set out in BS 5228. This approach is considered appropriate due to the temporary nature of maintenance activities and their similarity to construction works.

11.5.52 As a worst-case scenario, Category A of the ABC method has been adopted for all receptors to provide an indication of potential significant effects.

11.5.53 The assessment focuses on activities that are likely to result in adverse impacts at sensitive receptors. Further information on general operational maintenance activities is provided in Section 2.8 of Chapter 2 [**EN0110012/APP/LVS/06.01.02**], while details of the anticipated noise emissions from these activities are presented in Appendix 11.3: Operational Noise Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].

11.5.54 Having established the potential for significant effects using the BS5228 ABC method, the final assessment of significance is determined by considering the following:

1) Exceedance over the established thresholds of potential significant effect;
2) The levels of noise exposure and character of the existing sound environment;
3) The duration of the impact;
4) Effectiveness of mitigation measures that may be provided; and
5) Professional judgement.

Decommissioning effects

11.5.55 The works which take place during the decommissioning phase of the Proposed Development are expected to be similar in magnitude (or less extensive) than those required for construction. The assessment presented for construction noise and vibration impacts is therefore representative of the decommissioning phase.

11.6 Assumptions and limitations

11.6.1 The assumptions used in the construction noise assessment are based on experience from similar projects in the UK and professional judgement. Details about construction noise and vibration are presented in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**].

11.6.2 The modelling of operational noise sources is based on available manufacturer data and is supplemented by information gathered from relevant literature. To err on the side of caution, the operational noise assessment assumes a worst-case scenario that all plant items operate simultaneously. Further details of operational noise modelling assumptions are presented in Appendix 11.3 Operational Noise Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].

11.6.3 Where details about the precise location of certain plant is not available at this stage of project design, the sources are assumed to be located at representative locations within the identified field parcels, based on Figure 2.1: Illustrative Site Layout Plan [**EN0110012/APP/LVS/06.02.02.01**].

11.6.4 The environmental sound survey was conducted at 13 locations representative of nearby noise sensitive receptors as shown in Figure 11.2: Environmental Sound Survey and assessment locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**]. It is assumed that baseline sound levels at the measurement locations are comparable to other nearby receptors, as surveying every receptor individually is not practicable or proportionate. Regarding the uncertainty of the environmental sound survey, typical sound levels were obtained through attended measurements conducted on different days and at various times of the day. Furthermore, continuous sound level logger data was recorded over several days at five logger locations.

11.7 Baseline conditions

Existing baseline conditions

11.7.1 The sound environment surrounding the Proposed Development is of a rural nature, with ambient sound levels dominated by road traffic from major nearby roads, as well as minor roads serving scattered receptors.

11.7.2 The primary traffic noise sources are the A19, A63 and M62, with additional contributions from traffic on the nearby road network. Further contributions to the overall sound environment arise from the railways running between Selby and Leeds, Selby and Doncaster and the East Coast Main Line (ECML). Additionally, the Sherburn Aero Club, based at Sherburn in Elmet Airfield to the north of Monk Fryston and Leeds East Airport in Church Fenton, are also contributors to the sound environment.

Summary of environmental sound survey results

11.7.3 The summary of the sound survey results is shown in Table 11-18 for the attended measurements and Table 11-19 for the unattended measurements in terms of $L_{Aeq,T}$ and $L_{A90,T}$.

11.7.4 An environmental sound survey was carried out with attended measurements taken on 5 to 7 February, 13 February and 14 February 2025 and unattended measurements taken between 5 February and 14 February 2025.

11.7.5 A baseline sound survey report is included within Appendix 11.1: Environmental Sound Survey (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.01**] and the locations of the survey are presented in Figure 11.2: Environmental Sound Survey and Assessment Locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**].

11.7.6 The summary of daytime attended measurement results presented in Table 11-18 is based on the arithmetic average of $L_{A90,T}$ and the energy average of $L_{Aeq,T}$. For the unattended measurements (Table 11-19) a statistical analysis has been carried out to determine typical sound levels. Accordingly, the levels presented are considered representative of the typical sound environment at the receptor locations. It is noted that these sound levels naturally fluctuate throughout the day, evening and night. For example, higher noise levels may occur during peak hours due to increased vehicle movements, while levels generally decrease at other times of the day.

Table 11-18 Summary of measured attended baseline sound levels during daytime

Location (see Figure 11.2 ES Volume 2)	Nearest site	Description	Measured sound level, dB(A)	
			$L_{A90,T}$	$L_{Aeq,T}$
L2	Solar Development Site 1	Residential properties on Wheldrake Lane.	38	45
L3	Solar Development Site 1	Residential properties on corner of Mill Hill and Wheldrake Lane.	42	54
L4	Solar Development Site 1	Residential properties on Mill Hill	40	49
L6	Solar Development Site 4	Residential properties on Roe Lane	34	43
L7	Solar Development Site 3	Residential properties on Hillam Common Lane	39	49

Location (see Figure 11.2 ES Volume 2)	Nearest site	Description	Measured sound level, dB(A)	
			$L_{A90,T}$	$L_{Aeq,T}$
L8	Solar Development Site 4	Residential properties on Tinker’ s Lane	38	48
L10	Solar Development Site 2	Residential properties on A63	53	63
L12	Solar Development Site 2	Residential properties on Common Lane.	45	53
L14	Solar Development Site 6	Residential properties on Ingthorne Lane	44	53
L15	Solar Development Site 6	Residential properties on Ingthorpe Lane and Westbourne Terrace	43	52
L16	Solar Development Site 7	Residential properties on Common Lane	49	55
L23	Solar Development Site 8	Residential properties on Phillip Lane.	40	51

Table 11-19 Summary of measured unattended baseline sound levels.

Location (see Figure 11.2 ES Volume 2)	Nearest site	Time	Description	Measured sound level, dB(A)	
				Typical $L_{A90,T*}$	Average $L_{Aeq,T}$
L1	Solar Development Site 1	07:00 - 19:00	Residential properties near Mount Pleasant Farm	33	44
		19:00 - 23:00			38
		23:00 - 07:00		22	38
L5	Solar Development Site 4	07:00 - 19:00	Residential properties on Pighill Nook Road	40	47
		19:00 - 23:00			38
		23:00 - 07:00		25	39
L9	Solar Development Site 2	07:00 - 19:00	Residential properties on Fryston Common Lane	38	47
		19:00 - 23:00			41
		23:00 - 07:00		31	40
L13		07:00 - 19:00		35	38
		19:00 - 23:00			50

Location (see Figure 11.2 ES Volume 2)	Nearest site	Time	Description	Measured sound level, dB(A)	
				Typical $L_{A90,T}$*	Average $L_{Aeq,T}$
	Solar Development Site 6	23:00 - 07:00	Residential properties on Common Lane	30	38
L18	Solar Development Site 8	07:00 - 19:00	Residential on Philip Lane	35	50
		19:00 - 23:00			47
		23:00 - 07:00		25	42

*T = Representative of 1hr for daytime and 15min for night-time.

Future baseline

11.7.7 The future baseline sound environment is expected to change in the absence of the Proposed Development due to the construction and operation of nearby local developments that include significant noise sources and/or introduce future receptors. Additionally, changes in road and railway traffic resulting from these local committed developments may also influence the future sound baseline.

11.7.8 However, no major new transport infrastructure is anticipated that would significantly alter the prevailing sound environment. Known committed developments in the area largely comprise energy infrastructure (e.g. solar farms, power stations and BESS projects), residential schemes and commercial buildings, which are not expected to result in substantial changes to baseline sound levels. The use of the current baseline in the assessment is therefore considered conservative; future baseline sound levels are unlikely to decrease and may increase.

