Stonestreet Green Solar

Environmental Statement
Volume 2: Main Text
Chapter 14: Noise

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Doc Ref. 5.2
Version 1
June 2024

APFP Regulation 5(2)(a)
Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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14 Noise

14.1 Introduction

14.1.1 This Chapter of the ES was prepared by Wardell Armstrong and presents an assessment of the likely significant effects on Noise arising from the construction, operational phase and decommissioning of the Project. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. The nature and significance of the likely residual effects are reported.

14.1.2 Detailed descriptions of the Site, the Project and the different phases of development are provided in **ES Volume 2, Chapter 2: Site and Context** and **Chapter 3: Project Description (Doc Ref. 5.2)** of this ES.

14.1.3 The Chapter is supported by the following figures and appendices:

ES Volume 3 – Figures (Doc Ref. 5.3):

- Figure 14.1: Noise Sensitive Receptors;
- Figure 14.2: Noise Monitoring Positions;
- Figure 14.3: Daytime 1.5m; and
- Figure 14.4: Night-time 4.0m.

ES Volume 4 – Appendices (Doc Ref. 5.4):

- Appendix 14.1: Noise Legislation, Planning Policy and Guidance;
- Appendix 14.2: Consultation Correspondence;
- Appendix 14.3: Monitoring Data;
- Appendix 14.4: Traffic Flows and Noise Calculations;
- Appendix 14.5: Construction Phase Plant List; and
- Appendix 14.6: Assessment Data and Hot Weather Assessment.

14.1.4 This assessment has been informed by data from other assessments as follows:

- **ES Volume 2, Chapter 13: Traffic and Access (Doc Ref. 5.2)**.

14.2 Legislation, Planning Policy and Guidance

14.2.1 This section provides an overview of the legislative and planning policy framework against which the Project will be considered for noise with further details provided in **ES Volume 3, Appendix 14.1: Noise Legislation, Planning Policy and Guidance**.

Legislation

14.2.2 The following legislation is relevant to the noise assessment of the Project:

- Control of Pollution Act 1974[1]; and
- Environmental Protection Act 1990[2].

Planning Policy

National

14.2.3 The Project will be determined pursuant to section 104 of the PA 2008. On 17 January 2024, the Overarching National Policy Statement for Energy ('NPS EN-1'), the National Policy Statement for Renewable Energy Infrastructure ('NPS EN-3') and the National Policy Statement for Electricity Networks Infrastructure ('NPS EN-5') came into force. These NPSs have effect in relation to the Application.

14.2.4 The Noise Policy Statement for England (March 2010) ('NPSE')[3] and the National Planning Policy Framework are also considered relevant.

Local

14.2.5 While the primary basis for making decisions on applications for development consent is the relevant NPSs, other matters which the SoS may consider to be important and relevant in decision making may include the development plan policies of the "Host" local authorities.

14.2.6 The Local Planning Authority is ABC. The county council is KCC. Development Plan Documents relevant to the Project include:

- Ashford Borough Council ('ABC') Local Plan 2030[4], (the 'ABC Local Plan') Policy ENV10 – Renewable and Low Carbon Energy.

Guidance

14.2.7 The following guidance is relevant to the Project:

- National Planning Practice Guidance ('PPG') Noise[5];
- British Standard 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound. (BS4142)[6];
- British Standard 8233: 2014 Guidance on sound Insulation and noise reduction for buildings ('BS 8233')[7];
- British Standard 5228:2009+A1:2014, Code for noise and vibration control on construction and open sites. (BS 5228)[8]. Part 1 Noise;
- ISO 9613:1996 Acoustics – Attenuation of sound during propagation outdoors: Part 2 General Method of Calculation (ISO 9613-2)[9]
- Department for Transport (1988) Calculation of Road Traffic Noise ('CRTN')[10]; and
- Design Manual for Roads and Bridges ('DMRB') document LA111 Noise and Vibration, May 2022[11].

14.3 Stakeholder Engagement

14.3.1 This section of the Chapter summarises key stakeholder engagement undertaken to inform the noise assessment. It also summarises the key matters raised by consultees in relation to the EIA on the topic of noise and explains how the ES has had regard to those comments or how they have been addressed in the ES.

EIA Scoping

14.3.2 **Table 14.1** of this Chapter sets out the issues raised in the EIA Scoping Opinion **(ES Volume 4, Appendix 1.2: EIA Scoping Opinion (Doc Ref. 5.4)**) of relevance to the assessment of noise and how the assessment has responded to them.

Table 14.1: EIA Scoping Response Summary

Consultee and Comment	Response
PINS 30 May 2022)	
Operational phase The Applicant proposes to scope out effects during the operational phase as "*operational traffic generation is predicted to result in a maximum of two (two-way) vehicle movements per day for maintenance purposes*". The Inspectorate agrees to scope this matter out subject to confirmation of the type of maintenance visits and vehicles and confirmation that these would not exceed relevant thresholds of effect (e.g. as set out in the Guidelines for Environmental Assessment of Road Traffic, 1993), taking account of any potential cumulative traffic effects.	Details of operational traffic are confirmed in **ES Volume 2, Chapter 13: Traffic and Access (Doc Ref. 13.1)**. Noise effects from operational traffic are therefore scoped out of the ES.
Scoping Report paragraph 14.7.13 and Table 7.1 acknowledge that noise during the decommissioning phase has potential to be significant. Decommissioning impacts are anticipated to be similar to those during construction however, Scoping Report paragraph 14.8.2 states that there is future uncertainty surrounding noise levels and noise impacts will be appropriately considered at the time of decommissioning. It is possible to undertake a worst-case scenario assessment based on the construction phase and therefore, the Inspectorate is not content to scope this matter out. The Inspectorate would expect to see a Decommissioning Plan, agreed with the Local Authority, secured through the inclusion of an Outline Decommissioning Plan or similar with the	Decommissioning of the Project is scoped into this noise assessment. Based on current assumptions regarding the works required for the decommissioning phase, it is expected that the nature of the noise effects will be reduced in scale compared to the construction phase. The principles of decommissioning phase mitigation measures are included and secured through the **Outline DEMP (Doc Ref. 7.12)**.

Consultee and Comment	Response
Application. The ES should clearly set out how impacts from noise are to be assessed for the decommissioning phase.	
The Applicant proposes to scope out vibration during all stages of the Proposed Development, as noted in Section 6.6 of the Scoping Report. Subject to securing the proposed mitigation measures in a CEMP secured by the DCO, the Inspectorate is content to scope out impacts from vibration on human receptors during construction and decommissioning.	As outlined in **ES Volume 2, Chapter 16: Other Topics (Doc Ref. 5.2)**, measures to minimise and mitigate vibration effects during construction and decommissioning from all potential sources of vibration are included in the **Outline CEMP (Doc Ref. 7.8)** and **Outline DEMP (Doc Ref. 7.12)**.
The ES should clearly set out how impacts from noise are to be assessed for the decommissioning phase through inclusion of an Outline Decommissioning Plan	This Chapter provides an assessment of the decommissioning noise effects of the Project. The **Outline DEMP (Doc Ref. 7.12)** includes appropriate noise mitigation for the decommissioning stage.
Since tracker panels may be used on the Site the noise assessment should include the noise emissions from such panels and provide an assessment of operational noise effects, using a worst-case scenario where there is uncertainty.	The **Design Principles (Doc Ref. 7.5)** secure fixed PV panels only and as such this is not assessed. An assessment of operational noise is provided in **Section 14.7** of this Chapter.
ABC Environmental Health (EHO) (Email dated 16 December 2021) and repeated in Scoping Opinion response (18 May 2022)	
Through correspondence between Wardell Armstrong and ABC at the outset of the Project, it was agreed that the monitoring would be undertaken at locations representative of 6no Noise Sensitive Receptors ('NSR') which would themselves be representative of other NSRs in the area. Typically, a cluster of receptors with a single monitoring position would be grouped around a similar local noise source such as a local road, but also a similar distance from local dominant noise sources such as the M20 motorway and rail lines to the north. It was agreed that for operational phase noise, the LOAEL would be at the measured representative background sound level, this is the lower threshold of a Low Impact. The SOAEL is	**Section 14.5** of this Chapter discusses measurement of baseline conditions in line with the agreed methodology. Monitoring locations and assessment methodology were agreed with ABC prior to survey works commencing, see **ES Volume 4, Appendix 14.2: Consultation Correspondence (CONFIDENTIAL) (Doc Ref. 5.4)** for further details. The operational phase assessment criteria for LOAEL and SOAEL referred to are applied in the assessment.

Consultee and Comment	Response
defined as +5dB above the measured representative background sound level. This is the lower threshold of the Medium Impact and considered a significant adverse effect.	
ABC EHO questioned if low frequency noise may be a concern at receptors, given the industrial nature of the equipment.	Low frequency noise is considered to be unlikely due to the nature of the Project and its components. However, reference has been made to this in **Section 14.7** of this Chapter.
Kent County Council (KCC) (18 May 2022)	
KCC requests that the Applicant consider the potential effects of the Project on the PRoW network and its users, assessing noise, air quality, drainage and visual impact. Further to this KCC requests that noise impact during the construction and decommissioning works be assessed.	Whilst no guidance or standards currently identify PRoW or their users as NSR or make recommendation as to any criteria that should be applied in such case, it is anticipated that the sensitivity of any user would be low and that their exposure to noise would be temporary and transient. An assessment of likely noise effects on PRoW users is provided in **Section 14.7** of this Chapter. Air Quality as a technical topic for inclusion within the ES has been scoped out of assessment as agreed with PINS via the **ES Volume 4, Appendix 1.2: Scoping Opinion (Doc Ref. 5.4)**. **ES Volume 2, Chapter 16: Other Topics (Doc Ref. 5.2)** provides further details on the appropriate mitigation measures which are secured through the **Outline CEMP (Doc Ref. 7.8)** and **Outline DEMP (Doc Ref. 7.12)** in relation to construction and decommissioning works. The visual impact of the Project on PRoW users is considered in **ES Volume 2, Chapter 8: Landscape and Views (Doc Ref. 5.2)**.

Consultee and Comment	Response
	The location of new PRoWs has had regard to the flood risk and drainage, and the management plans including the **Outline CEMP (Doc Ref. 7.8)**, **Outline DEMP (Doc Ref. 7.12)** and **Outline SWDS (Doc Ref. 7.14)** include measures to avoid exacerbating surface water flood risk within the Site and to surrounding areas.
Aldington and Bonnington Parish Council (Undated)	
There should be an assessment of the visual impact and likely noise impact for every affected property and a collective and transparent solution proposed through both mitigation and compensation.	Assessment of noise at each affected property is not practical nor necessary and this approach would not be in line with industry standard approach and guidance. The closest representative properties in each direction, as agreed with ABC EHO, are assessed in **Section 14.7** of this Chapter. Each property in the area surrounding the Project will either be directly assessed, be a neighbour of an assessed property which would be considered similar or be further from the Project than an assessed property in which case the impact and effect would be less. Mitigation for any noise effects identified is outlined in **Section 14.6** of this Chapter. The visual impact of the Project is considered in **ES Volume 2, Chapter 8: Landscape and Views (Doc Ref. 5.2)**.
Mersham Parish Council (Undated)	
Noise from construction works to be assessed.	The noise effects of construction works are assessed in **Section 14.7** of this Chapter.

Non-Statutory Consultation

14.3.3 No comments of relevance to the assessment of noise were raised in response to the Non-Statutory Consultation.

2022 Statutory Consultation

14.3.4 **Table 14.2** provides a summary of the responses to the 2022 Statutory Consultation of relevance to this assessment and how the assessment has responded to them.

Table 14.2: 2022 Statutory Consultation Response Summary

Consultee and Comment	Response
Aldington and Bonnington Parish Council	
The village is on a ridgeline and the effect of noise should be considered over a wide area.	The noise modelling used to inform the assessment takes topography into account. It is considered unlikely that any elevation change in the area would expose some receptors further into the village of Aldington or further outside the village to a higher noise level than those on the edge of the Site.
UK Health Security Agency	
Consideration of cumulative effects of construction noise due to overlapping construction phases between the Project and East Stour Solar Farm.	The cumulative effects of construction noise between the Project, East Stour Solar Farm and other cumulative schemes are considered in **Section 14.10** of this Chapter.
Forestry Commission	
Direct effects of development can cause the loss or deterioration of ancient woodland or ancient and veteran trees by increasing levels of air and light pollution, noise and vibration.	It is highly unlikely that noise from the operational Site would typically be audible or distinctive above the existing ambient sound level at the identified ancient woodlands within the zone of influence of the Project. The EIA Scoping Opinion **(ES Volume 4, Appendix 1.2: EIA Scoping Opinion (Doc Ref. 5.4)** confirms that vibration effects are scoped out, subject to securing mitigation measures in a CEMP. During construction and decommissioning phases, only landscape works will occur in proximity to ancient woodland at Backhouse Wood LWS. The short-term nature of the works and the ambient noise levels in close proximity to existing transportation noise sources are unlikely to result in any significant noise effects.

Consultee and Comment	Response
	Indirect effects on veteran trees (e.g. light and dust) arising from all stages of the Project are assessed in **ES Volume 4, Appendix 9.7: Assessment of Effects (Doc Ref. 5.4)** of the **ES Volume 2, Chapter 9: Biodiversity (Doc Ref. 5.2)**.
Ashford Borough Council	
Given that noise levels are predicted to be low with plant located away from the boundaries of the Site and the proposed noise assessment will consider planning polices and local and national guidance, standards and documentation and use BS4142 and BS5228, the Councils' Environmental Health Officer is satisfied with the information provided within the PEIR and raises no objections.	Noted.
Community Feedback	
Concerns raised regarding the expected noise impacts to nearby residents and sensitive receptors.	The effect of noise on the nearby residents and sensitive receptors is assessed in **Section 14.7** of this Chapter.
Concerns raised regarding the expected noise impacts to PRoW users.	An assessment of the effect of noise on PRoW users is presented in **Section 14.7** of this Chapter.

2023 Statutory Consultation

14.3.5 **Table 14.3** provides a summary of the responses to the 2023 Statutory Consultation of relevance to this assessment and how the assessment has responded to them.

Table 14.3: 2023 Statutory Consultation Response Summary

Consultee and Comment	Response
Aldington and Bonnington Parish Council (17 July 2023)	
Concern that the assessment takes account of the area's exposure to 'wind noise'.	Baseline noise measurements were made during times considered to be calm with a windspeed below 5ms^{-1}, suitable for baseline measurements. Any higher ambient sound levels evident in the area during periods of high wind would raise the background noise levels above those measured. As such, the assessment

Consultee and Comment	Response
	undertaken can be considered a worst case as it is based on lower windspeeds. Tonal sound emissions are not a function of windspeed as in the case of infrastructure such as wind turbines.
Visual impact of acoustic fencing	The visual impact of acoustic barriers is considered in **ES Volume 2, Chapter 8: Landscape and Views (Doc Ref. 5.2)**.
Noise from the development	This assessment considers the noise effects of all stages of the Project.

