
FENWICK SOLAR FARM

Preliminary Environmental Information Report

**Volume III Appendix 14-1: Legislation, Policy and Guidance
(Other Environmental Topics)**

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Table of Contents

1.	Introduction.....	1
1.1.	Purpose of This Appendix.....	1
2.	Air Quality.....	3
2.1	National Legislation.....	3
2.2	National Policy.....	5
2.3	Local Policy.....	14
2.4	Guidance.....	14
3.	Glint and Glare.....	15
3.1	National Legislation.....	15
3.2	National Policy.....	15
3.3	Guidance.....	21
4.	Ground Conditions.....	25
4.1	National Legislation.....	25
4.2	National Policy.....	26
4.3	Local Policy.....	35
4.4	Guidance.....	36
5.	Major Accidents and Disasters.....	37
5.1	National Legislation.....	37
5.2	National Policy.....	37
5.3	Guidance.....	39
6.	Telecommunications and Utilities.....	40
7.	Electric and Electromagnetic Fields.....	41
7.1	National Legislation.....	41
7.2	National Policy.....	41
7.3	Local Policy.....	46
7.4	Guidance.....	46
8.	Materials and Waste.....	47
8.1	National Legislation.....	47
8.2	National Policy.....	49
8.3	Local Policy.....	57
8.4	Guidance.....	58
9.	References.....	61

Plates

Plate 8-1: The Waste Hierarchy, from Defra's Guidance on Applying the Waste Hierarchy, recreated by AECOM (Ref. 72).....	48
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Tables

Table 2-1: Key Air Quality Strategy Objectives.....	5
Table 2-2: Relevant NPS Requirements for the Air Quality Assessment.....	7

Table 2-3: Relevant NPPF Requirements for the Air Quality Assessment	12
Table 2-4: Relevant Local Policy for Air Quality	14
Table 3-1: Relevant NPS Requirements for the Glint and Glare Assessment	16
Table 4-1: Relevant NPS Requirements for Ground Conditions	27
Table 4-2: Relevant NPPF Requirements for Ground Conditions	33
Table 4-3: Relevant Local Legislation and Policy for Ground Conditions	35
Table 5-1: Relevant NPS Requirements for Major Accidents and Disasters	38
Table 7-1: Relevant NPS Requirements for the Assessment of Electric and Magnetic Fields	42
Table 8-1: Relevant NPS (EN-1) requirements for the materials and waste assessment	52
Table 8-2: Relevant NPPF Requirements for the Material and Waste Assessment ..	56

1. Introduction

1.1. Purpose of This Appendix

- 1.1.1 This Preliminary Environmental Information Report (PEIR) appendix identifies and describes the local and national legislation, policy and supporting guidance considered relevant to the assessment of the likely significant effects of the Scheme in relation to the following topics, as set out in **PEIR Chapter 14: Other Environmental Topics**:
- a. Air Quality (Section 2);
 - b. Glint and Glare (Section 3);
 - c. Ground Conditions (Section 4);
 - d. Major Accidents and Disasters (Section 5);
 - e. Telecommunications, Television Reception and Utilities (Section 6);
 - f. Electric and Electromagnetic Fields (Section 7); and
 - g. Materials and Waste (Section 8).
- 1.1.2 This appendix does not assess the Scheme against legislation and policy. Instead the purpose of considering legislation and policy is twofold:
- a. To identify legislation and policy that could influence the sensitivity of receptors (and therefore the significance of effects) and any requirements for mitigation; and
 - b. To identify legislation and policy that could influence the methodology to be used within the PEIR assessment and/or within the Environmental Impact Assessment (EIA) which will be presented in the Environmental Statement (ES). For example, a policy may require the assessment of an impact or the use of a specific methodology.
- 1.1.3 The relevant legislation and policy will be assessed within the Planning Statement. The following sections identify and describe the legislation, policy and supporting guidance considered specifically relevant to the above-mentioned topics assessment.
- 1.1.4 The EIA takes account of the following National Policy Statements (NPSs) which are considered to be matters that will be important and relevant to the Secretary of State's (SoS) decision as to whether to grant a Development Consent Order (DCO) for the Scheme:
- a. Overarching National Policy Statement for Energy (EN-1) (Ref. 1)
 - b. National Policy Statement for Renewable Energy Infrastructure (EN-3) (Ref. 2), and
 - c. National Policy Statement for Electricity Networks Infrastructure (EN-5) (Ref. 3).
- 1.1.5 The NPSs set out the Government's energy policy, the need for new infrastructure and guidance for determining an application for a DCO. The NPSs include specific criteria and issues which should be covered by

applicants' assessments of the effects of their scheme, and how the decision maker should consider these impacts.

2. Air Quality

2.1 National Legislation

The Infrastructure Planning (Environmental Impact Assessment (EIA) Regulation 2017

- 2.1.1 Regulation 5(2)(c) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref. 4) requires that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the likely significant direct and indirect effects of the Scheme on air quality.

The Environmental Protection Act 1990

- 2.1.2 Part III of the Environmental Protection Act 1990 (Ref. 5) defines matters that could be a private and public statutory nuisance. The prescribed matters of relevance to this assessment being any smoke, fumes, gases, steam or smell being prejudicial to health or a nuisance.

National Air Quality Legislation Originating from the European Union (EU)

- 2.1.3 The principal air quality legislation within the United Kingdom is the Air Quality Standards Regulations (as amended 2016) (Ref. 6), including amendments, such as 'The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020' (Ref. 6).
- 2.1.4 The UK is no longer a member of the EU, however, some types of EU legislation such as Regulations and Decisions, are directly applicable. This legislation is now published on legislation.gov.uk as 'legislation originating from the EU' (Ref. 8).
- 2.1.5 Other types of EU legislation, such as Directives, are indirectly applicable which means they require a Member State to make domestic implementing legislation before becoming law in that State. Legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation, under the control of the UK's Parliaments and Assemblies. The Clean Air for Europe (CAFE) programme (Ref. 9) revisited the management of air quality within the EU and replaced much of the existing air quality legislation with a single legal act (Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe (Ref. 10)). This Directive repealed and replaced the EU Framework Directive 96/62/EC on Ambient Air Quality Assessment and Management and its associated Daughter Directives 1999/30/EC (Ref. 11), 2000/69/EC (Ref. 12), 2002/3/EC (Ref. 13) (relating to limit values for ambient air pollutants) and the Council Decision 97/101/EC (Ref. 14) which established a reciprocal exchange of information and data within Member States.
- 2.1.6 The UK National Air Quality Strategy (AQS) was initially published in 2000, under the requirements of the Environment Act 1995 (Ref. 15), which has been amended by the Environment Act 2021 (Ref. 16). The current version of the AQS published in 2007 (Ref. 17) sets objective values for key pollutants as a tool to help local authorities manage local air quality

improvements, with the aim of avoiding, preventing or reducing harmful effects on human health and on the environment as a whole.

National Clean Air Strategy (2019)

- 2.1.7 In 2019, the UK government released its Clean Air Strategy 2019 (Ref. 18), part of its 25 Year Environment Plan (Ref. 19). The strategy places greater emphasis on improving air quality in the UK than has been seen before and outlines how it aims to achieve this (including the development of new enabling legislation).
- 2.1.8 Air quality management focus in recent years has primarily related to one pollutant, NO₂, and its principal source in the UK, road traffic. However, the 2019 Strategy (Ref. 18) broadened the focus to other areas, including domestic emissions from wood burning stoves and from agriculture.

The Environment Act 1995

- 2.1.9 The Environment Act 1995 (Ref. 15) requires the UK Government to produce a national AQS for England, Scotland, Wales and Northern Ireland containing standards, objectives and measures for improving ambient air quality and to keep the policies identified under review.
- 2.1.10 The national air quality objectives of relevance to this assessment, as well as to the local air quality management regime, were set by The Air Quality (England) Regulations 2000 (Ref. 19) and the Air Quality (England) (Amendment) Regulations 2002 (Ref. 21).

Environment Act (2021)

- 2.1.11 The Environment Act 2021 (Ref. 16) amended the Environment Act 1995 (Ref. 15). The Act addresses environmental protection and the delivery of the Government's 25-year environment plan (Ref. 19) following Brexit. It includes provisions to establish a post-Brexit set of statutory environmental principles and ensure environmental governance through an environmental watchdog, the Office for Environmental Protection (OEP). Part IV of the Environment Act (2021) (Ref. 16) requires the Government to update the AQS which contains standards, objectives and measures for improving ambient air quality. The 2021 Act proposes that the Secretary of State will publish a report reviewing the AQS every five years (as a minimum and with yearly updates to Parliament), in the form of the Environmental Improvement Plan.
- 2.1.12 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (Ref. 22) introduced two targets under the Environment Act 2021 (Ref. 16). These are a target level for annual mean concentrations of PM_{2.5} to be achieved at relevant monitoring stations by 31 December 2040 and an exposure reduction target for the SoS to report on by 15 July 2041. For the purposes of these regulations, relevant monitoring locations are fixed monitoring stations within the national monitoring network. There are no such monitoring locations within the air quality Study Area for the Scheme.
- 2.1.13 How target values should be considered in development control and local air quality control is a matter the Department for Environment, Food and Rural Affairs (Defra) are currently undertaking a stakeholder engagement exercise on prior to bringing forward guidance for local authorities in England.

Air Quality Strategy 2023

- 2.1.14 The Air Quality Strategy: framework for local authority delivery was revised in 2023 (Ref. 23) and supersedes the Air Quality Strategy: Volume 1 (Ref. 17) in England only. The AQS (Ref. 23) sets out the actions that Defra expects local authorities to take in support of our long-term air quality goals. It provides a framework to enable local authorities to make best use of their powers and make improvements for their communities.
- 2.1.15 Local authorities have a duty to address exceedances of air quality objectives in their area, including declaring Air Quality Management Plans (AQMAs) and publishing Air Quality Action Plans (AQAP) setting out the measures they will take with the aim of achieving ongoing compliance. The AQS summarises current objectives and targets but does not define them.
- 2.1.16 The Air Quality Objectives for England, for the pollutants of relevance to this assessment are displayed in Table 2-1.