11.7.9 At the decommissioning stage, the future baseline will reflect environmental noise levels at sensitive receptors at that time, which may differ from those observed during construction. Given that this stage is over 60 years away, it is not possible to predict changes to the environmental noise baseline with certainty. Where appropriate, the DEMP produced pursuant to the oDEMP [**EN0110012/APP/LVS/07.04**] will account for any new sensitive receptors or changes to baseline conditions in putting forward final mitigation measures.

11.8 Embedded and good practice mitigation and enhancement measures

Embedded mitigation

11.8.1 Embedded mitigation measures include the following:

Construction and decommissioning

11.8.2 To minimise the level of noise to which sensitive receptors will be exposed, the construction work will be conducted in accordance with detailed CEMP(s) and CTMP(s), which will produced in substantial accordance with the oCEMP [**EN0110012/APP/LVS/07.02**] and oCTMP [**EN0110012/APP/LVS/07.12].** These documents are included within the DCO Application.

11.8.3 The oCEMP contains established control measures for environmental protection that will be adopted during construction and will follow the feedback provided by North Yorkshire Council (NYC) in the EIA Scoping Opinion (Appendix 1.2 (ES Volume 3) [**EN0110012/APP/LVS/06.03.01.02**]). Mitigation measures, based upon BS 5228-1 (and constituting Best Practice Means), include the following.

1) Careful selection of plant and construction methods. Only plant conforming to relevant national, EU or international standards, directives and recommendations on noise and vibration emissions would be used.
2) Design and use of site enclosures, housing and temporary stockpiles, where practicable and necessary, to provide acoustic screening at the earliest opportunity.
3) Where practicable, doors and gates should not be located opposite occupied noise-sensitive buildings. The mechanisms and procedures for opening doors/gates will minimise noise, as far as reasonably practicable.
4) Careful programming so that activities which may generate significant noise are planned with regard to local occupants and sensitive receptors.
5) All vehicles and mechanical plant shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order and operated to minimise noise emissions.
6) All compressors and generators shall be ‘sound reduced’ models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use, and all pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers.
7) All machines in intermittent use shall be shut down in the intervening periods between works or throttled down to a minimum. Lorry engines will be switched off, as soon as practicable, when vehicles are stationary.
8) Noise emitting equipment which is required to run continuously shall be housed in a suitable acoustic enclosure (see BS5228 (Ref 1) Part 1, Figures B.1, B.2 and B.3).
9) Temporary noise barriers will be used to reduce noise levels where appropriate and practicable. Such measures can be particularly appropriate for stationary or near-stationary plant such as pneumatic breakers, piling rigs and compressors. Barriers should be located as close to the plant as possible and, in order to provide adequate attenuation and should have a mass per unit area of at least 7 kg/m^2.

10) Plant and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors and away from walls reflecting towards sensitive receptors.

11) Where night working is required and (with the exception of HDD or similar trenchless solution and emergency works) agreed with NYC, materials for night-time working shall be delivered, where practicable, during normal working hours and be placed as close as possible to the work area for which they are required.

12) Where reasonably practicable, fixed items of construction plant shall be electrically powered in preference to combustion engine driven.

13) Putting in place a communication strategy for prior warning of activities with the potential to cause disturbance. During construction, appropriate mechanisms to communicate with local residents will be set up to highlight potential periods of disruption for both noise and vibration. The communication strategy will include a point of contact for the Principal Contractor for any queries or complaints. Any noise or vibration complaints will be investigated and appropriate action taken as required.

14) To minimise potential vibration impacts, compaction could be achieved without using a vibratory system, however there may be a resulting increase in the duration of the compaction works.

11.8.4 Construction activities required outside the normal hours (including Sunday and Bank Holiday working), except for HDD and emergency works, will require written approval from NYC.

11.8.5 The embedded mitigation measures for decommissioning are set out within the oDEMP [**EN0110012/APP/LVS/07.04**].

11.8.6 The oCTMP [**EN0110012/APP/LVS/07.12]** contains control measures relevant for noise and vibration that will be adopted during construction including:

1) Drivers of delivery vehicles will be advised to switch off their engine when the vehicle is not moving;

2) When considering the final choice of construction traffic routes, construction traffic noise and vibration impacts will be considered; and

3) Where practicable, programme construction traffic movements to avoid having noisy activities close to receptors during sensitive times.

11.8.7 The mitigation measures for construction and decommissioning outlined above are also relevant and applicable for replacement activities, and this has been noted in the outline OEMP [**EN110012/APP/LVS/07.03**]]. This is due to their temporary nature and similarity to construction works.

Operation

11.8.8 The Proposed Development layout has been developed to minimise as far as practicable noise impacts at the closest sensitive receptors.

11.8.9 Mitigation measures which have been implemented as part of the design and are required to minimise operational noise impacts include:

1) Selection of sites for both the BESS Compound and substation sites, which have been centred within the available area to optimise separation from surrounding receptors and reduce potential adverse impacts. These are presented in Figure 2.1 Illustrative Site Layout Plans (ES Volume 2) [**EN0110012/APP/LVS/06.02.02.01]** and secured via the Works Plans [**EN110012/APP/LVS/02.03**];
2) Location of Conversion Units across Solar Development Sites to be as far as reasonably practicable from sensitive receptors, as secured in the Design Parameters and Commitments Document [**EN110012/APP/LVS/05.06**];
3) Plant orientation within the sites to use buildings and structures as noise barriers and positioning noise emitting items such as BESS fans and air inlets to be directed away from sensitive receptors. This includes positioning units so that their noise emitting side is screening by noise barriers, as secured in the Design Parameters and Commitments Document [**EN00110012/APP/LVS/05.06**];
4) Implementation of up to 5m noise barriers around and within the BESS site. This includes optimising the location of such barriers to maximise efficient acoustic screening e.g. internal barriers closer to BESS units;
5) Selection of plant as presented in Appendix 11.3 Operational Noise Assumptions and Results (ES Volume 2) **[EN0110012/APP/LVS/06.03.11.03]**. This includes the implementation of noise mitigation for Conversion Units in the form of silencers;
6) Where appropriate, reduced operational load of plant to minimise noise emissions to environment.

11.8.10 The assessment presented in this chapter is based on an indicative design available at the time of writing to inform a reasonable worst-case assessment. The design is expected to continue evolving, and changes may occur, such as modifications to the Conversion Unit locations, the layout of the BESS Compound or changes to plant selection. Any changes will ensure that resulting operational noise impacts do not lead to significant effects.

11.8.11 Given this, the Applicant has committed that, as part of its submission of the detailed OEMP, it will include:

1) Details of the operational noise mitigation measures that have been implemented as part of the detailed design;

2) A noise impact assessment of the finalised detailed design of that part of the Proposed Development to which the OEMP relates. This will be required to demonstrate that the operational noise sources will not lead to materially new or materially different effects that are worse than reported in this chapter;

3) A commitment to undertake and submit to North Yorkshire Council a verification exercise (the methodology for which will be sought to be agreed as part of the detailed OEMP) three months after operations begin for that part of the Proposed Development. This verification exercise will seek to confirm that the conclusions of that noise impact assessment have been borne out; and

4) A commitment that if that verification exercise concludes that the conclusions have not been borne out that the Applicant will undertake remedial actions to ensure those conclusions are delivered.

11.8.12 These commitments are set out in the oOEMP [**EN0110012/APP/LVS/07.03**].

11.8.13 The oOEMP also sets out commitments for the operator to carry out noisy works during daytime periods and to implement measures to minimise potential noise impacts at sensitive receptors.