14.4 Assessment Methodology

Assessment Scope

14.4.1 The generic EIA methodology is detailed in ES Volume 2, Chapter 6: EIA Methodology (Doc Ref. 5.2).

14.4.2 This section provides specific details of the methodology applied to the assessment of noise due to the construction, operational phase and decommissioning of the Project.

Matters scoped in

14.4.3 The noise assessment considers the following assessments:

- Construction noise;
- Construction traffic noise;
- Operational noise;
- Decommissioning noise; and
- Decommissioning traffic noise.

Matters scoped out

14.4.4 The following assessments have been scoped out:

Operational road traffic noise

14.4.5 **ES Volume 4, Appendix 1.2: EIA Scoping Opinion, Section 3.7, ID 3.7.1 (Doc. Ref. 5.4)** confirmed that an assessment of the likely significant effects from the Project's traffic during its operational phase could be scoped out of the ES on the basis that the Project, when operational, would generate no more than 2 x two-way trips per day, which would be associated with maintenance. Such trips will be made by 4x4 vehicles (pick-up trucks) and Light Goods Vehicles ('LGVs'). HGVs will only require access to the Project to remove any damaged infrastructure, to deliver infrastructure replacements, empty the cess tank, and provide water to the water

storage tanks across the lifetime of the Project. The vehicle movements associated with these HGVs would be limited and infrequent. ~~to fill water tanks~~

14.4.6 On this basis, an assessment of likely significant effects of noise resulting from operational traffic has been scoped out of the assessment as they would not be significant.

Vibration

14.4.7 Potential vibration effects associated with all stages of the Project have been scoped out of further assessment within the ES as agreed with PINS via the **ES Volume 4, Appendix 1.2: Scoping Opinion (Doc Ref. 5.4)**. See **ES Volume 2, Chapter 16: Other Topics (Doc Ref. 5.2)** for further details regarding this topic.

Study Area

14.4.8 A noise assessment study area has been defined to include the area within the Site (to include PRoW users) and a 300m wide area outside the perimeter of the Site. Based on professional judgement this is considered to be suitable to identify all receptors where an effect due to noise from the construction, operational phase and maintenance and decommissioning may occur. Where a receptor sits slightly outside the 300m buffer, but is representative of receptors in a certain direction, it has been included for completeness and a robust assessment.

14.4.9 For construction noise calculations, BS5228-1 urges caution for calculations at distances above 300m. DMRB (Document LA 111) guidance on assessment of construction road traffic noise suggests a study area of 300m from the closest construction activity is normally sufficient to encompass NSRs.

14.4.10 The construction traffic study area has been defined with reference to guidance in Document LA 111 of the DMRB, which includes 50m from the kerb line of public roads with the potential for an increase in baseline noise level ('BNL') of 1 dB(A) or more as a result of the addition of construction traffic to existing traffic levels. The roads that make up the study area are Station Road (south of Hythe Road), Station Road (south of railway), Station Road (north of Calleywell Lane), Goldwell Lane (south of Calleywell Lane), Goldwell Lane (north of Roman Road) and the section of the A20 from the M20 Junction 10a to Station Road. The study area consists of 50m either side of the links indicated.

14.4.11 A description of how NSRs and noise sensitive areas were identified within the study area is provided below.

14.4.12 Construction noise effects will occur during the construction phase which is expected to take approximately 12 months, with works expected to commence in 2026.

14.4.13 The Project is assumed to be operational in 2027 and will operate for a projected 40 years to 2067. Operational noise effects will occur for the lifetime of the Project (i.e., 40 years).

14.4.14 Decommissioning noise effects will occur during the decommissioning phase which is expected to take approximately 12 months and for the purposes of assessment assumed to occur after 40 year operational phase of the Project.

Establishing Baseline Conditions

Baseline sound survey

14.4.15 A baseline sound survey was undertaken in May 2022, over 24 hours at eight locations representative of the identified NSRs in the defined study area. Noise monitoring positions are presented on **ES Volume 3, Figure 14.2 (Doc Ref. 5.3)** and are detailed in **Table 14.4**. Measured baseline sound levels are detailed in **ES Volume 4, Appendix 14.3: Noise Monitoring Data (Doc Ref. 5.4)**.

14.4.16 Noise monitoring positions were determined to give a spread of typical indicative background sound characters over the Site at varying distances from the M20 and adjacent railway lines.

Table 14.4: Baseline Sound Monitoring Locations

Monitoring Position	Coordinates	Description of Representative NSRs
MP 01	X:604751 Y:137720	Close to Spring Cottage, Roman Road
MP 02	X:604554 Y:137357	Close to Stonelees / The Haven, Laws Lane
MP 03	X:606448 Y:136636	Close to Goldwell Houses / Aldington Primary School, Goldwell Lane
MP 04	X:606363 Y:137603	Close to Willow Cottage, Calleywell Lane
MP 05	X:605919 Y:137403	Close to Handen Farm, Roman Road
MP 06	X:606491 Y:138142	Close to The Mill House / The Byre, Station Road
MP 07	X:606763 Y:138531	Close to Park Wood Cottage, Station Road
MP 08	X:607573 Y:136762	Close to Forehead Farm, Church Lane

14.4.17 Monitoring locations and durations were agreed ahead of the survey with the appropriate officer at ABC (further details are provided in **ES Volume 4, Appendix 14.2: Consultation Correspondence (CONFIDENTIAL) (Doc Ref. 5.4)**). MP 01 – MP 06 were 24-hour unattended monitoring positions. MP 07 and MP 08 were

attended positions, with measurements taken for a number of periods during the day and night. Monitoring data is included within **ES Volume 4, Appendix 14.3: Monitoring Data (Doc Ref. 5.4)**.

14.4.18 All baseline sound monitoring was undertaken in accordance with the data collection methodology set out in BS4142.

14.4.19 Measurements were made using Class 1 integrated sound level meters mounted vertically on a tripod 1.5m above the ground. All monitoring locations were more than 3.5m from any other reflecting surfaces. All measurements were made under dry, calm weather conditions.

14.4.20 The sound level meter was calibrated to a reference level of 94dB at 1,000 Hertz ('Hz') both before and on completion of the noise surveys, and no significant drift in calibration was noted. The following noise monitoring equipment was used:

- 01dB Cube – Serial Number 12197;
- 01dB Fusion – Serial Number 12639;
- 01dB Fusion – Serial Number 10717;
- 01dB Fusion – Serial Number 10711;
- 01dB Cal 21 – Serial Number 34254653; and
- 01dB Cal 21 – Serial Number 34254647.

14.4.21 For the purposes of this assessment, the measured background and ambient sound levels measured in 2022 are assumed to be representative of the same during the Project's construction phase in 2026 (approx. 52 weeks), the operational phase (approx. 40 years) and the decommissioning phase (approx. 52 weeks).

Noise Sensitive Receptors

14.4.22 Section 5.12 of NPS EN-1 defines noise sensitive premises and noise sensitive areas. For the purposes of this assessment, a noise sensitive premises is any residential property, school or care facility. Noise sensitive areas are areas of historic woodland and playing fields or sports grounds.

14.4.23 A review of existing mapping of the area identified a long list of potential receptors around the Site. The list of 45no. receptors considered in this assessment are those closest to the Site and likely to be affected or representative of adjacent similar receptors. Receptors at future NSRs at cumulative schemes have also been identified. It is not practical or necessary to assess the effect of noise on every receptor within a 300m distance of the Site.

14.4.24 The final list of receptors is identified in **Table 14.12** of this Chapter and includes numerous residential receptors, Aldington Primary School, a boarding kennels and cattery, hotels and Aldington Eco Centre. Community facilities, such as Aldington Village Hall and associated sports facilities would be represented by adjacent residential receptors. Noise sensitive areas include the areas of ancient woodland, Handen Wood, Poulton Wood and Backhouse Wood.

Identifying Likely Significant Effects

14.4.25 This section describes the methodologies used to determine the magnitude of impact and subsequent likely significant effects of noise during construction, the operational lifetime of the Project and decommissioning.

Construction Noise

14.4.26 The construction phase of the Project is divided into different tasks, each involving a unique set of fixed and mobile plant. The assessment has been undertaken with reference to BS5228 to identify typical noise levels generated by plant. Calculations are undertaken for an indicative plant list to determine a distance at which the threshold of each magnitude for each task would be reached and therefore the number of receptors potentially affected.

14.4.27 Indicative plant lists for each task and the associated sound power ratings are shown in **ES Volume 4, Appendix 14.5: Construction Phase Plant List (Doc Ref. 5.4)**.

14.4.28 The use of the Primary Construction Compounds in Fields 25 and 26 and secondary construction compounds in Fields 8/9, 19, 20 and 23 are assessed, as well as use of the internal haulage road for the Project.

14.4.29 BS 5228 sets out an approach for setting appropriate construction noise limits for residential dwellings, but it does not provide guidance for commercial or office buildings. The BS 5228 'ABC Method' requires the designation of a noise sensitive location into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. A threshold of significant effect is then determined at the receptor location based on the baseline ambient sound level and reference to BS5228.

14.4.30 All identified NSRs are of 'Category A' sensitivity, in that the average ambient sound level is below 65dB during the day, with the exception of NSR 38 Park Wood Cottage which has a higher ambient noise level due to its proximity to the M20 and therefore is of 'Category B' sensitivity.

Construction Traffic Noise

14.4.31 Construction phase traffic flow predictions, provided by Prime Transport Planning, are assessed in accordance with document LA 111, part of the DMRB and calculated using CRTN methodology. Traffic noise levels are predicted for the construction year (2026), as a baseline ('Do Minimum') and for the construction year (2026) with the construction traffic present ('Do Something'). The Do Something data is taken as an Annual Average Weekday Traffic ('AAWT'), for the 2026 Baseline + cumulative schemes + construction traffic at worker peak, which can be considered the worst case. Where the traffic noise predicted in the Do Something scenario is 3dB or more above the Do Minimum scenario traffic noise prediction, a significant adverse effect will have occurred.

14.4.32 The traffic flow noise calculations are presented in **ES Volume , Appendix 14.4: Traffic Flows and Noise Calculations (Doc Ref. 5.4)**.

Operational Noise

14.4.33 Once operational, the Project will emit noise from the Project Substation, distributed Inverter Stations, BESS Units and Intermediate Substations located throughout the Site. Noise emissions from necessary grid connection plant to be installed at Sellindge Substation is scoped out of this assessment as there are no NSRs within 300m of the switching plant and is therefore not considered further.

14.4.34 All noise predictions are made using SoundPLAN computer noise modelling software, an industry standard package which utilises ISO 9613-2 noise propagation methodology. The Project has committed to the installation of acoustic barriers around all Inverter Stations and along the northern and eastern boundaries of the Project Substation and they are included within the assessment in this Chapter. Further details of the assumptions inherent in the operational noise assessment are provided at **Paragraphs 14.5.65 to 14.4.75** of this Chapter.

14.4.35 Operational noise emissions from fixed plant are assessed with reference to BS4142. The methodology for assessing industrial noise emissions relies on prediction of noise from a completed scheme at identified sensitive receptors (known as the Specific Level), addition of any appropriate rating penalties to give an assessment value (known as the Rating Level) and comparison to the pre-development ambient Background Level (defined as the level exceeded for 90% of the time, $L_{A90,T}$). A rating penalty of +3dB has been applied to all noise emissions. The sources should be free from tonal, intermittent and impulsive characteristics, however may be distinctive above the residual sound. As such, a +3dB rating penalty is appropriate.

14.4.36 The amount by which the Rating Level differs to the Background Level gives an initial indication of the likely magnitude of impact. The threshold of significant adverse effect is indicated where a Rating Level is predicted to exceed the Background Level by 5dB, depending on context. The use of background sound +5dB as the SOAEL is a precautionary approach, as BS4142 states that a difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

14.4.37 Once the initial assessment is complete, a refinement to the ultimate magnitude of impact is required with reference to the context in which the noise exists. This context assessment considers the absolute level of the sound, the character and level of the residual sound and the sensitivity of the receptor. Following this the final magnitude of impact to be used in the assessment is concluded.

14.4.38 The assessment has considered four separate time periods:

- Daytime (07:00 – 23:00) - when it is light;
- Daytime (07:00 – 23:00) - when it is dark;
- Night-time (23:00 – 07:00) - when it is dark; and
- Night-time (23:00 – 07:00) - when it is light.

14.4.39 The typical operation (i.e. 30% load of HVAC plant and all fully operational) of the Project is assessed. An assessment is also made of how noise emissions may

change during periods of hotter weather conditions where HVAC plant is required to run at higher loads. An assessment of hotter weather conditions during the daytime/light time period is included in **Section 14.7**, for times when temperatures are at or above 26ºC and 35ºC when the HVAC plant would operate at 50% and 100% load respectively and therefore would generate additional noise. MET Office data for Frittenden[i], being the closest location, suggests that currently temperatures in the area exceed 26ºC on an average of 16 days per year and exceed 35ºC on an average of 1 day per year since 2013.

14.4.40 The SSP 8.5 climate model scenario[ii] provides data on predicted days in which 26ºC and 35ºC are exceeded around Aldington for the lifetime of the Project, considering a worst-case prediction of global 4.4ºC temperature rises.

14.4.41 The hot weather assessment is undertaken for daytime / light conditions only and assesses the rating level against the ambient background level. The magnitude of impact is then refined depending on relevant context factors.

Assessment of low frequency noise

14.4.42 Low frequency noise from the operational phase of the development has been assessed in accordance with DEFRA document NANR45[12], December 2011. Table 2 and Figure 1 of NANR45 provide a criterion curve and 1/3 octave values for low frequency noise up to a ceiling of 160Hz.

14.4.43 The data provided for this Project is given in whole octaves, as such the critical bands (centre frequencies) at which the assessment can take place is 63Hz and 125Hz. The logarithmic sum of the criteria in each of the bands to be assessed is:

- 63Hz 46.6dB
- 125Hz 41.1dB

14.4.44 To determine the potential magnitude of impact, the magnitude of change in low frequency noise levels is presented in Table 14.6.

Table 14.5: Magnitude of impact – Low frequency noise

Magnitude of Change	Magnitude of Impact (as applied in the Noise Assessment)	Change in Noise Level 63 Hz (dB)	Change in Noise Level 125 Hz (dB)
Major	High	≥ 51	≥ 44
Moderate	Medium	48 to 50	42 to 44
Minor	Low	Equal to 47	Equal to 41

[i] Historic data (2013-2022) obtained for Frittenden from MET Office Midas Open
[ii] Further explanation of emissions scenarios can be viewed here: Making sense of climate change projections https://blog.metoffice.gov.uk/2023/11/21/making-sense-of-climate-change-projections/ accessed May 2024

Magnitude of Change	Magnitude of Impact (as applied in the Noise Assessment)	Change in Noise Level 63 Hz (dB)	Change in Noise Level 125 Hz (dB)
Negligible	Very Low	< 47	< 41

14.4.45 Where resultant sound levels inside an NSR are below the NANR45[9] guideline criteria it is considered to be No Observed Effect Level (NOAEL). Where resultant sound levels inside an NSR are equal to the NANR45[9] guideline criteria it is considered to be a Low Observed Effect Level (LOAEL), and where resultant sound levels inside an NSR are above to the NANR45[9] guideline criteria it is considered to be a Significant Observed Effect Level (SOAEL).

