



One Earth Solar Farm

Volume 6.0 Environmental Statement [EN010159]

Volume 3: Technical Appendices Supporting ES Volume 2

Appendix 15.1: Summary of Relevant Legislation, Policy and Technical Guidance

February 2025

Document Reference: EN010159/APP/6.21

Revision 01

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
- Reg 5 (2) (a)



Contents

A.15 Appendix 15.1 Legislation, Policy and Guidance	2
A.15.1 Legislation _____	2
A.15.2 National Planning Policy _____	2
A.15.3 Local Planning Policy _____	6
A.15.4 Guidance _____	9

A.15 Appendix 15.1 Legislation, Policy and Guidance

A.15.1 Legislation

Environmental Protection Act, 1990

- A.15.1.1. The Environmental Protection Act 1990 (EPA) sets out the duty for local authorities to investigate and, where identified, take abatement action against noise nuisance. The Act provides the definition of Best Practicable Means (BPM) to minimise noise (including vibration), the basis for defence against noise abatement action taken by a local authority (section 80). The Act also provides for individuals to seek for abatement action to be taken by a magistrate's court against noise nuisance (section 82).

Control of Pollution Act, 1974

- A.15.1.2. The Control of Pollution Act 1974 (CoPA) provides the definition of Best Practicable Means (BPM) to minimise noise (including vibration), the basis for defence against noise abatement action taken by a local authority (section 60). The Act also provides for persons responsible to seek prior consent for works on construction sites (section 61) including BPM steps to minimise noise, and the basis for defining codes of practice (applies to BS 5228:2009+A1:2014 '*Code of practice for noise and vibration control on construction and open sites, Part 1: Noise and Part 2: Vibration*').

A.15.2 National Planning Policy

Overarching National Policy Statement for Energy (EN-1) (2023)

- A.15.2.1. The Overarching National Policy Statement for Energy (EN-1) provides the overarching government policy on energy NSIPs, how planning applications relating to energy will be assessed, and the way in which any impacts and mitigation measures will be considered. Part 5, Section 5.12 of this policy statement specifically relates to noise and vibration.
- A.15.2.2. Paragraph 5.12.6 states that "*Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment:*
- > *a description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal characteristics, if the noise is impulsive, whether the noise contains particular high or low frequency content or any temporal characteristics of the noise;*
 - > *identification of noise sensitive receptors and noise sensitive areas that may be affected;*

- > *the characteristics of the existing noise environment;*
- > *a prediction of how the noise environment will change with the proposed development*
 - *in the shorter term, such as during the construction period*
 - *in the longer term, during the operating life of the infrastructure*
 - *at particular times of the day, evening and night (and weekends) as appropriate, and at different times of year;*
- > *an assessment of the effect of predicted changes in the noise environment on any noise-sensitive receptors, including an assessment of any likely impact on health and quality of life / well-being where appropriate, particularly among those disadvantaged by other factors who are often disproportionately affected by noise-sensitive areas;*
- > *if likely to cause disturbance, an assessment of the effect of underwater or subterranean noise; and*
- > *all reasonable steps taken to mitigate and minimise potential adverse effects on health and quality of life.”*

National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023)

- A.15.2.3. The National Policy Statement for Renewable Energy Infrastructure (EN-3) acts as key guidance for a range of stakeholders to understand government policy on NSIPs, how planning applications relating to energy infrastructure will be assessed, and the way in which any impacts and mitigation measures will be considered. Specific extracts relating to the Proposed Development are as follows:
- A.15.2.4. Paragraph 2.10.162 states that *“The Secretary of State is unlikely to give any more than limited weight to traffic and transport noise and vibration impacts from the operational phase of a project.”*

The National Planning Policy Framework (2024)

- A.15.2.5. The National Planning Policy Framework (NPPF) is an overarching document which sets out government planning policy for England, and how this is expected to be applied by local authorities and developers. The NPPF provides a framework for local sustainable development via local plans. Specific extracts relating to the Proposed Development are as follows:
- A.15.2.6. Paragraph 187 states that *“Planning policies and decisions should contribute to and enhance the natural and local environment by:*

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;"

A.15.2.7. Paragraph 198 states that *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."

