

Rosefield Solar Farm

Preliminary Environmental Information Report

Volume 1
Chapter 17: Other Environmental
Considerations

September 2024



Table of Contents

- 17. Other Environmental Considerations 2**
 - 17.1. Introduction2
 - 17.2. Heat and radiation.....5
 - 17.3. Electric, magnetic and electromagnetic fields (EMF)5
 - 17.4. Major accidents and disasters6
 - 17.5. Utilities9
 - 17.6. Human health10
 - 17.7. Material assets and waste10
 - 17.8. Transboundary effects.....13

17. Other Environmental Considerations

17.1. Introduction

17.1.1. This chapter presents consideration of the following environmental matters that have not been subject to a preliminary assessment and will not be subject to detailed assessment in the ES, but are considered worthy of mention:

- Heat and radiation (**Section 17.2**);
- Electric, magnetic, and electromagnetic fields (**Section 17.3**);
- Major accidents and disasters (**Section 17.4**);
- Utilities (**Section 17.5**);
- Human health (**Section 17.6**);
- Material assets and waste (**Section 17.7**); and
- Transboundary effects (**Section 17.8**).

17.1.2. **Chapter 5: Approach to EIA** sets out those elements of Rosefield Solar Farm for which optionality is present within the current design and sets out the scenario assessed for the purpose of this PEIR.

17.1.3. The preliminary design principles, as outlined in **Chapter 5**, and preliminary parameter plans (**Figure 3.1 – 3.5** in **Volume 2**) set out the reasonable ‘worst case scenario’ that has been considered within this chapter. These ‘worst case scenario’ options are described in **Table 17.1** below unless stated otherwise.

Table 17.1 – Optionality scenarios considered

Project element	Optionality
Solar PV modules	The worst case extent of Solar PV modules has been assessed in this chapter.
Balance of Solar System	This preliminary assessment assumes the BoSS to be located independently outdoors and that central inverters would be used, as this is considered to be the worst case scenario.
Satellite Collector Compounds	Satellite Collector Compound would be located in either of the below fields in Parcel 1: <ul style="list-style-type: none"> • Field B10 • Field B23 (South)

Project element	Optionality
	<p>Satellite Collector Compound would be located in either of the below fields in Parcel 2:</p> <ul style="list-style-type: none"> • Field D8 • Field D9 • Field D17 <p>The location of the Satellite Collector Compound does not affect any of other environmental considerations presented in this chapter, unless otherwise indicated.</p>
Main Collector Compound	<p>There are four fields that are considered suitable for the Main Collector Compound, which are located in Parcel 3, as outlined in Figure 1.2 and detailed below.</p> <ul style="list-style-type: none"> • Field E23 • Field E22 • Field E21 • Field E20 <p>The location of the Main Collector Compound does not affect any of other environmental considerations presented in this chapter, unless otherwise indicated.</p>
BESS	<p>For the purposes of this preliminary assessment, there are two scenarios for the BESS locations in conjunction with the Rosefield Substation.</p> <ol style="list-style-type: none"> 1. Rosefield Substation in Field E11 and BESS units located in Fields D8, D9 and E23 (outlined in Figure 5.1). 2. Rosefield Substation in Field E23 and BESS units located in Fields D8, D9 and E23 (outlined in Figure 5.2). <p>The location of the BESS does not affect any of other environmental considerations presented in this chapter, unless otherwise indicated.</p>
Rosefield Substation	<p>For the purposes of this preliminary assessment, the following Rosefield Substation locations in conjunction with the BESS, have been assessed as part of this PEIR:</p> <ol style="list-style-type: none"> 1. Rosefield Substation in Field E11 and BESS units located in Fields D8, D9 and E23 (outlined in Figure 5.1).