Management Plans

11.8.14 As discussed above, a suite of management plans has been created for the Proposed Development, relevant to noise and vibration include:

1) oCEMP **[EN0110012/APP/LVS/07.02];**

2) oOEMP [**EN0110012/APP/LVS/07.03]**;

1) oCTMP **[EN0110012/APP/LVS/07.12]**;

2) oDEMP **[EN0110012/APP/LVS/07.04]**.

11.8.15 These management plans incorporate embedded and best practice measures, as well as any further mitigation that falls out of the EIA process.

11.8.16 Outline versions of these management plans are submitted alongside the ES as part of this DCO Application to secure the commitments within each assessment. A Requirement is included in the draft DCO **[EN0110012/APP/LVS/03.01]** to ensure detailed management plans will be prepared to full versions by the appointed Contractor(s), substantially in accordance with the outline management plans, and will be submitted for approval by North Yorkshire Council in advance of starting the relevant phase of works.

11.9 Assessment of likely impacts and effects

11.9.1 This section presents the results of the assessment of likely significant effects with the embedded mitigation measures, described in Section 11.8, in place.

Construction noise

11.9.2 The construction activities with the potential to result in temporary adverse impacts at existing receptors are listed below. Details on the type and number of plant, likely on-time periods and sound power levels are presented in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**].

1) Activity A1 - Installation of solar PV panels;
2) Activity A2 - Construction of substations;
3) Activity A3 - Construction of Cable Route Corridor;
4) Activity A4 - Construction of BESS including fencing, security and lighting;
5) Activity A5 - Horizontal directional drilling; and
6) Activity A6 - Solar Development Site Construction Compounds and the Cable Construction Compounds (construction and demobilisation)

11.9.3 The construction noise prediction represents a reasonable worst-case scenario for each stage of works, assuming that the construction equipment is situated at a typical location. However, noise levels may vary over shorter durations. Specifically, when construction activities are at their closest to receptors, noise levels are expected to be at their highest level and levels would be lower when works are more distant.

11.9.4 The sequence of works for all stages of the Proposed Development, and the indicative construction programme used for this assessment, are presented in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**] under Section 2.7. As a worst-case scenario, the construction assessment assumes that all relevant construction works to be carried out during the day occur simultaneously.

11.9.5 The core construction working hours (not including start-up and shut-down works or in an emergency) are defined as Monday to Friday from 07:00 to 18:00 (daylight hours permitting), Saturday from 08:00 to 13:00 (daylight hours permitting), save for HDD works which require 24 hour/7 day a week operation. With the exception of HDD works or emergencies, no Sunday or Bank Holiday working will take place.

11.9.6 Construction activities required outside the normal hours including Sunday and Bank Holiday working will require written approval from NYC (except for HDD activities or emergencies).

11.9.7 As it is anticipated HDD works would be required in a number of locations throughout the Study Area as presented in Figure 2.5 Avoidance Areas (HDD) (ES Volume 2) [**EN0110012/APP/LVS/06.02.02.05],** a specific night-time construction noise assessment is presented as a worst-case scenario. The assessment has also considered the locations shown on Figure 2.8: HDD Sensitivity Testing **[EN0110012/APP/LVS/06.02.02.08].** See Section 2.5 of Chapter 2: The Proposed Development (ES Volume 1)

[**EN0110012/APP/LVS/06.01.02**] for further details on these locations and the approach to assessment of trenchless technologies.

11.9.8 All assessment adopts the most stringent threshold under the ABC methodology by applying Category A to identify potential significant effects at all receptors assuming a worst case (low) existing sound level.

Construction noise assessment results – daytime

11.9.9 The predicted construction noise levels for activities anticipated to occur during the daytime, are presented in Section 2 of Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**].

11.9.10 As presented in Table 2.1 of Appendix 11.2, construction activities during the daytime are not predicted to exceed Category A (adopted noise impact threshold). In line with BS5228, this is an indication of impacts not resulting in a significant effect. The highest predicted noise level of about 60dB, at receptors S1_R10 and S2_R1, is attributed to activity A1 – Installation of Solar PV panels.

11.9.11 Construction noise levels are not predicted to exceed either the SOAEL or the LOAEL at any receptor.

11.9.12 The temporary construction laydown areas described in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**] are not anticipated to generate noise or vibration levels higher than those from the activities listed above. With the appropriate measures outlined in the oCEMP [**EN0110012/APP/LVS/07.02**, these activities are not expected to result in adverse impacts.

11.9.13 Construction works associated with highway improvement areas are anticipated to be undertaken only during the daytime. As these works are short-term, temporary in nature and relatively small scale, with the appropriate measures outlined in the oCEMP [**EN0110012/APP/LVS/07.02]** they are unlikely to result in significant effects.

11.9.14 Based on the above, it is concluded that noise effects from daytime construction activities are **not significant**.

Construction noise assessment results – night-time

11.9.15 The predicted construction noise levels for activities anticipated to occur during the night-time, are presented in Section 2 of Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**].

11.9.16 As presented in Table 2.2 of Appendix 11.2, construction activities during the night-time are predicted to exceed Category A. This is due to HDD activities required to operate continuously. Receptors impacted by these works include (see Table 11-8 for details on receptors):

1) CRC_R1-CRC_R4;

2) CRC_R6-CRC_R8;
3) CRC_R10;
4) CRC_R13-CRC_R16;
5) CRC_R19-CRC_29;
6) S2_R1-S2_R8;
7) S4_R1;
8) S4_R4-S4_R7;
9) S6_R1-S6_R3; and
10) S7_R1.

11.9.17 The highest predicted noise level at night is around 56dB at CRC_R6. The duration of the impacts is anticipated to occur for up to 1-2 days for each HDD site. This noise level at the receptor would occur only if the two closest HDD sites operate simultaneously. If the HDD works take place at different times, the highest predicted noise level would be around 54dB.

11.9.18 Noise levels are not predicted to exceed the threshold for more than 40 days within any six consecutive months, or for a period of ten or more days in any 15 consecutive days. As such the temporal criterion for significance (as defined in BS 5228) is not expected to be triggered.

11.9.19 Night-time construction noise levels are predicted, over a relatively short period, to marginally exceed the SOAEL at receptor CRC_R6 and to be equal to the threshold impact at receptor CRC_R21. This prediction is based on a conservative assessment assuming that the two closest HDD drives take place simultaneously. In the absence of simultaneous night-time HDD works, no exceedances of the SOAEL are predicted. Where simultaneous works are required at this receptor, additional noise modelling of the HDD works will be undertaken prior to construction, as set out in the oCEMP, to define specific mitigation measures to avoid such exceedance.

11.9.20 Based on the above, noise effects from night-time construction activities are assessed as **not significant**.

Construction vibration

11.9.21 Construction activities with the potential to generate significant levels of vibration include:

1) Vibratory compaction (start-up and rundown);
2) Vibratory compaction (steady);
3) Vibratory piling; and
4) Horizontal drilling.

11.9.22 Vibration levels have been calculated in accordance with the procedures in BS 5228-2 Table E.1. Details of the assumptions associated with these calculations

are shown in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.02**]. For assessing risk of building damage, the vibration on the ground or at the base of the building is used; for risk of disturbance to people, a worst-case first floor level has been calculated.

11.9.23 As presented in Table 3-1 of Appendix 11.2 (ES Volume 3) **[EN0110012/APP/LVS/06.03.11.02]**, the predicted PPV at the majority of receptors is below 1.0 mm/s.