Table 2-1: Key Air Quality Strategy Objectives

Pollutant	Objective	Averaging Period	Maximum Permitted Exceedances
Nitrogen Dioxide (NO ₂)	200 µg/m ³	1 hour	18 times per year (i.e. 99.79 th percentile)
	40 µg/m ³	Annual	-
Particulate Matter (PM ₁₀)	40 µg/m ³	Annual	-
	50 µg/m ³	24-hour	35 times per year (i.e. 90.4 th percentile)
Particulate Matter (PM _{2.5})	20 µg/m ³	Annual	-

2.2 National Policy

National Policy Statements

- 2.2.1 The EIA takes account of the following NPSs, which are considered to be matters that will be important and relevant to the SoS's decision as to whether to grant a DCO for the Scheme:
- Overarching National Policy Statement for Energy (EN-1) (November 2023) (Ref. 1);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023) (Ref. 2); and
 - National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023) (Ref. 3).
- 2.2.2 The NPSs set out the Government's energy policy, the need for new infrastructure and guidance for determining an application for a DCO. The NPSs include specific criteria and issues which should be covered by

applicants' assessments of the effects of their scheme, and how the decision maker should consider these impacts.

- 2.2.3 The relevant NPS requirements, together with an indication of where in the PEIR the information provided to address these requirements, are provided in Table 2-2. NPS EN-3 and EN-5 do not contain additional requirements relevant to the air quality assessment for this Scheme, beyond those set out in EN-1. Therefore, Table 2-2 only lists relevant NPS requirements from NPS EN-1.

Table 2-2: Relevant NPS Requirements for the Air Quality Assessment

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
NPS EN-1		
Paragraph 5.2.7	Proximity to emission sources can have significant impacts on sensitive receptor sites for air quality, such as education or healthcare sites, residential use or sensitive or protected ecosystems. Projects near a sensitive receptor site for air quality should only be proposed in exceptional circumstances if no viable alternative site is available. In these instances, substantial mitigation of any expected emissions will be required (see paragraph 5.2.12).	The proximity of sensitive receptors is addressed in Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics .
Paragraph 5.2.8	Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the ES.	Addressed in Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics .
Paragraph 5.2.9	The ES should describe: <ul style="list-style-type: none"> a. existing air quality concentrations and the relative change in air quality from existing levels; b. any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project; c. the predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied; and 	Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics presents baseline air quality characteristics, and a Dust Risk Assessment (DRA) considering human and ecological receptors. Construction phase road traffic volumes are not expected to meet thresholds above which detailed air quality modelling is required. However, should this change, road traffic emissions will be quantitatively assessed via a detailed dispersion modelling exercise as part of the EIA and reported within the ES.

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	d. any potential eutrophication impacts.	
Paragraph 5.2.10	In addition, Applicants should consider the Environment Targets (Fine Particulate Matter) (England) Regulations 2022 and associated Defra guidance.	Paragraphs 2.1.12 and 2.1.13 of this appendix consider this requirement.
Paragraph 5.2.11	Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic, and vehicle fleet. Projections are updated as the evidence base changes and the applicant should ensure these are current at the point of an application. The applicant's assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts	Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics . Defra emission factors have not been required for this assessment as impacts from traffic have been scoped out of the assessment.
Paragraph 5.2.12	Where a proposed development is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/strategy at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those statutory limits, objectives or targets are not breached.	Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics details the assessment using statutory air quality criteria and includes consideration of mitigation, including embedded mitigation measures.
Paragraph 5.2.13	The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A	Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics sets out mitigation measures for the construction phase which are included in the Framework CEMP (PEIR Volume III)

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	<p>construction management plan may help codify mitigation at this stage. In doing so the Secretary of State should have regard to the Air Quality Strategy in England, or the Clean Air Plan for Wales in Wales, or any successors to these and should consider relevant advice within Local Air Quality Management guidance and PM_{2.5} targets guidance.</p>	<p>Appendix 2-1: Framework Construction Environmental Management Plan).</p>
Paragraph 5.2.15	<p>Many activities involving air emissions are subject to pollution control. The considerations set out in Section 4.12 on the interface between planning and pollution control therefore apply. The Secretary of State must also consider duties under other legislation including duties under the Environment Act 2021 in relation to environmental targets and have regard to policies set out in the Government’s Environmental Improvement Plan 2023.</p>	<p>Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics. No emissions to air from the operation of the Scheme are expected.</p>
Paragraph 5.2.16	<p>The Secretary of State should give air quality considerations substantial weight where a project would lead to a deterioration in air quality. This could for example include where an area breaches any national air quality limits or statutory air quality objectives. However, air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of statutory limits, objectives or targets.</p>	<p>Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics. Changes in air quality due to the Scheme are not expected.</p>

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
Paragraph 5.2.17 – 5.2.19	<p>The Secretary of State should give air quality considerations substantial weight where a project is proposed near a sensitive receptor site, such as an education or healthcare facility, residential use or a sensitive or protected habitat.</p> <p>Where a project is proposed near to a sensitive receptor site for air quality, if the applicant cannot provide justification for this location, and a suitable mitigation plan, the Secretary of State should refuse consent.</p> <p>In all cases, the Secretary of State must take account of any relevant statutory air quality limits, objectives and targets. If a project will lead to non-compliance with a statutory limit, objective or target the Secretary of State should refuse consent.</p>	<p>Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics presents assessments of the air quality impacts at sensitive receptor locations with embedded mitigation measures for the Scheme in place.</p>
Paragraph 5.7.12	<p>The Secretary of State should satisfy itself that:</p> <ol style="list-style-type: none">an assessment of the potential for, dust, odour, smoke, steam to have a detrimental impact on amenity has been carried out.that all reasonable steps have been taken, and will be taken, to minimise any such detrimental impacts.	<p>Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics provides consideration of potential impacts on amenity.</p>

National Planning Policy Framework (NPPF)

- 2.2.4 The NPPF (Ref. 24) sets out the Government's planning policies for England and how these should be applied. Paragraph 5 of the NPPF goes on to confirm that the NPPF may be a matter that is both important and relevant for the purposes of assessing DCO applications. The EIA for the Scheme therefore has regard to the relevant policies of the NPPF as part of the overall framework of national policy.
- 2.2.5 The relevant NPPF paragraphs, together with an indication of where in the PEIR (or ES) the information is (or will be) provided to address these requirements, are provided in Table 2-3.

Table 2-3: Relevant NPPF Requirements for the Air Quality Assessment

Relevant NPPF Paragraph Reference	Requirement of the NPPF	Location of Information Provided to Address This
Paragraph 174	<p>Planning policies and decisions should contribute to and enhance the natural and local environment by:</p> <ul style="list-style-type: none"> a. protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b. 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; and c. remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. 	<p>Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics sets out mitigation measures pertaining to air quality.</p>
Paragraph 186	<p>Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or</p>	<p>Section 14.2 of PEIR Volume I Chapter 14: Other Environmental Topics provides a preliminary assessment of the effects of the Scheme on air quality. The Scheme is not located in or near to an AQMA or Clean Air Zone, and air quality limits are not in danger of being exceeded.</p>

**Relevant NPPF
Paragraph Reference**

Requirement of the NPPF

**Location of Information Provided to Address
This**

mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

2.3 Local Policy

- 2.3.1 The following local policy is relevant to the assessment of air quality effects of the Scheme.

Table 2-4: Relevant Local Policy for Air Quality

Relevant Document	Relevant Policies
Doncaster Local Plan 2015-2025 (Ref. 27)	Policy 54: Pollution

2.4 Guidance

National Planning Practice Guidance

- 2.4.1 The National Planning Practice Guidance (NPPG) (Ref. 25) was published on the 24 June 2014 to provide more in-depth guidance to the NPPF.
- 2.4.2 The NPPG notes that air quality assessments should include the following information (paragraph 5):
- The existing air quality in the Study Area (existing baseline);
 - The future air quality without the Scheme in place (future baseline); and
 - The future air quality with the Scheme in place (with mitigation).
- 2.4.3 Paragraph 7 states that assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this, assessments are likely to be location specific.

Institute of Air Quality Management Guidance

- 2.4.4 When determining the significance of the air quality assessment results with the Scheme, the assessment follows the non-statutory good practice guidance published by the Institute of Air Quality Management (IAQM) (Ref. 27). In the absence of statutory technical guidance for air quality impact assessments in England, the guidance provides developers with a means of reaching sound decisions, having regard to the air quality implications of development proposals.
- 2.4.5 The guidance states that *“development is not inherently negative for air quality. Whilst a new development at a particular site may have its own emissions, it may also bring an opportunity to reduce overall emissions in an area over time by installing new, cleaner technologies and applying policies that promote sustainability”*.
- 2.4.6 Additional guidance on the assessment of dust from demolition and construction published by the IAQM (Ref. 27) is adopted for the assessment of dust impacts and the selection of appropriate good practice control measures. This guidance addresses the potential for statutory nuisance by using a more demanding test based on the risk of significant adverse effects on amenity.

3. Glint and Glare

3.1 National Legislation

3.1.1 There is no legislation relevant to the glint and glare assessment.

3.2 National Policy

3.2.1 Reference is made to Glint and Glare and its impacts within EN-1 (Ref. 1) and EN-3 (Ref. 3) of the NPS. The relevant NPS requirements associated with this that influence the glint and glare assessment, together with an indication of where in the PEIR the information is provided to address these requirements, are provided in Table 3-1.