Project element	Optionality
	<p>2. Rosefield Substation in Field E23 and BESS units located in Fields D8, D9 and E23 (outlined in Figure 5.2).</p> <p>The location of Rosefield Substation does not affect any of other environmental considerations presented in this chapter, unless otherwise indicated.</p>
<p>Main Construction Compound</p>	<p>Main Construction Compound would be located in either of the below fields in Parcel 1:</p> <ul style="list-style-type: none"> • Field B23 (South) • Field B20 <p>Main Construction Compound would be located in either of the below fields in Parcel 2:</p> <ul style="list-style-type: none"> • Field D7 • Field D8 • Field D9 <p>Main Construction Compound would be located in either of the below fields in Parcel 3:</p> <ul style="list-style-type: none"> • Field E21 • Field E22 • Field E23 • Field SA50 <p>The location of the Main Construction Compound does not affect any of other environmental considerations presented in this chapter, unless otherwise indicated.</p>
<p>Satellite Construction Compounds</p>	<p>Satellite Construction Compound would be located in either of the below fields in Parcel 1:</p> <ul style="list-style-type: none"> • Field B3 • Field B6 • Field B7 • Field B10 <p>Satellite Construction Compound would be located in the below field in Parcel 2:</p> <ul style="list-style-type: none"> • Field D27

Project element	Optionality
	<p>Satellite Construction Compound would be located in either of the below fields in Parcel 3:</p> <ul style="list-style-type: none"> • Field E10 • Field E11 • Field E20 <p>The location of the Satellite Construction Compounds does not affect any of other environmental considerations presented in this chapter, unless otherwise indicated.</p>
<p>Cable route to connect the Solar PV modules, BoSS, Collector Compounds, Rosefield Substation and BESS</p>	<p>For the purposes of this preliminary assessment, Option B has been assessed as this is considered to be the worst case scenario, unless outlined in the environmental factor assessment chapters (Chapters 6 to 16).</p>

17.2. Heat and radiation

17.2.1. Due to the scale and nature of Rosefield Solar Farm, it is not anticipated that there would be any significant sources of heat or radiation during construction, operation (including maintenance) or decommissioning. The ES will outline any identified sources of heat and radiation within the Rosefield Solar Farm design.

17.3. Electric, magnetic and electromagnetic fields (EMF)

17.3.1. Rosefield Solar Farm includes electrical infrastructure that, when operational, would produce electric and magnetic fields (EMFs), namely underground cabling. EMFs arise from the generation, transmission, distribution and use of electricity. Electric fields are produced by voltage, which is the pressure behind the flow of electricity and which depends on the operating voltage of the equipment. Magnetic fields are produced by current, which is a measure of the flow of electricity and depends on the electrical current.

17.3.2. EMFs can have both direct and indirect effects on human health and ecological receptors. Direct impacts include effects on the central nervous system. As referenced in NPS EN-5 (paragraph 2.9.48)¹, to prevent these

¹ Department for Energy Security and Net Zero (2023) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online:

known effects the International Commission on Non-Ionizing Radiation Protection (ICNIRP) published health protection guidelines in 1998².

- 17.3.3. The ICNIRP states that cables at voltages up to and including 132 kV are not capable of exceeding the ICNIRP exposure guidelines. The operation (including maintenance) of Rosefield Solar Farm would use cables of up to 132 kV and would therefore not exceed these exposure guidelines.

Electrical fields can be blocked by fences, shrubs and buildings and the intensity of the electric and magnetic fields decreases further from the source. As set out in **Table 5.2** in **Chapter 5**, the design of Rosefield Solar Farm includes embedded mitigation including a minimum 250 m offset from the fence line around the ITS, BESS, Rosefield Substation and Collector Compounds to residential properties determined on a case by case basis; and a minimum 10 m offset from the fence line around Rosefield Solar Farm from existing and proposed public rights of way (except where crossing are necessary) to avoid the potential for any EMF effects on sensitive receptors.

- 17.3.4. Therefore, the EMF effects during the construction, operation (including maintenance) and decommissioning of Rosefield Solar Farm are likely to be not significant.