The Noise Policy Statement for England, 2010

A.15.2.8. This statement sets out the long term outlook of noise policy for the UK government to promote human health and quality of life indicators through better management of noise receptors. This policy is collectively bringing together information from other policies and practices across UK government into one statement. The main noise policy aims are to:

- > *"avoid significant adverse impacts on health and quality of life;*
- > *mitigate and minimise adverse impacts on health and quality of life; and*
- > *where possible, contribute to the improvement of health and quality of life."*

Planning Practice Guidance Noise, 2019

A.15.2.9. The Planning Practice Guidance (PPG(N), 2019) provides further detail about how the effects of noise can be described in terms of perception and outcomes. It aligns this to increasing effect levels as defined in the NPSE. In addition, the PPG(N) adds a fourth term and corresponding effect level:

- > UAEL – 'Unacceptable Adverse Effect Level'.

A.15.2.10. The UAEL effect level is higher than the significant adverse effect on health and quality of life (SOAEL) and requires that unacceptable adverse effects are

to be prevented. In PPG(N), prevention is not in the context of Government policy on sustainable development.

A.15.2.11. **Table 1** presents the noise exposure hierarchy described in PPG(N).

Table 1 Planning Practice Guidance – Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			

Perception	Examples of Outcomes	Increasing Effect Level	Action
Present and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

A.15.3 Local Planning Policy

- A.15.3.1. Local planning policies relevant to the Proposed Development are set out below. Local policies can be an important and relevant consideration for NSIPs as well, but in the event of any conflict, the NPS policy prevails.

Central Lincolnshire Local Plan (2023)

- A.15.3.2. The Local Plan for the central Lincolnshire area sets out the approach to planning policy and overarching development allocations to drive growth in the area over a 20-year period. The Local Plan is contextualised into a wider vision, series of objectives and core policies toward delivery.
- A.15.3.3. Policy S14 “*Renewable Energy*” is related to the Proposed Development and states:

“The Central Lincolnshire Joint Strategic Planning Committee is committed to supporting the transition to a net zero carbon future and will seek to maximize appropriately located renewable energy generated in Central Lincolnshire (such energy likely being wind and solar based).

Proposals for renewable energy schemes, including ancillary development, will be supported where the direct, indirect, individual and cumulative impacts on the following considerations are, or will be made, acceptable. To determine whether it is acceptable, the following tests will have to be met:

...

iii. The impacts are acceptable on the amenity of sensitive neighboring uses (including local residents) by virtue of matters such as noise, dust, odor, shadow flicker, air quality and traffic;

...

In order to test compliance with part (iii) above will require, for relevant proposals, the submission by the applicant of a robust assessment of the potential impact on such users, and the mitigation measures proposed to minimize any identified harm.

For all matters in (i)-(iii), the applicable local planning authority may commission its own independent assessment of the proposals, to ensure it is satisfied what the degree of harm may be and whether reasonable mitigation opportunities are being taken.

...

Proposals for ground-based photovoltaics and associated infrastructure, including commercial large-scale proposals, will be under a presumption in favor unless:

There is clear and demonstrable significant harm arising; or

...”

Bassetlaw District Council (2010) Local Development Framework, Publication Core Strategy and Development Management Policies

- A.15.3.4. The Core Strategy for the Bassetlaw District sets out the overarching vision for the area up until 2026, including the policy approach to deliver this.
- A.15.3.5. Policy DM10 “Renewable and Low Carbon Energy” is related to the Proposed Development and states:

“The Council will be supportive of proposals that seek to utilize renewable and low-carbon energy to minimize CO2 emissions. Such proposals will be expected to demonstrate regard to the Council’s Energy Opportunities Diagram and Renewable and Low-Carbon Energy Study (or subsequent replacement) when identifying options for achieving CO2 emission reductions. Proposals for renewable and low-carbon energy infrastructure will need to demonstrate that they:

...