Decommissioning Noise and Decommissioning Traffic Noise

14.4.46 The decommissioning phase assessment is undertaken in an identical way to the construction phase assessment for the Project.

Cumulative Effects

14.4.47 The potential for interaction of construction, operational phase and decommissioning effects from the Project with other schemes set out in the Focused Long List (**ES Volume 4: Appendix 6.1: List of Cumulative Schemes (Doc. Ref. 5.4)**) was considered. The Focused Long List of schemes was reviewed and schemes with the potential for spatial or temporal overlap in effects were identified, e.g., overlapping ZoIs, identification of common receptors/ receptor groups and the timescales.

14.4.48 At distances of greater than 300m, any interaction of noise emissions from multiple developments would be attenuated such that there would normally be no combined effects.

14.4.49 From the Focused Long List, the following cumulative schemes were considered for further assessment in the cumulative effects assessment:

- ID No. 1: Agricultural Barn;
- ID No. 2: Goldwell Farm, Goldwell Lane, Aldington, TN25 7DX;
- ID No. 3: Pivot Power Battery Storage;
- ID No. 4: Walsh Power Condenser Project;
- ID No. 7: Land north of 1 Church View, Aldington, Kent;
- ID No. 8: Land south west of Goldwell Court, Goldwell Lane; and
- ID No. 9: East Stour Solar Farm.

14.4.50 Cumulative noise effects during construction, decommissioning and operational phases may occur when developments are located nearby to a common receptor. At distances of greater than 300m any interaction of noise emissions from multiple developments would be attenuated such that there would normally be no combined effect.

14.4.51 During construction and decommissioning of the Project, the likely potential for cumulative effect will be due to additional construction/decommissioning vehicles on the road network and third party construction works from adjacent or nearby sites. Where the routes to be used for the Project coincide with other projects identified in the cumulative assessment, the flows are included in the traffic flows used in the wider assessment and are included to provide a worst-case assessment of construction and decommissioning traffic noise.

14.4.52 All cumulative schemes have been reviewed and where operational noise from the Project could act cumulatively with the identified cumulative schemes the assessment methodology detailed above will be applied.

Determining Effect Significance

14.4.53 This section defines the methodologies and descriptions of receptor sensitivity, determining magnitude of impact and significance of effect.

Sensitivity of Receptor

14.4.54 The description and the methodology for assessing the sensitivity of an individual receptor is described in **ES Volume 2, Chapter 6: EIA Methodology (Doc Ref. 5.2)**. All receptors with a fixed location, such as an individual residence, in this noise assessment are defined as having Medium sensitivity, in that they have a low capacity to absorb change without significantly altering their present character. Transient users of the local PRoW network will have a Low sensitivity.

Magnitude of Impact

14.4.55 The description and the methodology for determining magnitude of impact is described in **ES Volume 2, Chapter 6: EIA Methodology (Doc Ref. 5.2)**.

14.4.56 When change in noise level due to traffic is discussed, a magnitude of change is defined depending on the change in traffic noise levels. The four bands of Negligible, Minor, Moderate and Major as defined in DMRB document LA 111[8] are translated directly to the Very Low to High scale of magnitude used in this ES.

14.4.57 For each element of the assessment, the defined magnitude of impact is given in the tables below. Decommissioning impacts will be determined in the same manner as construction phase impacts. The criteria set out below in **Tables 14.6 to 14.7** therefore also apply to decommissioning phase impacts.

Table 14.6: Magnitude of impact – Construction and Decommissioning Traffic

Magnitude of Change (as defined by LA 111 DMRB)	Magnitude of Impact (as applied in the Noise Assessment)	Change in Noise Level (dB $L_{A10,18h}$)
Major	High	Greater than or equal to 5.0
Moderate	Medium	3.0 to 4.9

Minor	Low	1.0 to 2.9
Negligible	Very Low	Less than 1.0

Note:

- The magnitude of impact initial assessment is shown for all impacts. A further context assessment is required where a change is within 1dB of the Low to Medium boundary.

Table 14.7: Magnitude of impact – Construction and Decommissioning Noise

Magnitude of Impact	Noise Level for Category A Receptors	Noise Level for Category B Receptors
High	$L_{Aeq,12h}$ exceeds 70 dB	$L_{Aeq,12h}$ exceeds 75 dB
Medium	$L_{Aeq,12h}$ exceeds 65 dB	$L_{Aeq,12h}$ exceeds 70 dB
Low	$L_{Aeq,12h}$ exceeds 60 dB	$L_{Aeq,12h}$ exceeds 65 dB
Very Low	$L_{Aeq,12h}$ at or below 60 dB	$L_{Aeq,12h}$ at or below 65 dB

Notes:

- The Category of a receptor depends on the baseline ambient sound level as shown in **Table 14.10**: **.**
- For evening (19:00 – 23:00), these levels are reduced by 10 dB.
- For night-time (23:00 – 07:00), these levels are reduced by 20 dB.

Table 14.8: Magnitude of impact – Operational Noise

Magnitude of Impact	Description
High	A rating level more than 10dB above the background $L_{A90,T}$
Medium	A rating level more than 5dB above the background $L_{A90,T}$
Low	A rating level more than the background $L_{A90,T}$
Very Low	A rating level below the background $L_{A90,T}$

Notes:

$L_{A90,T}$ is a measure of the baseline background sound level.

Rating noise levels are predicted at the façade of the receptor and are a combination of the specific noise from the installed plant and any rating penalty.

Assessing Significance

14.4.58 The magnitude of impact for each receptor is considered against its sensitivity to determine the significance of effect in accordance with the matrix presented in **ES Volume 2, Chapter 6: EIA Methodology, Table 6.3: Significance of Effect Matrix (Doc Ref. 5.2**) (repeated below as **Table 14.9**). The effects of noise throughout this Chapter are determined with reference to this table. However, professional judgment can be used to inform reasons to change or retain the magnitude of impact, such as when discussing the context of operational noise. In the event of such changes, qualifying statements are included.

Table 14.9: Significance of Effects Matrix

Sensitivity / Value of Receptor	Magnitude of Effect			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Limitations and Assumptions

Baseline Assumptions and Limitations

14.4.59 Due to the scale of the Site, it is not practical to undertake baseline sound measurements at all NSRs. Professional judgment has been used to locate monitoring positions so that the measured level is representative of multiple NSRs, in line with the accepted best practice monitoring methodology set out in BS4142.

14.4.60 To ensure a robust and conservative assessment, care was taken to undertake monitoring outside of typical holiday periods which would increase the traffic flow on the M20 motorway and local roads and increase baseline levels.

14.4.61 During noise monitoring, Operation Brock[iii] was in progress on the M20 motorway. At the time of monitoring, the motorway was open, with a contraflow system to the north west of Ashford for traffic travelling south towards the coast. Traffic flows were understood to be freely flowing during the monitoring period. However, due to wider operational issues surrounding operation of ferries at the Port of Dover traffic on the M20 motorway would likely have been slightly below typical levels in the absence of Operation Brock or if the Port of Dover was at full capacity. As such, the baseline levels measured are considered to be conservative as lower vehicle flow on the M20

[iii] The Operation Brock contraflow system is designed to keep traffic on the M20 and other roads in Kent moving when there is disruption to travel across the English Channel [https://nationalhighways.co.uk/travel-updates/operation-brock/]

would result in lower noise emissions that would be a large component of the baseline background sound level.

14.4.62 The noise monitoring survey was undertaken in May 2022 however, the findings are considered to remain representative of current conditions as there have been no significant changes to noise generating infrastructure in the locality. In addition whilst it is noted there have been some changes to the Order limits it is considered that the NSRs remain representative and comprehensive for the purposes of this assessment.

14.4.63 Noise emissions from construction noise and traffic and operational noise related to the Sellindge Substation extension is scoped out of this assessment as there are no NSRs within 300m of the switching plant.

Construction Assumptions and Limitations

14.4.64 At this stage of the Project, assumptions have been made regarding the plant to be used on Site and the methodology of all construction activities. The assumptions regarding plant lists are made with professional judgement and consultation with experienced construction professionals to consider a worst case. Prior to the commencement of construction works, detailed CEMP(s) will be provided which are in accordance with the **Outline CEMP (Doc Ref. 7.8)**. The Outline CEMP includes mitigation measures to minimise noise including that best practicable means ('BPM') will be applied during construction works at all times to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors.

Operational Assumptions and Limitations

14.4.65 Noise effects of the Project's operational phase are limited to operational plant associated with the Project Substation (transformers, switchgear and cooling elements) and distributed Inverter Stations, BESS Units and Intermediate Substations. Occasional maintenance operations to installed plant will be infrequent and will not be considered further.

14.4.66 It is assumed that all plant installed as part of the operational infrastructure will be selected to avoid characteristics that would be audibly distinctive above the residual environment where possible. Characteristics such as tonality, impulsivity and intermittency will all be avoided through plant selection and detailed design, where possible.

14.4.67 It is also assumed that all inverters and transformers will include a vibration dampener system for critical frequencies which eliminates tonality in line with best practice. In addition, these components remain relatively small when compared to large power infrastructure components.

14.4.68 The Inverter Station/BESS Units configuration has been incorporated into the Project as shown in the **Illustrative Project Layout** provided in the **Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)**. BESS Units will have variable noise emissions based on the load and ambient temperature with operations up to 24 hours per day whereas solar components will only operate during daylight hours. This will include time before 07:00 from March to September. For this assessment

it is assumed all plant is operational to allow for export of energy from storage into the grid during dark hours.

14.4.69 Acoustic barriers will be applied to all Inverter Stations, as shown in the **Illustrative Project Layout** provided in the **Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)** and along the northern and eastern boundaries of the Project Substation but not on the Intermediate Substations. Acoustic barriers on the Inverter Stations were modelled at a height of 4m AGL, whilst acoustic barriers with a maximum height of 4m AGL were modelled along the northern and eastern boundary sited on each side of the palisade fence of the Project Substation. Intermediate Substations are small buildings made of metal/brick which are fully enclosed with the electrical equipment contained within, as such acoustic barriers were not included within the assessment model.

14.4.70 The noise model assumes that a suitably insulated gate will be provided over the metal access stairways into the Inverter Stations as secured by the **Design Principles (Doc Ref. 7.5).** As such, the noise model assumes all barriers around the Inverter Stations are continuous and there is no gap in the noise model for the metal access stairways.

14.4.71 The base case assessment (presented in **Table 14.16** and **Table 14.17**) assumes that daily maximum temperatures at the Site are in line with local historic averages such that the HVAC units are operating at a 30% load. **ES Volume 3, Figure 14.3: Daytime 1.5m (Doc. Ref. 5.3)** and **ES Volume 3, Figure 14.4: Night Time 4.0m (Doc Ref. 5.3)** and the analysis above is in relation to this base case.

14.4.72 For limited periods where maximum temperatures at the Site are at or above 26ºC then increased use of the HVAC units will be necessary which would result in a higher magnitude of impact as shown in **ES Volume 4, Appendix 14.6: Assessment Data and Hot Weather Assessment (Doc Ref. 5.4)**. Two assessments have therefore been undertaken for temperatures at at or above 26ºC, above which HVAC units would operate at 50% load, and at or above 35ºC HVAC above which units would operate at 100% full load. All assessments are during the daytime-light period.

14.4.73 Climate modelling for the Site assumes a worst-case global warming of 4.4ºC by the year 2100, predicts that in 2070 the maximum temperature at the Site would be 26ºC or above on average 34 days per year and would be 35ºC and above on average 2 days per year (compared to 16 days and 1 day respectively today).

14.4.74 An Operational Noise Mitigation and Monitoring Scheme ('ONMMS') will be prepared prior to the operation of noise generating infrastructure. The ONMMS will provide details of the plant specification and noise mitigation measures and monitoring procedures. The ONMMS will demonstrate that, with those noise mitigation measures and monitoring procedures in place, the authorised development is not likely to result in any materially new or materially different noise effects from those assessed within this Chapter. The ONMMS is secured by Requirement in the **Draft Development Consent Order (Doc Ref: 3.1)**.

14.4.75 The 40-year operational lifespan of the Project is assumed until 2067.

Decommissioning Assumptions and Limitations

14.4.76 Based on current assumptions regarding the works required for the decommissioning phase, it is expected that the nature of the noise effects will be reduced in scale compared to the construction phase. Prior to the commencement of decommissioning works, detailed DEMP(s) will be provided in accordance with the **Outline DEMP (Doc Ref. 7.12)**. The Outline DEMP includes mitigation measures to minimise noise including that BPM will be applied during decommissioning works at all times to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors.

14.5 Baseline Conditions

Baseline Noise Survey Results

14.5.1 **Table 14.10** provides a summary of the baseline noise data measured. Charts and tables showing the data measured and statistical analysis of the background sound levels are given in **ES Volume 4, Appendix 14.3: Monitoring Data (Doc Ref. 5.4)**. Baseline monitoring positions are identified in **Table 14.4** with ambient sound sources described in **Table 14.11** and shown on **ES Volume 3, Figure 14.2: Noise Monitoring Positions (Doc Ref. 5.3)**.

14.5.2 **Table 14.10** presents a summary of the measured sound levels at each monitoring position. The data shows the average sound level ($L_{Aeq,T}$) for the daytime, which has informed the construction and decommissioning noise assessments, and the background sound level ($L_{A90,T}$), which is a model 5-minute statistical analysis of the data measured for each time period identified in **Paragraph 14.4.36** of this Chapter which has informed the BS4142 operational phase assessment. The average sound level for the same periods can be used to apply context to the predicted noise levels during operation.

Table 14.10: Summary of Baseline Noise Monitoring Results

Assessment	BS5228	BS4142 Context (Average Levels)				BS4142 Initial (90th Percentile Levels)			
Day/Night	Day	Day		Night		Day		Night	
Light/Dark		Light	Dark	Light	Dark	Light	Dark	Light	Dark
Position	dB $L_{Aeq,16h}$	dB $L_{Aeq,T}$	dB $L_{Aeq,T}$	dB $L_{Aeq,T}$	dB $L_{Aeq,T}$	dB $L_{A90,T}$	dB $L_{A90,T}$	dB $L_{A90,T}$	dB $L_{A90,T}$
MP 01	46	46	43	45	49	35	27	37	24
MP 02	48	49	40	44	48	37	25	37	24
MP 03	47	48	44	37	44	36	27	35	26
MP 04	59	60	52	50	55	38	34	38	34
MP 05	43	44	38	50	42	33	31	32	26
MP 06	49	42	42	43	49	40	36	43	32
MP 07	64	64	-	50	38	39	-	30	29
MP 08	47	47	-	34	41	32	-	24	25

Notes: MP7 and MP8 short term attended - no data measured for day/dark period due to the limited period of daytime dark hours in May.