Table 3-1: Relevant NPS Requirements for the Glint and Glare Assessment

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
NPS EN-1		
Paragraph 5.5.37	Where the proposed development may have an effect on civil or military aviation and/or other defence assets an assessment of potential effects should be set out in the ES.	This is taken account in the glint and glare assessment, and a summary is presented in Section 14.3 of PEIR Volume I Chapter 14: Other Environmental Topics.
Paragraph 5.5.38	The requirement for ATC and non-cooperative surveillance – i.e. radar/tracking technologies – forms part of the environmental baseline for proposed developments.	This is taken account in the glint and glare assessment, and a summary is presented in Section 14.3 of PEIR Volume I Chapter 14: Other Environmental Topics.
Paragraph 5.5.39	The applicant should consult the MoD, CAA, NATS and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation or other defence interests.	This will be undertaken at the ES stage, should there be a need to consult with any aviation bodies during the production of the glint and glare assessment.
Paragraph 5.5.40	Any assessment of aviation or other defence interests should include potential impacts of the project upon the operation of CNS infrastructure, flight patterns (both civil and military), other defence assets and aerodrome operational procedures. It should also assess the cumulative effects of the project with other relevant projects in relation to aviation and defence.	This is taken account in the glint and glare assessment, and a summary is presented in Section 14.3 of PEIR Volume I Chapter 14: Other Environmental Topics.
Paragraph 5.5.42	If any relevant changes are made to proposals during the pre-application and determination period, it is the responsibility of the applicant to	Consultation has been undertaken throughout Scheme development and the consultees notified when relevant design changes were made.

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
Paragraph 5.5.49	<p>ensure that the relevant aviation and defence consultees are informed as soon as reasonably possible.</p> <hr/> <p>The [Secretary of State] should be satisfied that the effects on civil and military aerodromes, aviation technical sites and other defence assets have been addressed by the applicant and that any necessary assessment of the proposal on aviation or defence interests has been carried out. In particular, it should be satisfied that the proposal has been designed to minimise adverse impacts on the operation and safety of aerodromes and that reasonable mitigation is carried out. It may also be appropriate to expect operators of the aerodrome to consider making reasonable changes to operational procedures. When assessing the necessity, acceptability and reasonableness of operational changes to aerodromes, the [Secretary of State] should satisfy itself that it has the necessary information regarding the operational procedures along with any demonstrable risks or harm of such changes, taking into account the cases put forward by all parties. When making such a judgement in the case of military aerodromes, the [Secretary of State] should have regard to interests of defence and national security.</p>	<p>This is taken into account in the glint and glare assessment, and a summary is presented in Section 14.3 of PEIR Volume I Chapter 14: Other Environmental Topics.</p>
NPS EN-3		

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
Paragraph 2.10.102	Solar panels are specifically designed to absorb, not reflect, irradiation. However, solar panels may reflect the sun’s rays at certain angles, causing glint and glare. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. Glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor.	This is taken into account in the glint and glare assessment, and a summary is presented in Section 14.3 of PEIR Volume I Chapter 14: Other Environmental Topics.
Paragraph 2.10.103	Applicants should map receptors to qualitatively identify potential glint and glare issues and determine if a glint and glare assessment is necessary as part of the application.	All ground-based receptors have been mapped out as part of the glint and glare assessment in PEIR Volume III Appendix 14-2: Glint and Glare Assessment.
Paragraph 2.10.104	When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the intensity of the reflection.	The geometric possibility and intensity of glint and glare impacts have been assessed as part of the glint and glare assessment in PEIR Volume III Appendix 14-2: Glint and Glare Assessment.
Paragraph 2.10.105	The extent of reflectivity analysis required to assess potential impacts will depend on the specific project site and design. This may need to account for ‘tracking’ panels if they are proposed	The correct panel type has been used when performing the glint and glare assessment in PEIR Volume III Appendix 14-2: Glint and Glare Assessment.

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	as these may cause differential diurnal and/or seasonal impacts.	
Paragraph 2.10.106	When a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels	Where Solar PV Panels are located, the entire footprint has been treated as having no gaps and being as reflective as the panel surface for a worst-case scenario.
Paragraph 2.10.134	Applicants should consider using, and in some cases the Secretary of State may require, solar panels to comprise of (or be covered with) anti-glare/anti-reflective coating with a specified angle of maximum reflection attenuation for the lifetime of the permission.	N/A
Paragraph 2.10.135	Applicants may consider using screening between potentially affected receptors and the reflecting panels to mitigate the effects.	Mitigation measures have been as part of the glint and glare assessment in PEIR Volume III Appendix 14-2: Glint and Glare Assessment.
Paragraph 2.10.136	Applicants may consider adjusting the azimuth alignment of or changing the elevation tilt angle of a solar panel, within the economically viable range, to alter the angle of incidence. In practice this is unlikely to remove the potential impact altogether but in marginal cases may contribute to a mitigation strategy	Having undertaken the glint and glare assessment with a tilt angle between 15 – 35 degrees, a worst case has been assumed for each receptor which can be mitigated through suitable vegetation planting.
Paragraph 2.10.158	Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and	Nearby residential, rail, road, bridleway and aviation receptors have been assessed within the

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
Paragraph 2.10.159	<p>glare on nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths).</p> <p>Whilst there is some evidence that glint and glare from solar farms can be experienced by pilots and air traffic controllers in certain conditions, there is no evidence that glint and glare from solar farms results in significant impairment on aircraft safety. Therefore, unless a significant impairment can be demonstrated, the Secretary of State is unlikely to give any more than limited weight to claims of aviation interference because of glint and glare from solar farms</p>	<p>glint and glare assessment in PEIR Volume III Appendix 14-2: Glint and Glare Assessment.</p> <p>Aviation impacts have been assessed as part of the glint and glare assessment in PEIR Volume III Appendix 14-2: Glint and Glare Assessment.</p>

National Planning Policy Framework

- 3.2.2 The NPPF (Ref. 24) under the planning practice guidance for Renewable and Low Carbon Energy sets out requirements specifically regarding the consideration of solar farms. There is no specific mention of Glint and Glare impacts within the NPPF.

3.3 Guidance

Aviation Assessment Guidance

- 3.3.1 The UK Civil Aviation Authority (CAA) issued interim guidance relating to Solar Photovoltaic Systems on 17 December 2010 and was subject to a CAA information alert 2010/53. The formal policy was cancelled on 7 September 2012 (Ref. 29), however, the advice is still applicable until a formal policy is developed. The relevant aviation guidance from the CAA is presented in the section below.

CAA Interim Guidance

- 3.3.2 This interim guidance (Ref. 29) makes the following recommendations:
- a. *“It is recommended that, as part of a planning application, the SPV developer provide safety assurance documentation (including risk assessment) regarding the full potential impact of the SPV installation on aviation interests.*
 - b. *Guidance on safeguarding procedures at CAA licensed aerodromes is published within CAP 738 Safeguarding of Aerodromes and advice for unlicensed aerodromes is contained within CAP 793 Safe Operating Practices at Unlicensed Aerodromes.*
 - c. *Where proposed developments in the vicinity of aerodromes require an application for planning permission the relevant LPA normally consults aerodrome operators or NATS when aeronautical interests might be affected. This consultation procedure is a statutory obligation in the case of certain major airports, and may include military establishments and certain air traffic surveillance technical sites. These arrangements are explained in Department for Transport Circular 1/2003 and for Scotland, Scottish Government Circular 2/2003.*
 - d. *In the event of SPV developments proposed under the Electricity Act, the relevant government department should routinely consult with the CAA. There is therefore no requirement for the CAA to be separately consulted for such proposed SPV installations or developments.*
 - e. *If an installation of SPV systems is planned on-aerodrome (i.e. within its licensed boundary) then it is recommended that data on the reflectivity of the solar panel material should be included in any assessment before installation approval can be granted. Although approval for installation is the responsibility of the Aerodrome Licence holder (ALH), as part of a condition of a CAA Aerodrome Licence, the ALH is required to obtain prior consent from CAA Aerodrome Standards Department before any work is begun or approval to the developer or LPA is granted, in*

accordance with the procedures set out in CAP 791 Procedures for Changes to Aerodrome Infrastructure.

- f. During the installation and associated construction of SPV systems there may also be a need to liaise with nearby aerodromes if cranes are to be used; CAA notification and permission is not required.*
- g. The CAA aims to replace this informal guidance with formal policy in due course and reserves the right to cancel, amend or alter the guidance provided in this document at its discretion upon receipt of new information.*
- h. Further guidance may be obtained from CAA's Aerodrome Standards Department via aerodromes@caa.co.uk."*

3.3.3 In some instances, an aviation stakeholder can refer to the Air Navigation Order 2009 (Ref. 30) with regard to safeguarding. Key points from the document are presented below.

"A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft.

A person must not exhibit in the United Kingdom any light which—

- a. By reason of its glare is liable to endanger aircraft taking off from or landing at an aerodrome; or*
- b. By reason of its liability to be mistaken for an aeronautical ground light is liable to endanger aircraft.*

If any light which appears to the CAA to be a light described in paragraph (1) is exhibited, the CAA may direct the person who is the occupier of the place where the light is exhibited or who has charge of the light, to take such steps within a reasonable time as are specified in the direction—

- c. To extinguish or screen the light; and*
- d. To prevent in the future the exhibition of any other light which may similarly endanger aircraft.*

The direction may be served either personally or by post, or by affixing it in some conspicuous place near to the light to which it relates.

In the case of a light which is or may be visible from any waters within the area of a general lighthouse authority, the power of the CAA under this article must not be exercised except with the consent of that authority.

A person must not in the United Kingdom direct or shine any light at any aircraft in flight so as to dazzle or distract the pilot of the aircraft.' The document states that no 'light', 'dazzle' or 'glare' should be produced which will create a detrimental impact upon aircraft safety."

3.3.4 The above guidance refers to potential distractions, such as glare, that can cause safety issues for aircraft when flying into airfields. There is a particular focus on ensuring there is no detrimental impact upon aircraft safety.