11.9.24 Sixteen receptors are predicted to exceed 1.0 mm/s: CRC_R7, CRC_R19, S1_R1, S1_R4, S1_R10, S1_R12, S2_R1, S2_R4, S2_R6, S4_R8, S4_R11, S6_R2,-S6_R4 and S7_R1. The highest predicted PPV is 2.0 mm/s at S2_R1, caused by the transient startup and rundown of vibratory piling. For these receptors, it is likely that vibration could cause complaint but can be tolerated if prior warning and explanation is given to residents.

11.9.25 At the impacted receptors, the oCEMP [**EN0110012/APP/LVS/07.02**] includes provisions for giving notice to residents before commencing works; and operating compaction plant without the vibratory mechanism operating, where practicable.

11.9.26 Vibration from construction activities is anticipated to result in levels well below the threshold for risk of cosmetic damage to any properties. Where vibration is perceptible for some residents as noted above, the oCEMP requires engagement with residents to provide reassurance that properties will not be at risk of damage, particularly where vibration is perceptible.

11.9.27 The impact of vibration associated with HDD works directly underneath the River Ouse has also been assessed. Additional information can be found in Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**]. In line with the methodologies presented in BS5228, a PPV level of 2.2mm/s is predicted. This level is below 10mm/s which BS7385-2 states as the level as which loose soil could become vulnerable.

11.9.28 Based on the above, adverse effects from construction vibration are **not significant**.

Construction traffic noise

11.9.29 Information on traffic routes, flows, average speed and HGVs for the baseline year and for the construction peak is provided in Chapter 14: Traffic and Movement (ES Volume 1) [**EN0110012/APP/LVS/06.01.14**].

11.9.30 The assessment below is based on the predicted BNL calculated from the 18-hour Annual Average Weekday Traffic (AAWT) for the baseline traffic and with the increased number of HGVs due to construction for the relevant phase. The assessment is provided only for the daytime, which is when HGV movements would take place.

Table 11-20 Construction traffic noise assessment

Link ref	Link name	Vehicle speed (km/h)	Do-Minimum 2025			Do-Minimum + construction traffic 2029			Change in noise level, dB(A)	Magnitude of change
			AAWT 18hr	HGV %	BNL dB $L_{A10, 18h}$	AAWT 18hr	HGV %	BNL dB $L_{A10, 18h}$		
4	Austfield Lane	58	872	3	57.8	912	5	58.4	0.6	Negligible
5	Hilliam Common Lane	72	1060	4	60.0	1081	4	60.1	0.1	Negligible
6	Roe Lane	62	573	4	56.5	657	5	57.2	0.7	Negligible
7	Haddlesey Road	63	366	15	56.8	450	13	57.5	0.7	Negligible
8	Birkin Road	42	539	4	54.5	625	5	55.3	0.8	Negligible
9	Skipwith Road	44	2241	2	60.2	2349	2	60.3	0.2	Negligible
11	Wheldrake Lane (S)	72	1633	3	61.8	1756	4	62.3	0.5	Negligible
13	Wheldrake Lane	82	2433	4	64.7	2497	5	65.0	0.2	Negligible
14	A19, Escrick	57	19453	3	71.1	19555	3	71.1	0.0	Negligible
15	Philip Lane, Hambleton	37	34	15	44.9	50	19	47.3	2.4	Minor adverse
16	Common Lane, Hambleton	45	54	8	45.8	78	24	50.3	4.5	Moderate adverse
18	Common Lane, South Milford	40	302	5	52.2	333	7	53.0	0.8	Negligible
21	Bishopdyke Lane	66	6128	3	66.9	6081	3	66.9	-0.1	Negligible
22	A162, South Milford	56	14651	7	70.8	13887	6	70.3	-0.4	Negligible
DfT count	A63	96	19882	17	77.0	20688	17	77.2	0.2	Negligible
DfT count	A19 (North)	96	10388	1	71.6	10783	1	71.8	0.2	Negligible
DfT count	A19 (South)	96	9902	10	73.0	10283	10	73.1	0.2	Negligible
DfT count	A1(M)	96	50285	18	81.2	52020	18	81.3	0.2	Negligible
23	Mill Hill Road /	85	2661	4	65.4	2728	4	65.5	0.2	Negligible

Link ref	Link name	Vehicle speed (km/h)	Do-Minimum 2025			Do-Minimum + construction traffic 2029			Change in noise level, dB(A)	Magnitude of change
			AAWT 18hr	HGV %	BNL dB $L_{A10, 18h}$	AAWT 18hr	HGV %	BNL dB $L_{A10, 18h}$		
	Skipworth Road									
24	King Rudding Lane	53	434	7	55.2	497	11	56.7	1.5	Minor adverse
25	A19 Riccall	73	20718	4	73.2	20988	4	73.2	0.1	Negligible
26	Wistow Road	69	2930	2	63.7	3046	3	64.1	0.4	Negligible
27	B1223 / Millgate Service Station	33	7142	2	64.4	7235	3	64.6	0.2	Negligible
28	Dam Lane	66	3409	2	64.0	3506	3	64.4	0.3	Negligible
29	Leeds Road	47	5832	5	65.5	5938	5	65.6	0.2	Negligible
30	A63, Hambleton	71	12441	5	71.0	12465	5	70.9	0.0	Negligible
31	Field Lane	62	521	2	55.4	555	4	56.4	1.0	Minor adverse
33	Selby Road / A63 Monk Fryston	85	10576	4	71.3	10674	4	71.4	0.1	Negligible
36	Main Street	70	8945	5	69.4	9049	5	69.4	0.1	Negligible
37	Hillam Road / Hillam Lane	60	1054	2	58.4	1131	4	59.3	1.0	Minor adverse
38	Rawfield Lane	67	498	4	56.3	527	6	57.1	0.8	Negligible

11.9.31 Most road links are predicted to be subject to negligible impacts. Philip Lane (Hambleton), King Rudding Lane, Field Land and Hillam Road / Hillam Lane, are predicted to be subject to minor adverse impacts resulting from the increase in construction traffic. In line with DMRB LA 111, minor adverse impacts are assessed as **not significant** effects**.**

11.9.32 Common Lane (Hambleton) is predicted to be subject to moderate adverse impacts. For this road link, which runs from the A63 to Solar Development Site 2, the impact is caused by the increase in HGV movements from about 8% for the baseline year to 24% for the construction year. In absolute terms, this is an increase from approximately four HGVs to 19 per 18hr period of the day.

11.9.33 As noted in Chapter 2, the CTMP will commit to measures to reduce the need for construction vehicles to travel during the network peak hours. Therefore, deliveries will be scheduled for between 09:30 and 16:30, unless this not practicable following delays or an emergency (or if deliveries are required for activities requiring 24 hour activity such as HDD). Assuming a worst-case scenario of a seven-hour working day for HGV construction traffic, the increase would be about two to three vehicles per hour during the working day. This is unlikely to result in an appreciable change in noise levels at the nearby receptors. Moreover, noise emissions from the relatively low number of vehicles using these road links will be temporary and well below SOAEL.

11.9.34 The Principal Contractor shall conduct construction works in line with the detailed CEMP and the CTMP, which will ensure that BPM of working are implemented. Section 11.8 provides examples of relevant mitigation measures.

11.9.35 Based on the assessment above, it is concluded that adverse effects from construction traffic noise are **not significant**.

11.9.36 No adverse impacts are identified at the NIAs identified within the Study Area.

Operational effects – stationary sources

11.9.37 Results of noise modelling for stationary sources are presented in Appendix 11.3 Operational Noise Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**].