14.5.3 The BS5228 column (second column) shown in **Table 14.10** is the baseline noise level for an entire daytime (given the notation $L_{Aeq,16h}$). BS4142 Context (Average Levels) show the average noise levels during certain periods (given the notation $L_{Aeq,T}$) and BS4142 Initial (90th Percentile Levels) show the sound level exceeded for 90% of the time given the notation $L_{A90,T}$.

14.5.4 For the purposes of this assessment of operational noise, light conditions are considered to occur when the sun is up, i.e. between sunrise and sunset. At the time of unattended monitoring, May 2022, all four conditions listed in **Paragraph 14.4.38** were available, i.e. periods of light and dark during the day and night.

14.5.5 Construction and decommissioning noise assessments consider daytime (07:00 – 19:00) and Saturdays (07:00 – 14:00).

14.5.6 Sunrise was observed to occur around 05:00 with sunset at 20:45. The data in **Table 14.10** is extrapolated as shown below:

- Day / Light 07:00 – 20:45;
- Day / Dark 20:45 – 23:00;
- Night / Dark 23:00 – 05:00; and
- Night / Light 05:00 – 07:00.

14.5.7 Data collection methodology is presented in **Paragraphs 14.4.15 to 14.4.21** of this Chapter.

Ambient Noise Sources

14.5.8 Overall, the Site can be characterised as rural, with a constant background sound from the M20 motorway, HS1 railway line (operated by Network Rail High Speed) and an adjacent railway line (operated by Network Rail as part of the Kent Route between Ashford and Westenhanger). During the day, agricultural noise is evident as would be expected. The local road network emits various amounts of noise depending on the individual road, with Calleywell Lane noticeably busier than Laws Lane as would be expected.

14.5.9 During the day background (90th percentile) levels are low, typically below 40dB $L_{A90,T}$. At night background (90th percentile) levels range between 24dB $L_{A90,T}$ and 43dB $L_{A90,T}$.

14.5.10 The average baseline sound levels over the Site during the day range between 38 and 64dB $L_{Aeq,T}$. At night the sound levels drop to between 34 and 50dB $L_{Aeq,T}$. Ambient noise levels vary depending on the proximity to the M20 motorway and the volume of traffic on the local road network.

14.5.11 Ambient noise sources identified during the survey at each monitoring location are presented in **Table 14.11**.

Table 14.11: Ambient Noise Sources

Monitoring Position	Noise Sources
MP 01	Bird song, infrequent traffic on local road network, aircraft, breeze in trees and domestic noise from local residential dwellings.
MP 02	Bird song, infrequent traffic on local road network, aircraft including helicopter, breeze in trees and domestic noise from local residential dwellings. Occasional mechanical noise from lawnmower and chainsaw were just audible at times. Dog barking was occasionally audible.
MP 03	Bird song, traffic on local road network, aircraft, breeze in trees and domestic noise from local residential dwellings. During the school day, children playing was audible at times.
MP 04	Road traffic on Calleywell Lane, bird song, aircraft, breeze in trees and domestic noise from local residential dwellings. Unidentifiable construction type noise was also just audible as an impulsive noise event.
MP 05	Road traffic on Calleywell Lane, bird song, aircraft, breeze in trees and distant train noise.
MP 06	Traffic on local road network and M20 motorway, breeze in trees, rail traffic, bird song and farming activity in nearby fields.
MP 07	M20 motorway traffic audible throughout the survey, bird song, infrequent traffic on local road network, aircraft including helicopter at night, breeze in trees and noise from the National Grid Sellindge Substation (power tools), rail noise.
MP 08	M20 motorway traffic audible throughout the survey, bird song, infrequent traffic on local road network, aircraft, breeze in trees and noise from National Grid substation, occasional rail noise.

Future Baseline

14.5.12 It is not possible to accurately predict at this stage what future developments may come forward between now and during the lifetime of the Project. However, it is unlikely that any would be of sufficient individual or cumulative scope to change the character or level of background sound and significantly reduce the baseline from the current levels. Cumulative schemes that are expected to come forward are assessed in **Section 14.10** of this Chapter.

14.5.13 For the purposes of this assessment, the measured background and ambient sound levels measured in 2022 are assumed to be representative of the same during the Project's construction phase starting in 2026 (52 weeks), the operational phase (40 years) and the decommissioning phase (52 weeks). This can be considered conservative as it is likely that ambient noise levels will slowly increase over time.

Summary of Receptors and Sensitivity

14.5.14 **Table 14.12** presents a list of NSRs and their sensitivity including individual residential properties, schools and other community facilities around the Project. It is not reasonably possible to identify each residential receptor in the area and as such the identified NSRs are often representative of multiple nearby receptors. All locations of NSRs are shown on **ES Volume 3, Figure 14.1: Noise Sensitive Receptors (Doc Ref. 5.3)**.

14.5.15 **Table 14.12** identifies the NSRs by name and reference number, details their sensitivity and details the agreed indicative baseline noise monitoring location. All identified NSRs are of 'Category A' sensitivity with the exception of NSR 38 Park Wood Cottage which has a higher ambient noise level due to its proximity to the M20 and therefore is a 'Category B' sensitivity.

Table 14.12: Summary of NSR Sensitivity

Receptor ID	Name	Representative Monitoring Position	Sensitivity (Value)
Existing			
NSR 01	Spring Cottage	MP 01	Medium
NSR 02*	Walnut Farm	MP 01	Medium
NSR 03*	Jonquills	MP 01	Medium
NSR 04	Broadoak Lodge	MP 01	Medium
NSR 05**	Hotel Energy	MP 01	Medium
NSR 06**	Stonegreen Hall Farm (representing Mersham Sports Ground)	MP 01	Medium
NSR 07	Becketts Green	MP 01	Medium
NSR 08*	Broadbanks	MP 01	Medium
NSR 09	The Gables	MP 01	Medium
NSR 10	Stonelees	MP 02	Medium
NSR 11*	The Haven	MP 02	Medium
NSR 12	Shelwyn	MP 02	Medium
NSR 13	Haven Boarding Kennels and Cattery (abbreviated to 'Kennels' on **ES Volume 3, Figure 14.1**	MP 02	Medium

Receptor ID	Name	Representative Monitoring Position	Sensitivity (Value)
	(Doc Ref. 5.3) and subsequently throughout this Chapter)		
NSR 14	Red Barn Farm	MP 02	Medium
NSR 15	Little Gains Farm	MP 02	Medium
NSR 16	Goodwin Farm	MP 02	Medium
NSR 17	Cottesloe	MP 02	Medium
NSR 18	Quested Cottage	MP 02	Medium
NSR 19*	Bengeo	MP 02	Medium
NSR 20*	Sea Glympse	MP 02	Medium
NSR 21*	Aldington Primary School	MP 03	Medium
NSR 22	1 Church View	MP 03	Medium
NSR 23*	1 Goldwell Houses	MP 03	Medium
NSR 24	1 Cromwell Close (representing Aldington Village Hall)	MP 03	Medium
NSR 25	Aldington Eco Centre	MP 05	Medium
NSR 26	Goldwell Farm	MP 05	Medium
NSR 27	Springfield	MP 05	Medium
NSR 28	Calleywell Barn	MP 05	Medium
NSR 29	Little Goldwell Farm	MP 04	Medium
NSR 30	Wellside	MP 05	Medium
NSR 31*	Elmsvale	MP 04	Medium
NSR 32*	Willow Cottage	MP 04	Medium
NSR 33*	The Cottage	MP 04	Medium
NSR 34	Woodleas Farm	MP 04	Medium
NSR 35	The Old Cottage Lodge	MP 04	Medium

Receptor ID	Name	Representative Monitoring Position	Sensitivity (Value)
NSR 36	The Mill House	MP 06	Medium
NSR 37	The Byre	MP 06	Medium
NSR 38	Park Wood Cottage (Category B)	MP 07 – NEC B	Medium
NSR 39	Forehead Farm	MP 08	Medium
NSR 40**	Hogben Farm	MP 08	Medium
NSR 41	Handen Farm	MP 05	Medium
NSR 42	Backhouse Wood (Ancient Woodland)	MP 06	Medium
NSR 43	Woodleas Camping and Caravan Site	MP 04	Medium
NSR 44	Poulton Wood (Ancient Woodland)	MP 03	Medium
NSR 45	Handen Wood (Ancient Woodland)	MP 02	Medium
Future Receptors			
Cumulative	Little Goldwell Farm (NSR 29)	MP 04	Medium
Cumulative	Land North of Church View (NSR 22)	MP 03	Medium
Cumulative	Land South of Goldwell Court (MP25)	MP 05	Medium

Notes:

* A chosen receptor may be indicative of a number of nearby NSRs.

** An NSR which is located outside the 300m study area but included for robust assessment.

Public Rights of Way

14.5.16 A number of PRoWs cross the Site. **ES Volume 3, Figure 3.1: Existing Access Network (Doc Ref. 5.3)** shows the existing PRoW across the Site and in the surrounding area, as described in **ES Volume 2, Chapter 12: Socio-economics (Doc Ref. 5.2)** and **ES Volume 2, Chapter 13: Traffic and Access (Doc Ref. 5.2)**. The baseline noise level experienced by any users will change as they move along their chosen route. Table 14.12 provides a description of existing indicative ambient noise sources any user of these PRoWs would experience.

14.5.17 The PRoW itself would have no sensitivity to noise. Users of the PRoW would be temporary and transient and therefore their sensitivity would be Low.

14.6 Embedded Mitigation

Construction Phase

Construction Traffic

14.6.1 Vehicle access to the Site during the construction (and decommissioning) phases of the Project will be from Junction 10a of the M20 motorway, and then the A20 Hythe Road and C609/Station Road to the north of the Site to the Primary Site Access (at Field 25/26) where the Primary Construction Compounds will be located as shown on the **Works Plans (Doc Ref. 2.3)**. This route has been selected to minimise the distance from the M20 motorway to the Site, whilst avoiding impacts on human and ecological receptors and the centre of Aldington village. The routing of construction traffic will be secured by the **Outline CTMP (Doc Ref. 7.9)**.

14.6.2 An internal haulage road will be used to transport materials and construction workers from the Primary Construction Compounds to Fields across the Site, as shown on the **Works Plans (Doc Ref. 2.3)**. The internal haulage road has been sited away from NSRs as far as practicable. Use of the internal haulage road will limit impacts on NSRs on the local road network of construction traffic.

14.6.3 The location of the internal haulage road, Primary Construction Compounds and secondary construction compounds are shown on the **Works Plans (Doc Ref. 2.3).** Three of the four secondary construction compounds will be located on or adjacent to the internal haulage road which will connect to the Primary Construction Compounds, thereby limiting construction traffic on local roads to crossing points. The other secondary construction compound will be on the eastern side of Field 20 to facilitate construction of the PV Array in the South Eastern Area.

14.6.4 The **Outline CTMP (Doc Ref. 7.9)** includes measures to minimise impacts due to construction traffic. As part of this, consideration will be given to traffic routing, timing and access points to the Site to minimise noise impacts at existing receptors as detailed construction working methods are developed. Management of HGVs within the Site and being let onto the highway network will be managed through the detailed CTMP(s).

14.6.5 Noise from construction traffic related to the works for the Sellindge Substation Extension have been scoped out of the assessment. No receptors exist along the section of Church Lane between the A20 and Sellindge Substation entrance.

Construction Noise

14.6.6 Measures to control noise as defined in Annex B of BS 5228-1 and measures to control vibration as defined in Section 8 of BS 5228-2 will be adopted where reasonably practicable. These measures represent BPM and are included within the **Outline CEMP (Doc Ref. 7.8)**. Examples of BPM that will be implemented during the construction and secured through the **Outline CEMP (Doc Ref. 7.8)** are presented below:

Pre-Construction Measures:

- Implementing pre-construction processes and procedures to minimise noise throughout the Project duration.
- Ensuring contractors' familiarity with current legislation and BS 5228 guidelines before their appointment.

Noise and Vibration Control:

- Controlling noise and vibration at the source through methods like selecting quieter equipment and reviewing construction methodologies.
- Using modern, UK noise emission-compliant machinery and preferring hydraulic techniques over percussive ones where feasible.
- Minimising drop heights of materials and sequentially starting plant and vehicles.

Construction Strategies:

- Preferring off-site pre-fabrication when possible.
- Using local screening around noisy equipment and implementing quieter maintenance practices.
- Proper maintenance, silencing, and responsible operation of all construction machinery.

Works Management:

- Conducting vehicle movement and dismantling activities to minimise noise within specified limits.
- Using reversing warning devices instead of typical tonal alarms on site vehicles.
- Routing construction traffic on public roads and internal haulage road as per the **Outline CTMP (Doc Ref. 7.9)**.
- The effect of noise and vibration on nearby sensitive receptors can be minimised through a good communication strategy. Prior to construction works being undertaken, liaison will be undertaken with occupiers of sensitive receptors that may be adversely affected by construction noise and vibration.
- All communications will contain contact details to direct any questions or complaints to a Project representative.

Monitoring and Compliance:

- Monitoring noise complaints and ensuring immediate investigation and action.
- Specifying construction working hours for the Project.

Operational Guidelines:

- Avoiding unnecessary engine revving and switching off equipment when not in use.
- Adhering to manufacturers' recommendations while siting equipment away from noise-sensitive areas. Preferentially conducting loading and

unloading away from such areas.

14.6.7 Enhanced mitigation measures will be required as outlined below to ensure construction noise is reduced below the SOAEL for the individual NSR. These enhanced mitigation measures are secured in the **Outline CEMP (Doc Ref. 7.8)** for:

- Installation of the internal access tracks in Fields 17 and 18;
- Cable installation within 100m of NSR 7 (Becketts Green); and
- Cable installation on Goldwell Lane.

14.6.8 Such enhanced measures include, but are not limited to:

- Selection and appropriate use of low noise construction plant that may be different from the typical plant used for similar works elsewhere on the site.
- Targeted use of barrier attenuation to shield specific NSRs from noise.
- Targeted use of noise monitoring to track construction related noise levels during the working period with dedicated bespoke alarms set up to warn of potential breaches before they occur.
- Good communication between construction managers and residents / occupiers to give advanced notice of works, information about the reasons for the works and durations.
- Provision of contact numbers as part of communication to allow specific concerns during works to be addressed in a timely way.
- Where required, use of Section 61 applications to ABC to allow works to progress to agreed criteria in the event that SOAEL levels are likely to be exceeded, notwithstanding all mitigation measures and best practice detailed within the CEMP.

14.6.9 Construction activities are expected to be carried out during the following core hours:

- 08:00 – 18:00 hours on weekdays;
- 08:00 – 13:00 hours on Saturdays; and
- no working on Sundays or Bank Holidays.

14.6.10 Start-up and shut-down works will be undertaken before and after the core hours (i.e. 07:00 to 08:00 and 18:00 to 19:00 standard weekday hours and 07:00 to 08:00 and 13:00 to 14:00 standard Saturday hours) including:

- Arrival and departure of workforce on-Site;
- Deliveries and unloading;
- Site inspections, plant maintenance and safety checks; and
- Site clean-up.