Rail Assessment Guidance

3.3.5 The Guidance on Signal Sighting Assessment Requirements (Ref. 31) supersedes the Signal Positioning and Visibility Guidance (Ref. 32). The

Signal Positioning and Visibility Guidance ceased to be in force as of 4 June 2016.

- 3.3.6 The Rail Safety and Standards Board (RSSB) guidance (Ref. 31) provides an overview of the signal sighting assessment process that is used to confirm compatibility of lineside signalling system, assets with train operations. Reflections and Glare are mentioned in 'A.5 Reflection and glare - Appendix A: Compatibility Factors that Prevent Reliable Reading'. Within this section it mentions the following Guidance:

"G A.5.1.2 A5 is present if direct glare or reflected light is directed into the eyes or into the lineside signalling asset that could make the asset appear to show a different aspect or indication to the one presented.

G A.5.1.3 A5 is relevant to any lineside signalling asset that is capable of presenting a lit signal aspect or indication.

G A.5.1.4 The extent to which excessive illumination could make an asset appear to show a different signal aspect or indication to the one being presented can be influenced by the product being used. Requirements for assessing the phantom display performance of signalling products are set out in GKRT0057 section 4.1.

G A.5.1.5 Problems arising from reflection and glare occur when there is a very large range of luminance, that is, where there are some objects that are far brighter than others. The following types of glare are relevant:

a) Disability glare, caused by scattering of light in the eye, can make it difficult to read a lit display.

b) Discomfort glare, which is often associated with disability glare. While being unpleasant, it does not affect the signal reading time directly, but may lead to distraction and fatigue.

G A.5.1.6 Examples of the adverse effect of disability glare include:

a) When a colour light signal presenting a lit yellow aspect is viewed at night but the driver is unable to determine whether the aspect is a single yellow or a double yellow.

b) Where a colour light signal is positioned beneath a platform roof painted white and the light reflecting off the roof can make the signal difficult to read.

G A.5.1.7 Options for militating against A5 include:

a) Using a product that is specified to achieve high light source: phantom ratio values.

b) Alteration to the features causing the glare or reflection.

c) Provision of screening."

- 3.3.7 A5 is referring to reflections and glare in the above passage.

- 3.3.8 Additionally, there is some text on the driver's field of vision and how minor distractions can reduce visibility of signals if viewed towards the driver's field of vision. The following is in 'F6.6 b) of Appendix F: Guidance on Field of Vision':

"Sensitivity to movement in the peripheral field, even minor distractions can reduce the visibility of the asset if it is viewed towards the peripheral field of

vision. The presence of clutter to the sides of the running line can be highly distracting (for example, fence posts, lamp-posts, traffic, or non-signal lights, such as house, compatibility factors or security lights)."

- 3.3.9 The RSSB guidance (Ref. 32) refers to the effect of glare and reflections upon train drivers and signals. Predominantly the guidance focus' on the ability of the train driver to see and accurately read the signals. However, there has been reference to phantom lighting, with this only being an issue if the signal is facing in the same direction at which the glare is coming from.

4. Ground Conditions

4.1 National Legislation

- 4.1.1 Regulation 5(2)(c) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref. 4) requires that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the likely significant direct and indirect effects of the Scheme on land and soil.
- 4.1.2 There are six key legislative drivers for dealing with risks to human health and the environment from ground conditions, namely:
- Part 2A of the Environmental Protection Act (EPA) 1990 (the Contaminated Land Regime) (Ref. 5);
 - The Water Resources Act 1991 (Ref. 33);
 - Water Act 2003 (Ref. 34);
 - Building Act 1984 (Ref. 35);
 - The Building Regulations and c (Amendment) Regulations 2015 (Ref. 36); and;
 - Planning Act 2008 (Ref. 37).
- 4.1.3 In the UK, Part 2A of the EPA (Ref. 5), as introduced by section 57 of the Environment Act 1995 (Ref. 15), provides the legislative framework within which site data is to be assessed. Under Part 2A, sites are identified as 'contaminated land' if they are:
- causing harm to human health;
 - if there is a significant possibility of causing significant harm to human health;
 - if the site is causing significant harm, or there is a significant possibility that it causes harm to non-human receptors; or
 - there is pollution of controlled waters (i.e. both surface and groundwaters).
- 4.1.4 The Water Act 2003 (Ref. 34) introduced a revision to the wording of the EPA which requires that if a site is causing or could cause significant pollution of controlled waters, it may be determined as contaminated land. Once a site is determined to be 'contaminated land', remediation is required to render significant pollutant linkages insignificant (i.e. the source-pathway-receptor relationships that are associated with significant harm to human health and/or significant pollution of controlled waters), subject to a test of reasonableness.
- 4.1.5 The Water Resources Act 1991 (Ref. 33) provides statutory protection for controlled waters (streams, rivers, canals, marine environment, and groundwater) and makes it an offence to discharge to controlled waters without the permission or consent of the regulators of these areas.
- 4.1.6 The Building Act 1984 (Ref. 35) and the Building Regulations and c. (Amendment) Regulations 2015 (Ref. 36) are the two key legislative drivers when considering structural and design aspects of a development in terms of

geotechnical properties of the ground. The Building Act 1984 requires that buildings are constructed so that ground movement caused by swelling, shrinkage, freezing, landslip, or subsidence of the sub-soils will not impair the stability of any part of the building.

4.1.7 Other legislation of relevance to this topic includes:

- a. Environmental Permitting (England and Wales) Regulations 2016 (Ref. 38);
- b. Hazardous Waste (England and Wales) Regulations 2005 (Ref. 39);
- c. Contaminated Land (England) Regulations 2006 (Ref. 40);
- d. Environmental Damage (Prevention and Remediation) Regulations 2015 (Ref. 41); and
- e. Anti-Pollution Works Regulations 1999 (Ref. 42).

4.2 National Policy

National Policy Statements

4.2.1 The relevant National Policy Statement (NPS) requirements, together with an indication of where in the PEIR the information provided to address these requirements in relation to ground conditions, are provided in Table 4-1.

Table 4-1: Relevant NPS Requirements for Ground Conditions

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
NPS EN-1		
Paragraph 4.12.1	<p>Issues relating to discharges or emissions from a proposed project, and which lead to other direct or indirect impacts on terrestrial, freshwater, marine, onshore, and offshore environments, or which include noise and vibration may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes, for example local planning consent or marine licences.</p>	<p>Effects on land quality are considered in the Phase 1 Preliminary Risk Assessment (PRA) Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.</p> <p>A summary of the assessment is provided in Section 14.4 of PEIR Volume I Chapter 14: Other Environmental Topics.</p>
Paragraph 4.12.2	<p>The planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest. It plays a key role in protecting and improving the natural environment, public health and safety, and amenity, for example by attaching conditions to allow developments which would otherwise not be environmentally acceptable to proceed, and preventing harmful development which cannot be made acceptable even through conditions. Pollution control is concerned with preventing pollution through the use of measures to prohibit or limit the releases of substances to the environment from different sources to the</p>	<p>This is considered in the Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.</p> <p>A summary of the assessment is provided in Section 14.4 of PEIR Volume I Chapter 14: Other Environmental Topics.</p>

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	lowest practicable level. It also ensures that ambient air and water quality meet standards that guard against impacts to the environment or human health.	
Paragraph 4.12.6	Many projects covered by this NPS will be subject to the Environmental Permitting Regulations, which also incorporates operational waste management requirements for certain activities. When an applicant applies for an Environmental Permit, the relevant regulator (usually the Environment Agency or Natural Resources Wales but sometimes the local authority) requires that the application demonstrates that processes are in place to meet all relevant Environmental Permitting Regulations requirements.	Environmental Permits will be sought prior to construction where relevant.
Paragraph 14.12.7	Applicants should make early contact with relevant regulators, including Environment Agency or Natural Resources Wales and the Marine Management Organisation, to discuss their requirements for Environmental Permits and other consents, such as marine licences.	The Environment Agency have been consulted throughout the pre-application stage as detailed in the relevant technical chapters, namely PEIR Volume I Chapter 9: Water Environment .
Paragraph 4.12.9 and 4.12.10	In considering an application for development consent the Secretary of State should focus on whether the development itself is an acceptable use of the land or sea, and the impact of that use,	This is considered in the Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor .

Relevant NPS Paragraph Reference Requirement of the NPS

Location of Information Provided to Address This

rather than the control of processes, emissions or discharges themselves.

The Secretary of State should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator. It should act to complement but not seek to duplicate them.

A summary of the assessment is provided in Section 14.4 of **PEIR Volume I Chapter 14: Other Environmental Topics**.

Paragraph 4.12.14 and 4.12.15

The Secretary of State should be satisfied that development consent can be granted taking full account of environmental impacts.

Working in close cooperation with the Environment Agency or Natural Resources Wales and/or the pollution control authority, and other relevant bodies, such as the Marine Management Organisation, the SNCB, Drainage Boards, and water and sewerage undertakers, the Secretary of State should be satisfied, before consenting any potentially polluting developments, that:

- a. the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework.
- b. the effects of existing sources of pollution in and around the site are not such that the cumulative

Effects on ground conditions and potential contamination are considered in the Phase 1 PRA Reports provided as **PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site** and **PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor**.

A summary of the assessment is provided in Section 14.4 of **PEIR Volume I Chapter 14: Other Environmental Topics**.

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	<p>effects of pollution when the proposed development is added would make that development unacceptable, particularly in relation to statutory environmental quality limits.</p>	
<p>Paragraph 5.11.8</p>	<p>The ES (see section 4.3) should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.</p>	<p>This is considered in the Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.</p> <p>A summary of the assessment is provided in Section 14.4 of PEIR Volume I Chapter 14: Other Environmental Topics.</p>
<p>Paragraph 5.11.13 to 5.11.15</p>	<p>Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed.</p> <p>Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully</p>	<p>Effects on ground conditions and potential contamination are considered in the Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.</p>

Relevant NPS Paragraph Reference Requirement of the NPS

Location of Information Provided to Address This

considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination.