11.9.38 Appendix 11.3 (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**] sets out the assumptions applied to the modelled noise sources. These include the sound power levels and spectra provided by the manufacturers, the number of units, operating times and likely operational load. The appendix also includes details of the embedded mitigation measures assumed for the assessment. Based on these assumptions, the predicted specific sound levels, derived from three-dimensional noise modelling, are presented, together with details of the adopted noise thresholds, feature corrections, predicted rating levels, and any anticipated exceedances of those thresholds.

11.9.39 In line with BS4142, a +4dB feature correction for clearly perceptible tonality has been applied to the specific sound level to determine the rating level. This is considered a reasonable worst-case scenario.

11.9.40 A statistical analysis of the measured sound levels has been undertaken to determine the representative background sound level at the closest receptors for the day and night. The results are presented in Appendix 11.1: Environmental Sound Survey (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.01**].

11.9.41 Details of the location of the assessed receptors relative to the Sites, are provided in Figure 11.2 Environmental Sound Survey and Assessment Locations (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.02**]. As a worst-case scenario, the assessment assumes that the façades of the receptors containing sensitive rooms (e.g. bedrooms) have direct lines of sight to the Proposed Development site.

11.9.42 The proposed Solar Development Sites may use either fixed arrays or tracking systems. Fixed panels do not contain moving parts and therefore have no associated noise emissions. Tracking systems operate with small motors and generate very low levels of noise. Manufacturer data for a typical tracker motor indicates a sound pressure level of approximately 50 dB(A) at 1 m. These motors usually operate intermittently for short duration and only during the daytime. Given their low output and limited operation, the noise contribution from tracking motors is considered negligible and has not been included in the noise model or assessment.

11.9.43 As presented in Table 2-2 of Appendix 11.3 (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**], the rating level does not exceed the typical background sound level at most receptors. In accordance with BS4142, this indicates a low impact. The effects at these receptors are therefore assessed as **not significant**.

11.9.44 For receptors where the predicted sound level exceeds the typical background level by more than 5dB(A) (the LOAEL, as set out in Section 11.5.12) but less than 10dB(A) (SOAEL), there is an indication of a potential adverse impact, depending on the context. These exceedances, which occur for the night-time only, are highlighted in Table 2-2 of Appendix 11.3 and are generally attributable to the low night-time background sound level and the proximity of the receptors. The exceedances are generally driven by noise from Transformers, Conversion Units and the BESS Compound.

11.9.45 During the daytime, sound levels at four receptors (reference S2_R1, S2_R2, S2_R4, and S2_R6) are predicted to exceed the background sound levels by approximately 1-3dB(A), with rating levels around 39-41dB$L_{Ar,Tr}$. The exceedance over the background is relatively small, and the rating levels remain well below the WHO (Ref 22) outdoor living area guidelines of 50dB$L_{Aeq,T}$ presented in Table 11-14.The effects of operational noise at these receptors during daytime are therefore assessed as **not significant**.

11.9.46 For the night-time, the sound levels at 15 receptors (reference S1_R1, S1_R10, S1_R12, S2_R2, S2_R3, S2_R5, S3_R1, S4_R1, S4_R2, S4_R3, S4_R4, S4_R5, S4_R6, S6_R2 and S6_R3) are predicted to exceed the background sound levels by approximately 1-5dB(A), with rating levels around 23-36dB$L_{Ar,Tr}$. The highest night-time predicted rating level for these receptors is below the WHO Night Noise Guidelines for Europe 2009 (Ref 23) LOAEL of 40dB$L_{night,outside}$. Assuming a partially open window, the resulting internal noise level at the receptor would be approximately 23-26dB$L_{Ar,Tr}$. These levels are below WHO internal and external criteria presented in Table 11-14. Furthermore, the internal sound levels are also below the low frequency noise criterion described in NANR45 (Ref 26). The effects of operational noise at these receptors are therefore assessed as **not significant**.

11.9.47 For the night-time, there are five receptors (reference S2_R1, S2_R4, S2_R6, S2_R8 and S4_R7) which are predicted to be exposed to rating levels that exceed the background sound levels by approximately 6-8dB(A),which is above

LOAEL and below SOAEL. The rating levels are around 31-39dB$L_{Ar,Tr}$. In line with BS4142, this is likely to be an indication of an adverse impact, depending on the context as explained below. Noise levels at these receptors are driven primarily by the operation of the BESS Compound.

11.9.48 The highest predicted night-time rating level of 39dB$L_{Ar,Tr}$ is below the WHO Night Noise Guidelines for Europe (2009) (Ref 23) LOAEL of 40dB$L_{night,outside}$. Assuming a 12–15dB(A) attenuation for a partially open window, the resulting internal noise levels at the receptor would be approximately 24–27dB$L_{Ar,Tr}$. These levels are below the WHO internal and external criteria presented in Table 11-14. Furthermore, the internal sound levels are also below the low frequency noise criterion described in NANR45 (Ref 26).

11.9.49 In conclusion, although exceedances are predicted at these receptors, the effects of operational noise at these receptors are assessed as **not significant**.

11.9.50 In Government policy terms, provided mitigation measures are implemented, the SOAEL is not expected to be exceeded during the operational phase of the Proposed Development.

11.9.51 The design of the Proposed Development is expected to evolve and if necessary and where appropriate, opportunities to incorporate mitigation measures to minimise any risk of noise disturbance will be explored and implemented. To support future design development, Table 11-21 provides examples of potential mitigation measures. Based on the current assessment, no additional mitigation is proposed; these examples are intended to demonstrate the potential effectiveness of mitigation options.

Table 11-21 Examples of operational noise mitigation measures

Mitigation measure	Description
Layout optimisation	Increase distance between sources and receivers, as well as using structures such as ancillary building as acoustics screening.
Source directivity	For noise sources with defined directivity, such as fans or openings on one side of a unit, position them to avoid facing receptors directly e.g. orienting them towards the centre of the site.
Plant selection	Technology will continue to evolve, and equipment incorporating low-noise plant or plant with a low-noise mode may become more readily available
Acoustic barriers	Solid acoustic barriers breaking line of sight between sources and receptors. Perimeter and internal barriers located close to the sources provide more effective screening. The use of absorbing barriers can also help minimise reflected noise into the surrounding environment.
Acoustic enclosures	Solid enclosures containing noisy plant, with any access doors or panels sealed.
Attenuators	Attenuators installed to decrease noise emissions from cooling fans
Acoustic louvres	Where airflow requirements preclude continuous solid enclosures, acoustic louvres may be included.

11.9.52 Mitigation of operational plant noise is secured as part of the submission of the detailed OEMP as described in Section 11.8.

Monk Fryston substation

11.9.53 The grid connection at the existing Monk Fryston Substation requires the installation of a number of components as described in Chapter 2: The Proposed Development (ES Volume 1) **[EN0110012/APP/LVS/06.01.02]**. These sources typically do not generate noise levels that would result in adverse impacts at nearby receptors, with the exception of corona discharge.

11.9.54 Corona discharge may occur on outdoor components under certain weather conditions, particularly when precipitation is high. However, such events are infrequent, and the Proposed Development's components are located more than 300m from the nearest receptors. As such, operational impacts from the changes to the existing Monk Fryston Substation are assessed as **not significant**.

Other operational stationary noise sources

11.9.55 As part of the Proposed Development, diesel generators may be provided at sites with substations. These generators are expected to operate only during maintenance or commissioning activities, or in the event of an emergency. Maintenance works will be scheduled during daytime hours, when the potential for noise impacts is lower, and would typically be of short duration. This measure is presented within the oOEMP [**EN0110012/APP/LVS/07.03**]. Given their infrequent and limited use, the effects from the operation of these generators are **not significant**.