14.6.11 The only identified exceptions to the above hours are in relation to:

- HDD works for Work No. 4 in the event that existing cable ducts are not

available under HS1 and new ducts are required which may require a 24-hour duration; and

- Delivery of abnormal loads, being the main transformer unit(s) to the Project Substation. The load(s) are likely to be classified as abnormal only due to weight with an escort vehicle provided if required.

14.6.12 The assessment relies on the above design implementation for construction works, primary mitigation and also the implementation and adherence of the measures included in the **Outline CEMP (Doc Ref. 7.8)**.

Operational Phase

14.6.13 The siting of infrastructure was informed by preliminary assessments of operational noise which were undertaken for the PEIR as outlined within **ES Volume 2, Chapter 5: Alternatives and Design Evolution (Doc Ref. 5.2)**.

14.6.14 The following design measures represent primary mitigation of relevance to the noise assessment, as secured by the **Works Plans (Doc Ref. 2.3)** and **Design Principles (Doc Ref. 7.5)**:

- The Project Substation has been located in the north of the Site, adjacent to HS1 and the mainline railway and towards the M20, a location where average background noise levels are highest at the Site and there are few NSRs (MP 07);
- Inverter Stations (including BESS Units) and Intermediate Substations are located throughout the Site, typically in the centre of PV Arrays and away from boundaries and NSRs. The combination of distributing infrastructure throughout the Site (to avoid cumulative noise impacts) and siting away from boundaries has been designed to minimise effects on NSRs;
- Acoustic barriers, with a maximum height of 4m AGL, will be provided around Inverter Stations as shown on the Illustrative Project Layout within **Illustrative Project Drawings - Not for Approval (Doc Ref. 2.6)** to further reduce any noise impacts. A suitably insulated gate will be provided over access stairways into the Inverter Station compounds to ensure that barriers are continuous and there is no gap in the noise model;
- Acoustic barriers, with a maximum height of 4m AGL, will be provided along the northern and eastern boundary of the Project Substation compound sited on each side of the metal palisade fence.
- Acoustic barriers will be of appropriate construction, with at least 15kg/m2 surface density for the lifetime of the Project, free from defects and designed to withstand weather conditions and time without warping or developing gaps as secured via the **Outline OMP (Doc Ref. 7.11)**. Maintenance of acoustic barriers once constructed is secured by the **Outline OMP (Doc Ref. 7.11)**; and
- PV panels will be mounted on fixed structures and will not include tracking capability.

14.6.15 The noise emissions modelled and assessed in this Chapter are inclusive of a 4m high noise barrier around all Inverter Stations and the northern and eastern

boundary of the Project Substation. The use of barriers around equipment allows for a reduction in noise of up to 6.7dB depending on the receptor and their proximity to the noise emitting plant.

14.6.16 The barriers are a typical form of noise mitigation in such situations and are an important part of the Project. This is considered to be the best practicable acoustic environment that can be provided in the context of sustainable development.

Decommissioning Phase

14.6.17 During the decommissioning phase, the disassembly of the Site and associated infrastructure will mirror the construction phase processes in reverse. During this process, the same access routes will be utilised (both to the Site and within the Site) and the same number of compounds are expected to be required.

14.6.18 As such embedded mitigation during the decommissioning phase will mirror that stated for the construction phase above**.** The **Outline DEMP (Doc Ref. 7.12)** and **Outline DTMP (Doc Ref 7.13)** contain similar mitigation measures to those listed above for construction. The detailed DEMP(s) and DTMP(s) will be prepared in accordance with these outline documents and will reflect the BPM methodology in use at that time. The **Outline DEMP (Doc Ref. 7.12)** and **Outline DTMP (Doc Ref. 7.13)** will guide the on-Site teams on best practices to ensure that noise is minimised as far as possible.

14.6.19 Enhanced mitigation measures, as outlined in **Paragraph 14.6.8** will be required for decommissioning activity in the locations below. These enhanced mitigation measures are secured in the **Outline DEMP (Doc Ref. 7.12)**.

- Removal of the internal access tracks in Fields 17 and 18;
- Removal of electrical cable within 100m of NSR 7 (Becketts Green);
- Removal of electrical cable on Goldwell Lane; and
- Removal of hardstanding and foundations for the Project Substation.

14.7 Assessment of Effects

Construction Phase

Construction Traffic (off-Site) Effects

14.7.1 The assessment of construction related traffic covers movement of Project related vehicles on the existing public highway, including the A20, Station Road, Goldwell Lane and Roman Road. Movements across other roads are not considered further as they will be temporary road crossings only. Traffic calculations are detailed in **ES Volume 4, Appendix 14.4: Traffic Flow Calculations (Doc Ref 5.4)**.

14.7.2 Construction traffic flows have been provided by the Prime Transport Planning Ltd. The methodology for determining flows is discussed in **ES Volume 2, Chapter 13: Traffic and Access (Doc Ref. 5.2)**, which describes and defines the links assessed. The assessment considers a worst-case scenario in 2026 by predicting the basic

noise level ('BNL') at an indicative distance of 10m from road links identified in the following scenarios:

- Do Minimum: 2026 Baseline + Cumulative Schemes
- Do Something: 2026 Baseline + Cumulative Schemes + Construction Peak

14.7.3 The magnitude of impact is determined by the level change when comparing the two scenarios, with reference to **Table 14.6 Magnitude of Impact – Construction and Decommissioning Traffic** of this Chapter. **Table 14.13** shows the construction traffic data and the predicted BNL from construction traffic noise. All traffic data is inclusive of predicted flows associated with identified cumulative schemes.

14.7.4 Construction traffic noise related to the works at Sellindge Substation, i.e. additional traffic flows on Church Lane between the A20 and substation entrance, has been scoped out of further assessment. The predicted flow, robustly estimated to generate 20 movements per day, is split between HGV and LGV. The anticipated increase in traffic flow is less than 5% in either direction. Considering the location of this road link, close to the A20 and crossing the line of the M20, the change in road traffic noise to any nearby receptor will be less than 1.0dB, which is a Very Low magnitude of impact and a **Negligible** effect (not significant) at a receptor of Medium sensitivity.

Table 14.13: Construction Traffic Noise Assessment

Link	2026 Do Nothing		2026 With Development		Difference (dB)	Impact Magnitude
	AAWT flow	Basic Noise Level (dB)	AAWT flow	Basic Noise Level (dB)		
Link 1: Station Road (south of Hythe Road)	4,348	63.4	4,513	63.9	+0.5	Very Low
Link 2: Station Road (South of Railway)*	3,065	61.6	3,230	62.2	+0.6	Very Low
Link 3: Station Road (North of Calleywell Lane)*	3,044	60.9	3,059	60.9	+0.0	Very Low
Link 4: Goldwell Lane (South of Calleywell Lane)*	1,061	57.1	1,077	57.2	+0.2	Very Low
Link 5: Goldwell Lane (North of Roman Road)*	1,028	57.3	1,043	57.4	+0.1	Very Low
Link 6: Roman Road**	-	-	-	-	-	-
Link 7: A20 (near Hatch Park)	12,377	73.2	12,543	73.3	+0.1	Very Low

* Calculation undertaken with Low Flow Correction as flow <4,000 AAWT_18h.

** Construction traffic crosses Roman Road and will not add to the flow therefore no assessment of traffic noise change.

14.7.5 The data in **Table 14.13** is an indicative level difference at a distance of 10m from the road link. The level difference indicated will be representative for all sensitive receptors in the 50m study area either side of the identified road links in line with DMRB guidance.

14.7.6 The data in **Table 14.13** shows that when traffic noise with the Project's construction stage flows is compared to future baseline (2026) traffic noise, all receptors within 50m of the road network (all of which are Medium sensitivity), will be below +1dB change which is a Very Low magnitude of impact on all assessed links. This will be a direct, adverse, short term and temporary effect, which is of **Negligible** significance (not significant).

14.7.7 In relation to the delivery of the 132kV main transformer unit(s), in the event that a main transformer unit(s) for the Project Substation necessitates delivery out of a core hours list within **paragraph 14.4.16** above, the effect will be a direct, adverse, short term and temporary effect, and **not significant**. The load(s) are likely to be classified as abnormal only due to weight with an escort vehicle provided if required, and as such a single HGV movement to and from the Site would not result in any material change to the sound levels on the road network.

Construction Noise

14.7.8 Construction activities within the Site can be divided into the key activities shown in **Table 14.14** which align to the description of the Works set out in Schedule 1 of the **Draft Development Consent Order (Doc Ref 3.1)**.

14.7.9 **ES Volume 4, Appendix 14.5: Construction Phase Plant List (Doc Ref. 5.4)** details the plant list assumptions. Whilst exact working methods, plant schedules and locations will be finalised at detailed design stage, estimates are provided below based on reasonable worst-case assumptions.

14.7.10 Of the works packages listed in **Table 14.14** of this Chapter, only HDD in relation to Work No. 4 would likely be undertaken outside of standard daytime construction hours (08:00 – 18:00). HDD under Work No. 4 would be required in the event that existing cable ducts under HS1 and the Network Railway lines cannot be used and it is necessary to install new cable ducts. The closest NSR, located on Church Lane, is over 300m away from these potential HDD works and therefore no significant effects are considered likely.

14.7.11 **Table 14.14** shows the distance from each works package that each magnitude of impact would begin with reference to **Table 14.7** (magnitude of impact). Receptors within this stated distance would receive the corresponding magnitude of impact before any enhanced mitigation measures are implemented. Receptors outside the stated distance for a Low magnitude of impact would receive a Very Low impact (i.e. negligible impact). The distances below assume all receptors are Category A. A discussion on the Category B receptor (NSR 38, Park Wood Cottage) is included below **Table 14.15**.

14.7.12 **Table 14.15** shows the number of NSRs within each zone of impact (i.e. High, Medium and Low). Where a receptor is accounted for in a High or Medium zone of impact, it is not counted in lower zones of impact.

Table 14.14: Construction Assessment – Zone of Impact from Works (metres)

Work No. (Period)		High Impact 70dB $L_{Aeq,12h}$ m	Medium Impact 65dB $L_{Aeq,12h}$ m	Low Impact 60dB $L_{Aeq,12h}$ m
Work No. (Daytime)				
1	**Ground mounted solar photovoltaic generating station**			
1.1	PV panel installation	10	20	40
2	**Balance of system and BESS**			
2.1	Inverter Stations (including BESS)	50	75	115
2.2	Intermediate Substations	40	65	100
3	**Project Substation**			
3.1	Enabling	35	55	85
3.2	Piling	45	70	110
3.3	Civils	35	60	95
3.4	Construction	30	45	75
4	**Sellindge Substation Connection**			
4.1	132kV Cable from Project Substation	10	25	45
4.2	132kV Cable Connection into Sellindge Substation	10	25	45

Work No. (Period)		High Impact 70dB $L_{Aeq,12h}$ m	Medium Impact 65dB $L_{Aeq,12h}$ m	Low Impact 60dB $L_{Aeq,12h}$ m
4.3	HDD works (below HS1 if required)	20	30	50
5	**Associated Works**			
5.1	Trenching (field)	10	25	45
5.2	Cable install (field)	10	20	45
5.3	HDD works	20	30	50
5.4	Internal access tracks	35	60	105
5.5	Cable install - Goldwell Lane (trenching and backfill)	25	40	65
5.6	Cable install - Goldwell Lane (compaction and paving)	30	45	75
6	**Site Access – no noise emitting components**			
7	**Construction and Decommissioning Works**			
7.1	Temporary internal haulage road - installation	5	15	40
7.2	Temporary internal haulage road – use	5	15	40
7.3	Field 25 and 26 Primary Construction Compounds	-	-	10
7.4	Field 8/9 Secondary Construction Compound	-	5	15
7.5	Field 19 Secondary Construction Compound	-	5	10
7.6	Field 20 Secondary Construction Compound	-	-	5

Work No. (Period)		High Impact 70dB $L_{Aeq,12h}$ m	Medium Impact 65dB $L_{Aeq,12h}$ m	Low Impact 60dB $L_{Aeq,12h}$ m
7.7	Field 23 Secondary Construction Compound	-	5	15
8	**Green infrastructure and boundary treatment – no noise elements**			
Work No. (Evening)				
4.3	HDD works (below HS1 if required)	50	75	120
Work No. (Night)				
4.3	HDD works (below HS1 if required)	120	190	240

Table 14.15: Construction Assessment – Number of NSRs within each magnitude of impact zone

Work No. (Period)		High Impact 70dB $L_{Aeq,12h}$	Medium Impact 65dB $L_{Aeq,12h}$	Low Impact 60dB $L_{Aeq,12h}$
Work No. (Daytime)				
1	**Ground mounted solar photovoltaic generating station**			
1.1	PV panel installation	0	0	8
2	**Balance of system and BESS**			
2.1	Inverter Stations (including BESS)	0	0	0
2.2	Intermediate Substations	0	0	0

Work No. (Period)		High Impact 70dB $L_{Aeq,12h}$	Medium Impact 65dB $L_{Aeq,12h}$	Low Impact 60dB $L_{Aeq,12h}$
3	**Project Substation**			
3.1	Enabling	0	0	0*
3.2	Piling	0	0	0*
3.3	Civils	0	0	0*
3.4	Construction	0	0	0*
4	**Sellindge Substation Connection**			
4.1	132kV Cable from Project Substation	0	0	0
4.2	132kV Cable Connection into Sellindge Substation	0	0	0
4.3	HDD works (below HS1 if required)	0	0	0
5	**Associated Works**			
5.1	Trenching (field)	0	1	8
5.2	Cable install (field)	0	0	8
5.3	HDD works	0	0	0
5.4	Internal access tracks	2	5	10
5.5	Cable install - Goldwell Lane (trenching and backfill)	6	2	0
5.6	Cable install - Goldwell Lane (compaction and paving)	6	2	0

Work No. (Period)		High Impact 70dB $L_{Aeq,12h}$	Medium Impact 65dB $L_{Aeq,12h}$	Low Impact 60dB $L_{Aeq,12h}$
6	**Site Access – no noise emitting components**			
7	**Construction and Decommissioning Works**			
7.1	Temporary internal haulage road - installation	0	0	2
7.2	Temporary internal haulage road - use	0	0	2
7.3	Fields 25 and 26 Primary Construction Compounds	0	0	0
7.4	Field 8/9 Secondary Construction Compound	0	0	0
7.5	Field 19 Secondary Construction Compound	0	0	0
7.6	Field 20 Secondary Construction Compound	0	0	0
7.7	Field 23 Secondary Construction Compound	0	0	0
8	**Green Infrastructure and boundary treatments – no noise elements**			
Work No. (Evening / Night)				
4.3	HDD works (below HS1 if required)	0	0	0

*NSR 38, Park Cottage is approximately 85m from the proposed Works No.3. The NSR is classed in NEC B and therefore a Low impact would occur at noise levels above 65dB $L_{Aeq,T}$. The effect at the NSR is predicted to be **Negligible**.

14.7.13 Construction plant lists are detailed in **ES Volume 4, Appendix 14.5: Construction Phase Plant List (Dec. Ref. 5.4)**. The assessment shows that construction noise from on-site activities during the following works will have an impact magnitude on NSRs above Very Low, i.e. exceeding LOAEL:

- Work No. 1 – Ground mounted solar photovoltaic generating station;
- Work No. 5 – Associated works; and
- Work No. 7 – Construction and decommissioning works.