17.4. Major accidents and disasters

- 17.4.1. Guidance on the consideration of major accidents and disasters is provided by IEMA³. This focuses on the consideration of low likelihood/high consequence events, which would result in serious harm or damage to environmental receptors, and which could encompass risks exacerbated by climate change. This includes accidents or disasters originating from a proposed development as well as external events (man-made or natural).
- 17.4.2. In considering likely significant effects from the vulnerability of Rosefield Solar Farm to risks of accidents and disasters, it is important to note that the UK already has a structured framework of risk management legislation

<https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5>

² International Commission on Non-Ionizing Radiation Protection (1998) International Commission on Non-Ionizing Radiation Protection Guidelines: For limiting exposure to time-varying electric, magnetic and electromagnetic field (up to 300GHz), Health Physics 74 (4): 494-522. Available online:

<https://www.icnirp.org/cms/upload/publications/ICNIRPemfgd I.pdf>

³ IEMA (2020a) Major Accidents and Disasters in EIA: An IEMA Primer. Available online: <https://www.iema.net/resources/reading-room/2020/09/28/major-accidents-and-disasters-in-eia-an-iema-primer>

in place. Vulnerability to major accidents and/or disasters for infrastructure and other built environment developments is covered by a wide range of other safety and non-safety-related legislation, as detailed below:

- Health and Safety at Work Act 1974⁴;
- Construction (Design and Management) Regulations 2015⁵;
- The Construction (Health, Safety and Welfare) Regulations 1996⁶; and
- Electricity Safety, Quality and Continuity Regulations 2002⁷.

17.4.3. The risk of major accidents and disasters is being considered throughout the design process of Rosefield Solar Farm. This includes siting the potentially hazardous equipment, such as the BESS and grid infrastructure, at a suitable distance from sensitive receptors.

17.4.4. The construction, operational (including maintenance) and decommissioning phases of Rosefield Solar Farm may give rise to major accidents and/or disasters. **Table 17.2** presents a list of possible major accidents and disasters.

Table 17.2 – Possible major accidents and disasters

Major accident and/or disaster	Potential receptor	Comments
Flooding	Properties Local residents	The majority of Rosefield Solar Farm is located within Flood Zone 1 and is at low risk of surface water flooding. Therefore, it is not considered to be at significant risk of river flooding or surface water flooding. The potential vulnerability of Rosefield Solar Farm to flooding and its potential to exacerbate flooding is assessed in Chapter 15 .
Fire	Properties Local residents	There is a potential fire risk associated with the BESS. This would be managed by a cooling system, which would form part of the BESS and which is designed to regulate

⁴ Health and Safety at Work Act 1974. Available online:

<https://www.legislation.gov.uk/ukpga/1974/37/contents>

⁵ Construction (Design and Management) Regulations 2015. Available online:

<https://www.legislation.gov.uk/uksi/2015/51/contents/made>

⁶ The Construction (Health, Safety and Welfare) Regulations 1996. Available online:

<https://www.legislation.gov.uk/uksi/1996/1592/contents/made>

⁷ Electricity Safety, Quality and Continuity Regulations 2002. Available online:

<https://www.legislation.gov.uk/uksi/2002/2665/contents/made>

Major accident and/or disaster	Potential receptor	Comments
	Local habitats and species	<p>temperatures to safe conditions to minimise the risk of fire.</p> <p>As stated in Table 5.1 in Chapter 5, the BESS and associated grid infrastructure are proposed to be sited a suitable distance from sensitive receptors in accordance with BESS standards (UL9540) and National Fire Chiefs Council Guidance (2023)⁸.</p> <p>Consultation with the Fire and Rescue Service has been initiated as part of the DCO process and this will inform the ES.</p> <p>An Outline Battery Safety Commitments Plan will be submitted in support of the DCO application. The Outline Battery Safety Commitments Plan is will ensure the safe operation of the BESS and will set out the parameters for the management of fire risk associated with the BESS. A plume assessment will be submitted as part of the DCO application.</p>
Aircraft disasters	Pilots	The potential for glint and glare to affect aircraft is assessed within Chapter 16 .
Plant disease	Habitats and species	<p>New planting may be susceptible to biosecurity issues, such as increased prevalence of pests and disease, due to source of provenance and climate change. An Outline Landscape and Ecological Management Plan will be submitted in support of the DCO application. The Outline Landscape and Ecological Management Plan is expected to take account of and set out measures to manage biosecurity risks.</p>

17.4.5. Those major accidents and disasters that are not considered within the scope of the EIA will continue to be reviewed and addressed as part of the design process. The construction, operation (including maintenance) and

⁸ National Fire Chiefs Council. (2023). Grid Scale Batter Energy Storage System planning – Guidance for FRS. Available online: <https://nfcc.org.uk/wp-content/uploads/2023/04/Grid-Scale-Battery-Energy-Storage-System-planning-%E2%80%93-Guidance-for-FRS-April-2023.pdf>

decommissioning of Rosefield Solar Farm is considered to have no risk of major accidents or disasters that could affect existing or future receptors.