- Will not result in unacceptable impacts in terms of visual appearance, landscape character, noise, shadow-flicker, watercourse engineering and hydrological impacts, pollution, traffic generation, or loss of features of recognized importance for biodiversity;

- Will not result in an unacceptable cumulative impact in relation to the factors above.”

Draft Bassetlaw Local Plan (2023) 2020-2038: Main Modifications Version, August 2023

A.15.3.6. This Local Plan sets out Bassetlaw District’s proposed planning and policy framework, development strategy and site allocations to inform effective delivery of Bassetlaw District’s overall vision up until 2038. Whilst the Local Plan is currently a draft, and therefore does not currently set policy, it has been referred to as a guide to the potential future policy direction of Bassetlaw District Council.

A.15.3.7. The following policies are related to the Proposed Development:

A.15.3.8. Policy ST51 “Renewable Energy Generation” states that:

“Development that generates, shares, transmits and/or stores zero carbon and/or low carbon renewable energy including community energy schemes will be supported subject to the satisfactory resolution of all relevant site specific and cumulative impacts upon:

...

g) Noise, light, glare, smell, dust, emissions or flicker;

...

Proposals must take into account operational and approved developments, as well as any proposed intensification to operational or approved proposals“

A.15.3.9. Policy ST48 “Protecting Amenity” states that:

“Proposals for development should be designed and constructed to avoid and minimise impacts on the amenity of existing and future users, individually and cumulatively, within the development and close to it. As such, proposals will be expected to:

...


b) not generate a level of activity, noise, light, air quality, odour, vibration or other pollution which cannot be mitigated to an appropriate standard.”

A.15.4 Guidance

Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Noise Impact Assessment 2014

- A.15.4.1. The IEMA Guidelines provide guidance on noise assessment in the Environmental Impact Assessment (EIA) context. The guidelines define key principles and methodological used within the noise impact assessment process, how to effectively integrate noise impacts into the consenting process of all types and scale of development. The guidelines are relevant to all scales of projects.
- A.15.4.2. The IEMA Guidelines provide a table for the generic relationship between noise impact (magnitude) and the sensitivity of a receptor including the evaluation of significance.
- A.15.4.3. Table 2 presents a reproduction of the IEMA Guidelines table.

Table 2 IEMA Guidelines Generic Relationship between Magnitude, Sensitivity and Significance

Magnitude (nature of impact)	Description of effect (on a specific sensitive receptor)	Significance
Negligible	No discernible effect on receptor	Not Significant
Slight	Receptor perception = non-intrusive Noise impact can be heard, but does not cause any change in behaviour or attitude, for example turning up the volume of the television, speaking more loudly, closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.	Less likely to be significant (greater justification needed based on impact magnitude and receptor sensitivity – to justify a significant effect)
Moderate	Receptor perception = intrusive Noise impact can be heard and causes small changes in behaviour and/or attitude, for example turning up the volume of television, speaking more loudly, closing windows. Potential for non-awakening sleep disturbance. Affects the character of the area such that there is a perceived change in the quality of life.	
Substantial	Receptor perception = disruptive Causes a material change in behaviour and/or attitude for example avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty getting sleep, premature awakening and difficulty getting back to sleep. Quality of life diminished due to change in character of the area.	
		(greater justification needed – based on impact magnitude and receptor sensitivity = to justify a non-significant effect) More likely to be significant

BS 7445-1: 2003 Description and measurement of environmental noise. Guide to quantities and procedures

- A.15.4.4. BS 7445-1 defines the basic quantities to be used for the description of noise in community environments and describes basic procedures for the determination of these quantities.
- A.15.4.5. The baseline noise measurement surveys were carried out in general accordance with the procedures set out in BS 7445-1.

BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites: Part 1 – Noise

- A.15.4.6. Part 1 of BS 5228 sets out methodologies for predicting noise levels from construction and related activities. On-site construction noise has been modelled using the BS 5228-1 calculation methodologies.
- A.15.4.7. BS 5228-1 also sets out methodologies for determining the potential effects on existing noise sensitive human receptors as a result of noise arising from construction activities. This includes construction vehicles travelling on haulage routes to and from the construction site.
- A.15.4.8. Data on sound levels is provided within the standard for a wide variety of site activities and mobile equipment used on construction and open sites. In addition, calculation procedures and methodology are provided to calculate construction noise levels at receptors.
- A.15.4.9. The ABC method is generally the preferred method to determine values which indicate the threshold above which a significant adverse effect occurs. The threshold values are generally easier to control during construction works than setting individual noise limits for each receptor such as would occur using the 5 dB(A) change method.
- A.15.4.10. **Table 3** presents the ABC method threshold categories and how they are derived.

Table 3 ABC Potential Significant Effect Levels

Period	Threshold Value (dB) $L_{Aeq,T}$		
	Category A	Category B	Category C
Daytime (0700 hrs to 1900 hrs) Saturdays (0700 hrs to 1300 hrs)	65	70	75
Evenings (1900 hrs to 2300 hrs) Saturdays (1300 hrs to 2300 hrs) Sundays (0700 hrs to 2300 hrs)	55	60	65
Night-time (2300 hrs to 0700 hrs)	45	50	55
<p>Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values).</p> <p>Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.</p>			

Period	Threshold Value (dB) $L_{Aeq,T}$		
	Category A	Category B	Category C
<p>Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.</p> <p>If the ambient noise levels exceed the category C threshold levels, then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise.</p>			

- A.15.4.11. Ultimately, BS 5228-1 sets out a best practicable means approach to construction noise mitigation identifying measures that can be readily employed on a construction site to minimise adverse noise effects.

BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites: Part 2 – Vibration

- A.15.4.12. Part 2 of BS 5228 sets out methodologies for predicting vibration levels from construction and related activities. BS 5228-2 identifies that it is more appropriate to consider effects of vibration levels in terms of Peak Particle Velocity (PPV mm/s).
- A.15.4.13. The use of the PPV metric is also consistent with the guidance within BS 7385:1993 'Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from ground-borne vibration' (BS 7385:1993, referenced in BS 5228-2), which presents assessment criteria to be applied for the likelihood of cosmetic damage to buildings.
- A.15.4.14. **Table 4** presents a summary of the assessment criteria given in terms of human response, derived based on guidance within BS 5228-2.

Table 4 Peak Particle Vibration Levels and Effect

Vibration Level PPV mm/s	Effect
0.14	Vibration might be just perceptible in the most sensitive situation for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3	Vibration might be just perceptible in residential environments.

Vibration Level PPV mm/s	Effect
1.0	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

A.15.4.15. The above magnitudes of vibration apply to a measurement position that is representative of the point of entry into the recipient. Therefore, if only external measurements are available, a transfer function (which relates an external level to an internal level) needs to be applied.

BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

A.15.4.16. BS 4142:2014+A1:2019 is used to rate and assess sound of an industrial nature including but not limited to assessing sound from proposed, new, modified, or additional sources of industrial sound. It contains guidance on the monitoring and assessment of industrial and commercial sound sources (including fixed installations comprising mechanical and electrical plant and equipment) affecting sensitive receptors.

A.15.4.17. The methodology relies on comparing the operational rating level, $L_{A,r,Tr}$, with the background sound level, $L_{A90,T}$ (i.e. the level that would be present without the development) over a representative time period. BS 4142:2014+A1:2019 provides guidance on the measurement of background sound, the determination of specific sound and calculation of the rating level.

A.15.4.18. Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. A character correction should be added to the specific sound level to obtain the rating level, where such features are present at the assessment location. It states that the specific sound level should be corrected if a tone, impulse or other characteristic occurs, or is expected to be present for new sound sources.