Developments should contribute to and enhance the natural and local environment by preventing new and existing developments 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.

A summary of the assessment is provided in Section 14.4 of **PEIR Volume I Chapter 14: Other Environmental Topics**.

Paragraph 5.11.17

Applicants should ensure that a site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination.

This is considered in the Phase 1 PRA Reports provided as **PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site** and **PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor**.

A summary of the assessment is provided in Section 14.4 of **PEIR Volume I Chapter 14: Other Environmental Topics**.

National Planning Policy Framework

- 4.2.2 The relevant NPPF paragraphs, together with an indication of where in the PEIR the information is provided to address these requirements, are provided in Table 4-2.

Table 4-2: Relevant NPPF Requirements for Ground Conditions

Relevant NPPF Paragraph Reference	Requirement of the NPPF	Location of Information Provided to Address This
Paragraph 180	<p>Planning policies and decisions should contribute to and enhance the natural and local environment by:</p> <ul style="list-style-type: none"> a. protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); (...) 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; and f. remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. 	<p>Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.</p>
Paragraph 189	<p>Planning policies and decisions should ensure that:</p>	<p>Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR</p>

Relevant NPPF Paragraph Reference	Requirement of the NPPF	Location of Information Provided to Address This
	<ul style="list-style-type: none">a. site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);b. after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; andc. adequate site investigation information, prepared by a competent person, is available to inform these assessments.	Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.

4.3 Local Policy

4.3.1 The following local policy is relevant to the assessment of ground conditions effects of the Scheme.

Table 4-3: Relevant Local Legislation and Policy for Ground Conditions

Relevant Document	Requirement of the Policy	Location of Information Provided to Address This
Doncaster Local Plan 2015-2035 adopted September 2021(Ref. 27)	<p>Policy 55: Contamination and Unstable Land</p> <p>Development on land that is unstable, currently contaminated or suspected of being contaminated due to its previous history or geology, or that will potentially become contaminated as a result of the development, will require the submission of an appropriate Preliminary Risk Assessment. Proposals will be required to mitigate contamination or land stability by:</p> <ol style="list-style-type: none"> a. Demonstrating there is no significant harm, or risk of significant harm, to human health, or land, natural environment, pollution of soil or any watercourse or ground water; b. Ensuring necessary remedial action is undertaken to safeguard users or occupiers of the site or neighbouring land and protect the environment and any buildings or services from contamination during development and in the future; c. Demonstrating that adverse ground conditions have been properly identified and safely treated; and d. Clearly demonstrating to the satisfaction of the Local Planning Authority, that the land is suitable for its proposed use. 	<p>Phase 1 PRA Reports provided as PEIR Volume III Appendix 14-3: Preliminary Risk Assessment - Solar PV Site and PEIR Volume III Appendix 14-4: Preliminary Risk Assessment - Grid Connection Corridor.</p>

4.4 Guidance

4.4.1 The assessment has also considered the following relevant standards and guidance:

- a. Environment Agency, (2009); Updated technical Background to the CLEA model; Science Report: SC050021/SR3 (Contaminated land exposure assessment (CLEA) spreadsheet based tool) (Ref. 43);
- b. Environment Agency Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination (Ref. 44);
- c. Human Health Toxicological Assessment of Contaminants in Soil, Science Report SC050021/SR2 (Ref. 45);
- d. Environment Agency, 2020 (last updated July 2023); Land Contamination: Risk Management (Ref. 46);
- e. Environment Agency, 2010; Guiding Principles for Land Contamination (GPLC) 1, 2 and 3 (Ref. 47);
- f. Construction Industry Research and Information Association (CIRIA) Guidance C532, 'Control of Water Pollution from Construction Sites' (Ref. 48);
- g. The Chartered Institute of Environmental Health (CIEH) Local Authority Handbooks (Ref. 49);
- h. British Standard (BS) 8485:2015 - Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (Ref. 50);
- i. CIRIA Guidance C665, 'Assessing Risks Posed by Hazardous Ground Gases to Buildings' (Ref. 51); and
- j. EA/NHBC/CIEH R&D (2008). Publication 66, 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (Ref. 52).

5. Major Accidents and Disasters

5.1 National Legislation

- 5.1.1 Regulation 5(2)(a) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref. 4) requires that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the likely significant direct and indirect effects of the Scheme on the population and human health. Regulation 5(4) provides that consideration should also be given to the vulnerability of the proposed development to major accidents or disasters.
- 5.1.2 The EIA Directive and domestic Infrastructure Planning (Environmental Impact Assessment) Regulations (Ref. 4) cite two specific directives as examples of risk assessments to be considered within EIA. These are the Directive 2012/18/EU of the European Parliament and of the European Council (which deals with major accident hazard registered sites) (Ref. 53) and the Council Directive 2009/71/Euratom (which deals with nuclear sites) (Ref. 54). Neither of these Directives are relevant to the Scheme.
- 5.1.3 Legislation in force to ensure the protection of workers in the workplace, thus minimising any risk from major accidents or disasters to a reasonable level, includes:
- a. Health and Safety at Work etc. Act 1974 (Ref. 55);
 - b. The Management of Health and Safety at Work Regulations 1999 (Ref. 56);
 - c. The Workplace (Health, Safety and Welfare) Regulations 1992 (Ref. 57);
and
 - d. Construction (Design and Management) (CDM) 2015 Regulations (Ref. 58).

5.2 National Policy

National Policy Statements

- 5.2.1 The relevant NPS requirements, together with an indication of where in the PEIR chapter the information provided to address these requirements, are provided in Table 5-1. NPS EN-3 (Ref. 2) and EN-5 (Ref. 3) do not contain requirements relevant to the Major Accidents and Disasters for this Scheme. Therefore, Table 5-1 only lists relevant NPS requirements from EN-1 (Ref. 1).

Table 5-1: Relevant NPS Requirements for Major Accidents and Disasters

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
NPS EN-1		
4.13.5	Applicants should consult with the Health and Safety Executive (HSE) on matters relating to safety.	The Applicant team has consulted with the HSE (see PEIR Volume III Appendix 1-2: EIA Scoping Opinion).
4.13.6	Applicants seeking to develop infrastructure subject to the Control of Major Accident Hazards (COMAH) regulations should make early contact with the Competent Authority.	The Scheme is not subject to the COMAH regulations.
4.13.7	If a safety report is required it is important to discuss with the Competent Authority the type of information that should be provided at the design and development stage, and what form this should take. This will enable the Competent Authority to review as much information as possible before construction begins, in order to assess whether the inherent features of the design are sufficient to prevent, control and mitigate major accidents.	The Scheme is not subject to the COMAH regulations and a safety report is not required.
4.13.8	The Secretary of State should be satisfied that a safety assessment has been prepared, where required, and that the Competent Authority has raised no safety objections.	The Scheme is not subject to the COMAH regulations and a safety report is not required.

National Planning Policy Framework

- 5.2.2 Although not directly relevant to energy developments, the NPPF (Ref. 24) does refer, at paragraph 101, to the fact that:

“planning policies and decisions should promote public safety and take into account wider security and defence requirements by:

- a. anticipating and addressing possible malicious threats and natural hazards, especially in locations where large numbers of people are expected to congregate. Policies for relevant areas (such as town centre and regeneration frameworks), and the layout and design of developments, should be informed by the most up-to-date information available from the police and other agencies about the nature of potential threats and their implications. This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security; and*
- b. recognising and supporting development required for operational defence and security purposes, and ensuring that operational sites are not affected adversely by the impact of other development proposed in the area.”*

- 5.2.3 The assessment presented in Section 14.5 of **PEIR Volume I Chapter 14: Other Environmental Topics** considers natural disasters, noting that the Scheme will not result in the congregation of large numbers of people.

5.3 Guidance

- 5.3.1 Guidance on the methodology for assessing major accidents and disasters in EIA are provided by the Institute of Environmental Management Assessments (IEMA) in their ‘Primer’, which is intended to introduce the concept of the topic and to offer an initial appreciation on methodology that could be adopted (Ref. 59). This guidance has been taken into account in the assessment of major accidents or disasters presented in Section 14.5 of **PEIR Volume I Chapter 14: Other Environmental Topics**.

6. Telecommunications and Utilities

- 6.1.1 There is no legislation, policy or guidance considered relevant to the assessment of telecommunications, television reception and utilities insofar as these matters relate to the Scheme.

7. Electric and Electromagnetic Fields

7.1 National Legislation

- 7.1.1 Regulation 5(2)(a) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref. 4) requires that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the likely significant direct and indirect effects of the Scheme on the population and health.
- 7.1.2 The Control of Electromagnetic Fields at Work Regulations 2016 (Ref. 60) sets out the duties of employers in relation to controlling the risks to employees for, Electric and Magnetic Fields (EMF). This includes a requirement to assess employees' potential exposure to EMFs with reference to action levels (ALs) and exposure limit values (ELVs).

7.2 National Policy

National Policy Statements

- 7.2.1 The EIA takes account of the following NPS, which are considered to be matters that will be important and relevant to the SoS's decision as to whether to grant a DCO for the Scheme:
- a. Overarching National Policy Statement for Energy (EN-1) (November 2023) (Ref. 1),
 - b. National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023) (Ref. 2), and
 - c. National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023) (Ref. 3).
- 7.2.2 The NPSs set out the Government's energy policy, the need for new infrastructure and guidance for determining an application for a DCO. The NPSs include specific criteria and issues which should be covered by applicants' assessments of the effects of their scheme, and how the decision maker should consider these impacts.
- 7.2.3 The relevant NPS requirements, together with an indication of where in the PEIR the information provided to address these requirements, are provided in Table 7-1. NPS EN-1 and EN-3 do not contain requirements relevant to the assessment of electric and magnetic fields for this Scheme. Therefore, Table 7-1 only lists relevant NPS requirements from NPS EN-5.