- 17.4.6. The embedded mitigation proposed as part of the Rosefield Solar Farm design described in **Chapter 3** and **Section 5.8** in **Chapter 5** would be sufficient to manage vulnerabilities to major accidents and/or disasters without the need for additional mitigation in most circumstances. By implementing recognised and approved safety standards and legislation, no likely significant effects in relation to major accidents and disasters are anticipated during the construction, operational (including maintenance) and decommissioning phases of Rosefield Solar Farm.

17.5. Utilities

- 17.5.1. Rosefield Solar Farm has the potential to affect existing utility infrastructure such as underground internet cables, water and sewer pipes and overhead electricity cables located at the Site. Given the nature of Rosefield Solar Farm, potential impacts to existing utility assets would be limited to the construction phase. To identify any existing infrastructure constraints, a utility search (including consultation with the utility provider) covering the Site (and 2 km from the Site boundary) has been undertaken.
- 17.5.2. The utilities search identified that there are no buried services crossing the Site. The underground internet cables and water and sewer pipes are located beneath the roads outside the Site boundary. Within the Site boundary, overhead electric cabling associated with the East Claydon National Grid Substation was identified including:
- National Grid extra high voltage transmission lines; and
 - Electricity distribution high voltage transmission lines.
- 17.5.3. Further consultation has been carried out with the relevant utility companies to confirm the information drawn from the utility search is accurate and up to date.
- 17.5.4. In addition, consideration and advice has been sought regarding separation distances and methods of construction in close proximity to each utility to avoid any risk of impact during construction of Rosefield Solar Farm. The following parameters have been applied to the design after discussions with National Grid:
- 15 m offset from overhead lines; and
 - 30 m offset from electrical towers.
- 17.5.5. The Outline Construction Environmental Management Plan will include any additional mitigation measures to protect against interference with below ground utilities during construction. The Applicant also expects to agree protective provisions with each utility owner, in order to ensure the

DCO includes appropriate protections and restrictions on the Applicant's exercise of its powers, for the protection of utilities.

- 17.5.6. Taking the above into account, it is therefore anticipated that there will be no likely significant effects in relation to utilities as a result of Rosefield Solar Farm. The relevant utility owners will be provided with protective provisions as part of the DCO which will ensure that no detriment will occur to their assets during the undertaking of Rosefield Solar Farm.

17.6. Human health

- 17.6.1. The consideration of the likely effects for human health as a result of Rosefield Solar Farm are detailed in the findings of the following assessment sections of this PEIR:

- **Chapter 6: Air quality;**
- **Chapter 11: Landscape and visual;**
- **Chapter 12: Noise and vibration;**
- **Chapter 13: Population;**
- **Chapter 14: Transport and access;** and
- **Chapter 16: Glint and glare.**

- 17.6.2. Each of these chapters within this PEIR consider the likely effects for human health from Rosefield Solar Farm within their own preliminary assessments. The consideration of the likely cumulative effects for human health are detailed in **Chapter 18**.

17.7. Material assets and waste

- 17.7.1. Material assets are defined by IEMA (2020b) as “*substances used in each lifecycle stage of a development, with particular focus on the construction, operation (including maintenance), and decommissioning or ‘end of first life’ (deconstruction, demounting, demolition and disposal) phases*”⁹. Material assets can include ‘material’ (i.e. physical resources that are used across the lifecycle of a development) and ‘excavated arisings’ (i.e. soil, rock, or similar resource generated by excavations).