14.7.14 Where LOAEL is exceeded, the effects are described further below for each Work No. Where not noted below the impact magnitude on NSRs is considered to be Very Low, resulting in a Negligible (not significant) effect and therefore is not considered further.

14.7.15 The analysis below assumes that all embedded mitigation measures secured in the **Outline CEMP (Doc Ref. 7.8)** are implemented. This includes enhanced mitigation measures as required to reduce the magnitude of a potential impact from High/Medium to Low.

Work No. 1 – Solar PV Generating Station (PV panel installation)

14.7.16 Installation of the PV panels will result in the following impacts:

- A low magnitude of impact at NSR 8, NSR 9, NSR 30, NSR 31, NSR 32, NSR 34, NSR 35 and NSR 41 during PV panel installation. The noise effect will be **Minor adverse** (not significant).

Work No. 5 – Associated Works

14.7.17 Installation of the cables around the PV panels and construction of internal access tracks will result in the following impacts:

- The installation of the internal access road will result in a low magnitude of impact at NSR 7, NSR 8, NSR 9, NSR 30, NSR 32, NSR 35 and NSR 36. The effect will be **Minor adverse** (not significant).
- Trenching and cable installation will result in a low magnitude of impact at NSR 7, NSR 8, NSR 9, NSR 30, NSR 31, NSR 32, NSR 34, NSR 35 and NSR 41. The effect will be **Minor adverse** (not significant).

14.7.18 Installation of the cables in the road along Goldwell Lane will result in the following impacts during the trenching, backfill compaction and paving works:

- A low magnitude of impact at NSR 24, NSR 25, NSR 26, NSR 27, NSR 28, NSR 29, NSR 34 and NSR 43**.** The effect will be **Minor adverse** (not significant) as a worst case.

Work No. 7 – Construction and Decommissioning Works

- Low magnitude of impact at NSR 32 and NSR 35, during the construction and use of the temporary haulage road. The noise effect during this phase will be **Minor adverse** (not significant).

14.7.19 All above stated impacts relate to transient operations and therefore comprise temporary, short term duration impacts which are unlikely to take place at the same time and therefore temporary impacts in proximity to any individual receptor.

Construction Activity Effects - PRoW

14.7.20 Users of any PRoW crossing the Site may experience construction noise as they move throughout the PRoW network. Due to the transitory nature of both the user and the construction plant on the Site, it is unlikely that users will experience levels of construction related noise for prolonged periods that will be above the level of the residual environment.

14.7.21 At other times, construction related noise may be noticeable as impulsive events depending on the stage of construction being undertaken, such as piling, excavating or construction of electrical components.

14.7.22 It is not expected that there will be any risk to hearing due to the works for people using the PRoW network. For a risk to hearing to be a consideration, an individual would need to be exposed to noise above 80dB for an 8-hour day, or exposed to an L_{Cpeak} of 135dB (the lower exposure action value in the Control of Noise at Work Regulations 2005). This would not occur to any transient PRoW user. Any machine capable of noise emissions in the region of 135dB would not be utilised on the Site and any failure of a mechanical nature resulting in a high noise event should be removed from the Site immediately for repair. These measures are secured through the **Outline CEMP (Doc Ref. 7.8).**

14.7.23 New infrastructure at Sellindge Substation is over 300m from the nearest sensitive receptor off Hythe Road, which is in a high baseline noise environment close to the A20 and M20. The impact of noise from construction and installation of the infrastructure at Sellindge Substation will be Very Low and the effect is **Negligible** (not significant).

14.7.24 Whilst construction noise will be evident and occasionally noticeable for users of the PRoW network in the area, the anticipated levels will not result in prolonged impact along an individual route, and the transitory nature of the works will ensure no single PRoW is consistently exposed to construction noise for an extended period. The anticipated duration of the construction works is 12 months.

14.7.25 A qualitative assessment of the impacts on amenity of PRoW users is included in **ES Volume 2, Chapter 12: Socio-Economics (Doc Ref. 5.2)**. It is considered that from a noise perspective, the sensitivity of PRoW users will be Low and any magnitude of impact would also be Low. The effect is therefore considered **Negligible** (not significant).

Construction Effects – Future Baseline

14.7.26 The ambient sound levels in the area are highly unlikely to change sufficiently by the start of the construction works to require an adjustment in the threshold of significant effect (SOAEL). As such the assessment is considered worst case and representative of the ambient conditions during construction.

Operational Phase

14.7.27 The operational phase of the Project will include PV panels which connect into the Inverter Stations. Each Inverter Station will contain electrical infrastructure including inverters, transformers and switchgear which, together, allow the electricity generated by the PV panels to be inverted and then exported to an Intermediate Substation.

14.7.28 BESS Units are expected to be located at all Inverter Stations with the exception of those located in Field 9 and in Fields 20 to 22. Up to four BESS Units will be located at any one Inverter Station, with a maximum of two Inverter Stations (and therefore eight units) being located in any one area of the Site.

14.7.29 The BESS units will each have associated HVAC systems. For the purposes of this assessment a worst case has been assumed where each BESS Unit has four HVAC units on the sides of the BESS Unit container.

14.7.30 Intermediate Substations will be located within Fields 3, 15, 20 and 26.

14.7.31 The Project Substation is located in Field 26 and will contain up to two 132kV transformers. To the east of the Project Substation, the Grid Connection Cable connects the Project to Sellindge Substation.

14.7.32 New infrastructure at Sellindge Substation is over 300m from the nearest sensitive residential (medium sensitivity) receptor. The impact of noise from appropriately installed infrastructure at this receptor will be Very Low and the effect is therefore **Negligible** (not significant).

14.7.33 A BS4142 assessment has been undertaken for each of the identified NSR locations for each of the identified time periods:

- Daytime / Light 07:00 – 20:45;
- Daytime / Dark 20:45 – 23:00;
- Night-time / Dark 23:00 – 05:00; and
- Night-time / Light 05:00 – 07:00.

14.7.34 Daytime and night-time assessment is undertaken with reference to BS4142 with daytime assessment for a 1-hour period and night-time assessment over a 15-minute period.

14.7.35 For the purposes of this assessment, daytime noise levels have been predicted at a height of 1.5m above ground level, representing a garden or ground floor living areas (shown graphically on **ES Volume 3, Figure 14.3 (Doc Ref. 5.3)**). The night-time assessment has been undertaken using predicted noise levels at a height of 4m above ground level, representing a bedroom window (shown graphically on **ES Volume 3, Figure 14.4 (Doc Ref. 5.3)**).

14.7.36 Predictions of specific noise levels have been made using 3D computer noise modelling software. Modelling results are tabulated in **Table 14.16** and **Table 14.17**.

14.7.37 The noise modelling assumes typical emissions from plant operating in ambient temperatures of 20°C. A discussion at higher temperatures is provided at **Paragraphs 14.7.66 to 14.7.78** of this Chapter.

14.7.38 Manufacturer of electrical equipment is designed to be free from tones, intermittency and impulsive characteristics as a standard practice. However, noise from the electrical infrastructure within the Project will potentially be noticeable above the residual environment, and as such to account for a worst case, a +3dB character rating penalty will be applied.

14.7.39 An initial assessment for each time period is tabulated in **ES Volume 4, Appendix 14.6: Assessment Data and Hot Weather Assessment (Doc. Ref. 5.4)** and is summarised in **Paragraphs 14.7.66** to **14.7.78** of this Chapter. Where the judgement of the initial assessment requires adjustment due to the context of the noise, this is discussed for each NSR as required.

14.7.40 Where the rating noise level ($L_{Ar,Tr}$) exceeds the background noise level ($L_{A90,T}$), this is an exceedance of the LOAEL and a Low impact. Below the LOAEL the impact is Very Low. Where the rating noise level ($L_{Ar,Tr}$) exceeds the background noise level ($L_{A90,T}$) + 5dB, this is an exceedance of the SOAEL and a Medium impact. An exceedance above the SOAEL of 5dB is considered a High impact.

14.7.41 The assessment assumes that the plant is operating in its typical configuration at 30% load. As the Project can export energy via the BESS during the conditions of darkness, it is assumed all plant operates for the entire of the assessment period, 1 hour during the day (07:00 – 23:00) and 15 minutes at night (23:00 – 07:00). There will be periods when the Site is not generating energy or exporting and therefore the assessment is a worst-case situation.

14.7.42 Noise values for equipment at each Inverter Station operating at a 30% load have been assumed as follows:

- Battery Container (HVAC) x 4 46dB @ 10m
- Inverter x 1 62dB @ 10m
- DC-DC Converter x 4 47dB @ 10m

14.7.43 **Table 14.16** and **Table 14.17** of this Chapter show the predicted noise levels for Light and Dark conditions respectively and provide an initial indication of the magnitude of impact. This impact may be further adjusted when context is considered following the initial assessment tabulated below. **Table 14.16** and **Table 14.17** also include the attenuation afforded by the proposed acoustic barriers at each NSR location, as provided by the Embedded Mitigation.

14.7.44 Daytime is taken to be between the hours of 07:00 and 23:00 as determined in BS4142.

14.7.45 Night-time is taken to be between the hours of 23:00 and 07:00 as determined in BS4142.

14.7.46 It is well recognised that in the UK the hours of darkness and light do not match the above hours for day and night. As such the following tables consider the four possible scenarios (daytime and night time during the hours of light and daytime and night time during the hours of darkness).

14.7.47 **Table 14.16** considers the period of daylight, including in the early summer months when daylight can start between 04:00 and 07:00 which are considered night-time. The differing ambient background sound levels measured at these times are included in the assessment.

14.7.48 **Table 14.17** considers the period of darkness which starts before 23:00 which is considered daytime and follows through into the night-time.

Stonestreet Green Solar

Table 14.16: Summary of Initial Impact Assessment – Light Conditions

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
1	Spring Cottage	Day	4	35	35/40	27	30	-5	Very Low
1	Spring Cottage	Night	4	37	37/42	30	33	-4	Very Low
2	Walnut Farm	Day	4.2	35	35/40	22	25	-10	Very Low
2	Walnut Farm	Night	4.2	37	37/42	24	27	-10	Very Low
3	Jonquills	Day	3.8	35	35/40	21	24	-11	Very Low
3	Jonquills	Night	3.8	37	37/42	24	27	-10	Very Low
4	Broadoak Lodge	Day	3.2	35	35/40	24	27	-8	Very Low
4	Broadoak Lodge	Night	3.2	37	37/42	25	28	-9	Very Low
5	Hotel Energy	Day	1.8	35	35/40	22	25	-10	Very Low
5	Hotel Energy	Night	1.8	37	37/42	23	26	-11	Very Low
6	Stonegreen Hall Farm	Day	1.9	35	35/40	21	24	-11	Very Low
6	Stonegreen Hall Farm	Night	1.9	37	37/42	23	26	-11	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
7	Becketts Green North	Day	2	35	35/40	29	32	-3	Very Low
7	Becketts Green North	Night	2	37	37/42	32	35	-2	Very Low
7	Becketts Green South	Day	6.7	35	35/40	27	30	-5	Very Low
7	Becketts Green South	Night	6.7	37	37/42	30	33	-4	Very Low
8	Broadbanks	Day	2	35	35/40	24	27	-8	Very Low
8	Broadbanks	Night	2	37	37/42	27	30	-7	Very Low
9	The Gables	Day	2.3	35	35/40	23	26	-9	Very Low
9	The Gables	Night	2.3	37	37/42	25	28	-9	Very Low
10	Stonelees	Day	2.4	37	37/42	28	31	-6	Very Low
10	Stonelees	Night	2.4	37	37/42	30	33	-4	Very Low
11	The Haven	Day	3.7	37	37/42	26	29	-8	Very Low
11	The Haven	Night	3.7	37	37/42	28	31	-6	Very Low
12	Shelwyn	Day	1.1	37	37/42	21	24	-13	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
12	Shelwyn	Night	1.1	37	37/42	22	25	-12	Very Low
13	Kennels	Day	3.2	37	37/42	29	32	-5	Very Low
13	Kennels	Night	3.2	37	37/42	31	34	-3	Very Low
14	Redbarn Farm	Day	1.5	37	37/42	24	27	-10	Very Low
14	Redbarn Farm	Night	1.5	37	37/42	26	29	-8	Very Low
15	Little Gains Farm	Day	2.1	37	37/42	26	29	-8	Very Low
15	Little Gains Farm	Night	2.1	37	37/42	28	31	-6	Very Low
16	Goodwin Farm	Day	4	37	37/42	23	26	-11	Very Low
16	Goodwin Farm	Night	4	37	37/42	27	30	-7	Very Low
17	Cottesloe	Day	3.7	37	37/42	24	27	-10	Very Low
17	Cottesloe	Night	3.7	37	37/42	26	29	-8	Very Low
18	Quested Cottage	Day	2.7	37	37/42	21	24	-13	Very Low
18	Quested Cottage	Night	2.7	37	37/42	25	28	-9	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
19	Bengeo	Day	3.3	37	37/42	22	25	-12	Very Low
19	Bengeo	Night	3.3	37	37/42	25	28	-9	Very Low
20	Sea Glympse	Day	3.5	37	37/42	23	26	-11	Very Low
20	Sea Glympse	Night	3.5	37	37/42	27	30	-7	Very Low
21	Aldington Primary School	Day	2.6	36	36/41	14	17	-19	Very Low
21	Aldington Primary School	Night	2.6	35	35/40	17	20	-15	Very Low
22	1 Church View	Day	4.5	36	36/41	14	17	-19	Very Low
22	1 Church View	Night	4.5	35	35/40	17	20	-15	Very Low
23	1 Goldwell Houses	Day	3.4	36	36/41	15	18	-18	Very Low
23	1 Goldwell Houses	Night	3.4	35	35/40	18	21	-14	Very Low
24	1 Cromwell Close	Day	4.6	36	36/41	15	18	-18	Very Low
24	1 Cromwell Close	Night	4.6	35	35/40	18	21	-14	Very Low
25	Aldington Eco Centre	Day	4.7	33	33/38	16	19	-14	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
25	Aldington Eco Centre	Night	4.7	32	32/37	17	20	-12	Very Low
26	Goldwell Farm	Day	5.7	33	33/38	17	20	-13	Very Low
26	Goldwell Farm	Night	5.7	32	32/37	20	23	-9	Very Low
27	Springfield	Day	2.8	33	33/38	16	19	-14	Very Low
27	Springfield	Night	2.8	32	32/37	17	20	-12	Very Low
28	Calleywell Barn	Day	4.7	33	33/38	14	17	-16	Very Low
28	Calleywell Barn	Night	4.7	32	32/37	17	20	-12	Very Low
29	Little Goldwell Farm	Day	2	38	38/43	16	19	-19	Very Low
29	Little Goldwell Farm	Night	2	38	38/43	18	21	-17	Very Low
30	Wellside	Day	0.6	33	33/38	28	31	-2	Very Low
30	Wellside	Night	0.6	32	32/37	30	33	1	Low
31	Elmsvale	Day	5.3	38	38/43	26	29	-9	Very Low
31	Elmsvale	Night	5.3	38	38/43	28	31	-7	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
32	Willow Cottage	Day	5.4	38	38/43	27	30	-8	Very Low
32	Willow Cottage	Night	5.4	38	38/43	28	31	-7	Very Low
33	The Cottage	Day	4.9	38	38/43	27	30	-8	Very Low
33	The Cottage	Night	4.9	38	38/43	28	31	-7	Very Low
34	Woodleas Farm	Day	2.9	38	38/43	23	26	-12	Very Low
34	Woodleas Farm	Night	2.9	38	38/43	24	27	-11	Very Low
35	The Old Cottage Lodge	Day	5.8	38	38/43	24	27	-11	Very Low
35	The Old Cottage Lodge	Night	5.8	38	38/43	27	30	-8	Very Low
36	The Mill House	Day	5.2	40	40/45	19	22	-18	Very Low
36	The Mill House	Night	5.2	43	43/48	21	24	-19	Very Low
37	The Byre	Day	1.7	40	40/45	24	27	-13	Very Low
37	The Byre	Night	1.7	43	43/48	26	29	-14	Very Low
38	Park Wood Cottage	Day	0.6	39	39/44	18	21	-18	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
38	Park Wood Cottage	Night	0.6	30	30/35	19	22	-8	Very Low
39	Forehead Farm	Day	2.4	32	32/37	15	18	-14	Very Low
39	Forehead Farm	Night	2.4	24	24/29	16	19	-5	Very Low
40	Hogben Farm	Day	4.7	32	32/37	15	18	-14	Very Low
40	Hogben Farm	Night	4.7	24	24/29	17	20	-4	Very Low
41	Handen Farm A	Day	1.9	33	33/38	29	32	-1	Very Low
41	Handen Farm A	Night	1.9	32	32/37	30	33	1	Low
41	Handen Farm B	Day	3	33	33/38	27	30	-3	Very Low
41	Handen Farm B	Night	3	32	32/37	30	33	1	Low
41	Handen Farm C	Day	1.2	33	33/38	31	34	1	Low
41	Handen Farm C	Night	1.2	32	32/37	32	35	3	Low
41	Handen Farm D	Day	2.6	33	33/38	21	24	-9	Very Low
41	Handen Farm D	Night	2.6	32	32/37	25	28	-4	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB LA90,T	LOAEL / SOAEL dB	Predicted Specific Level dB LAeq,T LAr,Tr	Predicted Rating Level LAr,Tr	Difference (Rating – Background	Impact Magnitude
42	Backhouse Wood	Day	*	40	40/45	21	24	-16	Very Low
42	Backhouse Wood	Night	*	43	43/48	23	26	-17	Very Low
43	Woodleas Camping	Day	2.9	38	38/43	22	25	-13	Very Low
43	Woodleas Camping	Night	2.9	38	38/43	23	26	-12	Very Low
44	Poulton Wood	Day	*	36	36/41	17	20	-16	Very Low
44	Poulton Wood	Night	*	35	35/40	18	21	-14	Very Low
45	Handen Wood	Day	*	37	37/42	20	23	-14	Very Low
45	Handen Wood	Night	*	37	37/42	23	26	-11	Very Low