Table 7-1: Relevant NPS Requirements for the Assessment of Electric and Magnetic Fields

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
NPS EN-5		
Paragraph 2.10.11	<p>The applicant should consider the following factors:</p> <ul style="list-style-type: none"> a. height, position, insulation and protection (electrical or mechanical as appropriate) measures subject to ensuring compliance with the Electricity Safety, Quality and Continuity Regulations 2002; b. that optimal phasing of high voltage overhead power lines is introduced wherever possible and practicable in accordance with the Code of Practice to minimise EMFs; and c. any new advice emerging from the Department of Health and Social Care relating to government policy for EMF exposure guidelines 	<p>The Scheme design will ensure compliance with Electricity Safety, Quality and Continuity Regulations 2002 (Ref. 61), however, this is not specifically addressed within the PEIR.</p> <p>As set out in PEIR Volume I Chapter 2: The Scheme, the assets associated with the Scheme would be fully compliant with the relevant Government policy. Additionally, as outlined in PEIR Volume I Chapter 14: Other Environmental Topics, all the EMF produced would be below the relevant exposure limits, and the potential Grid Connection Line Drop will comply with the policy on optimum phasing.</p> <p>Relevant emerging policy will be considered with in the assessment at ES.</p>
Paragraph 2.10.12	<p>Where it can be shown that the line will comply with the current public exposure guidelines and the policy on phasing, no further mitigation should be necessary.</p>	<p>As outlined in PEIR Volume I Chapter 14: Other Environmental Topics, all the EMF produced would be below the relevant exposure limits.</p>
Paragraph 2.10.13	<p>Where EMF exposure is within the relevant public exposure guidelines, re-routing a proposed overhead line purely on the basis of EMF exposure or undergrounding a line solely to further reduce the level</p>	<p>As set out in PEIR Volume I Chapter 2: The Scheme, the majority of assets associated with the Scheme with potential to produce EMF will be underground. Additionally, as</p>

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	of EMF exposure are unlikely to be proportionate mitigation measures	outlined in PEIR Volume I Chapter 14: Other Environmental Topics , all the EMF produced would be below the relevant exposure limits.
Paragraph 2.11.9	This NPS does not repeat the detail of the ICNIRP 1998 guidelines on restrictions or reference levels. The government has developed with the electricity industry a Code of Practice, 'Power Lines: Demonstrating compliance with EMF public exposure guidelines – a voluntary Code of Practice', published in February 2011 that specifies the evidence acceptable to show compliance with ICNIRP 1998 guidelines and is also in line with the terms of the 1999 EU Council Recommendation on EMF exposure.	Noted, the ICNIRP 1998 guidelines are considered in PEIR Volume I Chapter 14: Other Environmental Topics and it is concluded that all the EMF produced would be below the relevant exposure limits.
Paragraph 2.11.10	Before granting consent to an overhead line application, the Secretary of State should be satisfied that the proposal is in accordance with the guidelines, considering the evidence provided by the applicant and any other relevant evidence. It may also need to take expert advice from the Department of Health and Social Care.	Noted, the ICNIRP 1998 guidelines are considered in PEIR Volume I Chapter 14: Other Environmental Topics and it is concluded that all the EMF produced would be below the relevant exposure limits.
Paragraph 2.11.11	Industry currently applies optimal phasing to 275 kV and 400 kV overhead lines voluntarily wherever operationally possible, which helps to minimise the effects of EMF. The government has developed with industry a voluntary Code of Practice, 'Optimum Phasing of high voltage double-circuit Power Lines – A	As set out in PEIR Volume I Chapter 14: Other Environmental Topics , all the EMF produced would be below the relevant exposure limits, and the potential Grid Connection Line Drop will comply with policy on optimum phasing.

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	Voluntary Code of Practice', published in March 2012, that defines the circumstances where industry can and will optimally phase lines with a voltage of 132 kV and above.	
Paragraph 2.11.12	Where the applicant cannot demonstrate that the line will be compliant with the Electricity Safety, Quality and Continuity Regulations 2002, with the exposure guidelines as specified in the Code of Practice on compliance, and with the policy on phasing as specified in the Code of Practice on optimal phasing then the Secretary of State should not grant consent.	The Scheme design will ensure compliance with Electricity Safety, Quality and Continuity Regulations 2002 (Ref. 61), however, this is not specifically addressed within the PEIR. As set out in PEIR Volume I Chapter 2: The Scheme , the assets associated with the Scheme would be fully compliant with the relevant Government policy. Additionally, as outlined in PEIR Volume I Chapter 14: Other Environmental Topics , all the EMF produced would be below the relevant exposure limits.
Paragraph 2.11.13	Undergrounding of a line would reduce the level of EMFs experienced, but high magnetic field levels may still occur immediately above the cable. It is the government's policy that power lines should not be undergrounded solely for the purpose of reducing exposure to EMFs	Noted, as set out in PEIR Volume I Chapter 2: The Scheme , the assets associated with the Scheme that are located underground are not solely for the purpose of reducing exposure to EMFs. Additionally, PEIR Volume I Chapter 14: Other Environmental Topics concludes that all the EMF produced would be below the relevant exposure limits
Paragraph 2.11.14	In order to avoid unacceptable adverse impacts of EMFs from electricity network infrastructure on	As set out in PEIR Volume I Chapter 14: Other Environmental Topics , the Site is not

Relevant NPS Paragraph Reference Requirement of the NPS

Location of Information Provided to Address This

aviation, the Secretary of State will take account of statutory technical safeguarding zones defined in accordance with Planning Circular 01/03, or any successor, when considering recommendations for DCO applications. More detail on this issue can be found in section 5.5 of EN-1.

within the safeguarding zone of any safeguarded civil aerodrome as listed on annex 3 of the Planning Circular 01/03. Therefore, the levels of EMF experienced by potential aviation receptors is considered to be negligible.

Paragraph 2.11.15

Where a statutory consultee on the safeguarding of technical facilities identifies a risk that the EMF effect of electricity network infrastructure would compromise the effective and safe operation of such facilities, the potential impact and siting and design alternatives will need to have been fully considered as part of the application.

The Scheme design will ensure compliance with Electricity Safety, Quality and Continuity Regulations 2002 (Ref. 61).

As set out in **PEIR Volume I Chapter 2: The Scheme**, the assets associated with the Scheme would be fully compliant with relevant Government policy. Additionally, as outlined in **PEIR Volume I Chapter 14: Other Environmental Topics**, all the EMF produced would be below the relevant exposure limits, and the potential Grid Connection Line Drop will comply with the policy on optimum phasing.

National Planning Policy Framework

7.2.4 There are no relevant NPPF paragraphs for electric and magnetic fields.

7.3 Local Policy

7.3.1 There are no relevant local policy provisions in relation to EMF.

7.4 Guidance

7.4.1 The assessment has also considered:

- a. Department of Energy and Climate Change (DECC) (2012). Power Lines: Demonstrating Compliance with EMF public exposure guidelines (Ref. 62);
- b. National Grid (2015). Undergrounding high voltage electricity transmission lines (Ref. 63);
- c. Energy Networks Association (2012). Electric and Magnetic Fields: The Facts (Ref. 64);
- d. Energy Networks Association (2017). Electric and Magnetic Fields: The Facts (Ref. 65);
- e. International Commission on Non-Ionizing Radiation Protection (ICNIRP) (1998). Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz) (Ref. 66);
- f. ICNIRP (2020). Guidelines for limiting exposure to Electromagnetic Fields (100 kHz to 300 GHz) (Ref. 67); and
- g. Department of Transport (2002) The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction (updated 2016) (Ref. 68).

8. Materials and Waste

8.1 National Legislation

The Infrastructure Planning (Environmental Impact Assessment (EIA) Regulation 2017

- 8.1.1 Regulation 5(2)(d) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref. 4) requires that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the likely significant direct and indirect effects of the Scheme on material assets.

Waste Framework Directive

- 8.1.2 The Waste Framework Directive (WFD) (Ref. 69) establishes the wider regulatory context for waste management across Europe. In addition to defining waste, it also introduced the concept of the waste hierarchy (Plate 8-1) and established landfill diversion targets for Member States. The requirements of the WFD are transposed into applicable national law through the Waste (England and Wales) Regulations 2011 (Ref. 70) and The Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019 (Ref. 71).

The Waste (England and Wales) Regulations 2011

- 8.1.3 These regulations (Ref. 70) transpose the requirements of the WFD (Ref. 69) in England and Wales and require the SoS to establish waste prevention programmes and waste management plans that apply the waste hierarchy (as defined in the WFD).
- 8.1.4 Applied to the management of waste, the waste hierarchy prioritises waste prevention, followed by preparing for reuse, recycling, recovery and finally disposal. The Regulations require businesses to apply the waste hierarchy when managing waste and that measures are taken to ensure that, by the year 2020, at least 70% by weight of non-hazardous Construction and Demolition (C&D) waste is subjected to material recovery. No further updates to the 2020 target have been published at the time of writing.