Impacts on PRoWs

11.9.56 There are several PRoWs located within and around the Solar Development Sites and along the Cable Route Corridors. PRoWs are by their nature transitory in their use, with users not staying in any one location for any length of time. Levels of noise from the construction of the Proposed Development will vary as the people using the right of way move closer to and then away from any construction activity. Construction noise impacts upon PRoWS are minimised with the implementation of mitigation measures defined in Section 11.8 and reflected within the oCEMP [**EN0110012/APP/LVS/07.02**]. Moreover, these impacts are expected to be temporary, of limited duration and would be experienced only transiently by PRoW users.

11.9.57 During operation, noise impacts may arise where noise generating plant is situated close to PRoWs. Figure 11.5 Operational noise modelling results: Predicted daytime sound rating level - 1.5m above ground (ES Volume 2) [**EN0110012/APP/LVS/06.02.11.03**], presents a noise map indicating operational noise levels at the PRoWs within the Study Area.

11.9.58 As shown in this the PRoWs within and in close proximity to the Proposed Development, are predicted to experience sound rating levels below 50dB$L_{Ar,Tr}$ along most of their length. Predicted rating levels exceeding 50dB$L_{Aeq,T}$ are

limited to relatively short sections of the PRoWs and so would only be experienced for a short period of time. This indicates that noise from the operation of the Proposed Development may be audible to PRoW users; however, as users move away from the source, noise levels would decrease.

11.9.59 On this basis, operational noise impacts on PRoWs are assessed as **not significant**.

Operational effects – road traffic noise

11.9.60 As noted in Chapter 14: Traffic and Movement (ES Volume 1) [**EN0110012/APP/LVS/06.01.14**], during the operation and maintenance phase of the Proposed Development, each Solar Development Site is expected to receive approximately five maintenance visits per month, typically by LGVs. This increase is negligible and would not noticeably change the existing sound levels at the closest sensitive receptors. As such, road traffic noise during typical operation is assessed as **not significant**.

11.9.61 The traffic generated during the replacement of BESS Compound infrastructure, Transformers and Solar PV panels is anticipated to be more intensive than during routine maintenance but less than the assessed construction traffic flows. As no significant effects were identified for the construction traffic noise assessment, it is concluded that operational road traffic noise during battery and PV replacement is also **not significant**.

Operational effects – maintenance and replacement activities

11.9.62 Maintenance activities with the potential to result in temporary adverse impacts at the existing receptors are listed below. Details on the type and number of plant, likely on-time periods and sound power levels used to predict noise levels from these works are presented in Appendix 11.3: Operational Noise Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**] and are based on the Operation Phase descriptions presented in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**].

5) Replacement of BESS Compound infrastructure; and

6) Replacement of Solar PV panels.

11.9.63 The three-dimensional noise model of the Proposed Development, developed for construction noise calculation, has been used to predict noise emissions from the maintenance activities listed above at the closest receptors. The noise model is based on the guidance presented in BS5228 and BS ISO-9613.

11.9.64 Results of the noise model are presented in Appendix 11.3: Operational noise assumptions and results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**]. The noise associated with Transformers replacement is expected to be comparable to that of the BESS Compound Infrastructure and PV Panels replacement.

11.9.65 Maintenance and replacement activities are anticipated to be undertaken only during the daytime (07:00-19:00) as presented within the oOEMP

[**EN0110012/APP/LVS/07.03**]. Therefore, only the daytime noise assessment is presented.

11.9.66 The results of the noise predictions indicate that, for all receptors, the impact threshold (Category A for daytime, equivalent to LOAEL) is not exceeded and therefore the impacts associated with maintenance noise are assessed as **not significant**.

11.9.67 An Outline Operational Environmental Management Plan (oOEMP) [**EN0110012/APP/LVS/07.03**] has been prepared for the Proposed Development, setting out commitments for the operator to carry out noisy works during daytime periods and to implement measures to minimise potential noise impacts at sensitive receptors.

Decommissioning noise and vibration

11.9.68 The works which take place during the decommissioning phase of the Proposed Development are expected to be similar in magnitude (or less extensive) than those required for construction. The assessment presented for construction noise and vibration impacts is therefore representative of the decommissioning phase.

11.9.69 With the implementation of a detailed DEMP in substantial accordance with the oDEMP [**EN0110012/APP/LVS/07.04**], then impacts from decommissioning works are assessed as **not significant**.

11.10 Additional mitigation

Construction and decommissioning

11.10.1 With the implementation of the embedded and good practice measures presented in Section 11.8, no likely significant effects associated with construction and decommissioning noise and vibration have been identified. As such, no additional mitigation measures have been identified in this assessment.

Operational noise from stationary sources

11.10.2 With the implementation of the embedded and good practice measures presented in Section 11.8, no likely significant effects associated with operational noise sources have been identified. As such, no additional mitigation measures have been identified in this assessment.

11.11 Residual effects

Construction and decommissioning effects

11.11.1 No significant construction and decommissioning noise effects have been identified after the implementation of embedded mitigation. For that reason, there are no residual significant effects.

Operational effects

11.11.2 No significant operational noise effects have been identified after the implementation of embedded mitigation. For that reason, there are no residual significant effects.

11.12 Monitoring

11.12.1 For construction noise and vibration, no additional monitoring requirements have been identified beyond the measures presented the oCEMP [**EN0110012/APP/LVS/07.02**] and the oDEMP [**EN0110012/APP/LVS/07.04**].

11.12.2 As noted in Section 11.9. with regards to operational noise, a post-construction verification exercise will be undertaken.

11.13 Summary

11.13.1 Table 11-22 presents a summary of the noise and vibration assessment, detailing mitigation requirements and residual effects.

Table 11-22 Noise and vibration - assessment summary

Receptor/ aspect and sensitivity/ value / importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
Construction noise					
Noise sensitive receptors in close proximity to construction works	Potential temporarily adverse impacts likely during night-time works however for relatively short periods	N/A	Not significant	None required	Not significant
Construction vibration					
Vibration sensitive receptors in close proximity to construction works	Potential temporarily adverse impacts likely however for relatively short durations	N/A	Not significant	None required	Not significant
Construction traffic noise					
Sensitive receptors in close proximity to construction works and construction traffic routes	Potential temporarily adverse impacts likely	Minor and moderate adverse	Not significant	None required	Not significant
Operational noise – stationary sources					
Sensitive receptors in close proximity to main sites	Potential exceedance of noise impact thresholds at receptors	N/A	Not significant	None required	Not significant
Operational noise – road traffic noise					

Receptor/ aspect and sensitivity/ value / importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
Sensitive receptors along roads in close proximity to main sites	No adverse impacts identified	N/A	Not significant	None required	Not significant
Operational noise – maintenance activities					
Sensitive receptors in close proximity to main sites	Potential exceedance of noise impact thresholds at receptors however only for short periods of time	N/A	Not significant	None required	Not significant
Decommissioning					
Sensitive residential receptors in close proximity to decommissioning works	Impacts no worse than those identified for construction noise assessment	N/A	Not significant	None required	Not significant

11.14 Cumulative assessment

11.14.1 This section presents an assessment of cumulative effects between the Proposed Development and other proposed and committed plans and projects.

11.14.2 This assessment has been made with reference to the methodology and guidance set out in Chapter 17: Cumulative and In-Combination Effects (ES Volume 1) [**EN0110012/APP/LVS/06.01.17**] and the shortlist of cumulative plans and projects identified within Chapter 17.

11.14.3 For individual receptors, this cumulative effects assessment identifies where the predicted effects of the Proposed Development could interact with effects arising from other plans and/or projects on a spatial and/or temporal basis.