*Barrier attenuation has not been calculated as these are woodland NSRs and are below background noise levels.

Table 14.17: Summary of Initial Impact Assessment – Dark Conditions

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
1	Spring Cottage	Day	4	27	27/32	27	30	3	Low
1	Spring Cottage	Night	4	24	24/29	30	33	9	Medium
2	Walnut Farm	Day	4.2	27	27/32	22	25	-2	Very Low
2	Walnut Farm	Night	4.2	24	24/29	24	27	3	Low
3	Jonquills	Day	3.8	27	27/32	21	24	-3	Very Low
3	Jonquills	Night	3.8	24	24/29	24	27	3	Low
4	Broadoak Lodge	Day	3.2	27	27/32	24	27	0	Very Low
4	Broadoak Lodge	Night	3.2	24	24/29	25	28	4	Low
5	Hotel Energy	Day	1.8	27	27/32	22	25	-2	Very Low
5	Hotel Energy	Night	1.8	24	24/29	23	26	2	Low
6	Stonegreen Hall Farm	Day	1.9	27	27/32	21	24	-3	Very Low
6	Stonegreen Hall Farm	Night	1.9	24	24/29	23	26	2	Low
7	Becketts Green North	Day	2	27	27/32	29	32	5	Medium
7	Becketts Green North	Night	2	24	24/29	32	35	11	High

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
7	Becketts Green South	Day	6.7	27	27/32	27	30	3	Low
7	Becketts Green South	Night	6.7	24	24/29	30	33	9	Medium
8	Broadbanks	Day	2	27	27/32	24	27	0	Very Low
8	Broadbanks	Night	2	24	24/29	27	30	6	Medium
9	The Gables	Day	2.3	27	27/32	23	26	-1	Very Low
9	The Gables	Night	2.3	24	24/29	25	28	4	Low
10	Stonelees	Day	2.4	25	25/30	28	31	6	Medium
10	Stonelees	Night	2.4	24	24/29	30	33	9	Medium
11	The Haven	Day	3.7	25	25/30	26	29	4	Low
11	The Haven	Night	3.7	24	24/29	28	31	7	Medium
12	Shelwyn	Day	1.1	25	25/30	21	24	-1	Very Low
12	Shelwyn	Night	1.1	24	24/29	22	25	1	Low
13	Kennels	Day	3.2	25	25/30	29	32	7	Medium
13	Kennels	Night	3.2	24	24/29	31	34	10	High

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
14	Red barn Farm	Day	1.5	25	25/30	24	27	2	Low
14	Redbarn Farm	Night	1.5	24	24/29	26	29	5	Low
15	Little Gains Farm	Day	2.1	25	25/30	26	29	4	Low
15	Little Gains Farm	Night	2.1	24	24/29	28	31	7	Medium
16	Goodwin Farm	Day	4	25	25/30	23	26	1	Low
16	Goodwin Farm	Night	4	24	24/29	27	30	6	Medium
17	Cottesloe	Day	3.7	25	25/30	24	27	2	Low
17	Cottesloe	Night	3.7	24	24/29	26	29	5	Medium
18	Quested Cottage	Day	2.7	25	25/30	21	24	-1	Very Low
18	Quested Cottage	Night	2.7	24	24/29	25	28	4	Low
19	Bengeo	Day	3.3	25	25/30	22	25	0	Very Low
19	Bengeo	Night	3.3	24	24/29	25	28	4	Low
20	Sea Glympse	Day	3.5	25	25/30	23	26	1	Low
20	Sea Glympse	Night	3.5	24	24/29	27	30	6	Medium

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
21	Aldington Primary School	Day	2.6	27	27/32	14	17	-10	Very Low
21	Aldington Primary School	Night	2.6	26	26/31	17	20	-6	Very Low
22	1 Church View	Day	4.5	27	27/32	14	17	-10	Very Low
22	1 Church View	Night	4.5	26	26/31	17	20	-6	Very Low
23	1 Goldwell Houses	Day	3.4	27	27/32	15	18	-9	Very Low
23	1 Goldwell Houses	Night	3.4	26	26/31	18	21	-5	Very Low
24	1 Cromwell Close	Day	4.6	27	27/32	15	18	-9	Very Low
24	1 Cromwell Close	Night	4.6	26	26/31	18	21	-5	Very Low
25	Aldington Eco Centre	Day	4.7	31	31/36	16	19	-12	Very Low
25	Aldington Eco Centre	Night	4.7	26	26/31	17	20	-6	Very Low
26	Goldwell Farm	Day	5.7	31	31/36	17	20	-11	Very Low
26	Goldwell Farm	Night	5.7	26	26/31	20	23	-3	Very Low
27	Springfield	Day	2.8	31	31/36	16	19	-12	Very Low
27	Springfield	Night	2.8	26	26/31	17	20	-6	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
28	Calleywell Barn	Day	4.7	31	31/36	14	17	-14	Very Low
28	Calleywell Barn	Night	4.7	26	26/31	17	20	-6	Very Low
29	Little Goldwell Farm	Day	2	34	34/39	16	19	-15	Very Low
29	Little Goldwell Farm	Night	2	34	34/39	18	21	-13	Very Low
30	Wellside	Day	0.6	31	31/36	28	31	0	Very Low
30	Wellside	Night	0.6	26	26/31	30	33	7	Medium
31	Elmsvale	Day	5.3	34	34/39	26	29	-5	Very Low
31	Elmsvale	Night	5.3	34	34/39	28	31	-3	Very Low
32	Willow Cottage	Day	5.4	34	34/39	27	30	-4	Very Low
32	Willow Cottage	Night	5.4	34	34/39	28	31	-3	Very Low
33	The Cottage	Day	4.9	34	34/39	27	30	-4	Very Low
33	The Cottage	Night	4.9	34	34/39	28	31	-3	Very Low
34	Woodleas Farm	Day	2.9	34	34/39	23	26	-8	Very Low
34	Woodleas Farm	Night	2.9	34	34/39	24	27	-7	Very Low
35	The Old Cottage Lodge	Day	5.8	34	34/39	24	27	-7	Very Low

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
35	The Old Cottage Lodge	Night	5.8	34	34/39	27	30	-4	Very Low
36	The Mill House	Day	5.2	36	36/41	19	22	-14	Very Low
36	The Mill House	Night	5.2	32	32/37	21	24	-8	Very Low
37	The Byre	Day	1.7	36	36/41	24	27	-9	Very Low
37	The Byre	Night	1.7	32	32/37	26	29	-3	Very Low
38	Park Wood Cottage	Day	0.6		No assessment as no baseline data – assume same as night				
38	Park Wood Cottage	Night	0.6	29	29/34	19	22	-7	Very Low
39	Forehead Farm	Day	2.4		No assessment as no baseline data – assume same as night				
39	Forehead Farm	Night	2.4	25	25/30	16	19	-6	Very Low
40	Hogben Farm	Day	4.7		No assessment as no baseline data – assume same as night				
40	Hogben Farm	Night	4.7	25	25/30	17	20	-5	Very Low
41	Handen Farm A	Day	1.9	31	31/36	29	32	1	Low
41	Handen Farm A	Night	1.9	26	26/31	30	33	7	Medium
41	Handen Farm B	Day	3	31	31/36	27	30	-1	Very Low
41	Handen Farm B	Night	3	26	26/31	30	33	7	Medium

NSR	Receptor	Day / Night	Barrier Attenuation dB	Background Level dB $L_{A90,T}$	LOAEL / SOAEL dB	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level L_{arr}	Difference (Rating – Background) dB	Impact Magnitude
41	Handen Farm C	Day	1.2	31	31/36	31	34	3	Low
41	Handen Farm C	Night	1.2	26	26/31	32	35	9	Medium
41	Handen Farm D	Day	2.6	31	31/36	21	24	-7	Very Low
41	Handen Farm D	Night	2.6	26	26/31	25	28	2	Low
42	Backhouse Wood	Day	*	36	36/41	21	24	-12	Very Low
42	Backhouse Wood	Night	*	32	32/37	23	26	-6	Very Low
43	Woodleas Camping	Day	2.9	34	34/39	22	25	-9	Very Low
43	Woodleas Camping	Night	2.9	34	34/39	23	26	-8	Very Low
44	Poulton Wood	Day	*	27	27/32	17	20	-7	Very Low
44	Poulton Wood	Night	*	26	26/31	18	21	-5	Very Low
45	Handen Wood	Day	*	25	25/30	20	23	-2	Very Low
45	Handen Wood	Night	*	24	24/29	23	26	2	Low

*Barrier attenuation has not been calculated as these are woodland NSRs and are below background noise levels.

Operational Noise Effects – Daytime - Light

14.7.49 As shown in **Table 14.16** , the initial predicted rating level during the Daytime period (Light) only exceeds the LOAEL at NSR 41, which is a Low magnitude of impact. There are no contextual reasons to increase the predicted impact. The effect is direct, temporary (long-term), **Minor adverse** (not significant).

14.7.50 At all other NSRs, the predicted rating level is below LOAEL and a Very Low magnitude of impact. The effect is therefore **Negligible** (not significant).

Operational Noise Effects – Daytime - Dark

14.7.51 As shown in **Table 14.17**, the initial predicted rating level exceeds the SOAEL at NSR 7, 10, and 13 which is a Medium magnitude of impact.

14.7.52 When the resultant sound levels at NSR 7, NSR 10 and NSR 13 are considered in context, it is seen that the absolute level of the sound and the background are both below 30 dB, which can be considered low. In such situations with a low background and absolute noise, it is reasonable to assume a minimum rating level of 35dB for a LOAEL rating noise level. Within this context, it is reasonable to adjust the impact to Low. The effect is therefore direct, temporary (Long term), **Minor adverse** (not significant).

14.7.53 The predicted rating level exceeds the LOAEL at NSRs 1, 11, 14, 15, 16, 17, 20 and 41, which is a Low magnitude of impact. There are no contextual reasons to increase the predicted impact. The effect is direct, temporary (Long term), **Minor adverse** (not significant).

14.7.54 At all other NSRs, the predicted rating level is below LOAEL and a Very Low magnitude of impact. The effect will therefore be **Negligible** (not significant).

Operational Noise Effects – Night-time - Light

14.7.55 As shown in **Table 14.16** , the initial predicted rating level exceeds the LOAEL at NSR 30 and 41, which is a Low magnitude of impact. When the noise emissions are considered in context, there is no requirement to change the predicted impact. The effect is direct, temporary (Long term), **Minor adverse** (not significant).

14.7.56 At all other NSRs, the predicted rating level is below LOAEL and a Very Low impact. The effect is therefore **Negligible** (not significant).

Operational Noise Effects – Night-time - Dark

14.7.57 As shown in **Table 14.17**, the initial predicted rating level exceeds the SOAEL by 5dB or more at NSR 7 and 13, which is a High impact.

14.7.58 When the noise emissions are considered in context, it is noted that at night it would be expected that residents are likely to be inside their properties. Assuming a conservative 10dB reduction in noise provided by an open window, the external SOAEL in this context can be taken as 40dB. Within this context, it is reasonable

to adjust the impact magnitude to Low at NSR 7 and 13. The effect is therefore **Minor adverse** (not significant).

14.7.59 As shown in **Table 14.17**, the initial predicted rating level exceeds the SOAEL at NSR 1, 7, 8 ,10, 11, 15, 16, 17, 20, 30 and 41, which is a Medium impact.

14.7.60 When the noise emissions are considered in context, it is noted that at night it would be expected that residents are likely to be inside their properties. Assuming a conservative 10dB reduction in noise provided by an open window, the external SOAEL in this context can be taken as 40dB. Within this context, it is reasonable to adjust the impact to Low at NSR 1, 7, 8 ,10, 11, 15, 16, 17, 20, 30 and 41. The effect on these receptors is therefore **Minor adverse** (not significant).