⁹ IEMA (2020b) IEMA guide to Materials and Waste in Environmental Impact Assessment. Available online: <https://www.iema.net/resources/reading-room/2020/03/30/materials-and-waste-in-environmental-impact-assessment>

- 17.7.2. Waste is defined as “any substance or object which the holder discards or intends or is required to discard”. The Waste Framework Directive¹⁰ definition includes any substance or object that is discarded for disposal or that has not been subject to acceptable recovery (including reuse and recycling).
- 17.7.3. The main impacts (changes) and effects (consequences) of materials consumption and waste disposal are presented in **Table 17.3**.

Table 17.3 – Material assets (from IEMA guide to materials and waste in Environmental Impact Assessment).

Matter	Direct impacts	Potential effects	Applicable phase
Materials	Consumption of resources	Depletion of resources, resulting in the temporary or permanent degradation of the natural environment.	Construction, decommissioning
Waste	Generation and disposal of waste	Reduction in landfill capacity. Unsustainable use or loss of resources to landfill resulting in the temporary or permanent degradation of the natural environment.	Construction, decommissioning

- 17.7.4. The indirect impacts associated with materials consumption and waste disposal (e.g. release of greenhouse gas emissions, water consumption, amenity impacts, ecological impacts, etc.) are assessed within the following chapters of this PEIR:
- **Chapter 7: Biodiversity;**
 - **Chapter 8: Climate;**
 - **Chapter 11: Landscape and visual; and**
 - **Chapter 15: Water.**
- 17.7.5. Similarly, the indirect impacts of any off-site waste management facilities and material production facilities are expected to be assessed (and where

¹⁰ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Text with EEA relevance). Available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0098>

necessary, mitigated) under the planning and permitting regime for those sites and thus do not form part of an EIA for a development that uses such facilities for material supply or waste management.

- 17.7.6. A description of the potential streams and volumes of construction materials and waste disposal will be described within the 'Description of the Proposed Development' chapter of the ES. In addition, an Outline Construction Environmental Management Plan will be submitted in support of the DCO application. The Outline Construction Environmental Management Plan will set out how construction materials and waste would be managed on-site and how opportunities to recycle waste would be explored during the construction phase of Rosefield Solar Farm. Where reasonably practicable, development-specific commitments for sustainable resource management will be presented within the ES.
- 17.7.7. The Outline Construction Environmental Management Plan will include a Site Waste Management Plan which will incorporate measures to manage construction waste.
- 17.7.8. The removal of significant quantities of excavated arisings from the Site during construction is not anticipated, particularly as there are currently no demolition works proposed. There may be a need to remove some soils from the Site for treatment or disposal if found to be contaminated and it is not practical to treat this on-site. However, where reasonably practicable, soil arisings would be balanced through a cut and fill exercise to retain volumes on-site, which will be managed through the Outline Soil Management Plan.
- 17.7.9. For the operational (including maintenance) phase, the potential streams and volumes of construction materials and waste disposal will be described within the 'Description of the Proposed Development' chapter of the ES. There would be relatively little waste produced during the operational (including maintenance) phase and the requirement for material assets would be limited to maintenance and replacement parts, as required.
- 17.7.10. During decommissioning, any material assets and waste would be recycled or disposed of in accordance with good practice and market conditions at that time. If items can be recycled, this will be the first-choice option. An Outline Decommissioning Environmental Management Plan will be submitted in support of the DCO application. The Outline Decommissioning Environmental Management Plan will set out how the waste would be managed and detail opportunities for re-use and recycling during the decommissioning phase of Rosefield Solar Farm.

17.8. Transboundary effects

- 17.8.1. Regulation 32 of the EIA Regulations¹¹ requires the consideration of any likely significant effects on the environment of another European Economic Association State. The consideration of transboundary effects is also detailed within the Planning Inspectorate's Advice Note Seven¹².
- 17.8.2. Due to the nature and location of Rosefield Solar Farm, it is not anticipated that Rosefield Solar Farm would lead to any likely significant effects on the environment of another European Economic Association State.

¹¹ The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online: <https://www.legislation.gov.uk/uksi/2017/572/contents/made>

¹² Planning Inspectorate (2020) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environment Information and Environmental Statements (Version 7). Available online: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an>



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