11.14.4 For noise and vibration, committed developments are considered if they are within 300 m of the Proposed Development's Study Area. Consideration is also given to committed developments within 1 km of the Solar Development Sites if they are likely to include industrial operational noise sources such as solar farms, power stations and BESS (amongst others).

11.14.5 Plans and projects identified within Chapter 17 which have the potential to result in cumulative effects of noise and vibration are set out in Table 11-23 and are considered below. The remaining plans and projects were reviewed in relation to noise and vibration receptors identified in this assessment. No further potential for significant cumulative effects is identified due to the temporary nature of construction and limited impact from operation and maintenance.

11.14.6 It is assumed that the projects listed below would employ BPM which would minimise any potential for any adverse cumulative impacts if construction works were to occur concurrently. It is also expected that the relevant local authorities would regulate noise emissions from construction sites of the projects listed below.

11.14.7 In practice, considering the temporal overlap of the noisiest activities required to cause an increase in the total noise level, and the differing distance between construction sites and impacted receptors, cumulative effects from construction are unlikely to result in a significant effect.

11.14.8 With regards to operational noise from plant, there is a risk of cumulative noise impacts and background noise creep occurring at nearby receptors. Table 11-23 presents the assessment of potential operational cumulative effects, which concludes that cumulative impacts are unlikely to result in significant effects.

Table 11-23 Plans and projects relevant to the noise and vibration cumulative assessment

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
Yorkshire Green (EN020024)	A proposed reinforcement project comprising a new 400kV and 275kV electricity transmission connection and associated development.	300 m south of Solar Development Site 3 0 m to Cable Route Corridor (overlap with CRC 4-POC due to works at Monk Fryston substation)	Potential cumulative effects for construction and operational noise and vibration at receptors located to the west of Cable Route Corridor 4-POC. Committed development may impact baseline noise levels of receptors, in particular close to proposed substations. Common receptors are located around the Monk Fryston substation. The common receptor CRC_R29 (Proposed Development) and SEL22 (committed development) is predicted to experience operational noise levels of approximately 12dB$L_{Ar,Tr}$ from the Proposed Development and 22dB$L_{Ar,Tr}$, from the committed development for the night. This receptor is the closest to both projects. Because the sound level from the Proposed Development is 10dB lower than that of the committed development, the cumulative increase is negligible. Therefore, the cumulative effect is assessed as not significant.
Ferrybridge Next Generation Power Station (EN0110011)	A generating station of up to 1.2GW output capacity designed to run on 100% hydrogen and able to run on 100% natural gas and associated infrastructure.	0 m (crosses Solar Development Site 4 and intersects CRC 4-POC)	Potential cumulative effects of construction noise and vibration at receptors located around Solar Development Site 4 and Cable Route Corridor 4-POC. Common receptors are located around Birkin and Gateforth which include receptor reference CRC_R25, S4_R3, S4_R2, S4_R8, S4_R9, S4_R11 for the Proposed Development, equivalent to receptor reference NSR17, NSR18, NSR20, NSR21 and NSR22 for the Ferrybridge Carbon Capture and Storage development, respectively. These are the closest receptors to both projects.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			For the Ferrybridge Carbon Capture and Storage development, these receptors are located more than 5km away from operational noise sources and as such, do not result in any adverse operational noise impacts at the receptors closer to the Proposed Development. No operational noise impacts associated with the Ferrybridge Next Generation Power Station are identified at these receptors and therefore no cumulative effects are identified.
ZG2023/0956/FUL (also 2021/0633/FULM)	Installation and operation of a battery storage facility and ancillary development	2.45 km south of Solar Development Site 6 0 m to Cable Route Corridor (overlaps CRC 4-POC due to works at Monk Fryston substation)	No cumulative effects for noise and vibration identified due to the relatively small scale of this project. There is also no noise impact assessment associated with the planning application that would enable further assessment.
ZG2024/1101/FULM	Erection and operation of a mushroom and algae cultivation facility	11 m south of Solar Development Site 7 0 m to Cable Route Corridor (west of CRC 6-7)	No cumulative effects for noise and vibration identified due to the small scale of this project. There is also no noise impact assessment associated with the planning application that would enable further assessment.
ZG2023/1152/OUTM	Outline application with all matters reserved except for means of access to, but not within, the site for the development of up to 150 dwellings and	1.15 km southeast of Solar Development Site 8 280 m to Cable Route	No cumulative effects for noise and vibration identified due to small scale of project. This residential development is also unlikely to result in operational significant effects. There is no noise impact assessment associated with the planning application that would enable further assessment.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
	associated landscaping and infrastructure works	Corridor (north of CRC 1-4)	
AP/2025/0037/REF (ZG2023/1271/FULM)	Erection of a solar farm together with ancillary development	0 m to Solar Development Site (adjacent to boundary of Solar Development Sites 3 and 4) 0 m (intersects with CRC 3-4a and CRC 3-4)	Potential cumulative effects for construction noise and vibration at receptors around Solar Development Site 3 and 4. The Hillam Grange Solar Farm development may impact baseline noise levels, in particular close to proposed Transformers and Conversion Units. Receptor S3_R1 (Proposed Development) and AL01 (Hillam Grange Solar Farm development) are predicted to experience operational noise levels of approximately 29dB$L_{Ar,Tr}$ and 31dB$L_{Ar,Tr}$, for the night-time respectively. This receptor is the closest to both projects. Cumulative noise level at the receptor would result in levels of approximately 33dB$L_{Ar,Tr.}$ In line with the assessment methodology, despite an exceedance of approximately 8dB over the adopted night time threshold for this receptor (see Appendix 11.3 Operational Noise Assumptions and Results (ES Volume 3) [**EN0110012/APP/LVS/06.03.11.03**]), the absolute internal noise levels are estimated to be well below WHO criteria. As such, cumulative impacts are unlikely to result in significant effects. The planning application has been refused at the time of writing and is currently in appeal.
ZG2024/1129/FULM	Solar development with co-located Battery Energy Storage System	1.55 km east of Solar Development Site 8	Temporary cumulative impacts for construction noise and vibration may occur at receptors to the north of Cable Route Corridor 1-4 to the south of Denneboom (south of Scalm Lane by Carr Lane). However, no significant cumulative effects identified due to the

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
		100 m north of CRC 1-4	relatively long separating distance between receptors impacted by the Proposed Development and the committed development. For operational noise, the closest receptors for both developments are 2 km away from the Proposed Development. As such, cumulative impacts are unlikely to result in significant effects.
ZG2024/1099/SCN	EIA Screening Opinion in relation to the development of Battery Energy Storage System ('BESS')	1.8 km southwest of Solar Development Site 6 0 m (intersects CRC 4-POC)	No cumulative effects for noise and vibration identified due to the relatively small scale of this project. There is also no noise impact assessment associated with the planning application that would enable further assessment.
ZG2023/0551/OUTM	Outline application for development of 140 dwellings	2.6 km east of Solar Development Site 8 0 m (adjacent to CRC 1-4)	No cumulative effects for construction noise and vibration identified due to the small scale of this project. This residential development is also unlikely to result in operational significant effects. There is also no noise impact assessment associated with the planning application that would enable further assessment. The assessment results (of no significant effect) for receptors CRC_R14 and CRC_R15 are considered representative of the construction noise impacts of the Proposed Development on the sensitive receptors of the committed development. No operational impacts are anticipated at these receptors.
ZG2023/0481/SCN	EIA Screening Opinion in relation to the	50 m east of Solar	No cumulative effects for noise and vibration identified due to the relatively small scale of this project. There is also