14.7.61 As shown in **Table 14.17**, the predicted rating level exceeds the LOAEL at NSR 2, 3, 4, 5, 6, 9, 12, 14, 18, 19, 41 and 45, which is a Low impact. There is no contextual reason to adjust the impact magnitude. The effect on these receptors is therefore **Minor adverse** (not significant).

14.7.62 At all other NSRs, the predicted rating level is below LOAEL and a Very Low Impact. The effect is therefore **Negligible** (not significant).

Operational Noise Effects on PRoW – Daytime - Light

14.7.63 Users or the PRoW network through the Site will be able to hear the operational Project as they pass through. As with the construction phase, the users of the PRoW network will be transitory through the Site and the noise levels from the installed plant will vary accordingly. The sensitivity of the PRoW receptors is therefore considered Low.

14.7.64 As there are no available criteria for determining magnitude of impact on a PRoW from an industrial noise source, an element of professional judgement must be applied to determine the magnitude of impact to PRoW users.

14.7.65 The impact magnitude will be Low in that there may be a noticeable but small scale change over part of the Project area. The effect of operational noise on users of the PRoW network is **Negligible** (not significant).

Operational Noise Effects – Hot weather assessment

14.7.66 In hotter temperatures, cooling plant (i.e. HVAC) may be required to operate at higher capacity, which in turn may emit a higher noise level. Increased temperatures due to climate change may require cooling plant to operate at higher capacity more frequently in future years. Increased operation due to increased temperatures would typically be during the daytime, when NSRs are less sensitive to noise and the background sound tends to be higher.

14.7.67 The base case assessment presented in **Tables 14.16** and **14.17**, as shown in **ES Volume 3, Figure 14.3 (Doc. Ref. 5.3)** and **ES Volume 3: Figure 14.4 (Doc Ref. 5.3)**, assumes that daily maximum temperatures at the Site are in line with local historic averages such that the HVAC units are operating at a 30% load.

14.7.68 To assess the hot weather conditions, two additional assessments have been undertaken for temperatures at 26ºC or above, when HVAC units would operate at 50% load, and 35ºC or above which HVAC units would operate at full load. All assessments are during the daytime-light period.

14.7.69 Noise values for equipment at each Inverter Station operating at a 50% load have been assumed as follows:

- Battery Container (HVAC) x 4 56dB @ 10m
- Inverter x 1 62dB @ 10m
- DC-DC Converter x 4 55dB @ 10m

14.7.70 Noise values for equipment at each Inverter Station operating at a 100% load have been assumed as follows:

- Battery Container (HVAC) x 4 66dB @ 10m
- Inverter x 1 62dB @ 10m
- DC-DC Converter x 4 65dB @ 10m

14.7.71 **ES Volume 4, Appendix 14.6: Assessment Data and Hot Weather Assessment (Doc Ref. 5.4)** predicts that at 50% load, there are no predicted initial High magnitude impacts. NSR 41 is predicted to experience a temporary Medium magnitude impact (above SOAEL). For context, climate modelling assuming worst-case global warming predicts that this would occur for a time period on average 34 days per year.

14.7.72 During such times it is expected that the specific level of operational noise would be approximately 8dB below the ambient existing sound level and the increase in absolute noise would be less than 1dB and occur on average less than 10% of the year. This is unlikely to be noticeable at NSR 41 and in this context, using professional judgment, the impact can be defined as Low magnitude. The Low impact would therefore result in a **Minor adverse** effect (not significant).

14.7.73 All other receptors would experience Low (between SOAEL and LOAEL) or Very Low (below LOAEL) magnitude impact. There are no contextual factors that would change the initial impact to a High or Medium magnitude. The Low or Very Low impact would result in a **Minor adverse** or **Negligible** effect (not significant).

14.7.74 At 100% load, when operating above 35ºC, the operational plant may emit noise that would be considered a Medium or High impact at the closest NSRs.

14.7.75 NSR 30 and 41 (Handen Farm A, B & C) are predicted to experience a High magnitude impact (above SOAEL by 5dB or more), which would be temporary and direct depending on context.

14.7.76 NSR 1, 7, 10, 13, 31, 32, 33 and 41 (Handen Farm D) are predicted to experience a Medium magnitude impact (above SOAEL), which would be temporary, and direct depending on context.

14.7.77 For context, climate modelling assuming worst-case global warming predicts that this would occur for a time period on average 2 days per year. Such periods may only be for a limited time during the daytime and unexpected at sensitive sleeping periods. In this context, using professional judgment, the impact can be defined as Low magnitude for all receptors defined above. The Low impact would result in a **Minor adverse** effect (not significant).

14.7.78 All other receptors would experience Low (between SOAEL and LOAEL) or Very Low (below LOAEL) magnitude impact. There are no contextual factors that would change the initial impact to a High or Medium magnitude. The Low or Very Low impact would result in a **Minor adverse** or **Negligible** effect (not significant).

Operational Noise Effects – Low Frequency Noise

14.7.79 An assessment of low frequency noise has been undertaken. **Table 14.18** shows the highest predicted noise level in the identified frequencies for the operational Project for typical operation and increased operation situations.

Table 14.18: Low Frequency Noise

Operational Fan Speed	Centre Frequency (Hz)	Highest predicted level at any receptor (dB)	Defra Criteria (dB)
30%	63	40.1	46.6
	125	32.8	41.1
50%	63	40.2	46.6
	125	33.2	41.1
100%	63	41.2	46.6
	125	36.5	41.1

14.7.80 A review of the noise levels predicted at the facades of all identified receptors shows that the predicted levels will not exceed the criteria, and therefore result in a Very Low impact. The effect would be **Negligible** (not significant).

Operational Noise Effects – Future Baseline

14.7.81 The impacts assessed above are unlikely to change when assessed against a future baseline. It is unlikely that the local ambient sound levels would substantially change from those measured in 2022 which would result in a higher or lower background level. On the balance of probability, the ambient sound levels in the area would increase slightly in line with increases in road traffic and as such the assessment is considered worst case.

Decommissioning Phase

14.7.82 The traffic flows on the road network and noise impacts generated by the Project during its decommissioning phase will be similar in scale and nature to the

construction phase. It is anticipated that the magnitude of impact will be similar to and no worse during decommissioning than during construction and therefore there will typically be a Low or Very Low magnitude of impact which will result in a **Minor adverse** or **Negligible** effect (not significant).

14.7.83 The removal of the internal access tracks and cables around the PV panels will result in short term temporary low impacts on NSR 7, NSR 8, NSR 9, NSR 30, NSR 32, NSR 35 and NSR 36, with impacts from transitory sources in a similar nature to the those during the construction phase. The effects will be **Minor adverse** (not significant).

14.7.84 The removal of cables in the road along Goldwell lane will result in a low magnitude of impact to NSR 24, NSR 25, NSR 26, NSR 27, NSR 28, NSR 29, NSR 34 and NSR 43**.** The effect will be **Minor adverse** (not significant) as a worst case.

14.7.85 The removal of hardstanding and concrete foundations of the Project Substation would result in a short term low magnitude of impact at NSR 38. The effect will be **Minor adverse** (not significant).

14.7.86 All decommissioning activities, including traffic flows and construction type activities, will implement appropriate mitigation including in the **Outline DTMP (Doc Ref. 7.13)** and through BPM in the **Outline DEMP (Doc Ref. 7.12)**. Detailed DTMP(s) and DEMP(s) will be subject to approval by the relevant authority prior to decommissioning works taking place and will be subject to regular reviews as works proceed.

Decommissioning Noise Effects – Future Baseline

14.7.87 The ambient sound levels in the area are highly unlikely to change sufficiently, by the end of the Project, to require an adjustment in the threshold of significant effect (SOAEL). As such the assessment is considered worst case and representative of the ambient conditions in the 2060s.

14.8 Additional Mitigation, Monitoring and Enhancement Measures

14.8.1 No additional mitigation, monitoring or enhancement measures are proposed given that no significant adverse effects have been identified.

14.8.2 It is acknowledged that the DCO Application allows flexibility for the location of Inverter Stations and Intermediate Substations within specific locations identified by the **Works Plans (Doc Ref 7.5)**. This assessment is based on the **Illustrative Project Layout** as part of the **Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)**. The ONMMS, secured by DCO Requirement, will demonstrate that the authorised development is not likely to result in any materially new or materially different noise effects from those assessed within this Chapter.

14.9 Residual Effects

14.9.1 As no additional mitigation is proposed the assessment of effects remains as set out in **Section 14.7**. No significant residual adverse effects during

construction/decommissioning or during the operational phase have been identified. Residual effects are listed in **Table 14.19**.

14.10 Cumulative Effects

14.10.1 Cumulative effects have been considered in terms of the accumulated effects of the Project with other development schemes in the local area (inter-project cumulative effects). **ES Volume 4, Appendix 6.1: List of Cumulative Schemes (Doc Ref. 5.4)** provides the 'Focused Long List' of 'other existing development and/or approved development'.

14.10.2 At distances of greater than 300m, any interaction of noise emissions from multiple developments would be attenuated such that there would normally be no combined effects.

14.10.3 The cumulative schemes which have been identified to be within 300m of the Site which are taken forward for cumulative effects assessment are as follows:

- ID No. 1: Agricultural Barn;
- ID No. 2: Goldwell Farm, Goldwell Lane, Aldington, TN25 7DX;
- ID No. 3: Pivot Power Battery Storage;
- ID No. 4: Walsh Power Condenser Project;
- ID No. 7: Land north of 1 Church View, Aldington, Kent;
- ID No. 8: Land south west of Goldwell Court, Goldwell Lane; and
- ID No. 9: East Stour Solar Farm.

Construction Phase

14.10.4 Cumulative effects during the construction phase will include construction traffic on the local road network. Predicted Project construction traffic, alongside the 2026 future baseline, has been included in this assessment as a worst-case scenario. The effects are of the Project's construction traffic in combination with other cumulative schemes are assessed as **Negligible** (not significant).

14.10.5 The Construction Assessment of the East Stour Solar Farm (Cumulative Scheme ID No. 9) identifies NSR 34 as a potential receptor for construction noise. NSR 34 is identified in this assessment as receiving construction noise levels above LOAEL, but less than SOAEL. The cumulative effect of construction noise from the East Stour Solar Farm would be more than 10dB below any noise from the Project and therefore will not act cumulatively to raise the magnitude of impact. The cumulative noise effect at NSR 34 will be temporary **Minor adverse** (not significant).

14.10.6 NSR 40 is identified as a receptor by this ES and as a potential NSR in the ES for East Stour Solar Farm, however it lies outside the LOAEL area for both, and the cumulative construction noise will not result in noise exceeding the LOAEL. The cumulative noise effect at NSR 40 will be a temporary, **Negligible** effect (not significant).

14.10.7 Construction associated with small residential schemes (ID No. 2, ID No. 7 and ID No. 8) may occur whilst the construction phase of the Project is occurring during works in the road on Goldwell Lane (Work No. 5). The identified effect would be adverse and temporary in nature and careful use of BPM through the detailed CEMP(s), as secured by the **Outline CEMP (Doc Ref. 7.8)**, to use appropriate mitigation measures should allow the impact to be reduced to Low and a **Minor adverse** effect (not significant).

14.10.8 In addition to the potential for cumulative effects in combination with cumulative schemes, consideration has been given to whether the Project could give rise to effects at cumulative schemes ID No. 1, ID No. 3, and ID No. 4. No such effects are likely as these cumulative schemes are agricultural or industrial in nature and therefore not considered to be sensitive noise receptors.

Operational Phase

14.10.9 The Project has no noise generating sources within 300m of cumulative schemes which also have the potential to generate noise (i.e. ID No. 3, ID No. 4 and ID No. 9). As such, the areas of cumulative influence do not overlap. It is reasonable to determine therefore that the cumulative effect during the operational phase of the Project at any receptor within 300m of an identified cumulative scheme will therefore be **Negligible** (not significant).

14.10.10 As stated at **Paragraph 14.10.8** for the construction phase, operational noise would not cause an impact at cumulative scheme ID No. 1, ID No. 3, and ID No. 4 as these cumulative schemes are agricultural or industrial in nature and not considered to be sensitive receptors.

14.10.11 Operational effects will remain unchanged from the residual effects of the Project.

Decommissioning Phase

14.10.12 Decommissioning is assumed to occur after a project lifetime of 40 years. Cumulative effects are possible from decommissioning of the Project with other schemes which may be undergoing construction, operational phase or decommissioning type noise in the local area at the same time as the Project. However, it is unlikely that the decommissioning of the Project would be undertaken in such a way that would result in a moderate or major adverse (i.e. significant) effect at a sensitive receptor. Predicted decommissioning noise effects from the Project are below the SOAEL, and BPM measures included in the **Outline DEMP (Doc Ref. 7.12)** would serve to minimise decommissioning effects. Any relevant cumulative scheme in the area would be considered as explained in the **Outline DEMP (Doc Ref. 7.12)**. The cumulative effects are therefore assessed as **Minor adverse to Negligible** (not significant).

14.11 Conclusions

14.11.1 The use of an internal haulage road, siting of infrastructure and proposed acoustic barriers as Embedded Mitigation seek to minimise noise effects associated with the Project. With mitigation in place and adherence to phase specific management

plans and best practice, the assessment has found that the Project is not likely to give rise to any significant effects during construction, operational phase or decommissioning.

14.11.2 **Table 14.19** provides a summary of the noise assessment and residual effects.

Table 14.19: Summary of Residual Effects

Receptor	Description of Impact (Magnitude)	Significance of Effect without additional mitigation	Additional Mitigation/ Enhancement measure	Residual Effect after mitigation
Construction Phase				
All NSRs	Construction traffic noise (Very Low)	Negligible	None	Negligible
All NSR and PRoW	On-Site Construction noise Work No. 1 (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
All NSR and PRoW	On Site Construction noise Work No. 5 (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
All NSR and PRoW	On Site Construction noise Work No. 7 (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
Operational Phase				
All NSR and PRoW	Operational noise during typical operations (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
All NSR and PRoW	Operational noise during hot weather (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
All NSR and PRoW	Operational low frequency noise (Very Low)	Negligible	None	Negligible
Decommissioning Phase				
All NSRs	Construction traffic noise (Very Low)	Negligible	None	Negligible
All NSR and PRoW	On-Site decommissioning works noise Work No. 1 (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
All other NSR and PRoW	On Site decommissioning works noise Work No. 5 (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible
All NSR and PRoW	On Site decommissioning works noise Work No. 7 (Low / Very Low)	Minor adverse / Negligible	None	Minor adverse / Negligible

References

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6 British Standards Institute, (2019). BS4142: Methods for rating and assessing industrial and commercial sound.

7 British Standards Institution (2014). BS 8223:2014, Guidance on sound insulation and noise reduction on buildings.

8 British Standards Institute, (2019). BS5228: Code for noise and vibration control on construction and open sites.

9 International Organization for Standardization (1996). ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors: Part 2 General Method of Calculation. ISO, London

10 Department for Transport (DfT) (1988). Calculation of Road Traffic Noise. HMSO, London.

11 Design Manual for Roads and Bridges. LA111 Noise and Vibration, May 2020, Available [redacted]

12 DEFRA document NANR45, December 2011, Moorhouse Et Al.