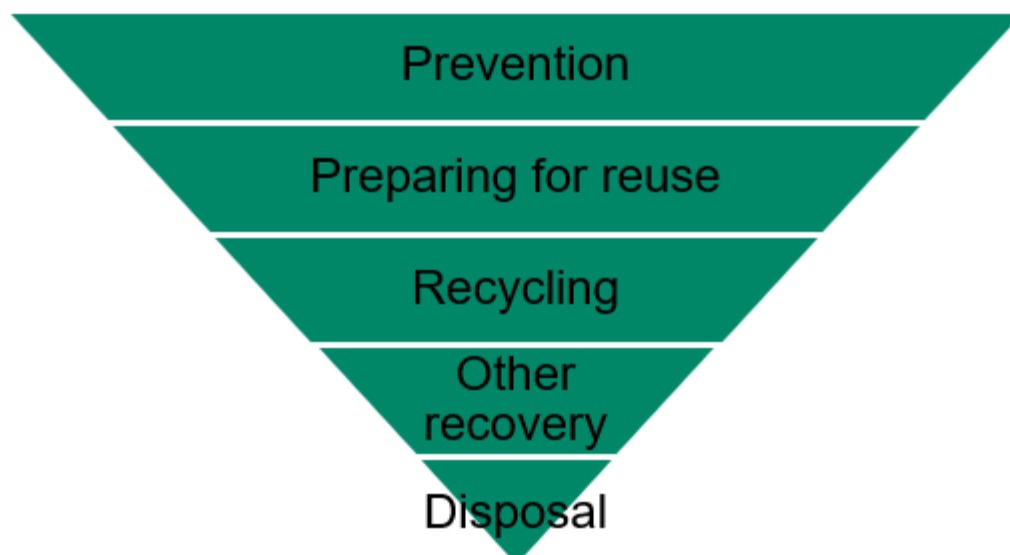


Plate 8-1: The Waste Hierarchy, from Defra's Guidance on Applying the Waste Hierarchy, recreated by AECOM (Ref. 72)

Environmental Protection Act 1990

- 8.1.5 The duty of care for waste management is set out under section 34 of the Environmental Protection Act 1990 (Ref. 5) and the Waste (England and Wales) Regulations 2011 (Ref. 70). It requires anyone who produces, imports, keeps, stores, transports, treats or disposes of waste to take all reasonable steps to ensure that waste is managed properly and places a duty on producers and holders of waste to:
- a. Prevent illegal disposal, treatment or storage of waste;
 - b. Handle their waste safely;
 - c. Know whether the waste is hazardous or non-hazardous;
 - d. Store waste securely in a manner that prevents release of the waste;
 - e. Provide an accurate written description of the waste in order to facilitate the compliance of others with the Duty and avoidance of the offences under section 33 of the Environmental Protection Act 1990: via a compulsory system of Controlled Waste Transfer Notes (WTNs) which controls the transfer of waste between parties; and
 - f. Ensure anyone dealing with their waste has the necessary authorisation.

The Environmental Permitting (England and Wales) Regulations 2016

- 8.1.6 The Regulations (Ref. 73) require sites where waste is processed, treated or disposed of to hold a valid Environmental Permit issued by the Environment Agency. The Regulations also include a schedule of activities that are exempt from the requirements of permitting. However, to comply with the Regulations, an exempt activity must generally be registered with the Environment Agency before commencing.

The Hazardous Waste Regulations (England and Wales) 2005 (amended in 2016)

- 8.1.7 These regulations (Ref. 74) place a requirement on producer of the waste to:
- a. Classify the waste;
 - b. Separate hazardous waste from other general waste streams;
 - c. Use authorised businesses to collect, recycle or dispose of your waste; and
 - d. Complete relevant hazardous waste consignment note.

Environment Act 2021

- 8.1.8 The Act (Ref. 16) makes provision for targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the establishment of the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards;

about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes. The Act will deliver:

- a. An extension of producer responsibility to make producers pay for 100% of the cost of disposal of products, starting with plastic packaging.
- b. A Deposit Return Scheme for single use drinks containers.
- c. Charges for single use plastics.
- d. Greater consistency in recycling collections in England.
- e. Electronic waste tracking to monitor waste movements and tackle fly-tipping.
- f. Further tackling of waste crime.
- g. The power to introduce new resource efficiency information (labelling on the recyclability and durability of products).
- h. The regulation of the shipment of hazardous waste.
- i. A ban or export restriction of waste to non Organisation for Economic Co-Operation and Development (non-OECD) countries.

8.2 National Policy

Waste Management Plan for England 2021

- 8.2.1 The Plan (Ref. 75) provides an overview of waste management in England and reiterates the requirement for all waste producers and waste management providers to implement the waste hierarchy. It also highlights the need for waste to be managed using the proximity principle and confirms England's commitment to recovering at least 70% by weight of non-hazardous C&D waste by 2020 (excluding soils and stones). Recovery is assumed in the context of this policy to include reuse, recycling and incineration with energy recovery.

A Green Future: Our 25 Year Plan to Improve the Environment 2018

- 8.2.2 The Plan (Ref. 19) *“sets out goals for improving the environment within a generation and leaving it in a better state than we found it”*. It details how the government will work with communities and businesses to do this. The following policies are relevant:
- a. Make sure that resources are used more efficiently and kept in use for longer to minimise waste and reduce its environmental impacts by promoting reuse, remanufacturing and recycling.
 - b. Work towards eliminating all avoidable waste by 2050 and all avoidable plastic waste by end of 2042.
 - c. Reducing food supply chain emissions and waste.
 - d. Reducing litter and littering.
 - e. Improving management of residual waste.

Environmental Improvement Plan 2023 (Ref. 76)

- 8.2.3 The aforementioned 25 Year Plan (Ref. 19) sets out the Government's proposals to improve the environment within a generation. It defined 10 goals and provided a framework and vision for how these were to be achieved. The goals included maximising resources and minimising waste. In accordance with the Environment Act 2021, the 25 Year Plan is to be reviewed and updated every five years; the Environmental Improvement Plan 2023 (Ref. 76) is the first of these updates.
- 8.2.4 The Environmental Improvement Plan (EIP) reinforces the intent of the 25 Year Plan and sets out the progress made against all 10 goals, the specific targets and commitments made in relation to each goal, and the Government's plan to continue to deliver these targets and the overarching goals. The 25 Year Plan and the EIP highlight the Government's support for the reduction in the UK's carbon footprint; protection and enhancement of the natural environment; and ensuring land is managed with environmental gains.

Our Waste, Our Resources, A Strategy for England 2018 (Ref. 76)

- 8.2.5 The Strategy (Ref. 76) will help the government to meet the commitments outlined in the 25 Year Plan and *“sets out how we will preserve our stock of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy. At the same time we will minimise the damage caused to our natural environment by reducing and managing waste safely and carefully, and by tackling waste crime.”* The strategy combines actions to be taken now and commitments for the coming years. Key targets and milestones and targets, which could be relevant to the Scheme, include:
- a. Roll out of a deposit return scheme – 2025 (Ref. 78);
 - b. Legislation for mandatory separate food waste collections – 2026 (Ref. 79);
 - c. 75% recycling rate for packaging (subject to consultation) – 2023;
 - d. 65% recycling rate for municipal solid waste – 2035; and
 - e. Municipal waste to landfill 10% or less – 2035.

National Planning Policy for Waste

- 8.2.6 The National Planning Policy for Waste (Ref. 81) sets out detailed waste planning policies to be applied in conjunction with the NPPF. It states: *“when determining planning applications for non-waste development, local planning authorities should, to the extent appropriate to their responsibilities, ensure that:*
- a. *The likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities;*

- b. New, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development; and*
- c. The handling of waste arising from the construction and operation of development maximises reuse/recovery opportunities, and minimises off-site disposal.”*

Overarching National Policy Statement for Energy (EN-1)

- 8.2.7 The relevant NPS for Energy were revised in November 2023 and designated in January 2024. The requirements, together with an indication of where in the PEIR the information is provided to address these requirements, are provided in Table 8-1.
- 8.2.8 NPS EN-3 (Ref. 2) and EN-5 (Ref. 3) do not contain specific requirements relevant to the materials and waste assessment for this Scheme. Therefore, only requirements from NPS EN-1 (Ref. 1) are listed.

Table 8-1: Relevant NPS (EN-1) requirements for the materials and waste assessment

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
Paragraph 5.15.1 to 5.15.5	<p>Government policy on hazardous and non-hazardous waste is intended to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Where this is not possible and disposal is required as a last resort, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health.</p> <p>Sustainable waste management is implemented through the waste hierarchy, which sets out the priorities that must be applied when managing waste. These are (in order):</p> <ol style="list-style-type: none"> a. Prevention b. Preparing for reuse c. Recycling d. Other recovery, including energy recovery e. Disposal <p>Disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.</p> <p>All large infrastructure projects are likely to generate some hazardous and non-hazardous waste. The EA’s environmental Permit regime incorporates operational waste management requirements for certain activities. When an applicant applies to the Environment Agency for an Environmental Permit, the Environment Agency will require the application to demonstrate that processes are in place to meet all relevant Environmental Permit requirements.</p>	<p>Resource and waste management is considered in PEIR Volume I Chapter 14: Other Environmental Topics.</p> <p>Section 14.8 of PEIR Volume I Chapter 14: Other Environmental Topics provides an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.</p> <p>A Site Waste Management Plan (SWMP) will be produced prior to construction.</p> <p>Further details of materials and waste management will also be provided in a Framework SWMP, this will be submitted as part of the DCO Application.</p>

**Relevant NPS
Paragraph Reference**

Requirement of the NPS

**Location of Information Provided
to Address This**

Specific considerations regarding radioactive waste are set out in section 2.11 and annex B of EN-6. The present section will apply to non-radioactive waste for nuclear infrastructure as for other energy infrastructure

Paragraph 5.15.6 to
5.15.10, and 5.15.12 to
5.15.13

Applicants must demonstrate that development proposals are in line with Defra's policy position on the role of energy from waste in treating residual waste.

The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a report that sets out the sustainable management of waste and use of resources throughout any relevant demolition, excavation and construction activities.

The arrangements described and a report setting out the sustainable management of waste and use of resources should include information on how re-use and recycling will be maximised in addition to the proposed waste recovery and disposal system for all waste generated by the development. They should also include an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.

The applicant is encouraged to refer to the Waste Prevention Programme for England: Maximising Resources Minimising Waste and 'Towards Zero Waste: Our Waste Strategy for Wales' and should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome.

Resource and waste management is considered in **PEIR Volume I Chapter 14: Other Environmental Topics**.

Section 14.8 of **PEIR Volume I Chapter 14: Other Environmental Topics** provides an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.

A SWMP will be produced prior to construction.

Further details of materials and waste management will also be provided in a Framework SWMP, this will be submitted as part of the DCO Application.