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
	construction and operation of a solar farm	Development Site 10 m east of CRC 6-7	no noise impact assessment associated with the planning application that would enable further assessment.
ZG2025/0529/REMM	Reserved Matters application including layout of planning permission 2021/1531/EIA Outline application for the demolition of existing colliery buildings and the construction of up to 1,460,000 sq ft of employment floorspace comprising Use Classes B2, B8 and E(g) to include access (with all other matters reserved)	60 m north of Solar Development Site 7 660 m north of CRC 2-6	Cumulative effects are possible for operational noise and construction noise and vibration at receptors to the north of Solar Development Site 6 and to the west of Solar Development Site 8. The methodology has been agreed for the planning application to assess impacts for typical B2/B8 uses, with a planning condition to follow for a noise impact assessment to be provided. It is not possible at this stage to determine the magnitude of impact as the end user is unknown. Receptor reference R2 (from the Gascoigne Wood development) has rating level criteria of 42dB$L_{Ar,Tr}$ during the day and 35dB$L_{Ar,Tr}$ at night. Receptor S6_R2, which is equivalent to R2, is predicted to experience noise levels of approximately 37dB$L_{Ar,Tr}$ during the day and 31dB$L_{Ar,Tr}$ at night. This results in combined levels of 43dB$L_{A,Tr}$ for the daytime period and 36dB$L_{A,Tr}$ for the night-time period. The measured background levels at this receptor are 38dB$L_{A90,T}$ and 30dB$L_{A90,T}$ respectively. Accordingly, exceedances over the threshold would be approximately 5dB during the day and 6dB at night. In line with the methodology adopted for this assessment, these exceedances are not considered likely to result in significant effects.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
NY/2024/0200/FUL	Development of an Agricultural Anaerobic Digestion (AD) Facility	70 m northwest of Solar Development Site 7 400 m northwest of CRC 6-7	For the receptor to the south of the committed development, referenced as Mill Lane, the operational rating levels are predicted to be 34dB$L_{Ar,Tr}$ during the day and 36dB$L_{Ar,Tr}$ at night. For the Proposed Development, noise levels at receptor S7_R1, considered representative of the Mill Lane property, are predicted to be approximately 35dB$L_{Ar,Tr}$ during the day and 25dB$L_{Ar,Tr}$ at night. For the daytime, cumulative noise levels result in approximately 38dB$L_{Ar,Tr}$. However, this does not exceed the adopted noise threshold of 44dB$L_{Ar,Tr}$, and cumulative operational noise impacts are therefore assessed as not significant. For the night-time, because the sound level from the Proposed Development is 10dB lower than that of the committed development, the cumulative increase is negligible. Therefore, the cumulative effect is assessed as not significant.
ZG2025/0928/OUTM	Outline application for up to 100 residential dwellings with all matters reserved except for access	4 km northeast of Solar Development Site 4 250 m southwest of CRC 1-4	Temporary cumulative impacts for construction noise and vibration may occur at receptors to the south of Cable Route Corridor 1-4 to the south east of Thorpe Willoughby. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development and the planning application. This residential development is also unlikely to result in operational significant effects. There is also no noise impact assessment associated with the planning application that would enable further assessment. Operational effects of the Proposed Development on new residents of the committed development are not

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			expected to be significant given the relatively large distance separating both sites.
ZG2025/1019/FULM	Erection of up to 75 No. residential dwellings, open space, landscaping, drainage infrastructure and associated works	1.55 km southeast of Solar Development Site 8 30 m northwest of CRC 1-4	Temporary cumulative impacts for construction noise and vibration may occur at receptors to the north of Cable Route Corridor 1-4 to the south of Hambleton. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development and the planning application. This residential development is also unlikely to result in operational significant effects. There is also no noise impact assessment associated with the planning application that would enable further assessment. Operational effects of the Proposed Development on new residents of the committed development are not expected to be significant given the relatively large distance separating both sites.
ZG2025/0983/OUTM	Outline planning application for the construction of up to 180 dwellings (Class C3) including access from Low Street (all other matters are reserved)	400 m west of Solar Development Site 7 630 m west of CRC 6-7	No cumulative effects for construction noise and vibration identified due to the small scale of this project and its distance to closest receptors. This residential development is also unlikely to result in operational significant effects. Operational effects of the Proposed Development on new residents of the planning application are not expected to be significant given the relatively large distance separating both sites. Nearby receptors of the Proposed Development (S6_R1 and S7_R1) are closer to the site, and neither are predicted to experience significant effects.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
ZG/2023/0358/OUTM	Outline application for development of 145 dwellings	2.65 km southeast of Solar Development Site 8 290 m east of CRC 1-4	Temporary cumulative impacts for construction noise and vibration may occur at receptors to the south of Cable Route Corridor 1-4 to the west of Thorpe Willoughby. However, no significant cumulative effects identified due to the low construction works scale and low likelihood of significant overlap in construction schedules of the Proposed Development and the planning application. This residential development is also unlikely to result in operational significant effects. Operational effects of the Proposed Development on new residents of the committed development are not expected to be significant given the relatively large distance separating both sites.
ZG2024/1155/SCN	EIA Screening for proposal for elements green Monk Fryston battery energy storage system and associated infrastructure.	870 m southwest of Solar Development Site 6 450m northeast of CRC 4 – POC	Temporary cumulative impacts for construction noise and vibration may occur at receptors to the west of Cable Route Corridor 2-6 and to the east of Monk Fryston. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development. At the time of writing, there is no noise impact assessment associated with the planning application that would enable further assessment.
ZG2023/1356/OUTM	Outline planning application for residential development of up to 110 dwellings	1.05 km southeast of Solar Development Site 8 540m west of CRC 1-4	Temporary cumulative impacts for construction noise and vibration may occur at receptors to the north of Cable Route Corridor 1-4 to the north-east of Hambleton. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development and the planning application, as well as their relatively large separating distances. This

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			residential development is also unlikely to result in operational significant effects. Operational effects of the Proposed Development on new residents of the planning application are not expected to be significant given the relatively large distance separating both sites.
ZG2023/0888/FULM	Demolition of existing property and erection of 27 dwellings	1 km northwest of Solar Development Site 3 850 m north of CRC 4-POC	Temporary cumulative impacts for construction noise and vibration may occur at receptors around Cable Route Corridor 4-POC to the south of Monk Fryston. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development and the planning application, as well as their relatively large separating distances. This residential development is also unlikely to result in operational significant effects. Operational effects of the Proposed Development on new residents of the planning application are not expected to be significant given the relatively large distance separating both sites.
ZG2023/0774/FULM	Erection of 106 residential dwellings	670 m northwest of Solar Development Site 7 620 m northwest of CRC 6-7	Temporary cumulative impacts for construction noise and vibration may occur at receptors close to Solar Development Site 7. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development and the planning application and relatively large distance between Proposed Development and the planning application. This residential development is also unlikely to result in operational significant effects.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			Operational effects of the Proposed Development on new residents of the planning application are not expected to be significant given the relatively large distance separating both sites.
NY/2022/0102/ENV	Extraction and processing of magnesian limestone, the installation and operation of a low-level aggregate processing plant with ancillary buildings and restoration by infilling of the void space with inert waste to original ground levels	2.15 km southwest of Solar Development Site 6 250 m northwest of CRC 4-POC	Temporary cumulative impacts for construction noise and vibration may occur at receptors close to Cable Route Corridor 4-POC. However, no significant cumulative effects identified due to the low likelihood of significant overlap in construction schedules of the Proposed Development and planning application, as well as their relatively large separating distances. Cumulative operational impacts are unlikely to be significant given the relatively large distance between the Proposed Development and the committed development.

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