A.15.4.19. BS 4142:2014+A1:2019 assessment methodology also states that:

- > *“Typically, the higher the rating level is above the background sound level the greater the magnitude of impact;*
- > *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
- > *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and*

- > *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”*

- A.15.4.20. Importantly, BS 4142:1997 ‘*Method for Rating industrial noise affecting mixed residential and industrial areas*’, states that “(...) background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low.” Additionally, BS 4142:2014+A1:2019 states that “*Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night*”.
- A.15.4.21. In order to determine the impact threshold levels for the assessment of operational industrial sound, the difference between the rating level and background sound level is considered, as advocated by the methodology within BS 4142:2014+A1:2019.

BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

- A.15.4.22. BS 8233:2014 ‘*Guidance on Sound Insulation and Noise Reduction for Buildings*’ (BS 8233) provides guidance for the control of noise in and around buildings. It is applicable to the design of new buildings, or refurbished buildings undergoing a change of use. BS 8233 provides noise guidance for buildings of different uses and has been used both to inform the assessment of noise generated by the proposed development buildings as well as impacts on receptors.
- A.15.4.23. In order to determine the absolute impact threshold levels for the assessment of operational industrial sound with reference to paragraph A.15.4.20, Table 5 presents the assessment criteria with respect to internal noise levels.
- A.15.4.24. A typical assumption for a partially open window is an external to internal attenuation between 10 – 13 dBA.

Table 5 Internal Ambient Sound Levels for Residential Dwellings

Indoor Residential Activity	Location	Daytime (07:00 – 23:00hrs)	Night-time (23:00 – 0700hrs)
Resting	Living room	35 dBL _{Aeq,T}	-
Dining	Dining room/ area	40 dBL _{Aeq,T}	-
Sleeping (Daytime resting)	Bedrooms	35 dBL _{Aeq,T}	30 dBL _{Aeq,T} and 45 dBL _{Amax,F} for regularly occurring events

Calculation of Road Traffic Noise (CRTN) 1988

- A.15.4.25. The Calculation of Road Traffic Noise (CRTN, 1988) provides a methodology for the measurement and prediction of road traffic noise. CRTN was prepared to determine entitlement under the Noise Insulation Regulations 1975, but it is stated in the document that the guidance is equally appropriate to the calculation of traffic noise for land use planning purposes.
- A.15.4.26. In the UK, operational road traffic noise is predicted using the Calculation Road Traffic Noise (CRTN). CRTN provides methodologies for the calculation of road noise emissions, based on the traffic data, through the calculation of a Basic Noise Level (BNL) which is the noise level at 10m from the kerb. The BNL calculation methodology utilises detailed information on two-way traffic flows, percentage of HGV movements, vehicle speed, road slope gradient, ground conditions and screening to calculate the propagation of noise from roads. The use of BNL enables a direct comparison to be made of the change in noise level associated with particular sections of road.
- A.15.4.27. Whilst CRTN is predominantly a prediction methodology, it also provides guidance on how to undertake road traffic noise measurements which includes the *"shortened measurement procedure"*, where $L_{A10,1hr}$ measurements are undertaken in any three consecutive hours between 10:00 and 17:00hrs. These hourly measurements can then be converted to the $L_{A10,18hr}$ noise metric.

Design Manual for Roads and Bridges: Sustainability & Environmental Appraisal LA 111 Noise and Vibration (LA 111) 2020

- A.15.4.28. LA 111 'Noise and vibration' of the Design Manual for Roads and Bridges provides guidance on undertaking noise and vibration assessments on the impact of road projects. This includes assessing changes in traffic on existing roads, where it outlines the magnitude of impact in the short term and long term.

- A.15.4.29. The assessment of significance can be influenced by other relevant factors including a comparison of the absolute noise levels against the LOAEL and SOAEL criteria, acoustic context, and perceptibility of change (i.e. if there is a change to the landscape).
- A.15.4.30. Elements of the LA 111 assessment methodologies have been used in the construction and operational road traffic noise assessments.



one earth
solar farm