**Relevant NPS
Paragraph Reference**

Requirement of the NPS

**Location of Information Provided
to Address This**

The UK is committed to moving towards a more ‘circular economy’. Where possible, applicants are encouraged to source materials from recycled or reused sources and use low carbon materials, sustainable sources and local suppliers. Construction best practices should be used to ensure that material is reused or recycled onsite where possible

Applicants are also encouraged to use construction best practices in relation to storing materials in an adequate and protected place on site to prevent waste, for example, from damage or vandalism. The use of Building Information Management tools (or similar) to record the materials used in construction can help to reduce waste in future decommissioning of facilities, by identifying materials that can be recycled or reused.

Paragraph 5.15.14 to 5.15.17, and 5.15.19

The Secretary of State should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development.

The Secretary of State should be satisfied that:

- a. any such waste will be properly managed, both on-site and off-site.
- b. the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area.

Resource and waste management is considered in **PEIR Volume I Chapter 14: Other Environmental Topics**.

Section 14.8 of **PEIR Volume I Chapter 14: Other Environmental Topics** provides an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.

A SWMP will be produced prior to construction.

Relevant NPS Paragraph Reference	Requirement of the NPS	Location of Information Provided to Address This
	<p>c. adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent for recovery or disposal, except where that is the best overall environmental outcome.</p> <p>Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied.</p> <p>The Secretary of State may wish to include a condition on revision of waste management plans at reasonable intervals when giving consent.</p> <p>The Secretary of State should have regard to any potential impacts on the achievement of resource efficiency and waste reduction targets set under the Environment Act 2021 or wider goals set out in the government’s Environmental Improvement Plan 2023.</p>	<p>Further details of materials and waste management will also be provided in a Framework SWMP, this will be submitted as part of the DCO Application.</p>
<p>Paragraph 5.11.19 and 5.11.28</p>	<p>Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place.</p> <p>Where a proposed development has an impact upon a Mineral Safeguarding Area (MSA), the Secretary of State should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources.</p>	<p>Impacts on MSAs are not assessed in a materials and waste assessment, in accordance with the IEMA Guidance (Ref. 80).</p> <p>PEIR Volume I Chapter 12: Socio-Economics and Land Use covers this aspect.</p>

National Planning Policy Framework

- 8.2.9 The NPPF (Ref. 24) does not contain specific waste policies as these are detailed within the National Planning Policy for Waste (Ref. 81) and Waste Management Plan for England (Ref. 74), however, the overarching policies are relevant to materials and waste.
- 8.2.10 The relevant NPPF paragraphs, together with an indication of where in the PEIR the information is provided to address these requirements, are provided in Table 8-2.

Table 8-2: Relevant NPPF Requirements for the Material and Waste Assessment

NPPF reference	Requirement of the NPPF	Location of information provided to address this
<p>Section 2. Achieving sustainable development, paragraph 8 c) <i>“to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”</i></p>	<p>Minimise waste.</p>	<p>Waste management is considered in PEIR Volume I Chapter 14: Other Environmental Topics. A SWMP will be produced prior to construction. Further details of materials and waste management will also be provided in a Framework SWMP, which will be submitted as part of the DCO Application.</p>
<p>Section 17. Facilitating the sustainable use of minerals, paragraph 216 <i>“so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously.”</i></p>	<p>Sustainable use of minerals.</p>	<p>Waste management is considered in PEIR Volume I Chapter 14: Other Environmental Topics. A SWMP will be produced prior to construction. Further details of materials and waste management will also be provided in a Framework SWMP, which will be submitted as part of the DCO Application.</p>

8.3 Local Policy

8.3.1 The following local policy is relevant to the assessment of materials and waste.

Doncaster Local Plan 2015-2035 (adopted 2021)

8.3.2 The Local Plan (Ref. 27) sets out policies and proposals to meet Doncaster's needs for housing, employment and other development. Together with the adopted Barnsley, Doncaster and Rotherham Joint Waste Plan (Ref. 87), it forms Doncaster's Development Plan and is accompanied by a Policies Map showing the location of allocated designations for sites (Ref. 87).

8.3.3 For the assessment of materials and waste, Policy 61: Providing for and Safeguarding Mineral Resources (Strategic Policy) should be considered.

8.3.4 This policy details how the *“extraction and production of aggregate, industrial, building stone and energy minerals that contribute to infrastructure and construction projects will be supported through the following principles:*

- a. *The Council will aim to plan for a steady, adequate, efficiently and sustainably sourced minerals during the plan period by:*
 - i. *encouraging the use of suitable secondary and recycled material in the first instance, minimising the need for primary extraction;*
 - ii. *providing for sufficient industrial and energy minerals that balance both the economic and environmental benefits;*
 - iii. *contributing toward local provision by maintaining, where possible, a landbank of permitted reserves for at least seven years for sand and gravel and, with Rotherham;*
 - iv. *monitoring and reviewing the permitted reserves of sand and gravel, and aggregate limestone and producing an annual aggregate assessment; Council, at least ten years for aggregate limestone;*
 - v. *requiring proposals for sand and gravel to demonstrate that the mineral resource includes at least 20% sharp sand and gravel;*
 - vi. *identifying on the Policies Map existing mineral sites with extant permission, new mineral proposals and 'Areas of Search' (see also Policy 62 [Minerals Development Proposals, Borrow Pits and Incidental Extraction]);*
 - vii. *identifying on the Policies Map Minerals Safeguarding Areas; and*
 - viii. *identifying on the Policies Map and safeguarding minerals transportation, handling and processing infrastructure from non-minerals development during and beyond the plan period which may adversely impact on the operation of the site in accordance with NPPF paragraph 182.*
- b. *Proposals for non-mineral development within Mineral Safeguarding Areas, and the 250 m buffer zone, will be supported where it can be demonstrated that:*
 - i. *consideration has been given to the long-term economic value of the mineral; or*

- ii. *non-mineral development can take place without preventing the economically viable mineral resource from being extracted in the future; or*
- iii. *the proposal can feasibly incorporate the prior extraction of any minerals of economic value in an environmentally acceptable way; or*
- iv. *the need for the development outweighs the need to safeguard the area for future minerals extraction; or*
- v. *the development is permitted, minor or temporary in nature.”*

Barnsley, Doncaster and Rotherham Joint Waste Plan (adopted 2012)

- 8.3.5 The Joint Waste Plan (JWP) (Ref. 88) was produced jointly by Barnsley, Doncaster and Rotherham councils and adopted on 8 March 2012. It provides a detailed planning framework to manage all types of waste in the three boroughs. Specifically, it indicates:
- a. What waste facilities are required;
 - b. Where they will be located;
 - c. When they will be provided; and
 - d. How they will be delivered.
- 8.3.6 The JWP has seven policies, which include a series of targets and indicators to assess and monitor the extent to which the policy is being achieved. These policies are:
- a. Policy WCS1: Barnsley, Doncaster and Rotherham’s overall strategy for achieving sustainable waste management;
 - b. Policy WCS2: Safeguarding and enhancing existing waste management sites;
 - c. Policy WCS3: New strategic waste management sites;
 - d. Policy WCS4: Waste management proposals on non-allocated sites;
 - e. Policy WCS5: Landfill;
 - f. Policy WCS6: General considerations for all waste management proposals; and
 - g. Policy WCS7: Managing waste in all developments.
- 8.3.7 As appendices, the JWP includes maps detailing the location plans of the safeguarded strategic sites (Policy WCS2) and the location plans of the new strategic sites and reserve sites (Policy WCS3).

8.4 Guidance

National Planning Policy Guidance (NPPG) for Waste and Minerals

- 8.4.1 The NPPG (Ref. 82, Ref. 83) was published to provide more in-depth guidance to the NPPF and aims to make planning guidance more accessible and ensures that the guidance is kept up to date.

IEMA Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach

- 8.4.2 The document (Ref. 80) offers guidance and recommendations for EIA practitioners and stakeholders concerned with the impacts and effects of materials and waste on the environment. The guidance provides considerations for screening, scoping, consultation, assessment and subsequent reporting and monitoring.

Contaminated Land: Applications in Real Environments (CL:AIRE) Definition of Waste: Development Industry Code of Practice (DoW CoP)

- 8.4.3 The DoW CoP (Ref. 84) provides a process which enables the reuse of excavated materials on-site or their movement between sites. Use of the DoW CoP supports the sustainable and cost-effective development of land. It can provide an alternative to Environmental Permits or Waste Exemptions.

Waste and Resources Action Programme (WRAP) Designing Out Waste: A Design Team Guide for Civil Engineering

- 8.4.4 The guide (Ref. 85) outlines the case for taking action to designing out waste, provides a detailed explanation of the key principles that designers can use during the design process and how these principles can be applied to civil engineering and building projects to maximise opportunities to reduce construction waste and use materials more efficiently. It gives examples of technical solutions and how, in practice, designers have helped achieve significant waste reductions.

Waste Duty of Care Code of Practice

- 8.4.5 The code of practice (Ref. 72) sets out practical guidance on how to meet the waste duty of care requirements. It is issued under section 34(7) of the Environmental Protection Act 1990 (the EPA) in relation to the duty of care set out in section 34(1) of that Act.
- 8.4.6 This code of practice applies to those that import, produce, carry, keep, treat, dispose of or, as a dealer or broker have control of, certain waste in England or Wales.
- 8.4.7 Failure to comply with the duty of care is an offence with no upper limit on the courts' power to fine. In some instances, a fixed penalty notice may be issued for failure to comply with the duty of care in place of prosecution.

Applying the Waste Hierarchy

- 8.4.8 This guidance was produced under regulation 15(1) of the Waste (England and Wales) Regulations 2011 (Ref. 70) and any person subject to the regulation 12 duty must have regard to it. The guidance is for any business or public body which generates, handles or treats waste. It sets out:
- What the waste hierarchy is;
 - How it works for a range of common materials and products;
 - What businesses and public bodies need to do; and

- d. Key questions and ideas for dealing with waste in line with the hierarchy.

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